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

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

```
                              EXTERNAL SYMBOL LIST

SYMBOL    TYPE                                    VER 15, MOD 00  27/02/22  PAGE   1

#KSSPN    MODULE
```

```
      0000                        1 #KSSPN 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 *      @VMD  EXP-N
                               1576+       PRINT ON
                               1577 *      $I$E  EXP-N
                               1731+       PRINT ON
                               1732 *      @ERM  EXP-N
                               2354+       PRINT ON
```

```
                         2356 ***********************************************************************
                         2357 *  5703-XM1 COPYRIGHT IBM CORP. 1970                           *
                         2358 *          REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083 *
                         2359 *                                                              *
                         2360 ***********************************************************************
                         2361 *STATUS                                                        *
                         2362 *    VERSION 1 MODIFICATION 0                                   *
                         2363 *                                                              *
                         2364 *FUNCTION                                                      *
                         2365 *    THE FUNCTION OF KSSPND IS TO ACT AS A CONTROL MODULE TO HANDLE   *
                         2366 *    THE ISSUANCE OF THE SUSPEND COMMAND.  IN EFFECT, THE ISSUANCE OF *
                         2367 *    THE SUSPEND COMMAND CAUSES THE PROGRAM WHICH IS CURRENTLY IN AN  *
                         2368 *    EXECUTION PAUSE CONDITION, (IF ONE EXISTS), TO BE SAVED ALONG    *
                         2369 *    WITH ITS ASSOCIATED STATUS INFORMATION FOR FUTURE COMPLETION OF  *
                         2370 *    EXECUTION.  THIS ENABLES THE USER TO EXECUTE OTHER PROGRAMS OR   *
                         2371 *    SYSTEM FUNCTIONS WITHOUT AFFECTING THE SUSPENDED PROGRAM.        *
                         2372 *    THE SUBSEQUENT EXECUTION OF THE SUSPENDED PROGRAM IS AFFECTED     *
                         2373 *    THROUGH THE USE OF THE RESUME AND GO COMMANDS.  THE STATUS       *
                         2374 *    INFORMATION SUSPENDED WITH THE PROGRAM INCLUDES THE 64K OF       *
                         2375 *    VIRTUAL MEMORY UNIQUE FOR THIS PROGRAM; A 6 SECTOR SYMBOL        *
                         2376 *    TABLE; THE REGISTER DATA FOR RETURN TO THE CALLING POINT; AND    *
                         2377 *    PERTINENT INDICATORS.                                      *
                         2378 *                                                              *
                         2379 *ENTRY POINTS                                                  *
                         2380 *    THE FIRST EXECUTABLE INSTRUCTION FOLLOWING THE PROGRAM HEADER    *
                         2381 *    INDEX REGISTER 2 (@XR) IS ADDRESSING THE FIRST BYTE IN THE       *
                         2382 *    COMMAND LINE FOLLOWING THE KEYWORD.                        *
                         2383 *                                                              *
                         2384 *INPUT                                                         *
                         2385 *    INPUT TO THE KEYWORD IS THE ADDRESS WITHIN THE INPUT LINE BUFFER *
                         2386 *    OF THE COMMAND LINE TO BE SYNTAX CHECKED-SAVED IN $XRSAV.  *
                         2387 *                                                              *
                         2388 *OUTPUT                                                        *
                         2389 *    N/A                                                        *
                         2390 *                                                              *
                         2391 *EXTERNAL REFERENCES                                           *
                         2392 *        SCANIT - DELIMITER SCAN ROUTINE                        *
                         2393 *        DL2ICS - TWO TRACK LOGICAL DISK IOCS                   *
                         2394 *        DL2RAD - ADDR IN DL2ICS-BASE DISK ADDR FOR LOGICAL JSE *
                         2395 *        DL4ICS - FOUR TRACK LOGICAL DISK IOCS                  *
                         2396 *        SALPH8 - FILENAME SYNTAX ENTRY POINT IN SALPHA         *
                         2397 *        SALPHR - ADDR IN SALPHA-SYNTAX CHECKED ALPHANUMERIC PARAMETER *
                         2398 *        SFINDF - FILE SEARCH CONTROL ROUTINE                   *
                         2399 *        SFIERR - ERROR EXIT ROUTINE FROM SFINDF                *
                         2400 *        SVODSK - ADDR IN SVOLID PRIME DISK FILENAME            *
                         2401 *        SVOIOF - ADDR IN SVOLID - PRIME I/O FILENAME           *
                         2402 *        SVOCT2 - ADDR IN SVOLID - COUNTER OF MULTIPLY DEFINED VOL-IDS *
                         2403 *        TSMLES - DATA MANAGEMENT COMMUNICATION REGIONS         *
                         2404 *        $$ZERO - ENTRY POINT TO LOAD ZUTMON IN SYSTEM NUCLEUS  *
                         2405 *        $$KLD1 - PROGRAM LOAD ADDR BEHIND SYSTEM NUCLEUS       *
                         2406 *        $NUCBS - ADDR IN SYSTEM NUCLEUS-BASE ADDR              *
                         2407 *        $CARPL - ADDR IN SYSTEM NUCLEUS-NORMAL RETURN ROUTINE  *
                         2408 *        $CAERR - ADDR IN SYSTEM NUCLEUS-ERROR CODE SAVE AREA    *
                         2409 *        $CAERK - ADDR IN SYSTEM NUCLEUS-ERROR RETURN ROUTINE    *
                         2410 *        $XRSAV - ADDR IN SYSTEM NUCLEUS-INDEX REGISTER 2 SAVE AREA *
                         2411 *        $DISKN - ADDR IN SYSTEM NUCLEUS-PHYSICAL DISK IOCR      *
```

```
                          2412 *        $WAITF - ADDR IN SYSTEM NUCLEUS-ADDR DISK WAIT DPL            *
                          2413 *        $CIMSK - ADDR IN SYSTEM NUCLEUS-IR MASK INDR                 *
                          2414 *        $INDR3 - ADDR IN SYSTEM NUCLEUS-SYSTEM INDRS                 *
                          2415 *        $CLBFR - MASK IN $INDR3 - CLEAR INPUT BUFFER INDR            *
                          2416 *        $ERHRD - MASK IN $INDR3 - ERRPGM HARD ERROR INDR             *
                          2417 *        $BSADR - ADDR IN SYSTEM NUCLEUS-DADDR RELOCATION FACTOR       *
                          2418 *        $CSDPL - ADDR IN SYSTEM NUCLEUS-ADDR OF SAVE/RSTR DPL         *
                          2419 *        $PSDBR - ADDR IN SYSTEM NUCLEUS-ADDR SAVED BR FROM NPAUSE     *
                          2420 *        $PSDXR - ADDR IN SYSTEM NUCLEUS-ADDR SAVED XR FROM NPAUSE     *
                          2421 *        $SRTRN - ADDR IN SYSTEM NUCLEUS-ADDR OF RETURN FROM $PAUSD    *
                          2422 *        $INLNO - ADDR IN SYSTEM NUCLEUS-LINE NUMBER PAUSED AT         *
                          2423 *        $EXFTR - ADDR IN SYSTEM NUCLEUS-CORE EXPANSION FACTOR         *
                          2424 *        $DKSIZ - ADDR IN SYSTEM NUCLEUS-DISK SIZE INDR               *
                          2425 *        $CONFG - ADDR IN SYSTEM NUCLEUS-CONFIGURATION INDRS          *
                          2426 *        $KEYBD - ADDR IN SYSTEM NUCLEUS-KEYBOARD TYPE INDR           *
                          2427 *        $IOIND - ADDR IN SYSTEM NUCLEUS-I/O STATUS INDRS            *
                          2428 *        $CRTAV - MASK IN SIOIND - CRT AVAILABILITY                  *
                          2429 *        $LNPTR - MASK IN $IOIND - 50 LPM AVAILABILITY               *
                          2430 *        $DTRDR - MASK IN $IOIND - DATA RECORDER AVAILABILITY        *
                          2431 *        $XIND1 - ADDR IN SYSTEM NUCLEUS-PRIMARY EXECUTION MODE INDRS *
                          2432 *        $XIND2 - ADDR IN SYSTEM NUCLEUS-EXECUTION MODE INDRS        *
                          2433 *                                                                    *
                          2434 *EXITS, NORMAL                                                        *
                          2435 *        $CARPL - NORMAL EXIT ADDRESS IN SYSTEM NUCLEUS              *
                          2436 *                                                                    *
                          2437 *EXITS, ERROR                                                         *
                          2438 *        $CAERK - ERROR EXIT ADDRESS IN SYSTEM NUCLEUS               *
                          2439 *                  (NOTE ERROR PROCEDURES)                           *
                          2440 *                                                                    *
                          2441 *TABLES/WORK AREAS                                                    *
                          2442 *    ALL CHARACTER CONSTANTS & PPL'S USED TO PRINT MESSAGES FOR THE   *
                          2443 *    INTERACTION WITH THE USER ARE LOCATED AT THE BEGINNING OF THE    *
                          2444 *    MODULE TO ENABLE THEM TO BE MODIFIED FOR WORLD TRADE CONSIDERATION*
                          2445 *    KSSPND'S OTHER CONSTANTS, DPL'S, AND WORK AREAS ARE SEPARATED     *
                          2446 *    INTO TWO GROUPS:                                                 *
                          2447 *    *  INTERNAL DPL'S, CONSTANTS, AND WORK AREAS USED FOR MAIN        *
                          2448 *       PROCESSING OF COMMAND. (ALL OVERLAID)                         *
                          2449 *    *  DPL'S, CONSTANTS, AND WORK AREAS USED DURING CORE AND VM       *
                          2450 *       TRANSFER.                                                     *
                          2451 *    (NOTE: CHARACTER CODE DEPENDENCY)                               *
                          2452 *                                                                    *
                          2453 *ATTRIBUTES                                                           *
                          2454 *    RELOCATABLE                                                      *
                          2455 *                                                                    *
                          2456 *CHARACTER CODE DEPENDENCY                                            *
                          2457 *    CHARACTER CODE DEPENDENCY CLASS - C                             *
                          2458 *    THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRESENTA- *
                          2459 *    TION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE ONE *
                          2460 *    USED AT ASSEMBLY TIME.  THE CODING HAS BEEN ARRANGED SO THAT RE-  *
                          2461 *    DEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT IN  *
                          2462 *    A CORRECT MODULE FOR THE NEW DEFINITIONS.  THE FOLLOWING ARE THE  *
                          2463 *    SPECIAL CONSIDERATIONS FOR THIS MODULE:                          *
                          2464 *    * CHARACTER CONSTANT STRINGS WHICH ARE USED AS INFORMATIVE       *
                          2465 *      MESSAGES OR ERROR MESSAGES FOR THE USER ARE LOCATED IN A        *
                          2466 *      GROUP AT THE BEGINNING OF THE MODULE WITH ADEQUATE EXPANSION    *
                          2467 *    * AREA INCLUDED FOR WORLD TRADE CONSIDERATIONS FOR TRANSLATION    *
```

```
2468 *     TO FOREIGN LANGUAGES.                                         *
2469 *   * PPL'S USED TO PRINT THE ABOVE MENTIONED CHARACTER CONSTANTS   *
2470 *     ARE LOCATED ADJACENT TO THEM FOR LENGTH REVISION              *
2471 *   * @SYSEQ TO CONSIDER - USED FOR IMMEDIATE COMPARES ETC.         *
2472 *     * @ZERO                                                       *
2473 *     * @EOS                                                        *
2474 *     * @B1                                                         *
2475 *                                                                   *
2476 *NOTES                                                              *
2477 *    ERROR PROCEDURES                                               *
2478 *      THE FOLLOWING CONDITIONS WILL CAUSE AN ERROR CODE TO BE SAVED *
2479 *      IN $CAERR, AND AN ERROR EXIT TO BE MADE TO $CAERK IN THE     *
2480 *      SYSTEM NUCLEUS:                                              *
2481 *      * A SYNTAX ERROR DETECTED IN THE COMMAND LINE VIA SALPHA,    *
2482 *        SCANIT, OR KSSPND.                                         *
2483 *      * A PROGRAM ALREADY SUSPENDED, AND THE OPTIONAL FILENAME     *
2484 *        WAS NOT SPECIFIED TO OVERRIDE OLD SUSPENSION.              *
2485 *        SPECIFICATION OF THE OPTIONAL FILENAME, BUT NOT BEING      *
2486 *        THE SUSPENDED PROGRAM NAME.                               *
2487 *      * THE EXISTENCE OF AN ACTIVE DISK SCRATCH FILE FOR THE       *
2488 *        PROGRAM TO BE SUSPENDED.                                  *
2489 *      * A HARD HALT WILL OCCUR FOR THE NON-EXISTENCE OF A DISK     *
2490 *        FILE (PERMANENT) WHICH WAS ALLOCATED FOR THE PROGRAM.     *
2491 *                                                                   *
2492 *    REGISTER USAGE                                                 *
2493 *      INITIALLY INDEX REGISTER 1 (@BR) IS USED AS A BASE TO ADDRESS *
2494 *      THE CONSTANT AREA, AND INDEX REGISTER 2 (@XR) IS A POINTER   *
2495 *      INTO THE INPUT LINE BUFFER FOR SYNTAX CHECKING.             *
2496 *      THEN BOTH REGISTERS ARE USED TO INDEX IN D1 AND D2 WHICH ARE *
2497 *      IN CORE BUFFERS.  SUBSEQUENTLY, INDEX REGISTER 2 (@XR) IS USED *
2498 *      TO ADDR THE SAVED CONFIGURATION STATUS FOR VALIDITY CHECKING. *
2499 *      FINALLY, INDEX REGISTER 1 (@BR) IS AGAIN USED AS A BASE.     *
2500 *                                                                   *
2501 *    SAVED/RESTORED AREAS                                           *
2502 *      NONE                                                         *
2503 *                                                                   *
2504 *    MODIFICATION CONSIDERATIONS                                    *
2505 *      * KSSPND USES MAXIMUM AVAILABLE CORE FOR A BUFFER FOR V.M.   *
2506 *        AND ##CORE TRANSFER.  THE GENERATION OF THIS MAXIMUM      *
2507 *        BUFFER IS AFFECTED BY FORCING THE BEGINNING OF THE BUFFER, *
2508 *        KSSUMR, TO A SECTOR BOUNDARY IN CORE AND THEN ADDING      *
2509 *        (DURING EXECUTION TIME) THE CONTENTS OF THE CORE EXPANSION *
2510 *        FACTOR ($EXFTR) TO THE CONSTANT, KSSBUF, WHICH IS THE BASE *
2511 *        SECTOR COUNT OF CORE MINUS THE ADDRESS OF THE BUFFER.     *
2512 *      * NOTE THAT THE TSMLES COMMUNICATIONS REGION HAS BEEN BROKEN *
2513 *        UP (IE. PART OF THE FIELDS OVERLAY EXECUTABLE CODE) SO     *
2514 *        THAT A BASE REGISTER MAY BE USED TO ADDRESS THE FIELDS OR  *
2515 *        SO THAT OPTIMUM USE OF BUFFER SPACE COULD BE MADE.        *
2516 *                                                                   *
2517 *    REQUIRED MODULES                                              *
2518 *        @SYSEQ - COMMON SYSTEM SOFTWARE EQUATES                    *
2519 *        @FXDEQ - FIXED ADDRESSES IN SYSTEM NUCLEUS                 *
2520 *        @CANEQ - FIXED ADDRESSES OUTSIDE SYSTEM NUCLEUS            *
2521 *        @SPFEQ - SYSTEM PROGRAM FILE EQUATES                       *
2522 *        @DIREQ - SYSTEM LIBRARY DIRECTORY EQUATES                  *
2523 *        @WKAEQ - WORK AREA EQUATES                                 *
```

```
               2524 *         @VMDEQ - VIRTUAL MEMORY DIRECTORY EQUATES                *
               2525 *         @ERMEQ - ERROR MESSAGE EQUATES                           *
               2526 *         $I$EQU - INTERPRETER FIXED EQUATES                       *
               2527 *         DL2ICS - TWO TRACK LOGICAL DISK IOCS                     *
               2528 *         DL4ICS - FOUR TRACK LOGICAL DISK IOCS                    *
               2529 *         SALPHA - FILENAME, PASSW, VOL-ID ALPHAMERIC SYNTAX CHECKER *
               2530 *         SCANIT - DELIMITER SCAN ROUTINE                          *
               2531 *         SFINDF - FILE SEARCH CONTROL ROUTINE                     *
               2532 *         SGETDB - PASSWORD DIRECTORY SEARCH; USER FILE ACCESS      *
               2533 *         SRCHFN - FILENAME SEARCH ROUTINE                         *
               2534 *         SVOLID - RESOLVES SPECIFIED VOL-ID PHYSICAL LOCATION      *
               2535 *         TSMLES - DATA MANAGEMENT COMMON AREAS                    *
               2536 *                                                                 *
               2537 *    OTHER                                                        *
               2538 *       SPECIAL NOTES:                                            *
               2539 *       * THE I/O ROUTINES ARE REQUIRED TO BE CORE RESIDENT FOR     *
               2540 *         EXECUTION.                                              *
               2541 *       * THE COMMAND MP' BE ABORTED VIA INQUIRY REQUEST UNTIL      *
               2542 *         PHYSICAL DISK WRITES ARE STARTED.                        *
               2543 ***********************************************************************
```

```
        #KRRPN -- RESUME COMMAND PROCESSOR


ERR LOC  OBJECT CODE      ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  27/02/22  PAGE   7

                              2545 ************************************************************************
                              2546 *                                                                      *
                              2547 *          KSSPND - SUSPEND PROGRAM                                     *
                              2548 *                                                                      *
                              2549 ************************************************************************
                              2550 *
                              2551 *          HDR    #KSSPN
                              2552 ************************************************************************
                              2553 * PROGRAM HEADER FOR DISK LOAD                                         *
                              2554 ************************************************************************
                              2555 *#$KSSP EQU   X'0594'                     DISK ADDR OF #KSSPN
                              2556 *#$$KSS EQU   X'0C00'                     CORE LOAD ADDRESS OF #KSSPN
                              2557 *#$@KSS EQU   011                         SECTOR CNT OF #KSSPN
        0C00                  2558        ORG    #$$KSS                      CORE LOAD ADDRESS
        0C00             2559 $$$$$$ EQU   *                           FIRST LOCATION IN PROGRAM
        0C00 7BD2E2E2D7D5 0C05 2560        DC     CL6'#KSSPN'                 PROGRAM NAME
        0C06 25           0C06 2561        DC     IL1'037'                    PROGRAM NUMBER OF #KSSPN
                         0C07 2562 $KSSPN EQU   *                           ENTRY POINT TO PROGRAM
                              2563 *** END OF EXPANSION ***

                         0C07 2565 KSSPND EQU   *                           ENTRY POINT
        0C07 C0 87 0F00      2566        B      KSS100                      START SYNTAX CHECK
                              2567 *
                              2568 ************************************************************************
                              2569 *        MTEXT @@M048=@PRINT,@@M049=@PRINT,@@M300=@PRETR,PATCH=020
                              2570 ************************************************************************
                              2571 * PPL'S AND TEXT FOR MESSAGE                                           *
                              2572 ************************************************************************
        0C0B 40           0C0B 2573 @@M048 DC     AL1(@PRINT)                 PRINT CONTROL FUNCTION
        0C0C 16           0C0C 2574        DC     IL1'22'                     LENGTH OF MESSAGE
        0C0D 0C17         0C0E 2575        DC     AL(@CADDR)(@@T048)          ADDR OF MESSAGE
                              2576 *
        0C0F 40           0C0F 2577 @@M049 DC     AL1(@PRINT)                 PRINT CONTROL FUNCTION
        0C10 18           0C10 2578        DC     IL1'24'                     LENGTH OF MESSAGE
        0C11 0C2D         0C12 2579        DC     AL(@CADDR)(@@T049)          ADDR OF MESSAGE
                              2580 *
        0C13 C0           0C13 2581 @@M300 DC     AL1(@PRETR)                 PRINT CONTROL FUNCTION
        0C14 37           0C14 2582        DC     IL1'55'                     LENGTH OF MESSAGE
        0C15 0C45         0C16 2583        DC     AL(@CADDR)(@@T300)          ADDR OF MESSAGE
                              2584 *
                         0C17 2585 @@T048 EQU   *                           LEFT BYTE OF MESSAGE
        0C17 404040C7C5E361D7 0C2C 2586        DC     CL022'    GET/PUT FILENAME: '
                              2587 *
                         0C2D 2588 @@T049 EQU   *                           LEFT BYTE OF MESSAGE
        0C2D 404040C4C9E2D240 0C44 2589        DC     CL024'    DISK DATA FILENAME: '
                              2590 *
                         0C45 2591 @@T300 EQU   *                           LEFT BYTE OF MESSAGE
        0C45 C5D9D9D6D940F5F8 0C76 2592        DC     CL050'ERROR 580 DUPLICATE DISK LABELS - SPECIFY DISK LOC'
        0C77 C1E3C9D6D5      0C7B 2593        DC     CL005'ATION'
                              2594 *
                              2595 * PATCH AREA FOR MESSAGES
                              2596 *
        0C7C             0C8F 2597 $$$001 DS     CL020                       MSG EXPANSION PATCH AREA
                              2598 *** END OF EXPANSION ***
```

```
                    2600 ******************************************************************************
                    2601 *                                                                            *
                    2602 *          KSSPGD MODULE EQUATES                                              *
                    2603 *                                                                            *
                    2604 ******************************************************************************
                    2605 *
                    2606 *          SUSPENDED PROGRAM NAME
                    2607 *
      0000 2608 KSSIDR EQU    0                           DISPLACEMENT TO SUSPENDED INDR
                    2609 *                                           * - X'00' IF NO SUSPENDED PROG
                    2610 *
      0007 2611 KSSFNE EQU    7                           DISP TO RIGHT BYTE OF FILENAME
                    2612 *
                    2613 *          $PAUSD REGISTERS
                    2614 *
      0009 2615 KSSPBR EQU    9                           $PAUSD BR SAVE AREA--RIGHT BYTE
      000B 2616 KSSPXR EQU    11                          $PAUSD XR SAVE AREA--RIGHT BYTE
      000D 2617 KSSARR EQU    13                          $PAUSD ARR SAVE AREA--RIGHT BYTE
                    2618 *
                    2619 *          EXECUTION STATUS INFORMATION
                    2620 *
      000F 2621 KSSINL EQU    15                          $INLNO
      0010 2622 KSSEXF EQU    16                          EXTENSION FACTOR $EXFTR
      0011 2623 KSSXD1 EQU    17                          EXECUTION INDRS $XIND1
      0012 2624 KSSXD2 EQU    18                          EXECUTION INDRS $XIND2
                    2625 *
                    2626 *          CONFIGURATION RECORD INFORMATION
                    2627 *
      0013 2628 KSSDSZ EQU    19                          $DKSIZ -- INDR BYTE - ALL MASKS
      0014 2629 KSSCFG EQU    20                          $CONFG -- INDR BYTE - ALL MASKS
      0015 2630 KSSKBG EQU    21                          $KEYBG -- INDR BYTE - ALL MASKS
      0016 2631 KSSIOI EQU    22                          $IOIND -- INDR BYTE - 3 MASKS
      0002 2632 KSSCRT EQU    $CRTAV                      * - $CRTAV
      0040 2633 KSSDTR EQU    $DTRDR                      * - $DTRDR
      0080 2634 KSSLMP EQU    $LNPTR                      * - $LMPTR
                    2635 *
      0018 2636 KSSPGD EQU    24                          DISP IN ##CORE OF D2 IF EXIST
                    2637 *
      00C0 2638 KSS192 EQU    192                         CONSTANT FOR DISPLACEMENT COMPAR
                    2639 *
                    2640 ******************************************************************************
```

```
                                 2642 ********************************************************************************
                                 2643 *                                                                              *
                                 2644 *         SUSPENSION OF CORE & VM                                              *
                                 2645 *                                                                              *
                                 2646 ********************************************************************************
                                 2647 *
                            0C90 2648         USING KSSBS1,@BR                    BASE ADDRESS
   0C90 0C 01 0DD5 0510          2649 KSS000 MVC   DL2RAD(@DADDR),$CSDPL+@DSAD  DADDR OF ##CORE
   0C96 7C 01 8F                 2650        MVI   KSSCRR+@DCTRL(,@BR),@DGET MODIFY CONTROL CODE
                            0C90 2651 KSSBS1 EQU   KSS000                        BASE ADDR
                                 2652 *
                                 2653 *     DSKL2 KSSCRR,WAIT                    READ SECTORS OF MORE
   0C99 C0 87 0D3D               2654        B     DL2ICS                        PERFORM RELATIVE DISK OP
   0C9D 0D1F               0C9E  2655        DC    AL2(KSSCRR)                   DPL ADDRESS
   0C9F C0 87 0025              2656        B     $DISKN                        WAIT AND CHECK DISK ERRORS
   0CA3 057F                0CA4 2657        DC    AL2($WAITF)                   WAIT DPL ADDRESS
                                 2658 *** END OF EXPANSION ***

   0CA5 1C 01 0DD5 A4            2660        MVC   DL2RAD(@DADDR),KSSCSA(,@BR)  DADDR OF ##CSAV
   0CAA 7C 02 8F                 2661        MVI   KSSCRS+@DCTRL(,@BR),@DPUT MODIFY CONTROL CODE
                                 2662 *
                                 2663 *     DSKL2 KSSCRS                         WRITE SECTORS OF ##CORE
   0CAD C0 87 0D3D               2664        B     DL2ICS                        PERFORM RELATIVE DISK OP
   0CB1 0D1F               0CB2  2665        DC    AL2(KSSCRS)                   DPL ADDRESS
                                 2666 *** END OF EXPANSION ***

   0CB3 F2 80 12                 2668 KSS010 JC    KSS020,@NOP                   JUMP WHEN CORE ALL TRANSFERRED
                                 2669 *
   0CB6 5F 00 AA A9              2670        SLC   KSSCNT(@B1,@BR),KSSBUF(,@BR)  SECTORS LEFT FOR TRANSFER
   0CBA 5E 00 91 A9              2671        ALC   KSSCRR+@DSAD(@B1,@BR),KSSBUF(,@BR)   INCREMENT DISPLACEMENT
   0CBE 5C 00 92 AA              2672        MVC   KSSCRR+@DCNT(@B1,@BR),KSSCNT(,@BR)   MODIFY CNT
   0CC2 7C 87 24                 2673        MVI   KSS010+@Q(,@BR),@UCB          SET SWITCH FOR COMPLETE TRANSFER
   0CC5 D0 87 00                 2674        B     KSS000(,@BR)                  TRANSFER ALL CORE
                                 2675 *
                                 2676 *
   0CC8 1C 01 0DD5 A2            2677 KSS020 MVC   DL2RAD(@DADDR),KSSSAV(,@BR)  BASE ADDR SUSPENDED VM
                                 2678 *
                                 2679 *KSS050 DSKL4 KSSVMR,WAIT                  READ VM
   0CCD C0 87 0DD6               2680 KSS050 B     DL4ICS                        PERFORM RELATIVE DISK OP
   0CD1 0D2B               0CD2  2681        DC    AL2(KSSVMR)                   DPL ADDRESS
   0CD3 C0 87 0025              2682        B     $DISKN                        WAIT AND CHECK DISK ERRORS
   0CD7 057F                0CD8 2683        DC    AL2($WAITF)                   WAIT DPL ADDRESS
                                 2684 *** END OF EXPANSION ***

                                 2686 *     DSKL2 KSSVMS                         WRITE VM
   0CD9 C0 87 0D3D               2687        B     DL2ICS                        PERFORM RELATIVE DISK OP
   0CDD 0D25               0CDE  2688        DC    AL2(KSSVMS)                   DPL ADDRESS
                                 2689 *** END OF EXPANSION ***
                                 2690 *
                                 2691 ********************************************************************************
```

                               2693 ***
                               2694 *   *
    0CDF F2 80 39   2695 KSS060 JC   KSS090,@NOP   END OF VM TRANSFER - SWITCH
                               2696 *
    0CE2 7D C0 9D   2697   CLI   KSSVMR+@DSAD(,@BR),KSS192 IS DISP AT MAX ?
    0CE5 F2 82 10   2698   JL   KSS070   NO, INCREMENT
                               2699 *
    0CE8 5F 00 9D AC   2700   SLC   KSSVMR+@DSAD(@B1,@BR),KSSX92(,@BR)   DECREMENT DISPLACEMENT
    0CEC 5F 00 97 AC   2701   SLC   KSSVMS+@DSAD(@B1,@BR),KSSX92(,@BR)   DECREMENT DISPLACEMENT
    0CF0 5E 00 9C AB   2702   ALC   KSSVMR+@DCYL(@B1,@BR),KSSCT2(,@BR)   INCREMENT CYL IN DPL
    0CF4 5E 00 96 A7   2703   ALC   KSSVMS+@DCYL(@B1,@BR),KSSCT4(,@BR)   INCREMENT CYL IN DPL
                               2704 *
    0CF8 5E 00 9D A9   2705 KSS070 ALC   KSSVMR+@DSAD(@B1,@BR),KSSBUF(,@BR)   INCREMENT DISPLACEMENT
    0CFC 5E 00 97 A9   2706   ALC   KSSVMS+@DSAD(@B1,@BR),KSSBUF(,@BR)   INCREMENT DISPLACEMENT
                               2707 *
    0D00 5F 01 A6 A9   2708   SLC   KSS#SA(2*@B1,@BR),KSSBUF(,@BR) DECREMENT SECT CNT OF VM
    0D04 5D 01 A6 A9   2709   CLC   KSS#SA(2*@B1,@BR),KSSBUF(,@BR)   IS CNT GREATER ?
    0D08 D0 84 3D   2710   BH   KSS050(,@BR)   YES, CONTINUE
                               2711 *
    0D0B 7C 87 50   2712   MVI   KSS060+@Q(,@BR),@UCB   MODIFY SWITCH FOR TRANSFER
    0D0E 4C 00 9E 0D36   2713   MVC   KSSVMR+@DCNT(@B1,@BR),KSS#SA MODIFY CNT
    0D13 4C 00 98 0D36   2714   MVC   KSSVMS+@DCNT(@B1,@BR),KSS#SA MODIFY CNT
    0D18 D0 87 3D   2715   B   KSS050(,@BR)   COMPLETE VM TRANSFER
                               2716 *
    0D1B C0 87 04A1   2717 KSS090 B $CARPL   EXIT
                               2718 *
                               2719 ***

```
                          2721 ***********************************************************************
                          2722 *                                                                     *
                          2723 *         DATA CONSTANTS, BUFFERS, AND WORK AREAS                     *
                          2724 *                                                                     *
                          2725 ***********************************************************************
                          2726 *
                          2727 *KSSCRR DPL    FUNC=@DGET,DADDR=*-*,CNT=*-*,CADDR=KSSUMR
          0D1F 2728 KSSCRR EQU    *                         DISK PARAMETER LIST
    0D1F 01              0D1F 2729        DC   AL1(@DGET)            REQUESTED FUNCTION
    0D20 0000            0D21 2730        DC   AL2(*-*)              DISK ADDRESS
    0D22 00              0D22 2731        DC   AL1(*-*)              SECTOR COUNT
    0D23 0F00            0D24 2732        DC   AL2(KSSUMR)           BUFFER ADDRESS
                          2733 *** END OF EXPANSION ***

    0D1F                  2735        ORG   KSSCRR                RESET LOCATION COUNTER
                          2736 *KSSCRS DPL    FUNC=@DPUT,DADDR=*-*,CNT=*-*,CADDR=KSSUMR
          0D1F 2737 KSSCRS EQU    *                         DISK PARAMETER LIST
    0D1F 02              0D1F 2738        DC   AL1(@DPUT)            REQUESTED FUNCTION
    0D20 0000            0D21 2739        DC   AL2(*-*)              DISK ADDRESS
    0D22 00              0D22 2740        DC   AL1(*-*)              SECTOR COUNT
    0D23 0F00            0D24 2741        DC   AL2(KSSUMR)           BUFFER ADDRESS
                          2742 *** END OF EXPANSION ***

                          2744 *KSSVMS DPL    FUNC=@DPUT,DADDR=*-*,CNT=*-*,CADDR=KSSUMR
          0D25 2745 KSSVMS EQU    *                         DISK PARAMETER LIST
    0D25 02              0D25 2746        DC   AL1(@DPUT)            REQUESTED FUNCTION
    0D26 0000            0D27 2747        DC   AL2(*-*)              DISK ADDRESS
    0D28 00              0D28 2748        DC   AL1(*-*)              SECTOR COUNT
    0D29 0F00            0D2A 2749        DC   AL2(KSSUMR)           BUFFER ADDRESS
                          2750 *** END OF EXPANSION ***

                          2752 *KSSVMR DPL    FUNC=@DGET,DADDR=#@#VFP,CNT=*-*,CADDR=KSSUMR
          0D2B 2753 KSSVMR EQU    *                         DISK PARAMETER LIST
    0D2B 01              0D2B 2754        DC   AL1(@DGET)            REQUESTED FUNCTION
    0D2C 0700            0D2D 2755        DC   AL2(#@#VFP)           DISK ADDRESS
    0D2E 00              0D2E 2756        DC   AL1(*-*)              SECTOR COUNT
    0D2F 0F00            0D30 2757        DC   AL2(KSSUMR)           BUFFER ADDRESS
                          2758 *** END OF EXPANSION ***

    0D31 1180            0D32 2760 KSSSAV DC   AL2(#$#SAV)           RELATIVE ADDR SUSPEND VM
    0D33 1000            0D34 2761 KSSCSA DC   AL2(#$#CSA)           RELATIVE ADDR SUSPEND CORE
    0D35 0108            0D36 2762 KSS#SA DC   AL2(#$@#SA)            COUNT FOR VM TRANSFER
                          2763 *
    0D37 04              0D37 2764 KSSCT4 DC   XL1'04'               INCREMENT FOR DL2 CYLINDER
    0D38 00              0D38 2765 KSSZER DC   AL1(@ZERO)            CNTR FOR VM SUBTRACT
          0D39 2766 KSSBUF EQU    *                         BASIC CORE SECTOR SIZE
    0D39 1100            0D3A 2767        DC   AL2(@MINCR-KSSUMR+$$ZERO)
    0D3A                 0D3A 2768        ORG   KSSBUF+1              RESET LOCATION COUNTER
    0D3A                 0D3A 2769 KSSCNT DS   XL1                   COUNTER OF SAVED CORE
                          2770 *
    0D3B 02              0D3B 2771 KSSCT2 DC   XL1'02'               INCREMENT FOR DL4 CYLINDER
    0D3C C0              0D3C 2772 KSSX92 DC   IL1'192'              DECREMENT FOR DISPLACEMENT
                          2773 *
                          2774 ***********************************************************************
                          2775 *      $DL2P
```

```
                           2777+********************************************************************
                           2778+*  5703-XM1  COPYRIGHT IBM CORP 1970                              *
                           2779+*              REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE. 120-2083 *
                           2780+*                                                                  *
                           2781+********************************************************************
                           2782+*STATUS -                                                         *
                           2783+*    VERSION 1 MODIFICATION 0                                      *
                           2784+*                                                                  *
                           2785+*FUNCTION                                                          *
                           2786+*    * DL2ICS CONVERTS A RELATIVE DISK ADDRESS TO A PHYSICAL DISK  *
                           2787+*      ADDRESS AND COMBINES IT WITH A BASE ADDRESS PLACED IN DL2RAD *
                           2788+*      BY THE CALLER.                                              *
                           2789+*    * THE RELATIVE DISK ADDRESS IS A TWO BYTE CYLINDER SECTOR COUNT *
                           2790+*      IN THE CALLERS DISK PARAMETER LIST (DPL).                   *
                           2791+*    * THE COUNT IS A CYLINDER SECTOR DISPLACEMENT FROM THE BASE    *
                           2792+*      ADDRESS PLACED IN DL2RAD                                    *
                           2793+*    * DL2ICS IS USED TO PROCESS DATA ON THE FIXED OR REMOVABLE DISK *
                           2794+*      ON EITHER DRIVE AND PROVIDES THE INTERFACE TO $DISKN.        *
                           2795+*    * THE PHYSICAL DISK ADDRESS IS PLACED IN A COPY OF THE USERS DPL *
                           2796+*      IN DL2ICS AND A CALL IS MADE TO $DISKN TO PERFORM THE REQUESTED *
                           2797+*      OPERATION.                                                  *
                           2798+*                                                                  *
                           2799+*ENTRY POINTS                                                      *
                           2800+*    * THE ENTRY IS DL2ICS. THE BASE REGISTER IS SAVED AND RESTORED *
                           2801+*      ON RETURN. THE INDEX REGISTER IS NOT USED.                  *
                           2802+*    * THE FORMAT OF THE CALLING SEQUENCE IS AS FOLLOWS:           *
                           2803+*         B   DL2ICS                                               *
                           2804+*         DC  AL2(PARMLT)                                          *
                           2805+*      WHERE PARMLT IS THE ADDR OF THE PARAMETER LIST TO BE PROCESSED. *
                           2806+*                                                                  *
                           2807+*INPUT                                                             *
                           2808+*    * THE INPUT IS A TWO BYTE BASE DISK ADDRESS PLACED IN         *
                           2809+*      DL2RAD AND A SIX BYTE DPL. THE SAME FORMAT AS THE DPL FOR   *
                           2810+*      $DISKN EXCEPT FOR THE DISK ADDRESS WHICH IS A RELATIVE CYLINDER *
                           2811+*      AND SECTOR DISPLACEMENT FROM THE BASE ADDRESS IN DL2RAD.    *
                           2812+*                                                                  *
                           2813+*OUTPUT                                                            *
                           2814+*    NONE.                                                         *
                           2815+*                                                                  *
                           2816+*EXTERNAL REFERENCES                                               *
                           2817+*      $DISKN - ENTRY TO PHYSICAL DISK ROUTINE IS THE SYSTEM NUCLEUS. *
                           2818+*                                                                  *
                           2819+*EXITS, NORMAL                                                     *
                           2820+*      NORMAL - EXIT IS TO THE FIRST INSTRUCTION FOLLOWING THE POINTER *
                           2821+*      TO THE DPL. THE BASE REGISTER IS RESTORED. THE RETURN ADDRESS *
                           2822+*      IS THE ADDRESS RECALL REGISTER (ARR) +2.                    *
                           2823+*                                                                  *
                           2824+*EXITS, ERROR                                                      *
                           2825+*    NONE                                                          *
                           2826+*                                                                  *
                           2827+*TABLES/WORK AREAS                                                 *
                           2828+*    * THE CONSTANTS AND WORK AREAS RESIDE AT THE END OF THE EXECUTABLE *
                           2829+*      CODE AND ARE REFERENCED BY A DISPLACEMENT RELATIVE TO THE VALUE *
                           2830+*      IN INDEX REGISTER 1 (@BR).                                  *
                           2831+*    * DL2SEC AND DL2SAD ARE EQUATED TO OPERAND LOCATIONS IN THE   *
                           2832+*      EXECUTABLE CODE TO ELIMINATE EXCESS WORKING STORAGE.        *
```

```
                              2833+*                                                            *
                              2834+*ATTRIBUTES                                                  *
                              2835+*   * DL2ICS IS REUSABLE                                     *
                              2836+*                                                            *
                              2837+*CHARACTER CODE DEPENDENCY                                   *
                              2838+*    THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR  *
                              2839+*    INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.  *
                              2840+*                                                            *
                              2841+*NOTES                                                       *
                              2842+*   ERROR PROCEDURES                                         *
                              2843+*      NONE                                                  *
                              2844+*                                                            *
                              2845+*   REGISTER USAGE                                           *
                              2846+*    INDEX REGISTER 1 (@BR) IS SAVED AND RESTORED. THIS REGISTER IS *
                              2847+*    USED DURING EXECUTION. REGISTER 2 (@BR) IS NOT USED.    *
                              2848+*                                                            *
                              2849+*   SAVED/RESTORED AREAS                                     *
                              2850+*      NONE                                                  *
                              2851+*                                                            *
                              2852+*   MODIFICATION CONSIDERATIONS                              *
                              2853+*      NONE                                                  *
                              2854+*                                                            *
                              2855+*   REQUIRED MODULES                                         *
                              2856+*    @SYSEQ - COMMON SYSTEM EQUATES.                         *
                              2857+*    @FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATORS VALUES EQUATES *
                              2858+*                                                            *
                              2859+*   OTHER                                                    *
                              2860+*    DL2ICS MAY BE USED TO CONVERT THE DISK ADDRESS ONLY AND NOT TO *
                              2861+*    CALL $DISKN IF THE USER MOVES A UCB CODE TO DL2SWH.     *
                              2862+*    THIS OPTION IS NOT STANDARD USAGE.                      *
                              2863+*****************************************************************************
                    0D41 2864+      USING DL2000,@BR                ESTABLISH ADDRESSABILITY
                         2865+*
             0001 2866+DL2E01 EQU   X'01'                   FIELD LENGTH OF 1
             0002 2867+DL2E02 EQU   X'02'                   FIELD LENGTH OF 2
             0018 2868+DL2E18 EQU   X'18'                   HEX TRACK SECTOR COUNT
             0060 2869+DL2E60 EQU   X'60'                   PHYSICAL SECTOR COUNT
             0083 2870+DL2TSD EQU   X'83'                   MASK OFF TRACK SPINDLE DISK
             007C 2871+DL2E7C EQU   X'7C'                   MASK OUT SECTOR COUNT
             0D3D 2872+DL2ICS EQU   *                       ENTRY POINT
   0D3D 34 01 0DBE      2873+      ST    DL2900+@OP1,@BR         SAVE OLD BASE
             0D41 2874+DL2000 EQU   *                       START PROCESSING
   0D41 C2 01 0D41      2875+      LA    DL2000,@BR             SET BASE ADDRESS
   0D45 76 08 8A        2876+      A     DL2C01(,@BR),@ARR      BUMP TO RIGHT BYTE OF ADDR
   0D48 74 08 14        2877+      ST    DL2001+@DOP2(,@BR),@ARR ADDR OF PARAM
   0D4B 76 08 8A        2878+      A     DL2C01(,@BR),@ARR      BUMP TO RETURN ADDR
   0D4E 74 08 81        2879+      ST    DL2910+@OP1(,@BR),@ARR  SAVE RETURN ADDR
                        2880+*
   0D51 4C 01 1D 0000   2881+DL2001 MVC  DL2002+@DOP2(@DADDR,@BR),*-* SETUP ADDR OF DPL
   0D56 5E 01 1D 8C     2882+      ALC   DL2002+@DOP2(@CADDR,@BR),DL2C05(,@BR) DUMP TO RIGHT END
   0D5A 4C 05 92 0000   2883+DL2002 MVC  DL2DPL(@DPLNG,@BR),*-*     MOVE USER DPL TO WORK AREA
   0D5F 5F 00 8F 86     2884+DL2005 SLC  DL2LST+@DSAD(DL2E01,@BR),DL2C48(,@BR) ADJUST SCTR/CYL
   0D63 F2 82 07        2885+      JM    DL2006                 GO TO RESTORE TO CONTINUE
   0D66 5E 00 8E 8A     2886+      ALC   DL2LST+@DCYL(DL2E01,@BR),DL2C01(,@BR) BUMP CYLINDER COUNT
   0D6A D0 87 1E        2887+      B     DL2005(,@BR)           BACK FOR NEXT CYLINDER
   0D6D 5E 00 8F 86     2888+DL2006 ALC  DL2LST+@DSAD(DL2E01,@BR),DL2C48(,@BR) RESTORE POSITIVE
```

```
                                 2889+*
                                 2890+*          GET THE LOGICAL SECTOR FROM THE DPL. THE NUMBER IS LEFT ADJUSTED
                                 2891+*          TO COMAE IT MTN THE POINTER ESTABLISHED PRIOR TO AN ENTRY.
    0D71 5C 00 1D 8F             2892+      MVC  DL2SEC(DL2E01,@BR),DL2LST+@DSAD(,@BR) GET SECTOR NUMBER
    0D75 7C 00 8F                2893+      MVI  DL2LST+@DSAD(,@BR),@ZERO  CLEAR SECTOR BYTE
                                 2894+*
                                 2895+*          MOVE THE RELATIVE START TO THE DFL
                                 2896+*
    0D78 5E 01 8F 94             2897+      ALC  DL2LST+@DSAD(DL2E02,@BR),DL2RAD(,@BR) DL2RAD TO DPL
    0D7C 7D 18 1D                2898+      CLI  DL2SEC(,@BR),DL2E18        IS COUNT OVER A TRACK
    0D7F F2 82 08                2899+      JL   DL2008                     NO GO CHANGE A PHYSICAL ADOR
    0D82 5E 01 8F 85             2900+      ALC  DL2LST+@DSAD(DL2E02,@BR),DL2K80(,@BR) BUMP TRACK VALUE
    0D86 5F 00 1D 88             2901+      SLC  DL2SEC(1,@BR),DL2K18(,@BR) DECR BY TRACK VALUE
    0D8A 5E 00 1D 1D             2902+DL2008 ALC  DL2SEC(1,@BR),DL2SEC(,@BR) SHIFT LEFT 1
    0D8E 5E 00 1D 1D             2903+      ALC  DL2SEC(1,@BR),DL2SEC(,@BR) SHIFT LEFT
    0D92 5C 00 14 8F             2904+      MVC  DL2SAD(DL2E01,@BR),DL2LST+@DSAD(,@BR) GET SECTOR ADDRESS
                                 2905+*
                                 2906+*          ZERO OUT THE SECTOR COUNT AND LEAVE THE DISK. SPINDLE AND
                                 2907+*          TRACK BITS AS IS TO BE RE INSERTED AFTER THE SECTOR HAS BEEN
                                 2908+*          LOCATES.
                                 2909+*
    0D96 7B 7C 8F                2910+      SBF  DL2LST+@DSAD(,@BR),DL2E7C TURN OFF
    0D99 7B 83 14                2911+      SBF  DL2SAD(,@BR),DL2TSD        OFF TRACK SPINDLE DISK
    0D9C 5E 00 14 1D             2912+      ALC  DL2SAD(DL2E01,@BR),DL2SEC(,@BR) COMBINE SECTOR COUNTS
    0DA0 7D 60 14                2913+DL2010 CLI  DL2SAD(,@BR),DL2E60        TEST IF TRACK CROSSED
    0DA3 F2 82 08                2914+      JL   DL2100
                                 2915+*
                                 2916+*          INCREMENT TRACK BIT. OVERFLOW INTO THE CYLINDER COUNT.
                                 2917+*
    0DA6 5E 01 8F 85             2918+      ALC  DL2LST+@DSAD(DL2E02,@BR),DL2K80(,@BR)
    0DAA 5F 00 14 83             2919+      SLC  DL2SAD(1,@BR),DL2K60(,@BR) DECR BY TRACK VALUE
                                 2920+*
    0DAE 5E 00 8F 14             2921+DL2100 ALC  DL2LST+@DSAD(1,@BR),DL2SAD(,@BR) INSERT SECTOR COUNT
                                 2922+*
    0DB2 F2 80 06                2923+DL2110 JC   DL2900,@NOP                CONVERSION SWITCH
                            0DB3 2924+DL2SWH EQU  DL2110+@Q                  ADDR OF Q CODE FOR SWITCH
    0DB5 C0 87 0025             2925+      B    $DISKN                     GO PROCESS I/O
    0DB9 0DCE               0DBA 2926+      DC   AL2(DL2LST)                ADDRESS OF DPL
    0DBB C2 01 0000            2927+DL2900 LA   *-*,@BR                    RESTORE CALLERS BASE
    0DBF C0 87 0000            2928+DL2910 B    *-*   *****************************************************
                                 2929+*****************************************************************
                                 2930+*      CONSTANTS
                                 2931+*****************************************************************
    0DC3 0060               0DC4 2932+DL2K60 DC   XL2'0060'                  SECTOR COUNT OF 24 LEFT ADJUSTD
    0DC5 0080               0DC6 2933+DL2K80 DC   XL2'0080'                  BIT FOR INCREMENTING TRACK
    0DC7 30                 0DC7 2934+DL2C48 DC   IL1'48'                    CYLINDER VALUE FOR 1 DISK
    0DC8 0018               0DC9 2935+DL2K18 DC   XL2'18'                    HEX SECTORS PER TRACK
    0DCA 0001               0DCB 2936+DL2C01 DC   IL2'1'                     CONSTANT FOR REGISTER MODE
    0DCC 0005               0DCD 2937+DL2C05 DC   IL2'5'                     DISP TO RIGHT END OF DPL
                                 2938+*****************************************************************
                                 2939+*      WORK AREA
                                 2940+*****************************************************************
                            0DCE 2941+DL2LST EQU  *                          LIST HIGH END
    0DCE                    0DD3 2942+DL2DPL DS   CL(@DPLNG)                 WORKING DPL
                            0DD0 2943+DL2PHY EQU  DL2LST+@DSAD               POINTER TO PHYSICAL DADDR
                            0D55 2944+DL2SAD EQU  DL2001+@DOP2               SAVE SECTOR BYTE FROM DPI
```

```
                        0D5E 2945+DL2SEC EQU   DL2002+@DOP2          WORKING SECTOR ADDRESS FIELD
     0DD4               0DD5 2946+DL2RAD DS    CL(@DADDR)            USER RELATIVE STARTING ADDR.
                        0DD6 2947+DL2END EQU   *                     END OF DL2ICS
                             2948+***                       END OF DL2ICS                            ***
                             2949 *      $DL4P
```

```
                      2951+*****************************************************************************
                      2952+* 5703-XM1  COPYRIGHT IBM CORP. 1970                             *
                      2953+*             REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083 *
                      2954+*                                                                *
                      2955+*****************************************************************************
                      2956+*STATUS                                                          *
                      2957+*    VERSION 1 MODIFICATION 0                                    *
                      2958+*                                                                *
                      2959+*FUNCTION                                                        *
                      2960+*    * DL4ICS WILL CONVERT A RELATIVE DISK ADDRESS TO A PHYSICAL  *
                      2961+*      DISK ADDRESS AND CALL $DISKN TO PERFORM THE SPECIFIED FUNCTION *
                      2962+*    * THE DISK ADDRESS IS A ONE BYTE CYLINDER ADDRESS AND A ONE BYTE *
                      2963+*      SECTOR DISPLACEMENT RELATIVE TO SECTOR 0 ON A CYLINDER     *
                      2964+*      BOUNDARY                                                   *
                      2965+*    * WHEN MORE THAN 1 SECTOR IS PROCESSED, DL4ICS WILL MAKE MULTIPLE *
                      2966+*      CALLS TO $DISKN TO CROSS CYLINDER BOUNDARIES IF REQUIRED.   *
                      2967+*    * IF 1 SECTOR ONLY IS TO BE PROCESSED, THE USER MAY OVERLAY THE *
                      2968+*      UNUSED CODE BY ORGING HIS NEXT MODULE AT DL4SPT            *
                      2969+*                                                                *
                      2970+*ENTRY POINTS                                                    *
                      2971+*      DL4ICS - ENTRY TO PROCESS A 4 SURFACE FILE. THE CALLING    *
                      2972+*                   SEQUENCE IS AS FOLLOWS                        *
                      2973+*                      DSKL4  DPL                                 *
                      2974+*                   WHERE DPL IS THE LABEL OF A SIX BYTE DISK PARAMETER *
                      2975+*                   LIST AS DESCRIBED FOR $DISKN EXCEPT FOR THE SECTOR *
                      2976+*                   ADDRESS BYTE.                                 *
                      2977+*                                                                *
                      2978+*INPUT                                                           *
                      2979+*    * INPUT TO DL4ICS IS THE ADDRESS OF THE DPL TO BE PROCESSED.  *
                      2980+*                                                                *
                      2981+*OUTPUT                                                          *
                      2982+*    * N/A                                                        *
                      2983+*                                                                *
                      2984+*EXTERNAL REFENECES                                              *
                      2985+*      $DISKN - ENTRY TO SYSTEM DISK ROUTINE                      *
                      2986+*                                                                *
                      2987+*EXITS, NORMAL                                                   *
                      2988+*    * NORMAL RETURN IS TO THE 1ST INSTRUCTION FOLLOWING THE TWO BYTE *
                      2989+*      ADDRESS POINTING TO THE DPL.                               *
                      2990+*                                                                *
                      2991+*EXITS, ERROR                                                    *
                      2992+*    * N/A                                                        *
                      2993+*                                                                *
                      2994+*TABLES/WORK AREAS                                               *
                      2995+*    * N/A                                                        *
                      2996+*                                                                *
                      2997+*ATTRIBUTES                                                      *
                      2998+*    * RELOCATABLE                                                *
                      2999+*    * REUSABLE                                                   *
                      3000+*                                                                *
                      3001+*CHARACTER CODE DEPENDENCY                                       *
                      3002+*    * THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR *
                      3003+*      INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.     *
                      3004+*                                                                *
                      3005+*NOTES                                                           *
                      3006+*    ERROR PROCEDURES                                             *
```

```
                            3007+*      N/A                                                    *
                            3008+*                                                             *
                            3009+*   REGISTER USAGE                                            *
                            3010+*      @BR IS SAVED AND RESTORED ON EXIT, @XR IS NOT USED.  @ARR IS  *
                            3011+*      USED TO PROVIDE THE ADDRESS OF THE PARAMETER.  THE @ARR IS  *
                            3012+*      INCREMENTED BT TWO AND SAVED AS THE RETURN ADDRESS.    *
                            3013+*                                                             *
                            3014+*   SAVED/RESTORED AREAS                                      *
                            3015+*      N/A                                                    *
                            3016+*                                                             *
                            3017+*   MODIFICATION CONSIDERATIONS                               *
                            3018+*      N/A                                                    *
                            3019+*                                                             *
                            3020+*   REQUIRED MODULES                                          *
                            3021+*      @SYSEQ - SYSTEM SOFTWARE EQUATES                        *
                            3022+*      @FXDEQ - SYSTEM NUCLEUS EQUATES                         *
                            3023+*                                                             *
                            3024+*   OTHER                                                     *
                            3025+*      NONE                                                   *
                            3026+*********************************************************************
```

```
                        0DD6 3028+DL4ICS EQU   *                          ENTRY TO DL4ICS
                        0DDA 3029+       USING DL4010,@BR                  ESTABLISH BASE REGISTER USAGE
     0DD6 34 01 0E46         3030+       ST    DL4900+@OP1,@BR            SAVE BASE REGISTER FOR EXIT
                        0DDA 3031+DL4010 EQU   *                          BASE ADDRESSABILITY
     0DDA C2 01 0DDA         3032+       LA    DL4010,@BR                 ESTABLISH BASE
     0DDE 76 08 78           3033+       A     DL4C01(,@BR),@ARR          BUMP TO HIGH END OF ADDR
     0DE1 74 08 14           3034+       ST    DL4020+@DOP2(,@BR),@ARR    SET UP MOVE INSTRUCTION
     0DE4 76 08 78           3035+       A     DL4C01(,@BR),@ARR          BUMP TO RETURN ADDR
     0DE7 74 08 70           3036+       ST    DL4920+@OP1(,@BR),@ARR     SAVE RETURN ADDR
                             3037+*
     0DEA 4C 01 1D 0000      3038+DL4020 MVC   DL4030+@DOP2(@DADDR,@BR),*-* MOVE DPL ADDR INTO MOVE
     0DEF 5E 01 1D 7A        3039+       ALC   DL4030+@DOP2(@CADDR,@BR),DL4C05(,@BR) BUMP TO RIGHT END
     0DF3 4C 05 76 0000      3040+DL4030 MVC   DL4DPL(@DPLNG,@BR),*-*     MOVE USER DPL TO WORK AREA
                             3041+*
     0DF8 7C 00 5E           3042+DL4035 MVI   DL4100+@Q(,@BR),@ZERO      CLEAR TRACK, DISK SET INST
     0DFB 7C 80 67           3043+       MVI   DL4200+@Q(,@BR),@NOP       TURN OFF TWICE INDICATOR
                             3044+*
     0DFE 7D 60 73           3045+DL4040 CLI   DL4SCD(,@BR),DL4E96        TEST IF DISPLACEMENT OVER 95 ?
     0E01 F2 82 0B           3046+       JL    DL4050                     JUMP IF NOT OVER 95
     0E04 5E 00 72 78        3047+       ALC   DL4CYL(1,@BR),DL4C01(,@BR) INCREMENT CYLINDER COUNT
     0E08 5F 00 73 25        3048+       SLC   DL4SCD(1,@BR),DL4C96(,@BR) DECREMENT DISP BY 96
     0E0C D0 87 24           3049+       B     DL4040(,@BR)               GO BACK CHECK FOR NEXT CYLINDER
                             3050+*
     0E0F 7D 30 73           3051+DL4050 CLI   DL4SCD(,@BR),DL4E48        TEST IF DISP ON NEXT DISK ?
     0E12 F2 82 07           3052+       JL    DL4060                     JUMP IF NOT OVER 48
     0E15 7A 01 5E           3053+       SBN   DL4100+@Q(,@BR),DL4EFD     TURN ON BIT FOR FIXED DISK
     0E18 5F 00 73 36        3054+       SLC   DL4SCD(1,@BR),DL4C48(,@BR) DECREMENT DISP 1 DISK
     0E1C 7D 01 74           3055+DL4060 CLI   DL4SCT(,@BR),DL4E01        IS SECTOR COUNT GREATER THEN 1 ?
     0E1F F2 84 33           3056+       JH    DL4SPT                     GO TO SPLIT CALL
     0E22 7D 18 73           3057+DL4070 CLI   DL4SCD(,@BR),DL4E24        DISPLACEMENT OVER 23 ?
     0E25 F2 82 07           3058+       JL    DL4080                     JUMP NOT OVER 24
     0E28 7A 80 5E           3059+       SBN   DL4100+@Q(,@BR),DL4ETB     SET TRACK BIT ON
     0E2B 5F 00 73 49        3060+       SLC   DL4SCD(1,@BR),DL4C24(,@BR) DECR DISP TO NEXT TRACK
     0E2F 5E 00 73 73        3061+DL4080 ALC   DL4SCD(1,@BR),DL4SCD(,@BR) SHIFT LEFT 1 PLACE
     0E33 5E 00 73 73        3062+       ALC   DL4SCD(1,@BR),DL4SCD(,@BR) SHIFT LEFT 1 PLACE
     0E37 7A 00 73           3063+DL4100 SBN   DL4SCD(,@BR),*-*           SET TRACK, DISK BIT
                             3064+*
     0E3A C0 87 0025         3065+       B     $DISKN                     GO PERFORM DISK I/O
     0E3E 0E4B          0E3F 3066+       DC    AL2(DL4LST)                ADDR OF DISK PARAM LIST
                             3067+*
     0E40 F2 00 3C           3068+DL4200 JC    DL4600,*-*                 BRANCH OR NOP IF TWICE SET
                             3069+*
     0E43 C2 01 0000         3070+DL4900 LA    *-*,@BR                    RESTORE OLD BASE TO RETURN
     0E47 C0 87 0000         3071+DL4920 B     *-*                        RETURN TO CALLER

                        0E4B 3073+DL4LST EQU   *                          LEFT END OF DPL
     0E4B               0E50 3074+DL4DPL DS    CL(@DPLNG)                 DPL SAVE AREA
                        0E4C 3075+DL4CYL EQU   DL4LST+@DCYL               CYLINDER COUNT BYTE
                        0E4D 3076+DL4SCD EQU   DL4LST+@DSAD               DISPLACEMENT SECTOR COUNT
                        0060 3077+DL4E96 EQU   96                         TWO DISK SECTOR COUNT PER CYL
                        0030 3078+DL4E48 EQU   48                         ONE DISK SECTOR COUNT PER CYL
                        0018 3079+DL4E24 EQU   24                         TRACK SECTOR COUNT
                        0001 3080+DL4E01 EQU   01                         VALUE TO TEST SECTOR COUNT
                        0001 3081+DL4EFD EQU   01                         VALUE TO SET FIXED DISK BIT
                        0080 3082+DL4ETB EQU   X'80'                      VALUE TO SET TRACK BIT
     0E51 0001          0E52 3083+DL4C01 DC    IL2'1'                     VALUE TO INCR TO CYLINDER
```

```
   0E53 0005              0E54 3084+DL4C05 DC    IL2'5'                      DISP TO RIGHT END OF DPL
                          0DFF 3085+DL4C96 EQU   DL4040+@Q                   VALUE TO DECR DISPLACEMENT
                          0E23 3086+DL4C24 EQU   DL4070+@Q                   VALUE OF 1 TRACK
                          0E4E 3087+DL4SCT EQU   DL4LST+@DCNT                POINTER TO DPL SECTOR COUNT
                          0E10 3088+DL4C48 EQU   DL4050+@Q                   VALUE TO DECR DISP BY 1 DISK

   0E55 5C 00 14 74            3090+DL4500 MVC   DL4WRK(1,@BR),DL4SCT(,@BR) PICKUP SECTOR COUNT
                          0E55 3091+DL4SPT EQU   DL4500                      POSSIBLE OVERLAY REFERENCE
   0E59 5E 00 14 73            3092+       ALC   DL4WRK(1,@BR),DL4SCD(,@BR) BUMP BY DISPLACEMENT
   0E5D 7D 30 14               3093+       CLI   DL4WRK(,@BR),DL4E48         TEST FOR CYLINDER OVERLAP
   0E60 D0 04 48               3094+       BNH   DL4070(,@BR)                BRANCH BACK IF NO OVERLAY
   0E63 5F 00 14 36            3095+       SLC   DL4WRK(1,@BR),DL4C48(,@BR) DECREMENT WORK BY 48
   0E67 5F 00 74 14            3096+       SLC   DL4SCT(1,@BR),DL4WRK(,@BR) SUBTRACT WORK FROM COUNT
   0E6B 7C 87 67               3097+       MVI   DL4200+@Q(,@BR),@UCB        SET TWICE SWITCH
   0E6E 5C 00 13 73            3098+       MVC   DL4SAV(1,@BR),DL4SCD(,@BR) SAVE SECTOR DISP IN WORK AREA
   0E72 78 01 5E               3099+       TBN   DL4100+@Q(,@BR),DL4EFD      DISK BIT ON IN Q CODE ?
   0E75 D0 90 48               3100+       BF    DL4070(,@BR)                BRANCH NOT ON
   0E78 5E 00 13 36            3101+       ALC   DL4SAV(1,@BR),DL4C48(,@BR) BUMP TO NEXT DISK
   0E7C D0 87 48               3102+       B     DL4070(,@BR)                RETURN TO CALL I/O
                               3103+*
   0E7F 5C 00 73 13            3104+DL4600 MVC   DL4SCD(1,@BR),DL4SAV(,@BR) PICKUP NEXT HALF OF I/O
   0E83 5E 00 75 74            3105+       ALC   DL4LST+@DBFR1(1,@BR),DL4SCT(,@BR) BUMP CORE ADDRESS
   0E87 5E 00 73 74            3106+       ALC   DL4SCD(1,@BR),DL4SCT(,@BR)
   0E8B 5C 00 74 14            3107+       MVC   DL4SCT(1,@BR),DL4WRK(,@BR) MOVE IN NEW SECTOR COUNT
   0E8F D0 87 1E               3108+       B     DL4035(,@BR)                RETURN FOR SECOND PASS
                               3109+*
                          0DEE 3110+DL4WRK EQU   DL4020+@DOP2                1 BYTE WORK AREA FOR SPLIT CALL
                          0DED 3111+DL4SAV EQU   DL4020+@DOP2-1              1 BYTE WORK AREA FOR SPLIT CALL
                          0E92 3112+DL4END EQU   *                          DEFINE END OF CODE
                               3113+***                    END OF DL4ICS                          ***
                               3114 ************************************************************************
                               3115 *
                               3116 *           THE FOLLOWING PATCH IS USED TO FORCE THE BUFFER
                               3117 *           - KSSUMR - TO SECTOR BOUNDARY
                               3118 *
                               3119 ************************************************************************

                               3121 ************************************************************************
                               3122 * PATCH AREA 1                                                         *
                               3123 ************************************************************************
                               3124 *
                               3125 * CALCULATE AREA LEFT IN THIS SECTOR
                               3126 *
                          0E92 3127 $$$$L1 EQU   *                          START OF PATCH AREA 1
   0F00                        3128        ORG   *,256,0                     SET LOC CNTR TO NEXT SECTOR
                          0F00 3129 $$$$T1 EQU   *                          DEFINE ADDR OF SETR DNDRY
   0E92                        3130        ORG   $$$$L1                      SET LOC CNTR TO START OF
                               3131 *                                       * PATCH AREA
   0E92                   0EFF 3132 $$$$$1 DS    CL($$$$T1-$$$$L1)          PATCH AREA
                               3133 ************************************************************************
                          0F00 3134 KSSUMR EQU   *                          BUFFER FOR TRANSFER
                               3135 *
```

```
                          3137 ***********************************************************************
                          3138 *                                                                     *
                          3139 *         KSSPND  MODULE  INITIALIZATION  AND  SYNTAX  CHECK           *
                          3140 *                                                                     *
                          3141 ***********************************************************************
                          3142 *
                     1158 3143         USING KSSBSE,@BR                LOAD BASE ADDR
   0F00 35 02 03C7        3144 KSS100 L     $XRSAV,@XR                LOAD SYNTAX INDEX POINTER
   0F04 C2 01 1158        3145        LA    KSSBSE,@BR                LOAD BASE REGISTER
                          3146 *
   0F08 C0 87 14EA        3147 KSS110 B     SCANIT                    SCAN BLANKS
   0F0C 3C 18 03CD        3148        MVI   $CAERR,@@E139             INVALID DELIMITER
   0F10 F2 81 24          3149        JZ    KSS130                    ERROR EXIT
   0F13 BD 1E 00          3150        CLI   @ZERO(,@XR),@EOS          AT EOS ?
   0F16 F2 81 2B          3151        JE    KSS150                    YES, CONTINUE
                          3152 *
   0F19 3C 11 15BA        3153        MVI   SAL755+@Q,@@E131          RESET ERROR CODE IN SALPHA
   0F1D 34 02 03C7        3154        ST    $XRSAV,@XR                SAVE POINTER
   0F21 C0 87 152B        3155        B     SALPH8                    SYNTAX FILENAME
   0F25 F2 82 19          3156        JL    KSS140                    ERROR EXIT
                          3157 *
   0F28 3C 11 03CD        3158        MVI   $CAERR,@@E131             INVALID PARAMETER
   0F2C F2 81 08          3159        JZ    KSS130                    CHECK EOS
                          3160 *
   0F2F 34 02 03C7        3161        ST    $XRSAV,@XR                SAVE POINTER
   0F33 3C 12 03CD        3162        MVI   $CAERR,@@E133             TOO MANY PARAMETERS
                          3163 *
   0F37 BD 1E 00          3164 KSS130 CLI   @ZERO(,@XR),@EOS          AT EOS ?
   0F3A F2 81 07          3165        JE    KSS150                    YES, CONTINUE
   0F3D 35 02 03C7        3166        L     $XRSAV,@XR                RESTORE ERROR POINTER
   0F41 F2 87 F4          3167 KSS140 J     KSS325                    ERROR EXIT
                          3168 *
                          3169 ***********************************************************************
```

```
                              3171 ************************************************************************
                              3172 *                                                                      *
                              3173 *        READ AND CHECK INFORMATION SECTOR                             *
                              3174 *                                                                      *
                              3175 ************************************************************************
                              3176 *
     0F44 4E 01 02 0587       3177 KSS150 ALC   KSSSSA+@DSAD(@DADDR,@BR),$BSADR  COMPUTE DADDR OF SAVE
                              3178 *
                              3179 *        DISK  KSSSSA,WAIT              READ INFORMATION SECTOR
     0F49 C0 87 0025          3180        B     $DISKN                     PERFORM PHYSICAL DISK OP
     0F4D 1158           0F4E 3181        DC    AL2(KSSSSA)                DPL ADDRESS
     0F4F C0 87 0025          3182        B     $DISKN                     WAIT AND CHECK DISK ERRORS
     0F53 057F           0F54 3183        DC    AL2($WAITF)                WAIT DPL ADDRESS
                              3184 *** END OF EXPANSION ***

     0F55 7C 02 00            3186        MVI   KSSSSA+@DCTRL(,@BR),@DPUT MODIFY CONTROL CODE
                              3187 *
     0F58 3D 00 18EA          3188        CLI   KSSFXD+KSSIDR,@ZERO        IS A PROGRAM IN SUSPENSION ?
     0F5C F2 81 0D            3189        JE    KSS200                     NO, CONTINUE
                              3190 *
     0F5F 3C 64 03CD          3191        MVI   $CAERR,@@E450              PROGRAM ALREADY IN SUSPENSION
     0F63 0D 07 18F1 15F1     3192        CLC   KSSFXD+##DUEN(##LUEN),SALPHR+##DUEN  SAME NAME ?
     0F69 F2 01 C9            3193        JNE   KSS320                     NO, ERROR EXIT
                              3194 *
                              3195 ************************************************************************
```

```
                            3197 *******************************************************************************
                            3198 *                                                                             *
                            3199 *        READ IN VM DIRECTORIES                                               *
                            3200 *                                                                             *
                            3201 *******************************************************************************
                            3202 *
                            3203 *KSS200 DISK  KSS0VM                        READ VM DIRECTORY 1
    0F6C C0 87 0025         3204 KSS200 B     $DISKN                         PERFORM PHYSICAL DISK OP
    0F70 115E          0F71 3205        DC    AL2(KSS0VM)                    DPL ADDRESS
                            3206 *** END OF EXPANSION ***

    0F72 0C 01 0DD5 0510    3208        MVC   DL2RAD(@DADDR),$CSDPL+@DSAD  BASE PAGE ADDR
    0F78 5C 00 0E 13        3209        MVC   KSS1VM+@DSAD(@B1,@BR),KSSPAG-1(,@BR)   SECTOR DISPLACEMENT
    0F7C 7C 00 13           3210        MVI   KSSPAG-@B1(,@BR),@ZERO    COMPUTE ADDR IN SECTOR FOR
    0F7F 1E 01 0F93 14      3211        ALC   KSS205+@OP1(@CADDR),KSSPAG(,@BR) * COMPARE
                            3212 *      DSKL2 KSS1VM,WAIT                    READ PAGE TABLE
    0F84 C0 87 0D3D         3213        B     DL2ICS                         PERFORM RELATIVE DISK OP
    0F88 1164          0F89 3214        DC    AL2(KSS1VM)                    DPL ADDRESS
    0F8A C0 87 0025         3215        B     $DISKN                         WAIT AND CHECK DISK ERRORS
    0F8E 057F          0F8F 3216        DC    AL2($WAITF)                    WAIT DPL ADDRESS
                            3217 *** END OF EXPANSION ***

    0F90 3D 00 0000         3219 KSS205 CLI   *-*,@ZERO                      IS CURRENT D2 IN ##CORE ?
    0F90                    3220        ORG   KSS205                         INITIALIZE INSTRUCTION
    0F90 3D 00 1AEA         3221        CLI   KSSVM1,@ZERO                   IS CURRENT D2 IN ##CORE ?
    0F94 F2 81 1D           3222        JE    KSS208                         NO, READ VM PAGE 1 - D2
                            3223 *
    0F97 4C 00 1B 0511      3224        MVC   KSSCOR(@B1,@BR),$CSDPL+@DCNT  COMPUTE CORE LENGTH
    0F9C 0C 01 0FA6 0F93    3225        MVC   KSS207+@DOP2,KSS205+@OP1(@CADDR)  COMPUTE SECTOR
    0FA2 4F 00 1B 0000      3226 KSS207 SLC   KSSCOR(@B1,@BR),*-*        *  DISPLACEMENT FOR READ AND
    0FA7 5C 00 0E 1B        3227        MVC   KSS1VM+@DSAD(@B1,@BR),KSSCOR(,@BR)  * MODIFY DPL
                            3228 *
                            3229 *      DSKL2 KSS1VM                         READ DIRECTORY 2
    0FAB C0 87 0D3D         3230        B     DL2ICS                         PERFORM RELATIVE DISK OP
    0FAF 1164          0FB0 3231        DC    AL2(KSS1VM)                    DPL ADDRESS
                            3232 *** END OF EXPANSION ***

    0FB1 F2 87 0A           3234        J     KSS209
                            3235 *
    0FB4 5C 01 0E 17        3236 KSS208 MVC   KSS1VM+@DSAD(@DADDR,@BR),KSSVFP(,@BR)  SUPPLY DADDR
                            3237 *      DISK  KSS1VM                         READ DIRECTORY 2
    0FB8 C0 87 0025         3238        B     $DISKN                         PERFORM PHYSICAL DISK OP
    0FBC 1164          0FBD 3239        DC    AL2(KSS1VM)                    DPL ADDRESS
                            3240 *** END OF EXPANSION ***

                            3242 *      MVC   KSS1VM+@DSAD(@DASD,@BR),KSSVMS+@DSAD   PRIME SUSPEND
                            3243 *KSS209 DISK  WAIT                          WAIT FOR DATA TRANSFER
    0FBE C0 87 0025         3244 KSS209 B     $DISKN                         PERFORM PHYSICAL DISK OP
    0FC2 057F          0FC3 3245        DC    AL2($WAITF)                    WAIT DPL ADDRESS
                            3246 *** END OF EXPANSION ***

                      0001  3248        DROP  @BR
                            3249 *
                            3250 *        MODIFICATIONS DONE FOR MORE THEN 08 ALLOCATE COMMANDS
                            3251 *
    0FC4 3D 00 1A09         3252        CLI   KSSVM0+@$D1SW,@ZERO        IS 2 SECTOR SWITCH ON ?
```

```
0FC8 F2 81 06              3253        JE    KSS220              NO, CONTINUE
0FCB 0C 00 1175 1A09       3254        MVC   KSSD1P(1),KSSVM0+@$D1SW   YES, SAVE VM PAGE NO.
0FD1 C2 01 19CA            3255 KSS220 LA    KSSVM0-@$L1E,@BR    ADDR IN DIRECTORY 1
0FD5 C2 02 1B1A            3256        LA    KSSVM1+@$D2E1-@$L2E,@XR   ADDR IN DIRECTORY 2
```

```
                             3258 *******************************************************************************
                             3259 *                                                                             *
                             3260 *         CHECK STATUS OF FILES ASSOCIATED WITH SUSPENDED PROGRAM             *
                             3261 *                                                                             *
                             3262 *******************************************************************************
                             3263 *
    0FD9 3D FF 1AEC          3264 KSS230 CLI    KSSVM1+@$D2AS,X'FF'        ANY ACTIVE DISK SCRATCH ?
    0FDD 3C 65 03CD          3265        MVI    $CAERR,@@E451              OPEN SCRATCH
    0FE1 F2 81 54            3266        JE     KSS325                     YES, ERROR EXIT
                             3267 *
    0FE4 3C 80 0476          3268        MVI    $CIMSK,@NOP                MASK INTERRUPTS
    0FE8 3A 10 03D6          3269        SBN    $INDR3,$CLBFR              SET BUFFER NOT CLEAR
    0FEC D2 01 20            3270 KSS250 LA     @$L1E(,@BR),@BR            INDEX TO NEXT ENTRY
    0FEF E2 02 10            3271        LA     @$L2E(,@XR),@XR            INDEX TO NEXT ENTRY
    0FF2 BD 00 00            3272        CLI    @$D2DC(,@XR),@ZERO         IS FILE OPEN ?
    0FF5 F2 81 98            3273        JE     KSS390                     NO, CHECK NEXT ONE
                             3274 *
    0FF8 B8 80 00            3275        TBN    @$D2DC(,@XR),@$MBPD        OPEN DISK FILE ?
    0FFB F2 90 92            3276        JF     KSS390                     NO, CHECK NEXT ONE
                             3277 *
                             3278 *******************************************************************************
```

```
                            3280 ***********************************************************************
                            3281 *                                                                     *
                            3282 *          CHECK FILE EXISTENCE D STATUS FOR SUSPEND                   *
                            3283 *                                                                     *
                            3284 ***********************************************************************
                            3285 *
     0FFE 34 02 108F        3286 KSS300 ST    KSS380+@OP1,@XR           SAVE INDEX POINTER
     1002 3C 00 0F00        3287        MVI   SMIND1,@ZERO             ZERO SMALES INDR AND SET UP DISK
     1006 1C 15 0F16 1E     3288        MVC   SMFNAM(##LUEN+##LPEN+@VOLID),@$D1DF(,@BR) * SPECIFICATION
     100B 1C 07 14DD 1E     3289        MVC   SVODSK(@$L1DF),@$D1DF(,@BR)  PRIME SVOLID MESSAGE
     1010 1C 07 14E9 08     3290        MVC   SVOIOF(@$L1BF),@$D1BF(,@BR)  PRIME SVOLID MESSAGE
     1015 0C 01 141B 0D38   3291        MVC   SVOCT2(2*@B1),KSSZER      MAKE SVOLID RE-ENTRIABLE
                            3292 *
     101B C0 87 1177        3293        B     SFINDF                   CHECK EXISTENCE
                            3294 *
     101F 39 88 0F00        3295        TBF   SMIND1,SM1PNF+SM1FNE     WAS FILE AND PASSWORD FOUND ?
     1023 F2 10 3D          3296        JT    KSS350                   YES, CONTINUE ON
     1026 3D 01 141B        3297        CLI   SVOCT2,@B1               RESULT OF MULTIPLY DEFINED
     102A F2 84 0F          3298        JH    SFIERR                   * VOLUMES - IF SO DO ERROR PROC
                            3299 *
     102D 3A 04 03D6        3300        SBN   $INDR3,$ERHRD            HARD HALT INDR
     1031 3C 9C 03CD        3301        MVI   $CAERR,@@E555            ERROR MESSAGE
     1035 E2 02 FF          3302 KSS320 LA    X'FF'(,@XR),@XR          GET XR OUT OF INPUT BUFFER
     1038 C0 87 0469        3303 KSS325 B     $CAERK                   EXIT
     103C 3C 87 10CC        3304 SFIERR MVI   KSS395+@Q,@UCB           SET ERROR EXIT SWITCH
     1040 0C 00 10C8 03CD   3305        MVC   KSS394+@Q(@VQ),$CAERR    ERROR CODE TO CLOSE OPEN FILES
     1046 3D 00 1174        3306        CLI   KSSOPN,@ZERO             ANY FILES OPENED ?
     104A F2 81 7A          3307        JE    KSS394                   NO, ERROR EXIT
     104D 0C 00 1171 1174   3308        MVC   KSSCT8(@B1),KSSOPN       SET UP ERROR RETURN COUNTER
     1053 3C 00 1174        3309        MVI   KSSOPN,@ZERO             ZERO COUNTER FOR SFIERR RE-ENTRY
                            3310 *
     1057 3C 87 1068        3311        MVI   KSS360+@Q,@UCB           BYPASS SBN - ERROR ROUTINE
     105B 3C 80 1074        3312        MVI   KSS370+@Q,@NOP           USE SBF - ERROR ROUTINE
     105F C0 87 0FD1        3313        B     KSS220                   BEGIN TO CLOSE OPENED FILES
                            3314 *
     1063 35 02 0F18        3315 KSS350 L     SMUDEA,@XR               CADDR OF ENTRY
     1067 F2 80 09          3316 KSS360 JC    KSS370,@NOP              ERROR SWITCH - SFIERR
     106A BA 04 0D          3317        SBN   ##DUES(,@XR),##MUEO      OPEN FILE
     106D 0E 00 1174 1170   3318        ALC   KSSOPN(@B1),KSSONE       INCREMENT COUNT OF OPEN FILES
                            3319 *
     1073 F2 87 03          3320 KSS370 JC    KSS37S,@UCB              ERROR SWITCH - SFIERR
     1076 BB 04 0D          3321        SBF   ##DUES(,@XR),##MUEO      SET OFF OPEN INDR
     1079 35 02 0F1C        3322 KSS37S L     SMUDBA,@XR               CURRENT BUFFER ADDR
     107D 34 02 116F        3323        ST    KSSUSR+@DBFR2,@XR        SAVE SUFFER ADDR
     1081 2C 01 116C 01     3324        MVC   KSSUSR+@DSAD(@DADDR),##DUHA(,@XR)  SAVE DADDR
                            3325 *
                            3326 *      DSKL2 KSSUSR                  RESTORE MODIFIED BLOCK
     1086 C0 87 0D3D        3327        B     DL2ICS                   PERFORM RELATIVE DISK OP
     108A 116A         108B 3328        DC    AL2(KSSUSR)              DPL ADDRESS
                            3329 *** END OF EXPANSION ***

                            3331 *
     108C C2 02 0000        3332 KSS380 LA    *-*,@XR                  RESTORE INDEX
                            3333 *
     1090 0F 00 1171 1170   3334 KSS390 SLC   KSSCT8(@B1),KSSONE       ALL ENTRYS CHECKED ?
     1096 C0 01 0FEC        3335        BNZ   KSS250                   NO, CHECK NEXT ONE
```

```
      DL4ICS - FOUR TRACK LOGICAL IOCR
```

```
                              3337 *
                              3338 *        MODIFICATIONS DONE FOR MORE THAN 08 ALLOCATE COMMANDS
                              3339 *
     109A 3D 00 1175          3340       CLI   KSSD1P,@ZERO            IS 2 SECTOR SWITCH ON ?
     109E F2 81 26            3341       JE    KSS394                 NO-GET OUT OF LOOP
     10A1 0C 00 1160 1175     3342       MVC   KSS0VM+@DADDR,KSSD1P   SET UP DPL TO READ SECTOR 2
                              3343 *      DSKL4 KSS0VM,WAIT            READ 2ND SECTOR OF D1
     10A7 C0 87 0DD6          3344       B     DL4ICS                 PERFORM RELATIVE DISK OP
     10AB 115E         10AC   3345       DC    AL2(KSS0VM)            DPL ADDRESS
     10AD C0 87 0025          3346       B     $DISKN                 WAIT AND CHECK DISK ERRORS
     10B1 057F         10B2   3347       DC    AL2($WAITF)            WAIT DPL ADDRESS
                              3348 *** END OF EXPANSION ***

     10B3 3C 04 1171          3350       MVI   KSSCT8,#@@#04          MAX OF 4 ENTRIES REMAINING
     10B7 3C 00 1175          3351       MVI   KSSD1P,@ZERO           TURN OFF 2 SECTOR SWITCH
     10BB C2 01 19CA          3352       LA    KSSVM0-@$L1E,@BR       RESTORE REGISTERS FOR INDEXING
     10BF C2 02 1B9A          3353       LA    KSSVM1+@$D2E1+7*@$L2E,@XR * THRU THE 2ND D1 PAGE
     10C3 C0 87 0FEC          3354       B     KSS250                 CONTINUE LOOP
                              3355 *
     10C7 3C 00 03CD          3356 KSS394 MVI  $CAERR,*-*             SFIERR ERROR RETURNED CODE
     10CB C0 80 0469          3357 KSS395 BC   $CAERK,@NOP            ERROR EXIT FROM SFIERR
                              3358 *
                              3359 ******************************************************************
```

```
                                   3361 ****************************************************************************
                                   3362 *                                                                          *
                                   3363 *         SET UP SUSPEND STATUS SECTOR                                     *
                                   3364 *                                                                          *
                                   3365 ****************************************************************************
     10CF C2 02 18EA               3366 KSS400 LA     KSSFXD,@XR                CADDR FXD SECTOR
     10D3 AF 18 18 18              3367        SLC    KSSPGD(KSSPGD+@B1,@XR),KSSPGD(,@XR)  ZERO OLD STATUS
     10D7 8C 07 07 1AF4            3368        MVC    KSSFNE(##LUEN,@XR),KSSVM1+@$D2PN   SAVE FILENAME
     10DC 8C 01 09 04FA            3369        MVC    KSSPBR(@REGL,@XR),$PSDBR  SAVE $PAUSD BR
     10E1 8C 01 0B 04F2            3370        MVC    KSSPXR(@REGL,@XR),$PSDXR  SAVE $PAUSD XR
     10E6 8C 01 0D 04FE            3371        MVC    KSSARR(@REGL,@XR),$SRTRN  SAVE $PAUSD ARR
                                   3372 *
                              03C0 3373        USING  $NUCBS,@BR                BASE IN NUCLEUS
     10EB C2 01 03C0               3374        LA     $NUCBS,@BR                BASE IN NUCLEUS
                                   3375 *
     10EF 9C 01 0F 0F              3376        MVC    KSSINL(2*@B1,@XR),$INLNO(,@BR)  SAVE $INLNO
     10F3 9C 00 10 7B              3377        MVC    KSSEXF(@B1,@XR),$EXFTR(,@BR)   SAVE $EXFTR
     10F7 9C 00 11 10              3378        MVC    KSSXD1(@B1,@XR),$XIND1(,@BR)   SAVE $XIND1 INDR
     10FB 9C 00 12 11              3379        MVC    KSSXD2(@B1,@XR),$XIND2(,@BR)   SAVE $XIND2 INDR
     10FF 9C 00 13 17              3380        MVC    KSSDSZ(@B1,@XR),$DKSIZ(,@BR)   SAVE $DKSIZ INDR
     1103 9C 00 14 1D              3381        MVC    KSSCFG(@B1,@XR),$CONFG(,@BR)   SAVE $CONFG INDR
     1107 9C 00 15 21              3382        MVC    KSSKBG(@B1,@XR),$KEYBD(,@BR)   SAVE $KEYBG INDR
     110B 8C 01 18 1166            3383        MVC    KSSPGD(@DADDR,@XR),KSS1VM+@DSAD  SAVE PAGE DISP
                                   3384 *
     1110 78 02 12                 3385        TBN    $IOIND(,@BR),$CRTAV       CRT AVAILABLE ?
     1113 F2 90 03                 3386        JF     KSS410                    NO, CHECK DATA RECORDER
     1116 BA 02 16                 3387        SBN    KSSIOI(,@XR),KSSCRT       YES, SET INDR
                                   3388 *
     1119 78 40 12                 3389 KSS410 TBN    $IOIND(,@BR),$DTRDR       IS DATA RECORDER AVAILABLE 7
     111C F2 90 03                 3390        JF     KSS420                    NO, CHECK LINE PRINTER
     111F BA 40 16                 3391        SBN    KSSIOI(,@XR),KSSDTR       YES, SET INDR
                                   3392 *
     1122 78 80 12                 3393 KSS420 TBN    $IOIND(,@BR),$LNPTR       IS PRINTER ON ?
     1125 F2 90 03                 3394        JF     KSS430                    NO, RESTORE SECTOR
     1128 BA 80 16                 3395        SBN    KSSIOI(,@XR),KSSLMP       YES, SET INOR
                                   3396 *
                                   3397 *KSS430 DISK   KSSSSA                    RESTORE FIXED SECTOR
     112B C0 87 0025               3398 KSS430 B      $DISKN                    PERFORM PHYSICAL DISK OP
     112F 1158                1130 3399        DC     AL2(KSSSSA)               DPL ADDRESS
                                   3400 *** END OF EXPANSION ***

                                   3402 *
                                   3403 ****************************************************************************
```

```
                          3405 ********************************************************************************
                          3406 *                                                                              *
                          3407 *          PREPARE FOR TRANSFER OF SAVED CORE A VM                             *
                          3408 *                                                                              *
                          3409 ********************************************************************************
                          3410 *
                     0001 3411          DROP  @BR
                     0C90 3412          USING KSSBS1,@BR               BASE DISK ROUTINE ADDR
                          3413 *
     1131 C2 01 0C90       3414 KSS500 LA    KSSBS1,@BR               BASE DISK ROUTINE ADOR
     1135 4C 00 AA 0511    3415        MVC   KSSCNT(@B1,@BR),$CSDPL+@DCNT  COUNT OF SAVED CORE
     113A 4E 01 A4 0587    3416        ALC   KSSCSA(@DADDR,@BR),$BSADR ADDR OF SUSPENDED CORE
     113F 4E 01 A2 0587    3417        ALC   KSSSAV(@DADDR,@BR),$BSADR ADDR OF SUSPENDED VM
     1144 4E 00 A9 043B    3418        ALC   KSSBUF(@B1,@BR),$EXFTR    DYNAMIC BUFFER SIZE
     1149 5C 00 92 A9      3419        MVC   KSSCRR+@DCNT(@B1,@BR),KSSBUF(,@BR)  CNT OF SECTORS
     114D 5C 00 9E A9      3420        MVC   KSSVMR+@DCNT(@B1,@BR),KSSBUF(,@BR)  CNT OF SECTORS
     1151 5C 00 98 A9      3421        MVC   KSSVMS+@DCNT(@B1,@BR),KSSBUF(,@BR)  CNT OF SECTORS
     1155 D0 87 00         3422        B     KSS000(,@BR)             BEGIN DATA TRANSFER
                          3423 *
                          3424 ********************************************************************************
```

```
                              3426 ****************************************************************************
                              3427 *                                                                          *
                              3428 *           DATA CONSTANTS, BUFFERS, & WORK AREAS                          *
                              3429 *                                                                          *
                              3430 ****************************************************************************
                              3431 *
                         1158 3432 KSSBSE EQU    *                            BASE ADDR
                              3433 *KSSSSA DPL    FUNC=@DGET,DADDR=ISISSA,CNT=SOISS,CADDR=KSSFXD
                         1158 3434 KSSSSA EQU    *                            DISK PARAMETER LIST
   1158 01                1158 3435        DC    AL1(@DGET)                   REQUESTED FUNCTION
   1159 1128              115A 3436        DC    AL2(#$#SSA)                  DISK ADDRESS
   115B 01                115B 3437        DC    AL1(#$@#SS)                  SECTOR COUNT
   115C 18EA              115D 3438        DC    AL2(KSSFXD)                  BUFFER ADDRESS
                              3439 *** END OF EXPANSION ***

                              3441 *KSS0VM DPL    FUNC=@DGET,DADDR=#@#VFP,CNT=@B1,CADDR=KSSVM0
                         115E 3442 KSS0VM EQU    *                            DISK PARAMETER LIST
   115E 01                115E 3443        DC    AL1(@DGET)                   REQUESTED FUNCTION
   115F 0700              1160 3444        DC    AL2(#@#VFP)                  DISK ADDRESS
   1161 01                1161 3445        DC    AL1(@B1)                     SECTOR COUNT
   1162 19EA              1163 3446        DC    AL2(KSSVM0)                  BUFFER ADDRESS
                              3447 *** END OF EXPANSION ***

                              3449 *KSS1VM DPL    FUNC=@DGET,DADDR=*-*,CNT=@B1,CADDR=KSSVM1
                         1164 3450 KSS1VM EQU    *                            DISK PARAMETER LIST
   1164 01                1164 3451        DC    AL1(@DGET)                   REQUESTED FUNCTION
   1165 0000              1166 3452        DC    AL2(*-*)                     DISK ADDRESS
   1167 01                1167 3453        DC    AL1(@B1)                     SECTOR COUNT
   1168 1AEA              1169 3454        DC    AL2(KSSVM1)                  BUFFER ADDRESS
                              3455 *** END OF EXPANSION ***

                              3457 *KSSUSR DPI    FUNC=@DPUT,DADDR=*-*,CNT=##LU,CADDR=*-*
                         116A 3458 KSSUSR EQU    *                            DISK PARAMETER LIST
   116A 02                116A 3459        DC    AL1(@DPUT)                   REQUESTED FUNCTION
   116B 0000              116C 3460        DC    AL2(*-*)                     DISK ADDRESS
   116D 02                116D 3461        DC    AL1(##LU)                    SECTOR COUNT
   116E 0000              116F 3462        DC    AL2(*-*)                     BUFFER ADDRESS
                              3463 *** END OF EXPANSION ***

   116E                      3465        ORG   *-2                           RESET LOCATION COUNTER
   116E 0704              116F 3466 KSSVFP DC    AL2(#@#VFP+4*@B1)            ADDR VM PAGE 1
                              3467 *
   1170 01                1170 3468 KSSONE DC    IL1'1'                       COUNTER DECREMENT
   1171                   1171 3469 KSSCT8 DS    IL1                          WORKING COUNTER
   1171                        3470        ORG   KSSCT8                        RESET LOCATION COUNTER
   1171 0008              1172 3471        DC    AL2(#@@#08)                  NO. OF ENTRIES IN PAGE 1 OF D1
                              3472 *
   116B                      3473        ORG   KSSUSR+@DCYL                  RESET LOCATION COUNTER
   116B 0ECB              116C 3474 KSSPAG DC    AL2(I$PGTB+@B1-$$KLD1+$$ZERO)  SECTOR & CORE DISP IN PAG
   1173                        3475        ORG
                              3476 *
   1173                   1173 3477 KSSCOR DS    XL1                          SECTORS OF PASE CORE - NUCLEUS
   1174 00                1174 3478 KSSOPN DC    XL1'00'                      COUNTER - OPENED FILES
   1175                   1175 3479 KSSD1P DS    CL1                          2 SECTOR SWITCH SAVE AREA
   1175                        3480        ORG   KSSD1P                        * BUILD AREA FOR RELATIVE
   1175 0000              1176 3481        DC    XL2'0000'                    * DISK ADDRESS OF 2ND SECTOR
```

                          3482 **
                          3483 **
                          3484 * $FIND

```
                         3486+*********************************************************************
                         3487+*  5703-XM1    COPYRIGHT IBM CORP. 1970                             *
                         3488+*                   REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083  *
                         3489+*                                                                   *
                         3490+*********************************************************************
                         3491+*STATUS                                                             *
                         3492+*    VERSION 1 MODIFICATION 0                                        *
                         3493+*                                                                   *
                         3494+*FUNCTION                                                            *
                         3495+*    * SFINDF IS A CONTROL MODULE USED TO LOCATE A SPECIFIED PASSWORD *
                         3496+*      AND/OR FILENAME.                                              *
                         3497+*    * IF THE FILENAME, PASSWORD, AND VOLUME-ID ARE ALL EXPLICITLY   *
                         3498+*      SPECIFIED. A CALL IS ISSUED TO SVOLID, SGETDB AND SRCHFN TO   *
                         3499+*      SEARCH FOR THE REQUIRED FILE IN THE FILE LIBRARY SPECIFIED.   *
                         3500+*      IF THE PASSWORD OR VOLUME-ID IS NOT EXPLICITLY DEFINED, SFINDF *
                         3501+*      WILL DEFAULT TO THE CURRENT USER SPECIFICATIONS, IF THEY EXIST, *
                         3502+*      FOR THE MISSING PARAMETERS AND THEN ISSUE THE REQUIRED CALLS   *
                         3503+*      TO SGETDS AND/OR SRCHFN TO LOCATE THE FILE.                   *
                         3504+*    * IF A ONE OR TWO-STAR FILENAME IS SPECIFIED, THE SPECIFIED DISK, *
                         3505+*      OR ALL DISKS ON THE SYSTEM WILL BE SEARCHED IN AN ATTEMPT TO   *
                         3506+*      LOCATE THE FILE. THE CALLER MAY SET AN INDICATOR TO TERMINATE  *
                         3507+*      THE SEARCH AFTER A GIVEN NUMBER OF DISKS HAVE BEEN SEARCHED.   *
                         3508+*                                                                   *
                         3509+*ENTRY POINTS                                                        *
                         3510+*    THE ENTRY POINT IS SFINDF.                                       *
                         3511+*    THE CALLING SEQUENCE IS AS FOLLOWS:                              *
                         3512+*        B    SFINDF                                                  *
                         3513+*                                                                   *
                         3514+*INPUT                                                               *
                         3515+*    * THE FOLLOWING INFORMATION MUST BE SET UP IN TSMLES BEFORE      *
                         3516+*      CALLING SFINDF.                                               *
                         3517+*        * SMPSWD  MUST CONTAIN SPECIFIED PASSWORD                   *
                         3518+*        * SMVOID  MUST CONTAIN SPECIFIED VOLUME                     *
                         3519+*        * SMFNAM  MUST CONTAIN SPECIFIED FILENAME                   *
                         3520+*    * THE FOLLOWING SWITCHES ARE PROVIDED TO HANDLE ONE OR TWO-STAR  *
                         3521+*      FILES:                                                        *
                         3522+*        * SFIVOL - IF @NOP IS SET SVOLID WILL NOT BE CALLED. SVOLID  *
                         3523+*                  IS NOT REUSABLE AND THIS SWITCH MUST BE SET BEFORE*
                         3524+*                  SFINDF IS CALLED A SECOND TIME.                   *
                         3525+*        * SFISTR - IF @NOP IS SET ONLY 1 DISK WILL BE SEARCHED       *
                         3526+*        * SFIFND - IF @NOP SET WITH SFIVOL ONLY THE NUMBER OF DISKS  *
                         3527+*                  SPECIFIED IN SFINTR WILL BE SEARCHED.             *
                         3528+*                                                                   *
                         3529+*OUTPUT                                                              *
                         3530+*    * THE OUTPUT FROM SFINDF IS SET IN TSMLES, THE POINTERS AND USER  *
                         3531+*      DIRECTORIES REQUIRED ARE INITALIZED.                          *
                         3532+*                                                                   *
                         3533+*EXTERNAL REFERENCES                                                 *
                         3534+*        TSMLES - (SMALES) DATA MANAGEMENT SAVE AREAS AND BUFFERS.    *
                         3535+*        $VOLID - CORE RESIDENT VOLID TABLE.                          *
                         3536+*        $USRDR - DISPLACEMENT TO CURRENT USER DIRECTORY.             *
                         3537+*        $FILIB - CURRENT USER FILE LIBRARY DISK ADDRESS.             *
                         3538+*        DL2ICS - TWO TRACK LOGICAL IOCS.                             *
                         3539+*        SRCHFN - SEARCH USER DIRCTY BLOCK.                           *
                         3540+*        SGETDB - SEARCH PASSWORD DIRCTY.                             *
                         3541+*        SVOLID - SEARCH VOL-ID TABLE.                               *
```

SFINDF - FILE SEARCH CONTROL MODULE

```
                              3542+*       $CAERR - SAVE AREA FOR SYSTEM ERROR MESSAGT CODE.          *
                              3543+*                                                                 *
                              3544+*EXITS, NORMAL                                                     *
                              3545+*   * NORMAL RETURN IS TO THE CALLER FOLLOWING THE BRANCH TO SFINDF. *
                              3546+*                                                                 *
                              3547+*EXITS, ERROR                                                      *
                              3548+*   * THE ERROR RETURN IS TO SFIERR WHICH MUST BE DEFINED BY THE   *
                              3549+*     CALLER.                                                      *
                              3550+*                                                                 *
                              3551+*TABLES/WORKAREAS                                                  *
                              3552+*   * N/A                                                          *
                              3553+*                                                                 *
                              3554+*ATTRIBUTES                                                        *
                              3555+*   * RELOCATABLE                                                  *
                              3556+*   * RE-USABLE                                                    *
                              3557+*                                                                 *
                              3558+*CHARACTER CODE DEPENDENCY                                         *
                              3559+*   * THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR *
                              3560+*     INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.       *
                              3561+*                                                                 *
                              3562+*NOTES                                                             *
                              3563+*   ERROR PROCEDURES                                               *
                              3564+*      IF A FILE-SPEC WAS NOT ENTERED AND A CURRENT USER IS NOT IN *
                              3565+*      AFFECT.  THE ERROR EXIT TO SFIERR IS TAKEN.                 *
                              3566+*                                                                 *
                              3567+*   REGISTER USAGE                                                 *
                              3568+*      @BR AND @XR ARE SAVED AND RESTORED. DURING EXECUTION @BR IS *
                              3569+*      USED AS A BASE REGISTER AND @XR IS USED TO POINT TO $NUCBS. *
                              3570+*                                                                 *
                              3571+*   SAVED/RESTORED AREAS                                           *
                              3572+*      NONE                                                        *
                              3573+*                                                                 *
                              3574+*   MODIFICATION CONSIDERATIONS                                    *
                              3575+*      NONE                                                        *
                              3576+*                                                                 *
                              3577+*   REQUIRED MODULES                                               *
                              3578+*       @SYSEQ - SYSTEM SOFTWARE EQUATES.                          *
                              3579+*       @FXDEQ - SYSTEM NUCLEUS ADDRESSES AND INDICATOR VALUES.    *
                              3580+*       TSMLES - DATA MANAGEMENT SAVE AREAS AND BUFFERS.           *
                              3581+*       $VOLID - SEARCH VOLUME-ID SUBROUTINE.                      *
                              3582+*       SRCHFN - SEARCH FOR FILENAME SUBROUTINES.                  *
                              3583+*       SGETDB - SEARCH PASSWORD DIRECTORY SUBROUTINE.             *
                              3584+*       DL2ICS - TWO TRACK DISK LOGICAL IOCS.                      *
                              3585+*                                                                 *
                              3586+*   OTHER                                                          *
                              3587+*      NONE                                                        *
                              3588+************************************************************************

                              3590+*
                              3591+*                    EQUATES USED IN THIS SUBROUTINE
                              3592+*
                         1177 3593+SFINDF EQU    *                         START OF MODULE
        1177 34 01 1284       3594+       ST    SFISBR,@BR                SAVE @BR
        117B C2 01 11B5       3595+       LA    SFIBSE,@BR                SET LOCAL BASE
                         11B5 3596+       USING SFIBSE,@BR                *
```

```
     117F 74 08 D3           3597+      ST     SFIEXT(,@BR),@ARR          SAVE RETURN ADDR
     1182 74 02 CB           3598+      ST     SFISXR(,@BR),@XR           SAVE @XR
     1185 C2 02 03C0         3599+      LA     $NUCBS,@XR                 SET NUCLEUS BASE
                        03C0 3600+      USING  $NUCBS,@XR                 *
     1189 3D 40 0F07         3601+      CLI    SMPSWD-##LPEN+@B1,@BLANK    WAS A PASSWD SPECIFIED ?
     118D F2 81 98           3602+      JE     SFI500                     NO, GO CHECK LOGON STATUS
     1190 3D 40 0B11         3603+      CLI    SMVOID-$VOLID+@B1,@BLANK    WAS A VOL-ID SPECIFIED ?
     1194 F2 81 07           3604+      JE     SFI100                     NO, GO CHECK LOGON STATUS
     1197 C0 87 13C1         3605+SFI050 B     SVOLID                     RESOLVE SPECIFIED VOL-ID
                        1198 3606+SFIVOL EQU   SFI050+@Q                  SET TO A NOP FOR SUCCESSIVE USE
     119B F2 87 75           3607+      J      SFI350                     GO TO GET DIRECTORY
                             3608+*
                             3609+*                PASSWORD WAS SPECIFIED, BUT VOL-ID WAS NOT
                             3610+*
     119E 3D 5C 0F07         3611+SFI100 CLI   SMPSWD-##LPEN+@B1,SFIAST    IS PASSWORD AN '*' ?
     11A2 F2 01 63           3612+      JNE    SFI320                     NO, GO CHK FOR FILE LIBR DADDR
     11A5 7C 00 D4           3613+      MVI    SFICTR(,@BR),@ZERO         YES, INITLZ LOOP CTR TO ZERO
     11A8 7C 00 DB           3614+      MVI    SFITTC(,@BR),@ZERO         INITLZ THIS TIME COUNTER
     11AB BD 00 19           3615+      CLI    $FILIB-@B1(,@XR),@ZERO     CURRENT USER IN FORCE ?
     11AE F2 01 5D           3616+      JNE    SFI340                     YES, GO TRY THAT FIRST
     11B1 3A 08 0F00         3617+      SBN    SMIND1,SM1PNF              SET PASSWORD NOT FOUND INDR.
                             3618+*
                             3619+*                THE FOLLOWING ROUTINE WILL SEARCH ALL DISKS ON THE
                             3620+*                SYSTEM FOR THE SPECIFIED ONE OR TWO STAR FILE
                             3621+*
     11B5 7D 01 D4           3622+SFI200 CLI   SFICTR(,@BR),@B1           CHECK THE DISK POINTER
     11B8 F2 82 1A           3623+      JL     SFI220                     GO CHECK F1
     11BB F2 81 28           3624+      JE     SFI230                     GO CHECK F2
     11BE 7D 03 D4           3625+      CLI    SFICTR(,@BR),SFIE03
     11C1 F2 82 33           3626+      JL     SFI240                     GO CHECK R1
                             3627+*
     11C4 BD 00 4C           3628+SFI210 CLI   $VOLR2+SFIE06(,@XR),@ZERO DOES R2 CONTAIN A FILE LIBR
     11C7 F2 81 AC           3629+      JE     SFI545                     NO, NO MORE TO CHK, GO RETURN
     11CA 2C 01 0F1A 4D      3630+      MVC    SMBFDA(@DADDR),$VOLR2+SFIE07(,@XR) SET LIBR DADDR FOR
     11CF 7C FE D4           3631+      MVI    SFICTR(,@BR),SFIEFE        * SEARCH AND INCR DISK POINTER
     11D2 F2 87 3E           3632+      J      SFI350                     GO TO SEARCH
                             3633+*
     11D5 BD 00 44           3634+SFI220 CLI   $VOLF1+SFIE06(,@XR),@ZERO DOES F1 CONTAIN A FILE LIBR
     11D8 F2 81 0B           3635+      JE     SFI230                     NO, GO CHECK F2
     11DB 2C 01 0F1A 45      3636+      MVC    SMBFDA,$VOLF1+SFIE07(@DADDR,@XR) SET LIBR DADDR FOR SEWN
     11E0 7C 01 D4           3637+      MVI    SFICTR(,@BR),@B1           INCR DISK POINTER
     11E3 F2 87 2D           3638+      J      SFI350                     SO TO SEARCH
                             3639+*
     11E6 BD 00 54           3640+SFI230 CLI   $VOLF2+SFIE06(,@XR),@ZERO DOES F2 CONTAIN A FILE LIBR
     11E9 F2 81 0B           3641+      JE     SFI240                     NO, SO CHECK R1
     11EC 2C 01 0F1A 55      3642+      MVC    SMBFDA,$VOLF2+SFIE07(@DADDR,@XR) SET LIBR DADDR FOR SEACH
     11F1 7C 02 D4           3643+      MVI    SFICTR(,@BR),SFIE02        INCR DISK POINTER
     11F4 F2 87 1C           3644+      J      SFI350                     GO TO SEARCH
                             3645+*
     11F7 BD 00 3C           3646+SFI240 CLI   $VOLR1+SFIE06(,@XR),@ZERO DOES R1 CONTAIN A FILE LIBR
     11FA D0 81 0F           3647+      BE     SFI210(,@BR)               NO, GO CHECK R2
     11FD 2C 01 0F1A 3D      3648+      MVC    SMBFDA,$VOLR1+SFIE07(@DADDR,@XR) SET LIB DADDR FOR SEARCH
     1202 7C 03 D4           3649+      MVI    SFICTR(,@BR),SFIE03        INCR DISK POINTER
     1205 F2 87 0B           3650+      J      SFI350                     GO TO SEARCH
                             3651+*
                             3652+*                PASSWORD SPECIFIED, BUT VOLUME ID WAS NOT.
```

```
     SFINDF - FILE SEARCH CONTROL MODULE


ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  27/02/22  PAGE  34

                               3653+*                    CHECK FOR CURRENT USER
                               3654+*
     1208 BD 00 19             3655+SFI320 CLI   $FILIB-@B1(,@XR),@ZERO     CURRENT USER SPEC IN FORCE
     120B F2 81 20             3656+       JE     SFI505                     NO, GO TO ERR ROUTINE
     120E 2C 01 0F1A 1A        3657+SFI340 MVC   SMBFDA(@DADDR),$FILIB(,@XR) YES, SET TO USER LIBR
                               3658+*
                               3659+*                    SO SEARCH FOR SPECIFIED PASSWORD
                               3660+*
     1213 C0 87 1293           3661+SFI350 B      SGETDB                     SEARCH FOR PASSWORD
     1217 38 08 0F00           3662+       TBN    SMIND1,SM1PNF              WAS PASSWORD FOUND
     121B F2 10 3B             3663+       JT     SFI540                     NO, GO TEST STAR COUNTER
     121E 38 10 0F00           3664+       TBN    SMIND1,SM1PDS              PASSWORD DIRCTY ONLY REQ'SED
     1222 F2 10 58             3665+       JT     SFI550                     YES, GO RETURN TO USER
     1225 F2 87 26             3666+       J      SFI520                     NO, GO SEARCH FOR FILENAME
                               3667+*
                               3668+*              ONLY FILENAME SPECIFIED, CHECK FOR CURRENT USER
                               3669+*
     1228 BD 00 19             3670+SFI500 CLI   $FILIB-@B1(,@XR),@ZERO     CURRENT USER SPEC IN FORCE
     122B F2 01 07             3671+       JNE    SFI510                     YES, BYPASS ERROR MESSAGE
     122E BC 21 0D             3672+SFI505 MVI   $CAERR(,@XR),@@E200        SET NO CURRENT USER ERROR CODE
     1231 C0 87 103C           3673+       B      SFIERR                     GO TO ERROR RETURN
                               3674+*
                               3675+*                    GET FIRST USER DIRECTORY BLOCK
                               3676+*
     1235 2C 01 0DD5 1A        3677+SFI510 MVC   DL2RAD,$FILIB(@DADDR,@XR)  SET DL2ICS BASE DADDR
     123A 2C 01 0F1A 1A        3678+       MVC   SMBFDA,$FILIB(@DADDR,@XR)  SET LIBR DADDR TO COMMON AREA
     123F 6C 01 D7 1C          3679+       MVC   SFIRDA(,@BR),$USRDR(@DADDR,@XR) SET DL2ICS RELATIVE DADDR
     1243 C0 87 0D3D           3680+       B      DL2ICS                     GO READ USER DIRECTORY BLOCK
     1247 128A          1248   3681+       DC     AL2(SFIDPL)                * CADDR OF DPL
     1249 2C 01 0F2A 1C        3682+       MVC   SMFUDA,$USRDR(@DADDR,@XR)  PRESERVE 1ST BLOCK REL. DADDR
                               3683+*
                               3684+*              SEARCH USER DIRECTORY BLOCK FOR FILENAME
                               3685+*
     124E C0 87 131F           3686+SFI520 B      SRCHFN                     GO TO SEARCH ROUTINE
     1252 38 80 0F00           3687+       TBN    SMIND1,SM1FNE              WAS NAME FOUND
     1256 F2 10 24             3688+       JT     SFI550                     YES, SO RETURN
                               3689+*
                               3690+*                    PASSWORD OR FILENAME NOT FOUND
                               3691+*
     1259 7D FE D4             3692+SFI540 CLI   SFICTR(,@BR),SFIEFE        ONE OR TWO STAR FILE WITH MORE
     125C F2 84 1E             3693+       JH     SFI550                     * DISKS TO SEARCH ? NO, GET OUT
     125F D0 82 00             3694+SFI542 BC    SFI200(,@BR),@BL           * YES, GO SEARCH
                        1260   3695+SFISTR EQU   SFI542+@Q                  * NOP FOR 1ST * OR ** SEARCHED
     1262 F2 87 11             3696+SFI543 JC    SFI545,@UCB                BYPASS TRY CONTROL UNLESS
                        1263   3697+SFIFND EQU   SFI543+@Q                  * Q-CODE CHANGED TO A NOP
     1265 7D 06 DC             3698+       CLI   SFINTR(,@BR),SFIETD        IS TRY COUNTER AT MAX ?
     1268 F2 02 0B             3699+       JNL    SFI545                     YES, SO SET ERROR CODE
     126B 5E 00 DB DD          3700+       ALC   SFITTC(,@BR),SFIONE(,@BR)  INCR THIS TRY COUNTER
     126F 5D 00 DB DC          3701+       CLC   SFITTC(,@BR),SFINTR(1,@BR) THIS TRY = TRYS REQUIRED ?
     1273 D0 01 00             3702+       BNE   SFI200(,@BR)               NO, GO TRY THE NEXT DISK
     1276 BC 26 0D             3703+SFI545 MVI   $CAERR(,@XR),@@E213        SET * OR ** NOT FOUND CODE
     1279 3A 80 0F00           3704+       SBN   SMIND1,SM1FNE              SET ON FILE NOT FOUND INDR.
                               3705+*
                               3706+*                    RETURN TO USER
                               3707+*
     127D C2 02 0000           3708+SFI550 LA    *-*,@XR                    RELOAD @XR
```

```
     SFINDF - FILE SEARCH CONTROL MODULE
```

```
                          1280 3709+SFISXR EQU   SFI550+@OP1              *
      1281 C2 01 0000          3710+SFI560 LA    *-*,@BR                  RELOAD @BR
                          1284 3711+SFISBR EQU   SFI560+@OP1              *
      1285 C0 87 0000          3712+SFI570 B     *-*                      RETURN TO THE USER
                          1288 3713+SFIEXT EQU   SFI570+@OP1              *
                               3714+*
                               3715+*                     CONSTANTS AND SAVE AREAS
                               3716+*
      1289                1289 3717+SFICTR DS    XL1                      COUNTER USED TO CONTROL THE
      1289                     3718+       ORG   *-1                      * SEARCH FOR A STAR FILE
      1289 FF             1289 3719+       DC    AL1(SFIEFF)              INITLZ'D FOR NO SEARCH
      128A 01             128A 3720+SFIDPL DC    AL1(@DGET)              DPL TO READ USER DIRCTY BLOCK 1
      128B                128C 3721+SFIRDA DS    XL2                      * RELATIVE DISK ADDRESS
      128D 02             128D 3722+       DC    XL1'02'                  * SECTOR COUNT
      128E 14EA           128F 3723+       DC    AL2(SMUDB1)              * CORE BUFFER ADDRESS
      1290                1290 3724+SFITTC DS    CL1                      THIS TRY COUNTER
      1291                1291 3725+SFINTR DS    CL1                      NUMBER OF TRYS REQUIRED COUNTER
      1291                     3726+       ORG   SFINTR                   INITLZ NUMBER CF TRYS REQUIRED
      1291 00             1291 3727+       DC    XL1'0'                   * COUNTER TO ZERO
      1292 01             1292 3728+SFIONE DC    XL1'1'                   COUNTER INCREMENT
                               3729+*
                               3730+*                     EQUATES
                               3731+*
      103C                1035 3732+SVOERR EQU   SFIERR                   SVOLID ERROR RETURN ADDRESS
      005C                     3733+SFIAST EQU   C'*'                     STAR LIBR TEST CHARACTER
      0002                     3734+SFIE02 EQU   X'02'                    STAR COUNTER TEST R1 CODE
      0003                     3735+SFIE03 EQU   X'03'                    STAR COUNTER TEST R2 CODE
      00FE                     3736+SFIEFE EQU   X'FE'                    STAR COUNTER COMPLETE CODE
      00FF                     3737+SFIEFF EQU   X'FF'                    NOT A * OR ** FILE COUNTER CODE
      0006                     3738+SFIE06 EQU   X'06'                    DISP TO LIBR DADDR BYTE 0
      0007                     3739+SFIE07 EQU   X'07'                    DISP TO LIBR DADDR BYTE 1
      11B5                     3740+SFIBSE EQU   SFI200                   LOCAL BASE ADDRESS
      1292                     3741+SFIEND EQU   *-1                      LAST BYTE OF SFINDF
      0006                     3742+SFIETD EQU   6                        MAX TRY REQUIRED COUNTER VALUE
      0001                     3743+       DROP  @BR
      0002                     3744+       DROP  @XR
                               3745+***                     END OF SFINDF                              ***
                               3746 *     $GETD
```

```
                         3748+*****************************************************************************
                         3749+*  5703-XM1 COPYRIGHT IBM CORP. 1970                              *
                         3750+*           REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083  *
                         3751+*                                                                 *
                         3752+*****************************************************************************
                         3753+*STATUS                                                          *
                         3754+*    VERSION 1 MODIFICATION 0                                     *
                         3755+*                                                                 *
                         3756+*FUNCTION                                                         *
                         3757+*    * SGETDB PROVIDES TWO PRIMARY FUNCTIONS. IT WILL SEARCH THE  *
                         3758+*      PASSWORD DIRECTORY FOR A SPECIFIED PASSWORD ONLY, OR IF     *
                         3759+*      INDICATED WILL GO AND READ IN THE FIRST USER BLOCK ASSOCIATED *
                         3760+*      WITH THAT PASSWORD.                                         *
                         3761+*    * IF THE PASSWORD SEARCH ONLY IS REQUESTED A SWITCH IS SET TO *
                         3762+*      INHIBIT READING THE DIRECTORY ON SUBSEQUENT ENTRIES.        *
                         3763+*    * THE ERROR CODE FOR PASSWORD NOT FOUND IS ALWAYS SET IN $CAERR. *
                         3764+*      IF THE PASSWORD IS OR IS NOT FOUND THE INDICATOR IN SMIND1 IS *
                         3765+*      SET APPROPRIATELY.                                          *
                         3766+*                                                                 *
                         3767+*ENTRY POINTS                                                     *
                         3768+*    SGETDB - ENTRY TO SEARCH PASSWORD DIRECTORY AND GET          *
                         3769+*             ASSOCIATED USER DIRECTORY. THE CALLING SEQUENCE IS  *
                         3770+*             AS FOLLOWS:                                          *
                         3771+*                 B    SGETDB                                     *
                         3772+*                                                                 *
                         3773+*INPUT                                                            *
                         3774+*    * THE BASE ADDRESS OF THE LIBRARY MUST BE IN SM1FDA IN TSMLES. *
                         3775+*    * THE PASSWORD MUST BE IN SMPSWD.                             *
                         3776+*    * IF THE PASSWORD DIRECTORY IS TO BE SEARCHED ONLY, THEN SM1PDS *
                         3777+*      IN SMIND1 MUST BE SET TO 1. IF THE FIRST USER DIRECTORY BLOCK *
                         3778+*      ASSOCIATED WITH THE SPECIFIED PASSWORD IS TO BE READ IN THEN *
                         3779+*      THEN SM1PDS MUST BE SET TO 0.                              *
                         3780+*                                                                 *
                         3781+*OUTPUT                                                           *
                         3782+*    * IF THE SPECIFIED PASSWORD IS FOUND THE ADDRESS OF THE LEFT BYTE *
                         3783+*      OF THE ENTRY IS PLACED IN SMPEAD, SM1PNF IN SMIND1 IS SET TO 0. *
                         3784+*      AND THE USER DIRECTORY RDADDR IS PLACED IN SMFUDA.          *
                         3785+*    * IF THE USER DIRECTORY WAS REQUESTED, THE READ OPERATION IS   *
                         3786+*      STARTED BUT NO WAIT IS PERFORMED. THE USER DIRECTORIES OVERLAY *
                         3787+*      THE PASSWORD DIRECTORIES IN CORE.                           *
                         3788+*    * IF THE SPECIFIED PASSWORD WAS NOT FOUND SM1PNF, IS SET TO 1 AND *
                         3789+*      THE ADDRESS FOR THE NEXT AVAILABLE ENTRY IS IN SMPEAD.      *
                         3790+*                                                                 *
                         3791+*EXTERNAL REFERENCES                                              *
                         3792+*         $CAERR - LOCATION FOR SYSTEM ERROR CODE                 *
                         3793+*         SMIND1 - DATA MANAGEMENT INDICATOR                      *
                         3794+*         DL2RAD - LOCATION OF FILE PHYSICAL BASE ADDRESS         *
                         3795+*         SMBFDA - LOCATION OF LIBRARY BASE ADDRESS               *
                         3796+*         DL2ICS - ENTRY TO DISK I/O ROUTINE                      *
                         3797+*         $DISKN - ENTRY TO SYSTEM DISK IOCS                      *
                         3798+*         $WAITF - LOCATION OF COMMON I/O WAIT FUNCTION           *
                         3799+*         SMPSWD - LOCATION PASSWORD ARGUMENT                     *
                         3800+*         SMPEAD - LOCATION OF PASSWORD ENTRY ADDRESS             *
                         3801+*         SMFUDA - LOCATION OF USER DIRECTORY RDADDR              *
                         3802+*                                                                 *
                         3803+*EXITS, NORMAL                                                    *
```

```
                                   3804+*    NORMAL EXIT IS TO THE FIRST INSTRUCTION FOLLOWING THE BRANCH     *
                                   3805+*    TO SGETDB                                                        *
                                   3806+*                                                                     *
                                   3807+*EXITS, ERROR                                                         *
                                   3808+*    NONE                                                             *
                                   3809+*                                                                     *
                                   3810+*TABLES/WORKAREAS                                                     *
                                   3811+*    NONE                                                             *
                                   3812+*                                                                     *
                                   3813+*ATTRIBUTES                                                           *
                                   3814+*    RELOCATABLE                                                      *
                                   3815+*    REUSABLE                                                         *
                                   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 ERROR CODE FOR PASSWORD NOT FOUND IS ALWAYS SET BUT SGETDB *
                                   3824+*      DETECTS NO PARTICULAR ERROR. THE CONDITION AS TO IF THE        *
                                   3825+*      PASSWORD WAS OR WAS NOT FOUND IS INDICATED HOWEVER.            *
                                   3826+*                                                                     *
                                   3827+*    REGISTER USAGE                                                   *
                                   3828+*      @BR AND @XR1 ARS SAVED AND RESTORED. @BR IS USED AS A BASE    *
                                   3829+*      REGISTER AND @XR IS USED AS AN INDEX TO THE PASSWORD DIRCTY.   *
                                   3830+*      @ARR IS USED TO PROVIDE THE RETURN ADDRESS.                    *
                                   3831+*                                                                     *
                                   3832+*    SAVED/RESTORED AREAS                                             *
                                   3833+*      NONE                                                           *
                                   3834+*                                                                     *
                                   3835+*    MODIFICATION CONSIDERATIONS                                      *
                                   3836+*      IN USING SGETDB THE USER MUST TAKE INTO CONSIDERATION THAT     *
                                   3837+*      SGETDB DOES NOT WAIT FOR THE USER DIRECTORY BLOCK TO BE IN     *
                                   3838+*      CORE BEFORE RETURNING.                                         *
                                   3839+*                                                                     *
                                   3840+*    REQUIRED MODULES                                                 *
                                   3841+*      @SYSEQ - SYSTEM SOFTWARE EQUATES                               *
                                   3842+*      @FXDEQ - NUCLEUS EQUATES                                       *
                                   3843+*      @DIREQ - LIBRARY DIRECTORY EQUATES                             *
                                   3844+*      DL2ICS - DISK IOCS                                             *
                                   3845+*      TSMLES - DATA MANAGEMENT COMMUNICATIONS AREA                  *
                                   3846+*                                                                     *
                                   3847+*    OTHER                                                            *
                                   3848+*      NONE                                                           *
                                   3849+***********************************************************************
                                   3850+*SGETDB ENTER BASE,SGETDB,EXIT,SGE90,@BR,@XR,@ARR
                              1293 3851+        USING SGETDB,@BR                 BASE ADDRESS SPECIFICATION
                              1293 3852+SGETDB EQU    *                          MODULE ENTRY POINT
      1293 34 01 130B             3853+        ST     SGE900+@OP1,@BR            SAVE @BR
      1297 C2 01 1293             3854+        LA     SGETDB,@BR                 LOAD BASE REGISTER
      129B 74 02 7C               3855+        ST     SGE901+@OP1(,@BR),@XR      SAVE @XR
      129E 74 08 80               3856+        ST     SGE902+@OP1(,@BR),@ARR     SAVE RETURN ADDRESS
                                   3857+*** END OF EXPANSION ***

      12A1 3C 23 03CD             3859+        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  27/02/22  PAGE  38

    12A5 3B 08 0F00           3860+          SBF   SMIND1,SM1PNF              INITIALIZE INDICATOR TO FOUND
    12A9 F2 80 15             3861+SGE050 JC      SGE055,@NOP               SET SWITCH FOR 2ND ENTRY
    12AC 7C 87 17             3862+          MVI   SGE050+@Q(,@BR),@UCB      TURN SWITCH ON FOR NEXT ENTRY
    12AF 0C 01 0DD5 0F1A      3863+          MVC   DL2RAD,SMBFDA             STUFF IN THE BASE ADDR
    12B5 C0 87 0D3D           3864+          B     DL2ICS                   CALL DISK I/O ROUTINE
    12B9 1314          12BA   3865+          DC    AL2(SGEDPL)              POINTER TO PARAMETER LIST
    12BB C0 87 0025           3866+          B     $DISKN                   WAIT FOR DIRCTY TO LOAD
    12BF 057F          12C0   3867+          DC    AL2($WAITF)             WAIT FOR DIRCTY

    12C1 75 02 86             3869+SGE055 L       SGEDPL+@DBFR2(,@BR),@XR   PASSWORD BUFFER CADDR
    12C4 6C 00 89 00          3870+          MVC   SGECNT(1,@BR),##DPHC(,@XR) ENTRY COUNT TO WORK
    12C8 E2 02 04             3871+          LA    ##DPE1(,@XR),@XR         BUMP TO FIRST PASSWORD
                             3872+*
    12CB 2D 07 0F0E 07        3873+SGE060 CLC     SMPSWD(##LPEN),##DPEN(,@XR) LOOK AT PSWD ENTRY
    12D0 F2 81 0E             3874+          JE    SGE070                   FOUND THE PSWD
    12D3 E2 02 0C             3875+          LA    ##LPE(,@XR),@XR          BUMP TO LOOK AT NEXT ENTRY
    12D6 5F 00 89 8B          3876+          SLC   SGECNT(1,@BR),SGEC01(,@BR) DECR ENTRY COUNT
    12DA D0 01 38             3877+          BNE   SGE060(,@BR)             BACK FOR LOOK AT ENTRY
    12DD 3A 08 0F00           3878+          SBN   SMIND1,SM1PNF            NOT FOUND INDICATOR
                             3879+*
                             3880+*          THE PASSWORD OR THE END OF THE DIRCTY HAS BEEN FOUND,
                             3881+*          SAVE THE POINTERS.
                             3882+*
    12E1 34 02 0F28           3883+SGE070 ST      SMPEAD,@XR               SAVE ENTRY ADDRESS
    12E5 2C 01 0F2A 09        3884+          MVC   SMFUDA(@DADDR),##DPEA(,@XR) POSSIBLE USER DADDR OF BLK
    12EA 38 10 0F00           3885+          TBN   SMIND1,SM1PDS            TEST SEARCH BIT ONLY ON
    12EE F2 10 17             3886+          JT    SGE900                   SEARCH ONLY SO EXIT
    12F1 7D 00 89             3887+          CLI   SGECNT(,@BR),@ZERO       TEST COUNT IF ENTRY FOUND
    12F4 F2 81 11             3888+          JE    SGE900                   JUMP IF NOT FOUND
    12F7 6C 01 83 09          3889+SGE080 MVC     SGEDPL+@DSAD(@DADDR,@BR),##DPEA(,@XR) BLK ADDR TO DPL
    12FB C0 87 0D3D           3890+          B     DL2ICS                   CALL TO READ USER DIRCTY
    12FF 1314          1300   3891+          DC    AL2(SGEDPL)             POINTER TO PARAMETER LIST
                             3892+*
    1301 7C 80 17             3893+          MVI   SGE050+@Q(,@BR),@NOP     TURN OFF SKIP INSTR
    1304 5C 01 83 88          3894+          MVC   SGEDPL+@DSAD(@DADDR,@BR),SGERAD(,@BR) RESTORE DSAD PSWD
                             3895+*
                             3896+*SGE900 EXIT @BR,@XR,,RETURN
    1308 C2 01 0000           3897+SGE900 LA      *-*,@BR                  RESTORE OBR
    130C C2 02 0000           3898+SGE901 LA      *-*,@XR                  RESTORE OXR
    1310 C0 87 0000           3899+SGE902 B       *-*                      RETURN TO CALLING PROGRAM
                             3900+*** END OF EXPANSION ***
                             3901+*
                             3902+*          DPL TO READ IN THE PASSWORD DIRCTY
                             3903+*
                             3904+*SGEDPL $DPL  FUNC-@DGET,DADDR-##RP,CNT-##LP,CADDR-SMPDB1
                       1314   3905+SGEDPL EQU    *                         DISK PARAMETER
    1314 01            1314   3906+          DC    AL1(@DGET)              REQUESTED FUNCTION
    1315 0001          1316   3907+          DC    AL2(##RP)               DISK ADDRESS
    1317 04            1317   3908+          DC    AL1(##LP)               SECTOR COUNT
    1318 14EA          1319   3909+          DC    AL2(SMPDB1)             BUFFER ADDRESS
                             3910+*** END OF EXPANSION ***

    131A 0001          131B   3912+SGERAD DC      AL2(##RP)                RELATIVE DADDR OF DIRCTY
    131C              131C   3913+SGECNT DS      CL1                       SAVE AREA FOR ENTRY COUNT
    131D 0001          131E   3914+SGEC01 DC      IL2'1'                   CONSTANT 1 FOR ADDR MODIFCATION
```

SGETDB - GET USER DIRECTORY BLOCK ROUTINE

```
              131F 3916+SGEEND EQU    *                      END ADDR OF SGETDB
                   3917+***                        END OF SGETDB                          ***
                   3918 *        $URCH
```

```
                            3920+*********************************************************************
                            3921+*  5703-XM1 COPYRIGHT IBM CORP. 1970                                *
                            3922+*            REFER TO INSTRUCTIONS ON COPY RIGHT NOTICE, 120-2083    *
                            3923+*                                                                   *
                            3924+*********************************************************************
                            3925+*STATUS                                                             *
                            3926+*    VERSION 1 MODIFICATION 0                                       *
                            3927+*                                                                   *
                            3928+*FUNCTION                                                           *
                            3929+*    * SURCHN WILL SEARCH THE NULL DIRECTORY FOR AN ENTRY OF AT LEAST *
                            3930+*      N SECTORS WHERE N IS THE NUMBER OF SECTORS REQUIRED. IF THE  *
                            3931+*      SPACE IS FOUND THE STARTING ADDRESS IS PLACED IN SMNDEA. IF IT *
                            3932+*      IS NOT FOUND SMNDEA IS SET TO ZERO, AND SMNULT CONTAINS THE  *
                            3933+*      TOTAL OF ALL NULL SECTORS IN THE LIBRARY.                    *
                            3934+*                                                                   *
                            3935+*ENTRY POINTS                                                       *
                            3936+*      SURCHN - ENTRY TO SEARCH FOR NULL SPACE. THE CALLING         *
                            3937+*               SEQUENCE IS AS FOLLOWS:                             *
                            3938+*                   B    SURCHN                                     *
                            3939+*                                                                   *
                            3940+*INPUT                                                              *
                            3941+*    * THE INPUT TO SURCHN IS VIA TSMLES. SMNSCT MUST CONTAIN THE   *
                            3942+*      NUMBER OF SECTORS REQUIRED. SMNDBA MUST CONTAIN THE ADDRESS OF *
                            3943+*      THE NULL DIRECTORY IN CORE.                                  *
                            3944+*                                                                   *
                            3945+*OUTPUT                                                             *
                            3946+*    * SMNDEA WILL CONTAIN THE RELATIVE DISK ADDRESS OF THE NULL AREA *
                            3947+*      SMNDEA WILL BE ZERO IF THE SPACE IS NOT FOUND.               *
                            3948+*    * IF THE SPACE REQUIRED IS NOT FOUND SMNULT WILL CONTAIN THE   *
                            3949+*      TOTAL OF NULL SECTORS IN THE LIBRARY.                        *
                            3950+*                                                                   *
                            3951+*EXTERNAL REFERENCES                                                *
                            3952+*         $CAERR - LOCATION OF SYSTEM ERROR CODE INDICATOR          *
                            3953+*         SMNDBA - LOCATION OF NULL DIRECTORY BUFFER ADDRESS        *
                            3954+*         SMNULT - LOCATION OF NULL TOTAL COUNT                     *
                            3955+*         SMNSCT - LOCATION OF REQUIRED SECTOR COUNT                *
                            3956+*         SMNDEA - LOCATION OF THE NULL DIRCTY ENTRY ADDRESS.       *
                            3957+*                                                                   *
                            3958+*EXITS, NORMAL                                                      *
                            3959+*    NORMAL RETURN IS TO THE FIRST INSTRUCTION FOLLOWING THE BRANCH *
                            3960+*    TO SURCHN.                                                     *
                            3961+*                                                                   *
                            3962+*EXITS, ERROR                                                       *
                            3963+*    N/A                                                            *
                            3964+*                                                                   *
                            3965+*TABLES/WORKAREAS                                                   *
                            3966+*    NONE                                                           *
                            3967+*                                                                   *
                            3968+*ATTRIBUTES                                                         *
                            3969+*    RELOCATABLE                                                    *
                            3970+*    REUSEABLE                                                      *
                            3971+*                                                                   *
                            3972+*CHARACTER CODE DEPENDENCY                                          *
                            3973+*    THE OPERATION OF THIS MODULE DOES NOT DEPEND ON A PARTICULAR   *
                            3974+*    INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.         *
                            3975+*                                                                   *
```

```
                              3976+*NOTES                                                    *
                              3977+*    ERROR PROCEDURES                                      *
                              3978+*      N/A                                                 *
                              3979+*                                                          *
                              3980+*    REGISTER USAGE                                        *
                              3981+*      @BR AND @XR ARE SAVED AND RESTORED ON EXIT. @BR IS USED AS A   *
                              3982+*      BASE REGISTER AND @XR IS USED TO POINT TO THE NULL DIRECTORY.  *
                              3983+*                                                          *
                              3984+*    SAVED/RESTORED AREAS                                  *
                              3985+*      NONE                                                *
                              3986+*                                                          *
                              3987+*    MODIFICATION CONSIDERATIONS                           *
                              3988+*      NONE                                                *
                              3989+*                                                          *
                              3990+*    REQUIRED MODULES                                      *
                              3991+*      @SYSEQ - SYSTEM SOFTWARE EQUATES.                    *
                              3992+*      @DIREQ - LIBRARY DIRECTORY EQUATES                   *
                              3993+*      @FXDEQ - SYSTEM NUCLEUS EQUATES                      *
                              3994+*                                                          *
                              3995+*    OTHER                                                 *
                              3996+*      NONE                                                *
                              3997+************************************************************************
```

```
                             3999+*****************************************************************************
                             4000+*  SURCHN WILL SEARCH THE NULL DIRECTORY FOR THE NUMBER OF SECTORS     *
                             4001+*  SPECIFIED IN SMNSCT. THE ADDR OF THE SPACE FOUND WILL BE PLACED     *
                             4002+*  IN SMNDEA. IF NO SPACE IS FOUND SMNDEA IS SET TO ZERO.              *
                             4003+*****************************************************************************
                        131F 4004+SURCHN EQU   *                          ENTRY TO SURCHN
                        0001 4005+SURE01 EQU   1                          VALUE TO TEST COUNTERS
                        1323 4006+       USING SUR000,@BR                 SPECIFY BASE REGISTER
     131F 34 01 1382         4007+       ST    SUR900+@OP1,@BR            SAVE BASE OF CALLER
     1323 C2 01 1323         4008+SUR000 LA    SUR000,@BR                 ESTABLISH BASE ADDR
     1327 74 02 63           4009+       ST    SUR910+@OP1(,@BR),@XR      SAVE INDEX
     132A 74 08 67           4010+       ST    SUR920+@OP1(,@BR),@ARR     SET RETURN ADDR
     132D 3C 43 03CD         4011+       MVI   $CAERR,@@E300             LIBRARY SPACE NOT AVAILABLE
                             4012+*
     1331 35 02 0F2C         4013+       L     SMNDBA,@XR                 GET ADDR TO NULL DIRCTY
     1335 1C 01 0F1E 9A      4014+       MVC   SMNULT(SURE02),SURC00(,@BR) CLEAR TOTAL FIELD
                             4015+*
     133A 6C 00 1F 00        4016+       MVC   SURCNT(SURE01,@BR),##DNHC(,@XR) ENTRY COUNT FROM HEADER
     133E E2 02 04           4017+       LA    ##DNE1(,@XR),@XR           BUMP POINTER TO FIRST ENTRY
     1341 7D 00 9A           4018+SUR010 CLI   SURC00(,@BR),*-*
                        1342 4019+SURCNT EQU   SUR010+@Q
     1344 F2 81 44           4020+       JE    SUR0G2                     NO ENTRIES
                             4021+*
                             4022+*           SEARCH ENTRIES FOR ONE WITH ENOUGH SPACE
                             4023+*
     1347 8D 01 03 0F22      4024+       CLC   ##DNEF(##LNEF,@XR),SMNSCT LOOK FOR LARGE ENOUGH COUNT
     134C F2 02 0F           4025+       JNL   SUR0A2                     ENTRY GREATER OR EQUAL
                             4026+*
                             4027+*           ENTRY IS LESS THAN SPECIFIED COUNT. ADD ENTRY COUNT TO
                             4028+*           SMNULT AND TOTAL AVAILABLE SPACE.
                             4029+*
     134F 2E 01 0F1E 03      4030+       ALC   SMNULT,##DNEF(##LNEF,@XR) ADD COUNT TO NULL TOTAL
     1354 E2 02 06           4031+       LA    ##LNE(,@XR),@XR            BUMP TO NEXT ENTRY
     1357 5F 00 1F 9B        4032+       SLC   SURCNT(SURE01,@BR),SURC01(,@BR) DECR WORKING COUNT
     135B D0 87 1E           4033+       B     SUR010(,@BR)               GO LOOK AT NEXT ENTRY
                             4034+*
                             4035+*           LARGE ENOUGH SPACE HAS BEEN FOUND. TAKE THE REQUIRED
                             4036+*           NUMBER OF SECTORS AND MODIFY OR DELETE THE ENTRY. SAVE
                             4037+*           DIRECTORY ENTRY ADDR.
                             4038+*
     135E 2C 01 0F20 01      4039+SUR0A2 MVC   SMNDEA,##DNEA(@DADDR,@XR) SAVE DADDR OF SPACE FOUND
                             4040+*
                             4041+*           TEST IF ENTRY IS OF EQUAL SIZE OF REQUIRED SPACE.
                             4042+*
     1363 F2 01 2D           4043+       JNE   SUR0A3                     ENTRY NOT THE SAKE SIZE JUMPS
                             4044+*
                             4045+*           ENTRY IS OF EQUAL SIZE SO DELETE IT FROM THE DIRECTORY.
                             4046+*
                             4047+*           MOVE EACH ENTRY OF DIRECTORY UP ONE POSITION
                             4048+*
     1366 AC 05 05 0B        4049+SUR020 MVC   ##DNER(,@XR),##DNER+##LNE(##LNE,@XR) MOVE ENTRY
     136A 5F 00 1F 9B        4050+       SLC   SURCNT(SURE01,@BR),SURC01(,@BR) DECR ENTRY COUNT
     136E F2 81 06           4051+       JE    SUR024                     ZERO COUNT JUMP
                             4052+*
     1371 E2 02 06           4053+       LA    ##LNE(,@XR),@XR            BUMP POINTER TO NEXT *TRY
     1374 D0 87 43           4054+       B     SUR020(,@BR)               BACK TO MOVE NEXT ENTRY
```

SURCHN - SEARCH THE NULL DIRECTORY

```
     1377 35 02 0F2C            4056+SUR024 L     SMNDBA,@XR                  RESTORE POINTER TO START OF BUF
     137B 9F 01 00 9B           4057+       SLC   ##DNHC(SURE02,@XR),SURC01(,@BR) DECR HEADER COUNT
                                4058+*
                                4059+*            RETURN ACTION
                                4060+*
     137F C2 01 0000            4061+SUR900 LA    *-*,@BR                     RESTORE BASE
     1383 C2 02 0000            4062+SUR910 LA    *-*,@XR                     RESTORE INDEX
     1387 C0 87 0000            4063+SUR920 B     *-*                         RETURN ADDR
                                4064+*
                                4065+*            NO ENTRY FOUND. CLEAR SMNDEA AND RETURN
                                4066+*
     138B 1C 01 0F20 9A         4067+SUR0G2 MVC   SMNDEA(@CADDR),SURC00(,@BR) CLEAR DADDR POINTER
     1390 D0 87 5C              4068+       B     SUR900(,@BR)
                                4069+*
                                4070+*            REDUCE ENTRY BY REQUIRED SECTORS. MODIFY THE RELATIVE
                                4071+*            ADDRESS OF ENTRY TO NEW STARTING LOCATION OF THE NULL
                                4072+*            AREA WHICH IS THE REQUIRED SPACE+1.
                                4073+*
     1393 8F 01 03 0F22         4074+SUR0A3 SLC   ##DNEF(##LNEF,@XR),SMNSCT DECR ENTRY BY REQUIRED COUNT
     1398 6C 00 94 00           4075+       MVC   SURSWK(1,@BR),##DNEA-1(,@XR) GET CYL COUNT
     139C BC 00 00              4076+       MVI   ##DNEA-1(,@XR),@ZERO        CLEAR CYL IN ENTRY
     139F 8E 01 01 0F22         4077+       ALC   ##DNEA(SURE02,@XR),SMNSCT BUMP SECTOR BY SPACE USED
     13A4 9F 01 01 9D           4078+SUR034 SLC   ##DNEA(SURE02,@XR),SURC48(,@BR) DECR BY 1 CYL VALUE
     13A8 F2 82 07              4079+       JL    SUR033                      JUMP LEIS THAN A SECTOR
     13AB 5E 00 94 9B           4080+       ALC   SURSWK(1,@BR),SURC01(,@BR) BUMP CYL COUNT
     13AF D0 87 81              4081+       B     SUR034(,@BR)                BACK FOR NEXT CYL
     13B2 9E 01 01 9D           4082+SUR033 ALC   ##DNEA(SURE02,@XR),SURC48(,@BR) RESTORE REMAINDER
     13B6 BC 00 00              4083+SUR03C MVI   ##DNEA-1(,@XR),*-*          PLUG CYLINDER BACK INTO DADDR
                           13B7 4084+SURSWK EQU   SUR03C+@Q                   ADDR OF CYL IN INSTR
     13B9 D0 87 5C              4085+       B     SUR900(,@BR)                GO TO RETURN
                                4086+*
                                4087+*            CONSTANTS AND WORK AREA
                                4088+*
                           0002 4089+SURE02 EQU   2                          VALUE FOR MOVES
     13BC 0000            13BD 4090+SURC00 DC    IL2'0'                      ZERO FOR COUNT TEST
     13BE 01              13BE 4091+SURC01 DC    IL1'1'                      VALUE TO INCR COUNTS
     13BF 0030            13C0 4092+SURC48 DC    IL2'48'                     CYL VALUE
                                4093+***                        END OF SURCHN                              ***
                           131F 4094 SRCHFN EQU   SURCHN
                                4095 *      $VOL2                            VERSION WITH M049 & M048 MSG.
```

```
                              4097+*********************************************************************
                              4098+* 5703-XM1  COPYRIGHT IBM CORP. 1970                                *
                              4099+*           REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE  120-2083      *
                              4100+*                                                                    *
                              4101+*********************************************************************
                              4102+*STATUS                                                              *
                              4103+*   VERSION 1 MODIFICATION 0                                         *
                              4104+*                                                                    *
                              4105+*FUNCTION                                                            *
                              4106+*   THE FUNCTION OF SVOLID IS TO SEARCH THE CORE RESIDENT TABLE OF   *
                              4107+*   VOLUME ID'S ON THE SYSTEM FOR A SPECIFIED VOLUME ID. IF THE      *
                              4108+*   VOLUME IS NOT FOUND, AN ERROR CODE WILL BE PUT IN $CAERR AND AN  *
                              4109+*   EXIT TO $VOERR IN THE CALLING ROUTINE WILL BE TAKEN. IF MORE     *
                              4110+*   THAN ONE VOLUME WITH THE SAME VOL-ID IS FOUND ON THE SYSTEM, THE *
                              4111+*   USER OF THE SYSTEM IS REQUESTED TO INDICATE WHICH DRIVE AND DISK *
                              4112+*   IS TO BE USED. IF THE USER IS UNABLE TO RESOLVE THE CONFLICT,    *
                              4113+*   THE COMMAND IS REJECTED. IF THE INPUT SOURCE IS NOT THE KEYBOARD,*
                              4114+*   THE COMMAND IS REJECTED. OTHERWISE THE FILE LIBRARY ADDRESS OF   *
                              4115+*   THE RESOLVED VOLUME IS PLACED IN SMBFDA IN THE TSMLES COMMUNICA- *
                              4116+*   TIONS REGION, AND A NORMAL RETURN IS TAKEN.                      *
                              4117+*                                                                    *
                              4118+*ENTRY POINTS                                                        *
                              4119+*   $VOLID - THE FIRST EXECUTABLE INSTRUCTION. IT IS ASSUMED THAT    *
                              4120+*   SMVOID IN TSMLES HAS BEEN PRIMER. ALSO, IF THE VM OPTION OF      *
                              4121+*   SVOLID HAS BEEN ASSEMBLED FOR EXECUTION TIME USAGE.             *
                              4122+*   THE FIELDS SVOIOF AND SVODSK SHOULD BE PRIMED WITH THE GET/PUT   *
                              4123+*   GET/PUT FILENAME AND DISK FILENAME, RESPETIVELY.                *
                              4124+*                                                                    *
                              4125+*INPUT                                                               *
                              4126+*   INPUT TO SVOLID IS THE SPECIFIED VOL-ID IN THE TSMLES REGION -   *
                              4127+*   SMVOID.                                                          *
                              4128+*                                                                    *
                              4129+*OUTPUT                                                              *
                              4130+*   OUTPUT FROM SVOLID IS THE FILE LIBRARY ADDRESS OF THE RESOLVED   *
                              4131+*   SPECIFIED VOL-ID - PLACED IN SMBFDA.                             *
                              4132+*                                                                    *
                              4133+*EXTERNAL REFERENCES                                                 *
                              4134+*        SVOBUF - TEMPORARY SECTOR BUFFER SAVE AREA - USER SUPPLIED  *
                              4135+*        SVOERR - ERROR EXIT ADDR FROM SVOLID                        *
                              4136+*        TSMLES - DATA MANAGEMENT COMMUNICATIONS REGION              *
                              4137+*        $$ILHD - FIRST BYTE OF INPUT LINE HEADER                    *
                              4138+*        $$XIND - EXECUTION INDR PASS AREA                           *
                              4139+*        $$INND - LAST CHARACTER OF INPUT LINE BUFFER                *
                              4140+*        $$INLN - FIRST CHARACTER OF INPUT LINE BUFFER               *
                              4141+*        $$PRES - ENTRY TO ENABLE KEYBOARD                           *
                              4142+*        $VOLID - ADDR IN SYSTEM NUCLEUS - VOLUME ID TABLE           *
                              4143+*        $CAERR - ADDR IN SYSTEM NUCLEUS - ERROR CODE SAVE AREA      *
                              4144+*        $KEYCD - INDR BYTE CONTAINING KEYBOARD INDR IN SYSTEM NUCLEUS *
                              4145+*        $CARDI - MASK IN SKEYCD - CARD INPUT MODE                   *
                              4146+*        $SPRNT - ADDR IN SYSTEM NUCLEUS-SYSTEM PRINTER IOCR INTERFACE *
                              4147+*        $CIMSK - ADDR IN SYSTEM NUCLEUS-IR MASK ROUTINE INDR        *
                              4148+*        $WAITF - ADDR IN SYSTEM NUCLEUS-DISK WAITS DPL             *
                              4149+*        $KYBSY - MASK IN $KEYCD - KEYBOARD BUSY                     *
                              4150+*        $TRUNK - MASK IN $KEYCD - TRUNCATED LINE INDR              *
                              4151+*        $UNHSK - ADDR IN SYSTEM NUCLEUS-ENTRY TO UNMASK IR          *
                              4152+*                                                                    *
```

```
                            4153+*EXITS, NORMAL                                            *
                            4154+*   NEXT SEQUENTIAL INSTRUCTION IN CALL ROUTINE.          *
                            4155+*                                                         *
                            4156+*EXITS, ERROR                                             *
                            4157+*   $VOERR - ERROR EXIT ROUTINE IN CALL ROUTINE.          *
                            4158+*   (NOTE: ERROR PROCEDURES).                             *
                            4159+*                                                         *
                            4160+*TABLES/WORK AREAS                                        *
                            4161+*   CONSTANTS, PPL'S. AND WORK AREAS WHICH ARE ADDRESSED BY THE BASE *
                            4162+*   REGISTER (@BR) ARE LOCATED TO BE REFERENCED AS SUCH. THOSE *
                            4163+*   WHICH ARE NOT ADDRESSED BY A BASE REGISTER ARE LOCATED AT THE *
                            4164+*   END OF THE MODULE.                                    *
                            4165+*                                                         *
                            4166+*ATTRIBUTES                                               *
                            4167+*   RELOCATABLE, CONDITIONALLY REUSABLE (SEE OTHER).       *
                            4168+*                                                         *
                            4169+*CHARACTER CODE DEPENDENCY                                 *
                            4170+*   CHARACTER CODE DEPENDENCY CLASS - C                    *
                            4171+*   THE OPERATION OF THIS MODULE DEPENDS UPON AN INTERNAL REPRESENTA- *
                            4172+*   TION OF THE EXTERNAL CHARACTER SET WHICH IS EQUIVALENT TO THE ONE *
                            4173+*   USED AT ASSEMBLY TIME. THE CODING HAS BEEN ARRANGED SO THAT RE *
                            4174+*   DEFINITION OF CHARACTER CONSTANTS, BY REASSEMBLY, WILL RESULT IN *
                            4175+*   A CORRECT MODULE FOR THE NEW DEFINITIONS. THE FOLLOWING ARE THE *
                            4176+*   SPECIAL CONSIDERATIONS FOR THIS MODULE:                *
                            4177+*   * CHARACTER CONSTANT FOR DECIMAL L(ONE)   INTERNAL EQUATE *
                            4178+*   * CHARACTER CONSTANT FOR DECIMAL 2(TWO)   INTERNAL EQUATE *
                            4179+*   * @BLANK - PART OF @SYSEQ - FOR SYNTAX CHECK            *
                            4180+*   * @CHARR - PART OF @SYSEQ - FOR SYNTAX CHECK            *
                            4181+*   * @CHARF - PART OF @SYSEQ - FOR SYNTAX CHECK            *
                            4182+*   * @EOS   - PART OF @SYSEQ - FOR SYNTAX CHECK            *
                            4183+*                                                         *
                            4184+*NOTES                                                    *
                            4185+*   ERROR PROCEDURES                                       *
                            4186+*       THE FOLLOWING CONDITIONS WILL CAUSE AN ERROR CODE TO BE PLACED *
                            4187+*       IN SCAERR AND AN EXIT BRANCH TO BE TAKEN TO SVOERR: *
                            4188+*       * THE SPECIFIED VOLUME ID IS NOT ON THE SYSTEM.     *
                            4189+*       * DUPLICATE VOLUME ID'S ARE RTLADO. AND INPUT IS NOT FROM *
                            4190+*         THE KEYBOARD.                                    *
                            4191+*       * THE SPECIFIED PHYSICAL ID FROM THE KEYBOARD DOES NOT CONTAIN *
                            4192+*         ONE OF THE MULTIPLY DEFINED VOLUME ID'S.          *
                            4193+*       * THE SPECIFIEC OR RESOLVED VOLUME DOES NOT CONTAIN A LIBRARY *
                            4194+*         AREA.                                            *
                            4195+*                                                         *
                            4196+*   REGISTER USAGE                                         *
                            4197+*       INDEX REGISTER 1 (@BR) IS USED PRIMARILY AS A BASE REGISTER *
                            4198+*       AND SECONDLY AS AN INDEX IN THE VOL ID TABLE.       *
                            4199+*       INDEX REGISTER 2 (@XR) IS USED PRIMARILY AS AN INDEX REGISTER *
                            4200+*       IN THE VOL-ID TABLE AND SECONDLY AS AN INDEX TO SYNTAX CHECK *
                            4201+*       KEYBOARD INPUT WHEN VOLUMES ARE MULTIPLY DEFINED.   *
                            4202+*                                                         *
                            4203+*   SAVED/RESTORED AREAS                                   *
                            4204+*       NOBE                                              *
                            4205+*                                                         *
                            4206+*   MODIFICATION CONSIDERATIONS                            *
                            4207+*       VOLID'S SEARCH OF THE VOL-ID TABLE (SVOLID) IS TOTALLY *
                            4208+*       DEPENDENT ON THE FORMAT OF THE TABLE AS IT EXISTS; ESPECIALLY *
```

```
                             4209+*       THE NUMBER OF ENTRIES WHICH NOW EXIST (IE. FOUR).        *
                             4210+*                                                               *
                             4211+*    REQUIRED MODULES                                           *
                             4212+*        @CANEQ - COMMON CORE LOCATIONS OUTSIDE SYSTEM NUCLEUS   *
                             4213+*        @DIREQ - SYSTEM LIBRARY DIRECTORY EQUATES               *
                             4214+*        @ERMEQ - ERROR MESSAGE EQUATES                          *
                             4215+*        @FXDEQ - COMMON CORE LOCATIONS WITHIN THE SYSTEM NUCLEUS *
                             4216+*        @SYSEQ - COMMON SYSTEM SOFTWARE EQUATES                 *
                             4217+*        TSMLES - DATA MANAGEMENT COMMUNICATION REGIONS          *
                             4218+*                                                               *
                             4219+*    OTHER                                                      *
                             4220+*     SVOLID MAY BE RE-USED IF THE CALL ROUTINE WILL PRIME 'SVOCT1' *
                             4221+*     WITH A '4', AND 'SVOCT2' WITH A '0' BEFORE EACH RE-ENTRY.  *
                             4222+*     BOTH OF THESE FIELDS ARE 1 BYTE LONG AND CONTIGUOUS, RESPEC- *
                             4223+*     TIVELY. (IE. CAN BE INITIALIZED WITH 'MVC' OF X'0400').    *
                             4224+*                                                               *
                             4225+*     THIS VERSION OF VOLID DEVIATES FROM $VOLID.                *
                             4226+*     MESSAGES @@M048 AND @@M049 ARE ADDED.                      *
                             4227+****************************************************************************
```

```
                      4229+*****************************************************************************
                      4230+*                                                                           *
                      4231+*          SVOLID MODULE EQUATES                                             *
                      4232+*                                                                           *
                      4233+*****************************************************************************
                      4234+*
              0001 4235+SVOLN1 EQU   1                         LENGTH CODE OF ONE
                      4236+*
              00F1 4237+SVO001 EQU   X'F1'                     CONSTANT OF 1 FOR COMPARE
              00F2 4238+SVO002 EQU   X'F2'                     CONSTANT OF 2 FOR COMPARE
                      4239+*
              0100 4240+SVOINP EQU   $$XIND-$$ILHD+@B1         LENGTH INPUT BUFFER
              00FF 4241+SVOEND EQU   $$XIND-$$ILHD             DISP TO END OF SVOBUF

                      4243+*****************************************************************************
                      4244+*                                                                           *
                      4245+*          INITIALIZATION OF MODULE                                          *
                      4246+*                                                                           *
                      4247+*****************************************************************************
                      4248+*
              13C1 4249+SVOLID EQU   *                         ENTRY POINT
              13D3 4250+       USING SVOBSE,@BR                BASE ADDRESS
  13C1 34 01 140D     4251+       ST    SVO274+@OP1,@BR        SAVE BASE CONTENTS
  13C5 C2 01 13D3     4252+       LA    SVOBSE,@BR             LOAD BASE ADDRESS
  13C9 74 02 3E       4253+       ST    SVO276+@OP1(,@BR),@XR  SAVE INDEX REGISTER
  13CC 74 08 46       4254+       ST    SVO290+@OP1(,@BR),@ARR SAVE RETURN ADDR

                      4256+*****************************************************************************
                      4257+*                                                                           *
                      4258+*          SEARCH VOL-ID TABLE                                               *
                      4259+*                                                                           *
                      4260+*****************************************************************************
                      4261+*
  13CF C2 02 03FB     4262+       LA    $VOLID+@VOLID-@B1,@XR    LOAD XR AS POINTER INTO NUCLEUS
              13D3 4263+SVOBSE EQU   *
  13D3 8D 05 00 0F06  4264+SVO100 CLC   @ZERO(@VOLID,@XR),SMVOID  IS THIS THE VOL-ID ?
  13D8 D0 01 11       4265+       BNE   SVO200(,@BR)            NO, CHECK NEXT ENTRY
  13DB 2C 01 0F1A 02  4266+       MVC   SMBFDA(@DADDR),@DADDR(,@XR) SAVE DADDR-DUPLICATE CHECK
  13E0 5E 00 48 49    4267+       ALC   SVOCT2(SVOLN1,@BR),SVOONE(,@BR) INCREMENT COUNT
  13E4 E2 02 08       4268+SVO200 LA    @VOLID+@DADDR(,@XR),@XR  INCREMENT XR
  13E7 5F 00 47 49    4269+       SLC   SVOCT1(SVOLN1,@BR),SVOONE(,@BR) IS THE LAST ENTRY ?
  13EB D0 01 00       4270+       BNZ   SVO100(,@BR)            NO, CHECK NEXT ONE
                      4271+*
                      4272+*****************************************************************************
```

```
                         4274+*****************************************************************************
                         4275+*                                                                           *
                         4276+*          PROCESS ENTRY IF FOUND                                            *
                         4277+*                                                                           *
                         4278+*****************************************************************************
                         4279+*
    13EE 7D 02 48        4280+      CLI   SVOCT2(,@BR),@D1           WAS AN ID FOUND ?
    13F1 3C 29 03CD      4281+      MVI   $CAERR,@@E217             ERROR - NO ID FOUND
    13F5 D0 82 33        4282+      BL    SVO270(,@BR)              NO, ERROR EXIT
    13F8 D0 84 4A        4283+      BH    SVO300(,@BR)              MORE THAN 1 ID

                         4285+*****************************************************************************
                         4286+*                                                                           *
                         4287+*          CHECK DISK ADDR OF LIBRARY                                        *
                         4288+*                                                                           *
                         4289+*****************************************************************************
                         4290+*
    13FB 3D 00 0F19      4291+SVO260 CLI   SMBFDA-@B1,@ZERO          IS THERE A LIBRARY ?
    13FF F2 01 08        4292+      JNE   SVO274                    YES, RETURN
    1402 3C 54 03CD      4293+      MVI   $CAERR,@@E351             ERROR - NO LIBRARY
    1406 3C 87 1413      4294+SVO270 MVI   SVO280+@Q,@UCB            SET ERROR EXIT

                         4296+*****************************************************************************
                         4297+*                                                                           *
                         4298+*          END OF MODULE PROCESSING                                          *
                         4299+*                                                                           *
                         4300+*****************************************************************************
                         4301+*
    140A C2 01 0000      4302+SVO274 LA    *-*,@BR                   RESTORE BASE REGISTER
    140E C2 02 0000      4303+SVO276 LA    *-*,@XR                   RESTORE INDEX REGISTER
                         4304+*
    1412 C0 80 103C      4305+SVO280 BC    SVOERR,@NOP               ERROR EXIT
    1416 C0 87 0000      4306+SVO290 B     *-*                       RETURN
                         4307+*
                         4308+*****************************************************************************
```

ERR LOC   OBJECT CODE   ADDR STMT SOURCE STATEMENT   VER 15, MOD 00 27/02/22 PAGE 49

```
                         4310+**********************************************************************
                         4311+*                                                                    *
                         4312+*          DATA CONSTANTS, BUFFERS, WORK AREAS AND SAVE AREAS         *
                         4313+*                                                                    *
                         4314+**********************************************************************
                         4315+*
  141A             141A 4316+SVOCT1 DS    CL1                        COUNTER - NUMBER OF DISKS - 4
  141A                   4317+       ORG   SVOCT1                     RESET FOR INITIALIZATION
  141A 04           141A 4318+       DC    XL1'04'                    INITIALIZED TO 4
                         4319+*
  141B             141B 4320+SVOCT2 DS    CL1                        COUNTER - DUPLICATE DISK LABELS
  141B                   4321+       ORG   SVOCT2                     RESET FOR INITIALIZATION
  141B 00           141B 4322+       DC    XL1'00'                    INITIALIZED TO 0
  141C 01           141C 4323+SVOONE DC    XL1'01'                    INITIALIZED TO 1 FOR COUNTER

                         4325+**********************************************************************
                         4326+*                                                                    *
                         4327+*          PROCESS MULTIPLE ENTRIES                                   *
                         4328+*                                                                    *
                         4329+**********************************************************************
                         4330+*
  141D 38 01 03C3        4331+SVO300 TBN   $KEYCD,$CARDI              IS KEYBOARD INPUT MODE ?
  1421 3C 25 03CD        4332+SVO310 MVI   $CAERR,@@E212              KEYBOARD NOT INPUT MODE
  1425 D0 10 33          4333+SVO315 BT    SVO270(,@BR)               NO ERROR EXIT
```

```
                              4335+***********************************************************************
                              4336+*                                                                     *
                              4337+*          ASK USER FOR DRIVE CLARIFICATION                            *
                              4338+*                                                                     *
                              4339+***********************************************************************
                              4340+*
                         1428 4341+SVO320 EQU   *                          PRINT MESSAGES
     1428 C0 87 0465          4342+       B     $SPRNT                     PRINT HEADING
     142C 0C0F           142D 4343+       DC    AL2(@@M049)                PPL ADDR
     142E C0 87 0465          4344+       B     $SPRNT                     PRINT MESSAGE
     1432 14D2           1433 4345+       DC    AL2(SVOPPM)                PPL ADDRESS
                              4346+*
     1434 C0 87 0465          4347+       B     $SPRNT                     PRINT HEADER
     1438 0C0B           1439 4348+       DC    AL2(@@M048)                ADDR PPL
     143A C0 87 0465          4349+       B     $SPRNT                     PRINT G/P FILENAME
     143E 14DE           143F 4350+       DC    AL2(SVOPPL)                ADDR PPL
                              4351+*
     1440 C0 87 0465          4352+       B     $SPRNT                     PRINT MESSAGE
     1444 0C13           1445 4353+       DC    AL2(@@M300)                ERROR MESSAGE PPL
                              4354+*
     1446 0C 00 145D 0476     4355+       MVC   SVO335+@VQ(@B1),$CIMSK     OBTAIN CURRENT MASK STATUS
     144C C0 87 0465          4356+       B     $SPRNT                     WAIT FOR PRINT
     1450 057F           1451 4357+       DC    AL2($WAITF)                ADDR OF PPL

                              4359+***********************************************************************
                              4360+*                                                                     *
                              4361+*          MODIFY INPUT BUFFER FOR ACCEPTANCE OF INPUT ANSWER          *
                              4362+*                                                                     *
                              4363+***********************************************************************
                              4364+*
                         1452 4365+SVO330 EQU   *                          ENABLE INPUT ROUTINE
                              4366+*
     1452 3C 40 06FA          4367+SVO333 MVI   $$INND,@BLANK              CLEAR INPUT BUFFER
     1456 0C F2 06F9 06FA     4368+       MVC   $$INND-@B1($$INND-$$INLN),$$INND
                              4369+*
     145C C0 01 048D          4370+SVO335 BC    $UNMSK,@VQ                 BRANCH IF UNMASKED
     1460 C0 87 0890          4371+       B     $$PRES                     GET USER'S RESRONSE
     1464 38 10 03C3          4372+SVO350 TBN   $KEYCD,$KYBSY              IS KEYBOARD BUSY ?
     1468 C0 10 1464          4373+       BT    SVO350                     YES, WAIT
     146C C0 87 0465          4374+       B     $SPRNT                     WAIT FOR PRINTER RETURN
     1470 057F           1471 4375+       DC    AL2($WAITF)                ADDR OF PPL
```

```
                              4377+************************************************************************
                              4378+*                                                                      *
                              4379+*          VERIFY VOL-ID ON DRIVE SPECIFIED                            *
                              4380+*                                                                      *
                              4381+************************************************************************
                              4382+*
    1472 C2 02 0606           4383+        LA    $$INLN-@B1,@XR              ADDR FIRST RESPONSE BYTE
    1476 C2 01 03FB           4384+        LA    $VOLID+@VOLID-@B1,@BR       REFERENCE POINT FOR THE VOLID
                              4385+*
    147A E2 02 01             4386+SVO360 LA    @B1(,@XR),@XR               INDEX BY BLANK
    147D BD 40 00             4387+        CLI   @ZERO(,@XR),@BLANK         IS IT A BLANK ?
    1480 C0 81 147A           4388+        BE    SVO360                     YES, CHECK NEXT BYTE
                              4389+*
    1484 BD F1 01             4390+        CLI   @B1(,@XR),SVO001           IS IT DRIVE 1 ?
    1487 F2 81 0A             4391+        JE    SVO400                     YES, CHECK DISK TYPE
                              4392+*
    148A BD F2 01             4393+        CLI   @B1(,@XR),SVO002           IS IT DRIVE 2 ?
    148D C0 01 1428           4394+        BNE   SVO320                     NO, ASK USER AGAIN
    1491 D2 01 10             4395+        LA    2*@VOLID+2*@DADDR(,@BR),@BR SET INDEX FOR DRIVE 2
    1494 BD D9 00             4396+SVO400 CLI   @ZERO(,@XR),@CHARR         IS IT REMOVABLE ?
    1497 F2 81 0A             4397+        JE    SVO440
                              4398+*
    149A BD C6 00             4399+        CLI   @ZERO(,@XR),@CHARF         IS IT FIXED ?
    149D C0 01 1428           4400+        BNE   SVO320                     ASK AGAIN
    14A1 D2 01 08             4401+        LA    @VOLID+@DADDR(,@BR),@BR    SET INDEX FOR FIXED
    14A4 E2 02 01             4402+SVO440 LA    @B1(,@XR),@XR               INCREMENT TO NEXT BYTE
    14A7 E2 02 01             4403+SVO445 LA    @B1(,@XR),@XR               INCREMENT TO NEXT BYTE
    14AA BD 40 00             4404+        CLI   @ZERO(,@XR),@BLANK         IS IT A BLANK ?
    14AD C0 81 14A7           4405+        BE    SVO445                     YES, CHECK NEXT BYTE
                              4406+*
    14B1 BD 1E 00             4407+        CLI   @ZERO(,@XR),@EOS           AT EOS ?
    14B4 C0 01 1428           4408+        BNE   SVO320                     ASK AGAIN
                              4409+*
    14B8 4D 05 00 0F06        4410+SVO450 CLC   @ZERO(@VOLID,@BR),SMVOID    IS IT THE VOLID ?
    14BD 3C 28 03CD           4411+        MVI   $CAERR,@@E216              VOLUME NOT ON THAT DRIVE
    14C1 C0 01 1406           4412+        BNE   SVO270                     NO, ERROR EXIT
                              4413+*
                              4414+************************************************************************
```

```
                          4416+********************************************************************
                          4417+*                                                                 *
                          4418+*         SAVE VOL-ID LIBRARY ADDR                                 *
                          4419+*                                                                 *
                          4420+********************************************************************
                          4421+*
   14C5 1C 01 0F1A 02     4422+        MVC    SMBFDA(@DADDR),@DADDR(,@BR) SAVE LIBRARY ADDR
   14CA 3B 80 03C3        4423+        SBF    $KEYCD,$TRUNK            SET OFF RM EXCEEDED INDR
   14CE C0 87 13FB        4424+        B      SVO260                  NORMAL EXIT

                          4426+********************************************************************
                          4427+*                                                                 *
                          4428+*         MULTIPLE VOLID MESSAGE AND PRINT PPL                     *
                          4429+*                                                                 *
                          4430+********************************************************************
                          4431+*
   14D2 C0           14D2 4432+SVOPPM DC    AL1(@PRETR)              PPL FOR MESSAGE
   14D3 08           14D3 4433+       DC    AL1(##LUEN)              MESSAGE LENGTH
   14D4 14D6         14D5 4434+       DC    AL2(SVOMMS)              MESSAGE ADDR
                     14D6 4435+SVOMMS EQU   *                        MESSAGE
                          4436+* PRIMED BY CALL ROUTINE FOR PRINT OF DISK FILENAME
   14D6 4040404040404040 14DD 4437+SVODSK DC    CL8'        '
   14DE C0           14DE 4438+SVOPPL DC    AL1(@PRETR)              PPL FOR MESSAGE
   14DF 08           14DF 4439+       DC    AL1(##LUEN)              MESSAGE LENGTH
   14E0 14E2         14E1 4440+       DC    AL2(SVOMES)              MESSAGE ADOR
                     14E2 4441+SVOMES EQU   *                        MESSAGE ADOR
                          4442+* PRIMED BY CALL ROUTINE FOR PRINT OF I/O FILENAME
   14E2 4040404040404040 14E9 4443+SVOIOF DC    CL8'        '
                          4444+*
                          4445+********************************************************************
                          4446+***                        END OF SVOLID                       ***
                          4447 *        $CANI
```

```
                         4449+******************************************************************************
                         4450+*  5703-XM1    COPYRIGHT IBM CORP. 1970                            *
                         4451+*                REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083   *
                         4452+*                                                                 *
                         4453+******************************************************************************
                         4454+*STATUS                                                           *
                         4455+*    VERSION 1 MODIFICATION 0                                      *
                         4456+*                                                                 *
                         4457+*FUNCTION                                                          *
                         4458+*    THE FUNCTION OF SCANIT IS TO SCAN PAST VALID DELIMITERS AND    *
                         4459+*    RETURN A POINTER TO THE FIRST CHARACTER THAT'S NOT A DELIMITER. *
                         4460+*                                                                 *
                         4461+*ENTRY POINTS                                                      *
                         4462+*    * THE ENTRY POINT IS SCANIT.                                   *
                         4463+*    * THE CALLING SEQUENCE IS AS FOLLOWS:                          *
                         4464+*             B     SCANIT                                          *
                         4465+*       WITH REGISTER 2 (@XR) POINTING TO THE FIRST CHARACTER TO BE  *
                         4466+*       EXAMINED.                                                  *
                         4467+*                                                                 *
                         4468+*INPUT                                                             *
                         4469+*    NONE                                                          *
                         4470+*                                                                 *
                         4471+*OUTPUT                                                            *
                         4472+*    NONE                                                          *
                         4473+*                                                                 *
                         4474+*EXTERNAL REFERENCES                                               *
                         4475+*    $CAERR - ERROR CODE SAVE AREA                                  *
                         4476+*                                                                 *
                         4477+*EXITS, NORMAL                                                     *
                         4478+*    NORMAL EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO  *
                         4479+*    SCANIT IN THE CALLING ROUTINE. THE PSR (REGISTER 4) WILL CONTAIN *
                         4480+*    A ZERO IF NO DELIMITERS WERE FOUND OR A HIGH CONDITION IF ONE OR *
                         4481+*    MORE DELIMITERS WERE SCANNED.                                  *
                         4482+*                                                                 *
                         4483+*EXITS, ERROR                                                      *
                         4484+*    ERROR EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO   *
                         4485+*    SCANIT IN THE CALLING ROUTINE. THE PSR WILL CONTAIN A LOW       *
                         4486+*    CONDITION.                                                    *
                         4487+*                                                                 *
                         4488+*TABLES/WORKAREAS                                                  *
                         4489+*    * SCACNT - AREA CONTAINING NUMBERS OF DELIMITERS SCANNED        *
                         4490+*    * SCAMMA - LOC WHERE SCACOM MAY BE MOVED IF ONE COMMA IS ALSO    *
                         4491+*      TO BE CONSIDERED A DELIMITER. MOVING SCACOF BACK INTO SCAMMA  *
                         4492+*      INDICATES THAT ONLY BLANKS SHOULD BE CONSIDERED DELIMITERS.   *
                         4493+*                                                                 *
                         4494+*ATTRIBUTES                                                        *
                         4495+*    RELOCATABLE AND RE-USABLE                                      *
                         4496+*                                                                 *
                         4497+*CHARACTER CODE DEPENDENCY                                          *
                         4498+*    THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR  *
                         4499+*    INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.         *
                         4500+*                                                                 *
                         4501+*NOTES                                                             *
                         4502+*    ERROR PROCEDURES                                               *
                         4503+*       THE ONLY ERROR CONDITION DETECTED BY SCANIT IS THE CASE WHERE *
                         4504+*       A CARRIAGE-RETURN CODE FOLLOWS A COMMA.  UPON RETURN TO THE  *
```

```
                            4505+*      CALLING ROUTINE, @PSR WILL BE SET TO A LOW CONDITION, THE      *
                            4506+*      ERROR CODE IS SET IN $CAERR, AND MG WILU BE POINTING TO THE    *
                            4507+*      CARRIAGE-RETURN CHARACTER.                                     *
                            4508+*                                                                     *
                            4509+*   REGISTER USAGE                                                    *
                            4510+*      REGISTER 2 (@XR) IS USED AS A POINTER ACROSS THE AREA BEING    *
                            4511+*      SCANNED FOR DELIMETERS.                                        *
                            4512+*                                                                     *
                            4513+*   SAVED/RESTORED AREAS                                              *
                            4514+*      UPON ENTRY TO SCANIT, REGISTER 8 (@ARR) IS SAVED AND USED AS   *
                            4515+*      THE RETURN ADDRESS.                                            *
                            4516+*                                                                     *
                            4517+*   MODIFICATION CONSIDERATIONS                                       *
                            4518+*      NONE                                                           *
                            4519+*                                                                     *
                            4520+*   REQUIRED MODULES                                                  *
                            4521+*      * @SYSEQ - COMMON SYSTEM EQUATES                               *
                            4522+*      * @FXDEQ - FIXED NUCLEUS ADDRESSES EQUATES                     *
                            4523+*                                                                     *
                            4524+*   OTHER                                                             *
                            4525+*      SCANIT IS INITIALIZED TO BYPASS BLANKS ONLY. IF SCACOM IS      *
                            4526+*      MOVED TO SCAMMA, ONE COMMA WILL BE SCANNED ALONG WITH BLANKS.  *
                            4527+*      THE INSTRUCTION TO DO THIS IS AS FOLLOWS:                       *
                            4528+*            MVI   SCAMMA,SCACOM                                       *
                            4529+*                                                                     *
                            4530+*      TO DROP THE COMMA FROM ITS DELIMITER STATUS, SCACOF SHOULD BE  *
                            4531+*      MOVED TO SCAMMA, USING THE FOLLOWING INSTRUCTION:              *
                            4532+*            MVI   SCAMMA,SCACOF                                       *
                            4533+*                                                                     *
                            4534+************************************************************************


                            4536+*
                            4537+*                    EQUATES USED IN THIS SUBROUTINE
                            4538+*
                       0001 4539+SCAINC EQU    1                        TO INCREMENT POINTER
                       0001 4540+SCACOM EQU    @BNE                     SWITCH TO ALLOW SCANNING COMMA
                       0087 4541+SCACOF EQU    @UCB                     SWITCH TO SET OFF THE INDICATON
                            4542+*                                      * FOR SCANNING A COMMA
                       14EA 4543+SCANIT EQU    *                        ENTRY POINT TO THIS SUBROUTINE
   14EA 34 08 1526         4544+       ST     SCA500+@OP1,@ARR         SAVE RETURN ADDRESS
   14EE 34 02 1528         4545+       ST     SCASVE,@XR               SAVE POINTER VALUE
   14F2 3C 04 03CD         4546+       MVI    $CAERR,@@E110            SET ERROR CODE
   14F6 F2 87 03           4547+       J      SCA200                   GO TO PROCESS
   14F9 E2 02 01           4548+SCA100 LA     SCAINC(,@XR),@XR         INCREMENT POINTER TO NEXT CHAR
   14FC BD 40 00           4549+SCA200 CLI    0(,@XR),@BLANK           IS THIS CHAR BLANK ?
   14FF C0 81 14F9         4550+       BE     SCA100                   YES, FETCH NEXT ONE
   1503 BD 6B 00           4551+       CLI    0(,@XR),@COMMA           IS IT A COMMA ?
   1506 F2 87 10           4552+SCA250 JC     SCA400,@UCB              UCS TO RETURN -- OR NOP IF
                            4553+*                                      * SCAMMA IS ACTIVE AND CHAR
   1509 E2 02 01           4554+SCA300 LA     SCAINC(,@XR),@XR         INCREMENT POINTER TO NEXT CHAR
   150C BD 40 00           4555+       CLI    0(,@XR),@BLANK           IS THIS CHAR A BLANK ?
   150F C0 81 1509         4556+       BE     SCA300                   YES, FETCH NEXT ONE
   1513 BD 1F 00           4557+       CLI    0(,@XR),@EOS+1           IS THIS EOS ?
   1516 F2 82 0A           4558+       JL     SCA500                   IF NOT, SKIP ERROR ROUTINE
   1519 34 02 152A         4559+SCA400 ST     SCACNT,@XR               SAVE NEW POINTER VALUE
```

```
        SCANIT - DELIMETER SCAN MODULE
```

```
    151D 0F 01 152A 1528        4560+     SLC   SCACNT(2),SCASVE           SET PSR TO EQUAL IF POINTER
                                4561+*                                    * NOT ADVANCED
    1523 C0 87 0000             4562+SCA500 B   *-*                       YES, RETURN
                           1507 4563+SCAMMA EQU SCA250+@Q                 TO SET SCAN COMMA INDICATOR
                                4564+*
                                4565+*              SAVE AREA
                                4566+*
                           1527 4567+SCASV1 EQU  *                        FIRST BYTE OF SCASVE
    1527                   1528 4568+SCASVE DS   CL2                      ORIGINAL POINTER VALUE SAVE
    1529                   152A 4569+SCACNT DS   CL2                      SAVE AREA FOR TOTAL CHAR SCAN
                                4570+***                    END OF SCANIT                          ***
                                4571 *      $ALPH
```

```
                         4573+********************************************************************
                         4574+*  5703-XM1    COPYRIGHT IBM CORP. 1970                          *
                         4575+*              REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083 *
                         4576+*                                                                 *
                         4577+********************************************************************
                         4578+*STATUS                                                           *
                         4579+*    VERSION 1 MODIFICATION 0                                      *
                         4580+*                                                                 *
                         4581+*FUNCTION                                                          *
                         4582+*    THE FUNCTION OF SALPHA IS TO SYNTAX CHECK AN 8 CHARACTER OR 6 *
                         4583+*    CHARACTER ALPHAMERIC PARAMETER DETERMINED BY THE ENTRY POINT, *
                         4584+*    SALPH8 OR SALPH6 RESPECTIVELY. ENTRY AT SALPHA IMPLIES A REQUEST *
                         4585+*    THAT THE FIRST CHARACTER BE ALPHABETIC. A SYNTACTICALLY CORRECT *
                         4586+*    PARAMETER WILL BE SAVED AT SALPHR (LEFTMOST BYTE ADDRESS), THE *
                         4587+*    COUNT OF THE NUMBER OF VALID CMARACTERS, IF NEEDED, IS FOOD IN *
                         4588+*    SALCNT. UPON ENTRY, SALPHA REQUIRES INDEX RESISTER 2 (OM TO BE *
                         4589+*    ADDRESSING THE FIRST CHARACTER 0, THE PARAMETER TO BE SYNTAX   *
                         4590+*    CHECKED. UPON NORMAL RETURN INDEX REGISTER 2 (@XR) WILL BE     *
                         4591+*    ADDRESSING THE FIRST NON-DELIMITER FOLLOWING THE PARAMETER (NOTE *
                         4592+*    INPUT),                                                        *
                         4593+*                                                                 *
                         4594+*ENTRY POINTS                                                      *
                         4595+*    * SALPH8 - ENTRY POINT TO SYNTAX CHECK AN EIGHT CHARACTER     *
                         4596+*              ALPHAMERIC PARAMETER WHOSE FIRST CHARACTER MUST BE   *
                         4597+*              ALPHABETIC.                                          *
                         4598+*    * SALPH6 - ENTRY POINT TO SYNTAX CHECK A SIX CHARACTER        *
                         4599+*              ALPHAMERIC PARAMETER WHICH HAS NO RESTRICTIONS ON    *
                         4600+*              THE TYPE OF THE FIRST CHARACTER. (NOTE MODIFICA-     *
                         4601+*              TION CONSIDERATIONS)                                 *
                         4602+*                                                                 *
                         4603+*INPUT                                                             *
                         4604+*    UPON ENTRY TO SALPHA, AT EITHER ENTRY POINT, INDEX REGISTER 2 *
                         4605+*    (@XR) SHOULD BE ADDRESSING THE LEFTMOST CHARACTER OF THE PARAMETER*
                         4606+*    TO BE SYNTAX CHECKED. ALSO, THE SWITCH 'SCAMMA' IN SCANIT SHOULD *
                         4607+*    BE SET FOR THE TYPE OF DELIMITER SCAN REQUESTED AFTER THE SYNTAX *
                         4608+*    CHECK. (IE. BLANKS ONLY OR BLANKS WITH 1 COMMA).               *
                         4609+*                                                                 *
                         4610+*OUTPUT                                                            *
                         4611+*    OUTPUT FROM SALPHA INCLUDES THE SYNTAX CHECKED PARAMETER AT SALPHR*
                         4612+*    (LEFTMOST BYTE OF SAVE AREA) AND THE COUNT OF VALID CHARACTERS *
                         4613+*    IN SALCNT, AND INDEX REGISTER 2 (@XR) WILL BE POINTING AT THE  *
                         4614+*    FIRST NON-DELIMITER AFTER THE PARAMETER. THE ONLY EXCEPTION TO *
                         4615+*    THIS IS UPON DETECTION OF AN ERROR (SEE ERROR EXITS AND PROC.) *
                         4616+*                                                                 *
                         4617+*EXTERNAL REFERENCES                                               *
                         4618+*         SCANIT - DELIMITER SCAN MODULE                           *
                         4619+*         $CAERR - ADDR IN SYSTEM NUCLEUS-ERROR CODE SAVE AREA      *
                         4620+*                                                                 *
                         4621+*EXITS, NORMAL                                                     *
                         4622+*    NEXT SEQUENTIAL INSTRUCTION IN CALL ROUTINE WITH INDEX        *
                         4623+*    REGISTER 2 (@XR) POINTING TO THE NEXT NON-DELIMITER           *
                         4624+*    FOLLOWING THE PARAMETER AND WITH A NON-LOW CONDITION CODE      *
                         4625+*    IN THE PROGRAM STATUS RESISTER (@PSR),                         *
                         4626+*                                                                 *
                         4627+*EXITS, ERROR                                                      *
                         4628+*    NEXT SEQUENTIAL INSTRUCTION IN CALL ROUTINE WILH INDEX         *
```

```
                          4629+*   REGISTER 2 (@XR) POINTING TO THE LEFTMOST CHARACTER OF THE       *
                          4630+*   INVALID PARAMETER AND WITH A LOW CONDITION CODE IN THE           *
                          4631+*   PROGRAM STATUS REGISTER (@PSR),                                  *
                          4632+*                                                                    *
                          4633+*TABLES/WORK AREAS                                                   *
                          4634+*   ALL OF THE CONSTANTS AND WORK AREAS IN SALPHA ARE LOCATED AT THE *
                          4635+*   END OF THE MODULE AND ARE ADDRESSED BY INDEX REGISTER 1 (RBR).   *
                          4636+*                                                                    *
                          4637+*ATTRIBUTES                                                          *
                          4638+*   REUSABLE, RELOCATABLE                                            *
                          4639+*                                                                    *
                          4640+*CHARACTER CODE DEPENDENCY                                           *
                          4641+*   CHARACTER CODE DEPENDENCY CLASS - E                              *
                          4642+*   THE OPERATION OF THIS MODULE DEPENDS UPON THE FOLLOWING PROPERTIES*
                          4643+*   OF THE INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET:    *
                          4644+*   * THE FOLLOWING SPECIAL ALPHABETIC CHARACTERS ARE PART OF        *
                          4645+*     @SYSEQ AND ARE SPECIFICALLY COMPARED FOR:                      *
                          4646+*       * @DOLAR                                                     *
                          4647+*       * @NUMBR                                                     *
                          4648+*       * @ASIGN                                                     *
                          4649+*   * THE REMAINING-ALPHABETIC CHARACTERS ARE DEFINED TO BE          *
                          4650+*     INCLUSIVELY IN THE RANGE DEFINED BY THE FOLLOWING IN @SYSEQ:   *
                          4651+*       * @CHARA                                                     *
                          4652+*       * @CHARZ                                                     *
                          4653+*                                                                    *
                          4654+*   THE DECIMAL NUMBERS FALL INTO THE CATEGORY OF BEING GREATER      *
                          4655+*   THAN AN @CHARZ (IE. THIS IS DEFAULTED TO BY CHECKING METHOD)     *
                          4656+*   THE SPECIFIC INSTRUCTIONS WHICH REQUIRE MODIFICATION IF THESE    *
                          4657+*   PROPERTIES OF THE CHARACTER SET ARE CHANGED MAY BE IDENTIFIED BY: *
                          4658+*     * SAL200 - FOR THE THREE SPECIAL CHARACTERS                    *
                          4659+*     * SAL250 - FOR THE REMAINING ALPHABETIC RANGE                  *
                          4660+*     * SAL425 - BRANCHES 'TO' THIS LOCATION IMPLY DEFAULT TO NUMERIC *
                          4661+*                                                                    *
                          4662+*NOTES                                                               *
                          4663+*   ERROR PROCEDURES                                                 *
                          4664+*     THE FOLLOWING ERROR CONDITIONS WILL RESULT IN AN ERROR CODE    *
                          4665+*     BEING SET IN $CAERR AND AN ERROR EXIT BEING MADE (SEE EDITS,   *
                          4666+*     ERROR):                                                        *
                          4667+*     * A NON-ALPHABETIC FIRST CHARACTER WHEN ENTRY WAS AT           *
                          4668+*       SALPH8.                                                      *
                          4669+*     * A NON-ALPHAMERIC CHARACTER EMBEDDED IN A PARAMETER WHICH      *
                          4670+*       SALPH8 WAS CALLED TO CHECK.                                  *
                          4671+*     * A NON-ALPHAMERIC CHARACTER BEING FIRST OR EMBEDDED IN A       *
                          4672+*       PARAMETER WHICH SALPH6 WAS CALLED TO CHECK.                  *
                          4673+*     * A PARAMETER OF GREATER THAN EIGHT CHARACTERS WHEN ENTRY       *
                          4674+*       WAS AT SALPH8.                                               *
                          4675+*     * A PARAMETER OF GREATER THAN SIX CHARACTERS WHEN ENTRY         *
                          4676+*       WAS AT SALPH6.                                               *
                          4677+*                                                                    *
                          4678+*   REGISTER USAGE                                                   *
                          4679+*     INDEX REGISTER 1 (@BR) IS USED AS A BASE REGISTER THROUGHOUT    *
                          4680+*     THE EXEQUTION OF THE MODULE. IT IS SAVED FOR THE CALL PROGRAM   *
                          4681+*     UPON ENTRY AND RESTORED UPON EXIT.                             *
                          4682+*     INDEX REGISTER 2 (@XR) IS USED AS A PARAMETER PASSING REGISTER.*
                          4683+*     UPON ENTRY IT CONTAINS THE ADDRESS OF THE LEFTMOST BYTE OF      *
                          4684+*     PARAMETER TO BE SYNTAX CHECKED AND UPON EXIT IT CONTAINS THE    *
```

```
                                     4685+*      ADDRESS OR THE FIRST NON-DELIMITER FOLLOWING THE PARAMETEP.    *
                                     4686+*      (NOTE ERROR EXITS AND PROCEDURES),                            *
                                     4687+*                                                                    *
                                     4688+*   SAVED/RESTORED AREAS                                             *
                                     4689+*      NONE                                                          *
                                     4690+*                                                                    *
                                     4691+*   MODIFICATION CONSIDERATIONS                                      *
                                     4692+*      BECAUSE OF ITS CHARACTER CODE DEPENDENCY AND PARAMETER LENGTH  *
                                     4693+*      QUALIFICATIONS, ONE MUST TAKE SPECIAL CARE IN MODIFYING SALPHA,*
                                     4694+*      ESPECIALLY THE CONSTANTS AND WORK AREAS AND THEIR RE-INITIAL,  *
                                     4695+*      IZATION. SALPHA IS MOST COMMONLY USED TO SYNTAX FILENAMES,     *
                                     4696+*      PASSWORDS, AND VOL-IDS AND IS THEREFORE USED BY THE MODULE     *
                                     4697+*      SUFFER (FILE SPECIFICATION SYNTAX CHECKER). THEREFORE, ANY     *
                                     4698+*      SIGNIFICANT CHANGE IN SALPHA WILL REQUIRE AN INVESTIGATION     *
                                     4699+*      into ITS USE AND IMPACT ON SUFFER.                            *
                                     4700+*        SPECIAL NOTE: AN IRREGULAR USE OF SALPHA WHICH CAN BE        *
                                     4701+*        EFFECTED IS THE SYNTAY CHECK OF A PARAMETER WITH A MAXIMUM   *
                                     4702+*        OF 10 CHARACTERS. THIS IS DONE BY MODIFYING THE Q-CODE OF    *
                                     4703+*        THE INSTRUCTION AT SAL450 PRIOR TO ENTRANCE AT SALPH6, WITH  *
                                     4704+*        X'0A' OR ITS EQUIVALENT. (NOTE: ONE SUCH MODULE WHICH        *
                                     4705+*        USES THIS OPTION IS UINITL)                                 *
                                     4706+*                                                                    *
                                     4707+*   REQUIRED MODULES                                                 *
                                     4708+*      SCANIT - DELIMITER SCAN ROUTINE                               *
                                     4709+*      @DIREQ - SYSTEM LIBRARY DIRECTORY EQUATES                     *
                                     4710+*      @ERMEQ - ERROR MESSAGE EQUATES                                *
                                     4711+*      @FXDEQ - COMMON CORE LOCATIONS WITHIN THE SYSTEM NUCLEUS       *
                                     4712+*      @SYSEQ - COMMON SYSTEM SOFTWARE EQUATES                       *
                                     4713+*                                                                    *
                                     4714+*   OTHER                                                            *
                                     4715+*      N/A                                                           *
                                     4716+***********************************************************************

                                     4718+***********************************************************************
                                     4719+*                                                                    *
                                     4720+*                    SALPNA MODULE EQUATES                           *
                                     4721+*                                                                    *
                                     4722+***********************************************************************
                               0008  4723+SALCT8 EQU    ##LUEN                      COUNT COMPARE FIELD
                                     4724+*
                               0006  4725+SALCT6 EQU    @VOLID                      COUNT COMPARE FIELD

                                     4727+***********************************************************************
                                     4728+*                                                                    *
                                     4729+*                    INITIALIZATION OF MODULE                        *
                                     4730+*                                                                    *
                                     4731+***********************************************************************

                                     4733+*SALPH8 ENTER CHECK                      FILENAME OR PASSWORD
                               152B  4734+SALPH8 EQU    *                           MODULE ENTRY POINT
                                     4735+*** END OF EXPANSION ***

     152B 3A 80 15E6                 4737+      SBN    SALIDR,SAL008               SET ON SALPH8 INDR
                                     4738+*
                                     4739+*SALPH6 ENTER BASE-SALBSE,EXIT-SALND,@BR,,@ARR  VOL-ID CHECK
```

```
     SALPHA - SYNTAX CHECKER MODULE
```

```
                          154B 4740+      USING SALBSE,@BR           BASE ADDRESS SPECIFICATION
                          152F 4741+SALPH6 EQU   *                   MODULE ENTRY POINT
    152F 34 01 15E1            4742+      ST    SALND0+@OP1,@BR       SAVE ABA
    1533 C2 01 154B            4743+      LA    SALBSE,@BR            LOAD BASE RESISTER
    1537 74 08 9A              4744+      ST    SALND2+@OP1(,@BR),@ARR SAVE RETURN ADDRESS
                               4745+*** END OF EXPANSION ***

    153A 74 02 34              4747+      ST    SAL375+@OP1(,@BR),@XR  SAVE ERROR POINTER


                               4749+**********************************************************************
                               4750+*                                                                    *
                               4751+*              INITIALIZE WORK AREAS AND VARIABLE INSTRUCTIONS        *
                               4752+*                                                                    *
                               4753+**********************************************************************
    153D 7C 40 A8              4754+SAL100 MVI   SALPR7(,@BR),@BLANK   BLANK OUT SALPAR FOR PROCESSING
    1540 5C 08 A7 A8           4755+      MVC   SALPR6(##LPEN+@B1,@BR),SALPR7(,@BR)
    1544 7C 00 9C              4756+      MVI   SALCNT(,@BR),@ZERO    ZERO OUT COUNTER
    1547 5C 01 63 AA           4757+      MVC   SAL525+@OP1(2,@BR),SALPHS(,@BR) MODIFY MOVE OF CHARACTER


                               4759+**********************************************************************
                               4760+*                                                                    *
                               4761+*                     CHECK EBCDIC CHARACTERS                         *
                               4762+*                                                                    *
                               4763+**********************************************************************
                               4764+*
                          154B 4765+SALBSE EQU   *                   MODULE BASE ADDR
    154B BD 5B 00              4766+SAL200 CLI   @ZERO(,@XR),@DOLAR   IS IT A '$' ?
    154E F2 81 32              4767+      JE    SAL400               YES, PROCESS CHARACTER
    1551 BD 7B 00              4768+      CLI   @ZERO(,@XR),@NUMBR   IS IT A '#' ?
    1554 F2 81 2C              4769+      JE    SAL400               YES, PROCESS CHARACTER
    1557 BD 7C 00              4770+      CLI   @ZERO(,@XR),@ASIGN   IS IT A '@' ?
    155A F2 81 26              4771+      JE    SAL400               YES, PROCESS CHARACTER
                               4772+*
    155D BD C1 00              4773+      CLI   @ZERO(,@XR),@CHARA   IS IT AN ALPHA (A-Z) ?
    1560 F2 82 53              4774+SAL250 JL    SAL750               NO, CHECK FOR DELIMITERS
    1563 BD E9 00              4775+      CLI   @ZERO(,@XR),@CHARZ   IS IT AN ALPHA (A-Z) ?
    1566 F2 04 1A              4776+      JNH   SAL400               YES, PROCESS CHARACTER
    1569 78 80 9B              4777+      TBN   SALIDR(,@BR),SAL008  ENTERED AT SALPH8 ?
    156C F2 90 17              4778+      JF    SAL425               NO, CHECK IF NUMERIC
                               4779+*
    156F 78 01 9B              4780+      TBN   SALIDR(,@BR),SALFST  WAS FIRST CHAR FOUND ALPHA ?
    1572 3C 00 03CD            4781+      MVI   $CAERR,@@E100        ALPHA CHAR REQUIRED--ERROR
    1576 F2 10 0D              4782+      JT    SAL425               YES, CONTINUE
    1579 75 04 16              4783+SAL350 L     SALERR(,@BR),@PSR    LOAD ERROR CODE - LOW
    157C C2 02 0000           4784+SAL375 LA    *-*,@XR              RESTORE ERROR POINTER
    1580 F2 87 58              4785+      J     SAL800               TAKE ERROR FAIT


                               4787+**********************************************************************
                               4788+*                                                                    *
                               4789+*                   PROCESS ALPHAMERIC CHARACTER                      *
                               4790+*                                                                    *
                               4791+**********************************************************************
    1583 7A 01 9B              4792+SAL400 SBN   SALIDR(,@BR),SALFST  SET ON ALPHA :NOR
                               4793+*
    1586 5E 00 9C 9E           4794+SAL425 ALC   SALCNT(1,@BR),SAL001(,@BR) ADD 1 TO CHARACTER COUNTER
    158A 78 80 9B              4795+      TBN   SALIDR(,@BR),SAL008  WAS ENTRY AT SALPH8 ?
```

```
      SALPHA - SYNTAX CHECKER MODULE


ERR LOC   OBJECT CODE      ADDR STMT SOURCE STATEMENT            VER 15, MOD 00  27/02/22  PAGE  60

     158D D0 90 52           4796+        BF    SAL450(,@BR)              NO, CHECK COUNT FOR VALUE OF SIX
     1590 7D 08 9C           4797+        CLI   SALCNT(,@BR),##LPEN       HAS COUNT EXCEEDED 8 ?
     1593 3C 02 03CD         4798+        MVI   $CAERR,@@E102            PASSWORD/FILENAME LENGTH ERROR
     1597 D0 84 2E           4799+        BH    SAL350(,@BR)             YES, TAKE ERROR EXIT
     159A F2 87 0A           4800+        J     SAL500                   NO, CONTINUE PROCESSING
     159D 7D 06 9C           4801+SAL450  CLI   SALCNT(,@BR),@VOLID      HAS COUNT EXCEEDED 6 ?
     15A0 3C 03 03CD         4802+        MVI   $CAERR,@@E103            INVALID VOL-ID LENGTH
     15A4 D0 84 2E           4803+        BH    SAL350(,@BR)             YES, TAKE ERROR EXIT

                             4805+*
                             4806+*                       MODIFY MOVE OF CHARACTER
                             4807+*
     15A7 5E 01 63 9E        4808+SAL500  ALC   SAL525+@OP1(2,@BR),SAL001(,@BR)
     15AB 2C 00 0000 00      4809+SAL525  MVC   *-*,@ZERO(1,@XR)         MOVE CHARACTER TO OUTPUT AREA
     15B0 E2 02 01           4810+        LA    @B1(,@XR),@XR            INCREMENT XR BY I
     15B3 D0 87 00           4811+        B     SAL200(,@BR)             CHECK NEXT CHARACTER

                             4813+*******************************************************************************
                             4814+*                                                                             *
                             4815+*                  CHECK ERRORS AND BYPASS DELIMITERS                         *
                             4816+*                                                                             *
                             4817+*******************************************************************************
     15B6 7D 00 9C           4818+SAL750  CLI   SALCNT(,@BR),@ZERO       ANY VALID CHARACTERS ?
     15B9 3C 10 03CD         4819+SAL755  MVI   $CAERR,@@E130            REQUIRED PARAM MISSING
     15BD F2 01 17           4820+        JNE   SAL775                   YES, BYPASS DELIMITERS, EYIT
     15C0 BD 1E 00           4821+        CLI   @ZERO(,@XR),@EOS         IS IT EOS ?
     15C3 F2 81 0E           4822+        JE    SAL760                   YES, ERROR EVIL
     15C6 78 80 9B           4823+        TBN   SALIDR(,@BR),SAL008      ENTERED AT SALPH8 ?
     15C9 3C 00 03CD         4824+        MVI   $CAERR,@@E100            ALPHABETIC CHAR REQUIRED
     15CD F2 10 04           4825+        JT    SAL760                   ERROR EYIT
     15D0 3C 01 03CD         4826+        MVI   $CAERR,@@E101            ALPHAMERIC CHAR REQUIRED
     15D4 D0 87 2E           4827+SAL760  B     SAL350(,@BR)             ERROR EYIT
     15D7 C0 87 14EA         4828+SAL775  B     SCANIT                   BYPASS DELIMITERS

                             4830+*******************************************************************************
                             4831+*                                                                             *
                             4832+*               SET OFF INDICATORS FOR POSSIBLE SALDHA RE-ENTRY               *
                             4833+*                                                                             *
                             4834+*******************************************************************************
     15DB 7C 00 9B           4835+SAL800  MVI   SALIDR(,@BR),@ZERO

                             4837+*******************************************************************************
                             4838+*                                                                             *
                             4839+*                        END OF MODULE PROCESSING                             *
                             4840+*                                                                             *
                             4841+*******************************************************************************
                             4842+*SALND   EXIT  @BR,,RETURN                    EXIT
     15DE C2 01 0000         4843+SALND0  LA    *-*,@BR                  RESTORE @BR
     15E2 C0 87 0000         4844+SALND2  B     *-*                      RETURN TO CALLING PROGRAM
                             4845+*** END OF EXPANSION ***

                             4847+*******************************************************************************
                             4848+*                                                                             *
                             4849+*                   DATA CONSTANTS, BUFFERS, AND WORK AREAS                   *
                             4850+*                                                                             *
                             4851+*******************************************************************************
```

```
     15E6                  15E6 4852+SALIDR DS    CL1                        1 BYTE OF FLAGS
     15E6                       4853+       ORG   *-1
     15E6 00               15E6 4854+       DC    XL1'00'                    INITIALIZED TO ZERO

                           0080 4856+SAL008 EQU   X'80'                      ENTRY POINT INDICATOR
                                4857+*                                       * 0 - ENTERED AT SALPH6
                                4858+*                                       * 1 - ENTERED AT SALPH8
                           0001 4859+SALFST EQU   X'01'                      FIRST CHARACTER IS ALPHA / INDR
                                4860+*                                       * 0 - CHARACTER IS NOT ALPHA
                                4861+*                                       * 1 - CHARACTER IS ALPHA
     15E7                  15E7 4862+SALCNT DS    CL1                        BYTE CHARACTER COUNTER
     15E7                       4863+       ORG   *-1
     15E7 00               15E7 4864+       DC    XL1'00'                    INITIALIZED TO ZERO
     15E8 0001             15E9 4865+SAL001 DC    XL2'0001'                  COUNTER INCREMENT
                           15EA 4866+SALPHR EQU   *
     15EA                  15F3 4867+       DS    CL(##LUEN+2*@B1)           SYNTAX SAVE UNIT
     15F4 15E9             15F5 4868+SALPHS DC    AL2(SALPHR-1)              ADDR FOR MODIFYING MOVE
                           15F3 4869+SALPR7 EQU   SALPHR+##DPEN+2*@B1        ADDR IN SALPHR FOR CLANKINS
                           15F2 4870+SALPR6 EQU   SALPHR+##DPEN+@B1          * OUT THE FIELD
                           1561 4871+SALERR EQU   SAL250+@Q                  ADDR ERROR CODE FOR LOAD
                                4872+***                     END OF SALPHA                        ***
                           4873 **********************************************************************
                      14EA 4874 SVOBUF EQU   SCANIT
                           4875 **********************************************************************
                           4876 *
                      1293 4877 KLOBUF EQU   SGETDB                          CORE ADDR NULL DIRECTORY
                      1293 4878 SUPBUF EQU   KLOBUF                          ERROR UPDATE BUFFER

                           4880 **********************************************************************
                           4881 * SMALES- SYSTEM DATA MANAGEMENT COMMON SAVE AREAS AND EQUATES      *
                           4882 *         USED TO PROVIDE COMMUNICATION BETWEEN SUBROUTINES USED     *
                           4883 *         BY THE VARIOUS KEYWORDS INVOLVED WITH FILE MANIPULATION    *
                           4884 **********************************************************************
                           4885 *
                      0F00 4886 SMALES EQU   KSS100                          START OF MANAGEMENT AREA
                      0F00 4887 SMIND1 EQU   SMALES                          INDICATOR BYTE 1
                      0080 4888 SM1FNE EQU   X'80'                           SRCHFN INDR NAME NOT FOUND
                      0040 4889 SM1NPD EQU   X'40'                           PACK INDR NULL DIRCTY FULL
                      0020 4890 SM1STN EQU   X'20'                           STORIN PACK INDICATOR BIT
                      0010 4891 SM1PDS EQU   X'10'                           SGETDB SEARCH ONLY FLAG
                      0008 4892 SM1PNF EQU   X'08'                           SGETDB PASSWORD NOT FOUND
                      0F06 4893 SMVOID EQU   SMIND1+6                        SPECIFIED VOLUME ID SAVE AREA
                      0F0E 4894 SMPSWD EQU   SMVOID+8                        SPECIFIED PASSWORD SAVE AREA
                      0F16 4895 SMFNAM EQU   SMPSWD+8                        SPECIFIED FILENAME SAVE AREA
                      0F18 4896 SMUDEA EQU   SMFNAM+2                        FILENAME DIRCTY ENTRY ADDR
                      0F1A 4897 SMBFDA EQU   SMUDEA+2                        DADDR OF FILE LIBRARY
                      0F1C 4898 SMUDBA EQU   SMBFDA+2                        CADDR OF ACTIVE BUFFER ADDR
                      0F1E 4899 SMNULT EQU   SMUDBA+2                        TOTAL OF NULL SECTORS AVAILABLE
                      0F20 4900 SMNDEA EQU   SMNULT+2                        NULL DIRCTY ENTRY ERROR
                      0F22 4901 SMNSCT EQU   SMNDEA+2                        COUNT OF NULL SECTORS REQUIRED
                      0F24 4902 SMNETD EQU   SMNSCT+2                        CADDR NEW ENTRY TO NULL DIRCTY
                      0F26 4903 SMUPEN EQU   SMNETD+2                        CADDR NEW USER DIRCTY ENTRY
                      0F28 4904 SMPEAD EQU   SMUPEN+2                        CADDR PASSWORD ENTRY
                      0F2A 4905 SMFUDA EQU   SMPEAD+2                        REL DADDR 1ST USER DIRCTY BLOCK
                      0F2C 4906 SMNDBA EQU   SMFUDA+2                        NULL DIRCTY BUFFER CORE ADDR
                      0F2E 4907 SMDAAD EQU   SMNDBA+2                        DADDR OF ACTIVE DIRCTY
```

```
     SALPHA - SYNTAX CHECKER MODULE

ERR LOC  OBJECT CODE      ADDR STMT SOURCE STATEMENT        VER 15, MOD 00  27/02/22  PAGE  62

                          14EA 4908 SMPDB1 EQU    SCANIT               PASSWORD DIRCTY BUFFER
                          14EA 4909 SMPIBS EQU    SMPDB1               SVOLID TEMP SAVE INPUT BUFFER
                          14EA 4910 SMUDB1 EQU    SMPDB1               USER DIRCTY BLOCK 1 BUFFER
                          16EA 4911 SMUDB2 EQU    SMUDB1+512           USER DIRCTY BLOCK 2 BUFFER
                          18EA 4912 SMAEND EQU    SMUDB2+512           END OF SMALES AREA

                          18EA 4914 KSSFXD EQU    SMAEND               BUFFER - FIXED STATUS SECTOR
                          19EA 4915 KSSVM0 EQU    KSSFXD+@SCTSZ        BUFFER - VM PAGE 0
                          1AEA 4916 KSSVM1 EQU    KSSVM0+@SCTSZ        BUFFER - VM PAGE 1

                          FFFF 4918        END

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

```
$$$$$$  001  0C00 2559
$$$$$1  110  0EFF 3132
$$$$L1  001  0E92 3127   3130   3132
$$$$T1  001  0F00 3129   3132
$$$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
$$$001  020  0C8F 2597
$$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   4240   4241
$$INLN  001  0607 0642   0644   0646   4368   4383
$$INND  001  06FA 0646   4367*  4368   4368   4368*
$$KBDT  001  09E1 0653   0657
$$KBSN  001  09E2 0657   0662
$$KLD1  001  0600 0717   3474
$$KLD2  001  0700 0719
$$KLD3  001  0C00 0721
$$LPOS  001  09EB 0662
$$PCNT  001  07E9 0678
$$PLYN  001  2004 0692
$$PRES  001  0890 0651   0653   0663   0664   0665   0666   0683   4371
$$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   4240   4241
$$ZERO  001  0000 0223   0224   0226   0227   0228   0232   0690   2767   3474
$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  3177  3416  3417
$BUFPT  001  03E3 0489   0490
$CABLD  001  04B4 0562   0563
$CAERK  001  0469 0539   0542  3303  3357
$CAERR  001  03CD 0287   0289  3148* 3158* 3162* 3191* 3265* 3301* 3305  3356* 3672* 3703* 3859*
                         4011* 4281* 4293* 4332* 4411* 4546* 4781* 4798* 4802* 4819* 4824* 4826*
$CAIPL  001  049D 0558   0560
$CALLI  001  0008 0479
$CARDI  001  0001 0250   4331
$CARPL  001  04A1 0560   0562  2717
$CIENT  001  0483 0549   0550
$CIEXT  001  0480 0548   0549
$CIMSK  001  0476 0545   0548  3268* 4355
$CISUS  001  0496 0553   0558
$CLBFR  001  0010 0437   3269
$CMDKY  001  0008 0349
$CMODE  001  0002 0399
$CONFG  001  03DD 0462   0472  3381
$CRPOS  001  03E2 0488   0489
$CRTAD  001  044D 0527   0528
$CRTAV  001  0002 0343   2632  3385
$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  2649  3208  3224  3415
$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   2656  2682  2925  3065  3180  3182  3204  3215  3238  3244  3346  3398
                         3866
$DKERR  001  0008 0405
$DKSIZ  001  03D7 0449   0457  0498  3380
$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   2633  3389
$ENDNU  001  0600 0617   0627  0651  0672  0708  0717  0719  0721
$ERDPL  001  046F 0542   0544
$ERFIL  001  0040 0297
$ERHRD  001  0004 0429   3300
$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  3377  3418
$FCIND  001  0010 0409
$FDIND  001  0040 0416
$FEARR  001  0004 0224
$FEMAP  001  0588 0610   0611
$FILIB  001  03DA 0460   0461  3615  3655  3657  3670  3677  3678
$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  3269* 3300*
$INLNO  001  03CF 0289   0291  0303  0310  3376
$INRPT  001  0020 0267
$IOIND  001  03D2 0338   0364  3385  3389  3393
$IOPGS  001  0010 0478
$IOYES  001  0002 0253
$IPLDV  001  05FF 0614   0617
$IRKEY  001  0020 0477
$KEYBD  001  03E1 0483   0488  3382
$KEYCD  001  03C3 0247   0281  4331  4372  4423*
$KEYDT  001  0040 0391
$KE090  001  00DE 0227
$KE130  001  01D5 0228
$KSSPN  001  0C07 2562
$KYBSY  001  0010 0264   4372
$LDRTN  001  0571 0602
$LEVEL  001  03DF 0472   0474
$LIST   001  0002 0426
$LMRGN  001  03C1 0242   0244
$LNPTR  001  0080 0361   2634  3393
$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  3373  3374  3599  3600
$NWRKF  001  0080 0445
```

```
$NWRKR  001  0040 0442
$PASWD  001  042D 0509   0510
$PAUSD  001  04BA 0563   0565
$PAUSE  001  0002 0333
$PGMDT  001  0020 0388
$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   3369
$PSDXR  001  04F2 0567   0568  3370
$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  4342  4344  4347  4349  4352  4356  4374
$SRTRN  001  04FE 0569   0570  3371
$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   4423
$TRVAR  001  0020 0321
$UNMSK  001  048D 0550   0553  4370
$USRDR  001  03DC 0461   0462  3679  3682
$VMDEF  001  0080 0325
$VOLF1  001  03FE 0504   0505  3634  3636
$VOLF2  001  040E 0506   3640  3642
$VOLID  001  03F6 0502   0503  0507  3603  4262  4384
$VOLR1  001  03F6 0503   0504  3646  3648
$VOLR2  001  0406 0505   0506  3628  3630
$WAITF  001  057F 0605   0607  2657  2683  3183  3216  3245  3347  3867  4357  4375
$WFDEF  001  0040 0519
$WFLOK  001  0008 0382
$WFNME  001  0443 0518   0523
$WSIND  001  0004 0379
$XIND1  001  03D0 0310   0329  3378
$XIND2  001  03D1 0329   0338  3379
$XIND3  001  03D8 0457   0460
$XPREC  001  0040 0322
$XRSAV  001  03C7 0282   0284  3144  3154* 3161* 3166
$ZTRAD  001  05A2 0611
```

SYMBOL	LEN	VALUE	DEFN
$12K	001	0004	0466
$16CKY	001	0008	0468
$16K	001	0002	0465
$22IMP	001	0001	0463
#$$#BL	001	0000	1315
#$$#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
#$$KPO  001  0C00 1139
#$$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
#$$KRU  001  0C00 1091
#$$KRV  001  0800 1183
#$$KSA  001  0C00 1127
#$$KSE  001  0E00 1167
#$$KSO  001  0C20 1219
#$$KSS  001  0C00 1151   2558
#$$KSV  001  0980 1147
#$$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
#$$ZTR  001  1000 1371
#$$ZUT  001  0C00 1383
#$#BLN  001  18D4 1314
#$#CKT  001  2118 1442
#$#CNF  001  2000 1410
#$#COR  001  0800 1202
#$#CSA  001  1000 1262   2761
#$#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   2760
#$#SSA  001  1128 1266   3436
#$#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   2762
#$@#SS  001  0001 1268   3437
#$@#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
#$@KDE   001  0010 1108
#$@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
#$@UDI 001  0008 1368
#$@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
#$KMOU   001  0204 1042
#$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
```

```
SYMBOL   LEN VALUE DEFN   REFERENCES

#$VXIT   001  0B00 1222
#$ZDUM   001  1BA4 1374
#$ZLBM   001  2008 1418
#$ZLOA   001  1BC4 1378
#$ZLVR   001  20B0 1434
#$ZL1M   001  2010 1422
#$ZL2M   001  2030 1426
#$ZL3M   001  2088 1430
#$ZTRA   001  1B9C 1370
#$ZUTM   001  1C14 1382
##DNEA   001  0001 0920   4039   4075   4076* 4077* 4078* 4082* 4083*
##DNEF   001  0003 0921   4024   4030   4074*
##DNER   001  0005 0922   4049   4049*
##DNE1   001  0004 0919   4017
##DNHC   001  0000 0916   4016   4057*
##DNHR   001  0003 0918
##DNHY   001  0001 0917
##DPEA   001  0009 0894   3884   3889
##DPEN   001  0007 0893   3873   4869   4870
##DPER   001  000B 0895
##DPE1   001  0004 0892   3871
##DPHC   001  0000 0890   3870
##DPHR   001  0003 0891
##DUEA   001  0009 0905
##DUED   001  0012 0910
##DUEF   001  000B 0906
##DUEH   001  002B 0911
##DUEI   001  000C 0907
##DUEL   001  000F 0909
##DUEN   001  0007 0904   3192   3192
##DUER   001  0031 0912
##DUES   001  000D 0908   3317* 3321*
##DUE1   001  000C 0903
##DUHA   001  0001 0899   3324
##DUHB   001  0003 0900
##DUHC   001  0004 0901
##DUHR   001  000B 0902
##LAAA   001  0002 0931
##LAHC   001  0001 0930
##LN     001  0001 0959
##LNE    001  0006 0965   4031   4049   4049   4053
##LNEF   001  0002 0963   4024   4030   4074
##LNEZ   001  0002 0964
##LNH    001  0004 0962
##LNHY   001  0001 0960
##LNHZ   001  0002 0961
##LP     001  0004 0935   3908
##LPE    001  000C 0940   3875
##LPEN   001  0008 0937   3288   3601   3611   3873   4755   4797
##LPEZ   001  0002 0938
##LPH    001  0004 0939
##LPHZ   001  0003 0936
##LU     001  0002 0944   3461
##LUE    001  0032 0955
##LUED   001  0003 0952
##LUEF   001  0002 0948
```

```
##LUEH  001  0019 0953
##LUEI  001  0001 0949
##LUEL  001  0002 0951
##LUEN  001  0008 0947    3192   3288   3368   4433   4439   4723   4867
##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    3317   3321
##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    3907   3912
##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    2755   3444   3466
#@#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    3350
#@@#08  001  0008 0834    3471
#@@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
```

SYMBOL	LEN	VALUE	DEFN	REFERENCES
#@@VSL	001	000F	0867	
#@@VTR	001	0001	0851	
#@BOVL	001	0400	0811	
#@CORS	001	0005	0773	
#@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	
#KSSPN	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
#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
@$D1BF  001  0008 1485   3290
@$D1DC  001  0000 1484
@$D1DF  001  001E 1489   3288   3289
@$D1DP  001  0016 1488
@$D1DV  001  000E 1487
@$D1E1  001  0000 1478
@$D1FS  001  000A 1486
@$D1SW  001  001F 1491   3252   3254
@$D2AS  001  0002 1496   3264
@$D2BS  001  0003 1503
@$D2CB  001  0005 1506
@$D2CF  001  0001 1495
@$D2CP  001  0005 1504
@$D2CS  001  0004 1505
@$D2CY  001  0006 1507
@$D2DA  001  0007 1508
@$D2DC  001  0000 1500   3272   3275
@$D2DD  001  0009 1509
@$D2EE  001  000F 1512
@$D2E1  001  0040 1499   3256   3353
@$D2FS  001  000B 1510
@$D2IO  001  0001 1501
@$D2LC  001  000D 1511
@$D2PN  001  000A 1497   3368
@$D2SF  001  000B 1498
@$D2VB  001  0002 1502
@$L1BF  001  0008 1518   3290
@$L1DC  001  0001 1517
@$L1DF  001  0008 1520   3289
@$L1DP  001  0008 1521
@$L1DV  001  0006 1522
@$L1E   001  0020 1516   3255   3270   3352
@$L1FS  001  0002 1519
@$L2AS  001  0001 1528
@$L2BS  001  0001 1535
@$L2CB  001  0001 1538
@$L2CF  001  0002 1527
@$L2CP  001  0002 1536
@$L2CS  001  0001 1537
@$L2DA  001  0002 1539
@$L2DC  001  0001 1532
@$L2DD  001  0002 1540
@$L2E   001  0010 1531   3256   3271   3353
```

SYMBOL	LEN	VALUE	DEFN	REFERENCES
@$L2FS	001	0002	1541	
@$L2HD	001	0040	1526	
@$L2IO	001	0001	1533	
@$L2LC	001	0002	1542	
@$L2PN	001	0008	1530	
@$L2SF	001	0002	1529	
@$L2VB	001	0001	1534	
@$MBCD	001	0020	1556	
@$MBCR	001	0008	1558	
@$MBEN	001	000C	1546	
@$MBND	001	0000	1553	
@$MBPD	001	0080	1554	3275
@$MBPT	001	0010	1557	
@$MBPU	001	0001	1549	
@$MBSD	001	0040	1555	
@$M2CI	001	0008	1573	
@$M2CO	001	0004	1574	
@$M2EF	001	0002	1548	
@$M2FI	001	0080	1562	
@$M2FO	001	0040	1563	
@$M2FP	001	0020	1564	
@$M2FT	001	0010	1567	
@$M2NS	001	00FF	1547	
@@E001	001	0000	2266	2268
@@E003	001	0001	2268	2270
@@E004	001	0002	2270	2272
@@E005	001	0003	2272	2274
@@E006	001	0004	2274	2276
@@E007	001	0005	2276	2278
@@E008	001	0006	2278	2280
@@E009	001	0007	2280	2282
@@E010	001	0008	2282	2284
@@E011	001	0009	2284	2286
@@E012	001	000A	2286	2288
@@E013	001	000B	2288	2290
@@E014	001	000C	2290	2292
@@E015	001	000D	2292	2294
@@E016	001	000E	2294	2296
@@E017	001	000F	2296	2298
@@E018	001	0010	2298	2300
@@E019	001	0011	2300	2302
@@E020	001	0012	2302	2304
@@E021	001	0013	2304	2306
@@E023	001	0014	2306	2308
@@E024	001	0015	2308	2310
@@E025	001	0016	2310	2312
@@E026	001	0017	2312	2314
@@E027	001	0018	2314	2316
@@E028	001	0019	2316	2318
@@E029	001	001A	2318	2320
@@E030	001	001B	2320	2322
@@E031	001	001C	2322	2324
@@E032	001	001D	2324	2326
@@E035	001	001E	2326	2328
@@E036	001	001F	2328	2330
@@E037	001	0020	2330	2332

```
@@E038   001  0021 2332    2334
@@E039   001  0022 2334    2336
@@E040   001  0023 2336    2338
@@E041   001  0024 2338    2340
@@E042   001  0025 2340    2342
@@E043   001  0026 2342    2344
@@E044   001  0027 2344    2346
@@E045   001  0028 2346    2348
@@E046   001  0029 2348    2350
@@E060   001  002A 2350    2352
@@E080   001  002B 2352
@@E100   001  0000 1738    1740  4781  4824
@@E101   001  0001 1740    1742  4826
@@E102   001  0002 1742    1744  4798
@@E103   001  0003 1744    1746  4802
@@E110   001  0004 1746    1748  4546
@@E112   001  0005 1748    1750
@@E113   001  0006 1750    1752
@@E114   001  0007 1752    1754
@@E115   001  0008 1754    1756
@@E116   001  0009 1756    1758
@@E117   001  000A 1758    1760
@@E120   001  000B 1760    1762
@@E122   001  000C 1762    1764
@@E123   001  000D 1764    1766
@@E124   001  000E 1766    1768
@@E129   001  000F 1768    1770
@@E130   001  0010 1770    1772  4819
@@E131   001  0011 1772    1774  3153  3158
@@E133   001  0012 1774    1776  3162
@@E134   001  0013 1776    1778
@@E135   001  0014 1778    1780
@@E136   001  0015 1780    1782
@@E137   001  0016 1782    1784
@@E138   001  0017 1784    1786
@@E139   001  0018 1786    1788  3148
@@E142   001  0019 1788    1790
@@E143   001  001A 1790    1792
@@E150   001  001B 1792    1794
@@E151   001  001C 1794    1796
@@E160   001  001D 1796    1798
@@E162   001  001E 1798    1800
@@E163   001  001F 1800    1802
@@E164   001  0020 1802    1804
@@E200   001  0021 1804    1806  3672
@@E205   001  0022 1806    1808
@@E210   001  0023 1808    1810  3859
@@E211   001  0024 1810    1812
@@E212   001  0025 1812    1814  4332
@@E213   001  0026 1814    1816  3703
@@E215   001  0027 1816    1818
@@E216   001  0028 1818    1820  4411
@@E217   001  0029 1820    1822  4281
@@E220   001  002A 1822    1824
@@E221   001  002B 1824    1826
@@E222   001  002C 1826    1828
```

```
                              CROSS REFERENCE

SYMBOL   LEN VALUE DEFN   REFERENCES                        VER 15, MOD 00  27/02/22  PAGE  79

@@E223   001  002D 1828   1830
@@E225   001  002E 1830   1832
@@E226   001  002F 1832   1834
@@E227   001  0030 1834   1836
@@E228   001  0031 1836   1838
@@E229   001  0032 1838   1840
@@E230   001  0033 1840   1842
@@E232   001  0034 1842   1844
@@E234   001  0035 1844   1846
@@E237   001  0036 1846   1848
@@E240   001  0037 1848   1850
@@E241   001  0038 1850   1852
@@E242   001  0039 1852   1854
@@E248   001  003A 1854   1856
@@E249   001  003B 1856   1858
@@E250   001  003C 1858   1860
@@E251   001  003D 1860   1862
@@E252   001  003E 1862   1864
@@E253   001  003F 1864   1866
@@E254   001  0040 1866   1868
@@E255   001  0041 1868   1870
@@E256   001  0042 1870   1872
@@E300   001  0043 1872   1874  4011
@@E301   001  0044 1874   1876
@@E302   001  0045 1876   1878
@@E303   001  0046 1878   1880
@@E304   001  0047 1880   1882
@@E305   001  0048 1882   1884
@@E308   001  0049 1884   1886
@@E310   001  004A 1886   1888
@@E315   001  004B 1888   1890
@@E316   001  004C 1890   1892
@@E320   001  004D 1892   1894
@@E325   001  004E 1894   1896
@@E330   001  004F 1896   1898
@@E335   001  0050 1898   1900
@@E338   001  0051 1900   1902
@@E340   001  0052 1902   1904
@@E350   001  0053 1904   1906
@@E351   001  0054 1906   1908  4293
@@E352   001  0055 1908   1910
@@E360   001  0056 1910   1912
@@E361   001  0057 1912   1914
@@E362   001  0058 1914   1916
@@E371   001  0059 1916   1918
@@E380   001  005A 1918   1920
@@E390   001  005B 1920   1922
@@E400   001  005C 1922   1924
@@E410   001  005D 1924   1926
@@E415   001  005E 1926   1928
@@E417   001  005F 1928   1930
@@E420   001  0060 1930   1932
@@E430   001  0061 1932   1934
@@E432   001  0062 1934   1936
@@E433   001  0063 1936   1938
@@E450   001  0064 1938   1940  3191
```

SYMBOL	LEN	VALUE	DEFN	REFERENCES	
@@E451	001	0065	1940	1942	3265
@@E460	001	0066	1942	1944	
@@E461	001	0067	1944	1946	
@@E464	001	0068	1946	1948	
@@E465	001	0069	1948	1950	
@@E466	001	006A	1950	1952	
@@E467	001	006B	1952	1954	
@@E469	001	006C	1954	1956	
@@E470	001	006D	1956	1958	
@@E471	001	006E	1958	1960	
@@E473	001	006F	1960	1962	
@@E474	001	0070	1962	1964	
@@E475	001	0071	1964	1966	
@@E476	001	0072	1966	1968	
@@E477	001	0073	1968	1970	
@@E478	001	0074	1970	1972	
@@E479	001	0075	1972	1974	
@@E480	001	0076	1974	1976	
@@E481	001	0077	1976	1978	
@@E482	001	0078	1978	1980	
@@E483	001	0079	1980	1982	
@@E484	001	007A	1982	1984	
@@E485	001	007B	1984	1986	
@@E486	001	007C	1986	1988	
@@E487	001	007D	1988	1990	
@@E488	001	007E	1990	1992	
@@E489	001	007F	1992	1994	
@@E490	001	0080	1994	1996	
@@E491	001	0081	1996	1998	
@@E492	001	0082	1998	2000	
@@E493	001	0083	2000	2002	
@@E494	001	0084	2002	2004	
@@E495	001	0085	2004	2006	
@@E496	001	0086	2006	2008	
@@E497	001	0087	2008	2010	
@@E498	001	0088	2010	2012	
@@E500	001	0089	2012	2014	
@@E501	001	008A	2014	2016	
@@E530	001	008B	2016	2018	
@@E531	001	008C	2018	2020	
@@E535	001	008D	2020	2022	
@@E540	001	008E	2022	2024	
@@E541	001	008F	2024	2026	
@@E542	001	0090	2026	2028	
@@E543	001	0091	2028	2030	
@@E544	001	0092	2030	2032	
@@E545	001	0093	2032	2034	
@@E546	001	0094	2034	2036	
@@E547	001	0095	2036	2038	
@@E548	001	FFFF	2242		
@@E549	001	0096	2038	2040	
@@E550	001	0097	2040	2042	
@@E551	001	0098	2042	2044	
@@E552	001	0099	2044	2046	
@@E553	001	009A	2046	2048	
@@E554	001	009B	2048	2050	

```
                              CROSS REFERENCE

SYMBOL  LEN VALUE DEFN    REFERENCES                    VER 15, MOD 00  27/02/22  PAGE  81

@@E555  001  009C 2050    2052  3301
@@E556  001  009D 2052    2054
@@E558  001  009E 2054    2056
@@E570  001  009F 2056    2058
@@E571  001  00A0 2058    2060
@@E572  001  00A1 2060    2062
@@E573  001  00A2 2062    2064
@@E574  001  00A3 2064    2066
@@E575  001  FFFF 2244
@@E578  001  00A4 2066    2068
@@E579  001  FFFF 2246
@@E580  001  FFFF 2248
@@E585  001  00A5 2068    2070
@@E595  001  FFFF 2250
@@E597  001  FFFF 2252
@@E598  001  FFFF 2254
@@E600  001  00A6 2070    2072
@@E601  001  00A7 2072    2074
@@E602  001  00A8 2074    2076
@@E603  001  00A9 2076    2078
@@E604  001  00AA 2078    2080
@@E606  001  00AB 2080    2082
@@E607  001  00AC 2082    2084
@@E608  001  00AD 2084    2086
@@E609  001  00AE 2086    2088
@@E610  001  00AF 2088    2090
@@E611  001  00B0 2090    2092
@@E612  001  00B1 2092    2094
@@E613  001  00B2 2094    2096
@@E614  001  00B3 2096    2098
@@E700  001  00B4 2098    2100
@@E701  001  00B5 2100    2102
@@E710  001  00B6 2102    2104
@@E712  001  00B7 2104    2106
@@E713  001  00B8 2106    2108
@@E714  001  00B9 2108    2110
@@E715  001  00BA 2110    2112
@@E716  001  00BB 2112    2114
@@E717  001  00BC 2114    2116
@@E718  001  00BD 2116    2118
@@E720  001  00BE 2118    2120
@@E721  001  00BF 2120    2122
@@E723  001  00C0 2122    2124
@@E724  001  00C1 2124    2126
@@E725  001  00C2 2126    2128
@@E726  001  00C3 2128    2130
@@E727  001  00C4 2130    2132
@@E728  001  00C5 2132    2134
@@E729  001  00C6 2134    2136
@@E730  001  00C7 2136    2138
@@E732  001  00C8 2138    2140
@@E752  001  00C9 2140    2142
@@E753  001  00CA 2142    2144
@@E754  001  00CB 2144    2146
@@E755  001  00CC 2146    2148
@@E756  001  00CD 2148    2150
```

SYMBOL	LEN	VALUE	DEFN	REFERENCES
@@E757	001	00CE	2150	2152
@@E758	001	00CF	2152	2154
@@E759	001	00D0	2154	2156
@@E760	001	00D1	2156	2158
@@E761	001	00D2	2158	2160
@@E762	001	00D3	2160	2162
@@E763	001	00D4	2162	2164
@@E764	001	00D5	2164	2166
@@E765	001	00D6	2166	2168
@@E766	001	00D7	2168	2170
@@E767	001	00D8	2170	2172
@@E768	001	00D9	2172	2174
@@E769	001	00DA	2174	2176
@@E770	001	00DB	2176	2178
@@E771	001	00DC	2178	2180
@@E772	001	00DD	2180	2182
@@E773	001	00DE	2182	2184
@@E774	001	00DF	2184	2186
@@E775	001	00E0	2186	2188
@@E776	001	00E1	2188	2190
@@E777	001	00E2	2190	2192
@@E778	001	00E3	2192	2194
@@E779	001	00E4	2194	2196
@@E780	001	00E5	2196	2198
@@E781	001	00E6	2198	2200
@@E782	001	00E7	2200	2202
@@E783	001	00E8	2202	2204
@@E784	001	00E9	2204	2206
@@E785	001	00EA	2206	2208
@@E786	001	00EB	2208	2210
@@E790	001	00EC	2210	2212
@@E791	001	00ED	2212	2214
@@E792	001	00EE	2214	2216
@@E793	001	00EF	2216	2218
@@E794	001	00F0	2218	2220
@@E795	001	00F1	2220	2222
@@E796	001	00F2	2222	2224
@@E797	001	00F3	2224	2226
@@E798	001	00F4	2226	2228
@@E800	001	FFFF	2256	
@@E801	001	FFFF	2258	
@@E802	001	FFFF	2260	
@@E803	001	FFFF	2262	
@@E804	001	FFFF	2264	
@@E900	001	00F5	2228	2230
@@E901	001	00F6	2230	2232
@@E902	001	00F7	2232	2234
@@E903	001	00F8	2234	2236
@@E905	001	00F9	2236	2238
@@E906	001	00FA	2238	2240
@@E910	001	00FB	2240	
@@M048	001	0C0B	2573	4348
@@M049	001	0C0F	2577	4343
@@M300	001	0C13	2581	4353
@@T048	001	0C17	2585	2575
@@T049	001	0C2D	2588	2579

```
@@T300  001  0C45 2591   2583
@ARR    001  0008 0016   2876* 2877   2878* 2879   3033* 3034   3035* 3036   3597   3856   4010   4254
                         4544  4744
@ASIGN  001  007C 0071   4770
@ASTER  001  005C 0069
@BCRDL  001  0050 0088
@BE     001  0081 0043
@BF     001  0090 0052
@BH     001  0084 0041
@BL     001  0082 0042   3694
@BLANK  001  0040 0065   3601  3603  4367  4387  4404  4549  4555  4754
@BM     001  0082 0054
@BNE    001  0001 0046   4540
@BNH    001  0004 0044
@BNL    001  0002 0045
@BNM    001  0002 0057
@BNOL   001  0020 0050
@BNOZ   001  0008 0049
@BNP    001  0004 0056
@BNZ    001  0001 0058
@BOL    001  00A0 0048
@BOZ    001  0088 0047
@BP     001  0084 0053
@BR     001  0001 0013   2648  2650  2660  2661  2670  2670  2671  2671  2672  2672  2673  2674
                         2677  2697  2700  2700  2701  2701  2702  2702  2703  2703  2705  2705
                         2706  2706  2708  2708  2709  2709  2710  2712  2713  2714  2715  2864
                         2873  2875* 2876  2877  2878  2879  2881  2882  2882  2883  2884  2884
                         2886  2886  2887  2888  2888  2892  2892  2893  2897  2897  2898  2900
                         2900  2901  2901  2902  2902  2903  2903  2904  2904  2910  2911  2912
                         2912  2913  2918  2918  2919  2919  2921  2921  2927* 3029  3030  3032*
                         3033  3034  3035  3036  3038  3039  3039  3040  3042  3043  3045  3047
                         3047  3048  3048  3049  3051  3053  3054  3054  3055  3057  3059  3060
                         3060  3061  3061  3062  3062  3063  3070* 3090  3090  3092  3092  3093
                         3094  3095  3095  3096  3096  3097  3098  3098  3099  3100  3101  3101
                         3102  3104  3104  3105  3105  3106  3106  3107  3107  3108  3143  3145*
                         3177  3186  3209  3209  3210  3211  3224  3226  3227  3227  3236  3236
                         3248  3255* 3270  3270* 3288  3289  3290  3352* 3373  3374* 3376  3377
                         3378  3379  3380  3381  3382  3385  3389  3393  3411  3412  3414* 3415
                         3416  3417  3418  3419  3419  3420  3420  3421  3421  3422  3594  3595*
                         3596  3597  3598  3613  3614  3622  3625  3631  3637  3643  3647  3649
                         3679  3692  3694  3698  3700  3700  3701  3701  3702  3710* 3743  3851
                         3853  3854* 3855  3856  3862  3869  3870  3876  3876  3877  3887  3889
                         3893  3894  3894  3897* 4006  4007  4008* 4009  4010  4014  4016  4018
                         4032  4032  4033  4050  4050  4054  4057  4061* 4067  4068  4075  4078
                         4080  4080  4081  4082  4085  4250  4251  4252* 4253  4254  4265  4267
                         4267  4269  4269  4270  4280  4282  4283  4302* 4333  4384* 4395  4395*
                         4401  4401* 4410  4422  4740  4742  4743* 4744  4747  4754  4755  4755
                         4756  4757  4757  4777  4780  4783  4792  4794  4794  4795  4796  4797
                         4799  4801  4803  4808  4808  4811  4818  4823  4827  4835  4843*
@BT     001  0010 0051
@BZ     001  0081 0055
@B1     001  0001 0063   2670  2671  2672  2700  2701  2702  2703  2705  2706  2708  2709  2713
                         2714  3209  3210* 3224  3226  3227  3291  3297  3308  3318  3334  3367
                         3376  3377  3378  3379  3380  3381  3382  3415  3418  3419  3420  3421
                         3445  3453  3466  3474  3601  3603  3611  3615  3622  3637  3655  3670
                         4240  4262  4291  4355  4368* 4383  4384  4386  4390  4393  4402  4403
```

```
                                   4755  4810  4867  4869  4870
@CADDR   001  0002 0142   2575  2579  2583  2882  3039  3211  3225  4067
@CARDL   001  0060 0087   0644
@CHARA   001  00C1 0072   4773
@CHARF   001  00C6 0073   4399
@CHARR   001  00D9 0074   4396
@CHARZ   001  00E9 0075   4775
@CLOFF   001  0010 0094
@CLON    001  0011 0093
@COMMA   001  006B 0066   4551
@CPLUS   001  004E 0079
@DADDR   001  0002 0140   2649  2660  2677  2881  2946  3038  3177  3208  3236  3324  3342* 3383
                          3416  3417  3630  3636  3642  3648  3657  3677  3678  3679  3682  3884
                          3889  3894  4039  4266  4266  4268  4395  4401  4422  4422
@DBFR1   001  0004 0129   3105*
@DBFR2   001  0005 0130   3323* 3869
@DCALK   001  0001 0081
@DCBCY   001  0009 0115
@DCBT1   001  0050 0117
@DCNT    001  0003 0128   2672* 2713* 2714* 3087  3224  3415  3419* 3420* 3421*
@DCST1   001  0040 0116
@DCTRL   001  0000 0125   2650* 2661* 3186*
@DCYL    001  0001 0126   2702* 2703* 2886* 3075  3473
@DD2     001  0003 0030
@DGET    001  0001 0134   2650  2729  2754  3435  3443  3451  3720  3906
@DOLAR   001  005B 0068   4766
@DOP2    001  0004 0028   2877* 2881* 2882* 2944  2945  3034* 3038* 3039* 3110  3111  3225*
@DPLNG   001  0006 0132   2883  2942  3040  3074
@DPOS    001  0000 0133
@DPUT    001  0002 0135   2661  2738  2746  3186  3459
@DSAD    001  0002 0127   2649  2671* 2697  2700* 2701* 2705* 2706* 2884* 2888* 2892  2893* 2897*
                          2900* 2904  2910* 2918* 2921* 2943  3076  3177* 3208  3209* 3227* 3236*
                          3324* 3383  3889* 3894*
@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   4280
@EOF     001  001C 0077
@EOFTC   001  0075 0162
@EOS     001  001E 0076   3150  3164  4407  4557  4821
@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
```

SYMBOL	LEN	VALUE	DEFN	REFERENCES										
@FLACE	001	0009	0197											
@FLDBC	001	0001	0196											
@FLENT	001	0004	0201											
@FLFNA	001	0002	0199											
@FLHLN	001	0002	0209											
@FLLNC	001	0002	0194											
@FLNSC	001	0001	0211											
@FLSD	001	0001	0207											
@HDRLN	001	0007	0092	0672										
@IAR	001	0010	0017											
@INDEX	001	0001	0156	0157										
@INST3	001	0003	0032											
@INST4	001	0004	0033											
@INST5	001	0005	0034											
@INST6	001	0006	0035											
@I1IAR	001	00C0	0020											
@LINSZ	001	00F4	0084	0646										
@MAPEN	001	0005	0089											
@MINCR	001	2000	0083	2767										
@MINUS	001	0060	0080											
@NOP	001	0080	0040	2668	2695	2923	3043	3268	3312	3316	3357	3861	3893	4305
@NUMBR	001	007B	0070	4768										
@OPD2	001	0004	0029											
@OP1	001	0003	0027	2873*	2879*	3030*	3036*	3211*	3225	3286*	3709	3711	3713	3853* 3855*
				3856*	4007*	4009*	4010*	4251*	4253*	4254*	4544*	4742*	4744*	4747* 4757*
				4808*										
@OP2	001	0005	0031											
@PCTRL	001	0000	0149											
@PDATA	001	0003	0151											
@PGCSZ	001	0020	0082	0083										
@PPLNG	001	0004	0148											
@PRCNT	001	0001	0150											
@PRETR	001	00C0	0154	2581	4432	4438								
@PRINT	001	0040	0152	0154	2573	2577								
@PSR	001	0004	0015	4783*										
@PWAIT	001	00FF	0158											
@P1IAR	001	0020	0018											
@P2IAR	001	0040	0019											
@Q	001	0001	0024	2673*	2712*	2924	3042*	3043*	3053*	3059*	3085	3086	3088	3097* 3099
				3153*	3304*	3305*	3311*	3312*	3606	3695	3697	3862*	3893*	4019 4084
				4294*	4563	4871								
@REGL	001	0002	0012	3369	3370	3371								
@RETRN	001	0080	0153	0154										
@RLDWN	001	004F	0159											
@RTRNC	001	0080	0161											
@SBLN	001	0005	0170											
@SBLNL	001	0002	0184											
@SCTSZ	001	0100	0100	4915	4916									
@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											

SYMBOL	LEN	VALUE	DEFN	REFERENCES
@SLAST	001	0002	0183	
@SMIDL	001	0003	0182	
@SNULL	001	0080	0173	
@SONLY	001	0000	0180	
@STEXT	001	0007	0172	
@STYPE	001	0006	0171	
@TBCNT	001	0000	0160	
@TBLEF	001	0010	0155	0157
@TBLIX	001	0011	0157	
@UCB	001	0087	0039	2673 2712 3097 3304 3311 3320 3696 3862 4294 4541 4552
@UPARW	001	005A	0078	
@VADDR	001	0002	0141	
@VENTA	001	0056	0113	
@VMDDV	001	00FE	0114	
@VMFD1	001	0000	0109	
@VMFD2	001	0001	0110	
@VMRS3	001	0002	0112	
@VMTRL	001	0001	0111	
@VOLID	001	0006	0091	3288 4262 4264 4268 4384 4395 4401 4410 4725 4801
@VQ	001	0001	0025	3305 4355* 4370
@WSFIT	001	0500	0101	
@WSTBL	001	0503	0102	
@XR	001	0002	0014	3144* 3150 3154 3161 3164 3166* 3256* 3271 3271* 3272 3275 3286
				3302 3302* 3315* 3317 3321 3322* 3323 3324 3332* 3353* 3366* 3367
				3367 3368 3369 3370 3371 3376 3377 3378 3379 3380 3381 3382
				3383 3387 3391 3395 3598 3599* 3600 3615 3628 3630 3634 3636
				3640 3642 3646 3648 3655 3657 3670 3672 3677 3678 3679 3682
				3703 3708* 3744 3855 3869* 3870 3871 3871* 3873 3875 3875* 3883
				3884 3889 3898* 4009 4013* 4016 4017 4017* 4024 4030 4031 4031*
				4039 4049 4049 4053 4053* 4056* 4057 4062* 4074 4075 4076 4077
				4078 4082 4083 4253 4262* 4264 4266 4268 4268* 4303* 4383* 4386
				4386* 4387 4390 4393 4396 4399 4402 4402* 4403 4403* 4404 4407
				4545 4548 4548* 4549 4551 4554 4554* 4555 4557 4559 4747 4766
				4768 4770 4773 4775 4784* 4809 4810 4810* 4821
@ZERO	001	0000	0062	2765 2893 3042 3150 3164 3188 3210 3219 3221 3252 3272 3287
				3306 3309 3340 3351 3613 3614 3615 3628 3634 3640 3646 3655
				3670 3887 4076 4264 4291 4387 4396 4399 4404 4407 4410 4756
				4766 4768 4770 4773 4775 4809 4818 4821 4835
DL2C01	002	0DCB	2936	2876 2878 2886
DL2C05	002	0DCD	2937	2882
DL2C48	001	0DC7	2934	2884 2888
DL2DPL	006	0DD3	2942	2883*
DL2END	001	0DD6	2947	
DL2E01	001	0001	2866	2884 2886 2888 2892 2904 2912
DL2E02	001	0002	2867	2897 2900 2918
DL2E18	001	0018	2868	2898
DL2E60	001	0060	2869	2913
DL2E7C	001	007C	2871	2910
DL2ICS	001	0D3D	2872	2654 2664 2687 3213 3230 3327 3680 3864 3890
DL2K18	002	0DC9	2935	2901
DL2K60	002	0DC4	2932	2919
DL2K80	002	0DC6	2933	2900 2918
DL2LST	001	0DCE	2941	2884* 2886* 2888* 2892 2893* 2897* 2900* 2904 2910* 2918* 2921* 2926
				2943
DL2PHY	001	0DD0	2943	
DL2RAD	002	0DD5	2946	2649* 2660* 2677* 2897 3208* 3677* 3863*

```
DL2SAD   005  0D55 2944   2904* 2911* 2912* 2913   2919* 2921
DL2SEC   005  0D5E 2945   2892* 2898   2901* 2902   2902* 2903   2903* 2912
DL2SWH   003  0DB3 2924
DL2TSD   001  0083 2870   2911
DL2000   001  0D41 2874   2864   2875
DL2001   005  0D51 2881   2877* 2944
DL2002   005  0D5A 2883   2881* 2882* 2945
DL2005   004  0D5F 2884   2887
DL2006   004  0D6D 2888   2885
DL2008   004  0D8A 2902   2899
DL2010   003  0DA0 2913
DL2100   004  0DAE 2921   2914
DL2110   003  0DB2 2923   2924
DL2900   004  0DBB 2927   2873* 2923
DL2910   004  0DBF 2928   2879*
DL4CYL   001  0E4C 3075   3047*
DL4C01   002  0E52 3083   3033   3035   3047
DL4C05   002  0E54 3084   3039
DL4C24   003  0E23 3086   3060
DL4C48   003  0E10 3088   3054   3095   3101
DL4C96   003  0DFF 3085   3048
DL4DPL   006  0E50 3074   3040*
DL4EFD   001  0001 3081   3053   3099
DL4END   001  0E92 3112
DL4ETB   001  0080 3082   3059
DL4E01   001  0001 3080   3055
DL4E24   001  0018 3079   3057
DL4E48   001  0030 3078   3051   3093
DL4E96   001  0060 3077   3045
DL4ICS   001  0DD6 3028   2680   3344
DL4LST   001  0E4B 3073   3066   3075   3076   3087   3105*
DL4SAV   005  0DED 3111   3098* 3101* 3104
DL4SCD   001  0E4D 3076   3045   3048* 3051   3054* 3057   3060* 3061   3061* 3062   3062* 3063* 3092
                         3098   3104* 3106*
DL4SCT   001  0E4E 3087   3055   3090   3096* 3105   3106   3107*
DL4SPT   004  0E55 3091   3056
DL4WRK   005  0DEE 3110   3090* 3092* 3093   3095* 3096   3107
DL4010   001  0DDA 3031   3029   3032
DL4020   005  0DEA 3038   3034* 3110   3111
DL4030   005  0DF3 3040   3038* 3039*
DL4035   003  0DF8 3042   3108
DL4040   003  0DFE 3045   3049   3085
DL4050   003  0E0F 3051   3046   3088
DL4060   003  0E1C 3055   3052
DL4070   003  0E22 3057   3086   3094   3100   3102
DL4080   004  0E2F 3061   3058
DL4100   003  0E37 3063   3042* 3053* 3059* 3099
DL4200   003  0E40 3068   3043* 3097*
DL4500   004  0E55 3090   3091
DL4600   004  0E7F 3104   3068
DL4900   004  0E43 3070   3030*
DL4920   004  0E47 3071   3036*
I$ADJX   001  0D56 1648
I$ADST   001  0C9D 1603
I$BASE   001  0C60 1605
I$BRCN   001  117B 1657
```

```
I$BSET   001  119D 1656
I$B1SW   001  0040 1713
I$B2SW   001  0020 1715
I$CADR   001  144C 1694
I$CALL   001  12B1 1688
I$CBM1   001  0D43 1624
I$CBN1   001  0D3E 1620
I$CBN2   001  0D3F 1621
I$CBN3   001  0D40 1622
I$CBN4   001  0D41 1623
I$CFBS   001  0AE3 1671
I$CLFA   001  0D4A 1630
I$CLVA   001  0D49 1629
I$CL1C   001  0D46 1627
I$CL1F   001  0D44 1625
I$CL2C   001  0D47 1628
I$CL2F   001  0D45 1626
I$CPG1   001  1600 1585
I$CPUF   001  0A27 1667
I$CSCT   001  0D5A 1643
I$CSSW   001  0010 1717
I$CSXA   001  2000 1584
I$CUPF   001  0A85 1669
I$CVAD   001  1358 1682
I$DATA   001  0D53 1611
I$DAT1   001  0D55 1612
I$DMSW   001  0BC1 1665
I$ECSW   001  0004 1721
I$ERRC   001  0CBC 1610
I$FACT   001  0DD1 1650
I$FADD   001  075D 1673
I$FATE   001  0DE6 1651
I$FATP   001  0DE8 1652
I$FDVD   001  0919 1678
I$FMPY   001  082A 1676
I$FSUB   001  0751 1674
I$FWRK   001  0607 1594
I$IMC1   001  0DCE 1641
I$IMLN   001  0DC6 1637
I$IMPT   001  0DCC 1640
I$INDR   001  0DC5 1636
I$INIT   001  0607 1593
I$INTR   001  0C5C 1597
I$IRSW   001  0CDE 1617
I$I700   001  0E24 1679
I$LBFR   001  12B6 1689
I$LDBR   001  1329 1686
I$LDXR   001  1330 1687
I$LOCK   001  1354 1684
I$MDFY   001  1349 1683
I$MOD4   001  130B 1680
I$NCPG   001  000A 1705
I$NDSW   001  0002 1723
I$NISW   001  0080 1711
I$NPAG   001  0C68 1598
I$PARM   001  0D57 1613
```

```
I$PGDS  001  144A 1692
I$PGNO  001  1449 1691
I$PGTB  001  14CA 1695   3474
I$PLRT  001  15E2 1696
I$PSTK  001  15CA 1697
I$PUB1  001  0DC8 1638
I$PUB2  001  0DCA 1639
I$RESW  001  0CE9 1618
I$RNMK  001  0001 1633
I$RNSW  001  0D5C 1632
I$RTRN  001  12D3 1690
I$SDCT  001  0D59 1645
I$SDPT  001  0DD0 1642
I$SFCT  001  0D5A 1646
I$SFFO  001  0D5D 1654
I$SICT  001  0D5B 1647
I$SLLC  001  0BA1 1661
I$SLNG  001  0BA2 1660
I$SNSW  001  0001 1725
I$SSCT  001  0D58 1644
I$STAK  001  0D4E 1606
I$STCK  001  0B50 1659
I$STHA  001  0D51 1616
I$STKB  001  0639 1595
I$STKI  001  0D4F 1607
I$STSW  001  0008 1719
I$TFSW  001  0D28 1619
I$ULNG  001  0C3A 1664
I$UNLK  001  1350 1685
I$USTK  001  0BB0 1663
I$VADR  001  144A 1693
I$WRK1  001  0D59 1614
I$WRK2  001  0D5B 1615
I$XAD1  001  0C89 1602
I$XAD2  001  0C82 1601
I$XAD3  001  0C7B 1600
I$XAD4  001  0C74 1599
I$XERR  001  0CAB 1604
I$XIAR  001  0D4C 1609
I$XPAG  001  0C61 1608
KLOBUF  001  1293 4877   4878
KSS#SA  002  0D36 2762   2708* 2709  2713  2714
KSSARR  001  000D 2617   3371*
KSSBSE  001  1158 3432   3143  3145
KSSBS1  006  0C90 2651   2648  3412  3414
KSSBUF  001  0D39 2766   2670  2671  2705  2706  2708  2709  2768  3418* 3419  3420  3421
KSSCFG  001  0014 2629   3381*
KSSCNT  001  0D3A 2769   2670* 2672  3415*
KSSCOR  001  1173 3477   3224* 3226* 3227
KSSCRR  001  0D1F 2728   2650* 2655  2671* 2672* 2735  3419*
KSSCRS  001  0D1F 2737   2661* 2665
KSSCRT  001  0002 2632   3387
KSSCSA  002  0D34 2761   2660  3416*
KSSCT2  001  0D3B 2771   2702
KSSCT4  001  0D37 2764   2703
KSSCT8  001  1171 3469   3308* 3334* 3350* 3470
```

```
KSSDSZ 001  0013 2628   3380*
KSSDTR 001  0040 2633   3391
KSSD1P 001  1175 3479   3254* 3340  3342  3351* 3480
KSSEXF 001  0010 2622   3377*
KSSFNE 001  0007 2611   3368*
KSSFXD 001  18EA 4914   3188  3192  3366  3438  4915
KSSIDR 001  0000 2608   3188
KSSINL 001  000F 2621   3376*
KSSIOI 001  0016 2631   3387* 3391* 3395*
KSSKBG 001  0015 2630   3382*
KSSLMP 001  0080 2634   3395
KSSONE 001  1170 3468   3318  3334
KSSOPN 001  1174 3478   3306  3308  3309* 3318*
KSSPAG 002  116C 3474   3209  3210* 3211
KSSPBR 001  0009 2615   3369*
KSSPGD 001  0018 2636   3367  3367  3367* 3383*
KSSPND 001  0C07 2565
KSSPXR 001  000B 2616   3370*
KSSSAV 002  0D32 2760   2677  3417*
KSSSSA 001  1158 3434   3177* 3181  3186* 3399
KSSUMR 001  0F00 3134   2732  2741  2749  2757  2767
KSSUSR 001  116A 3458   3323* 3324* 3328  3473
KSSVFP 002  116F 3466   3236
KSSVMR 001  0D2B 2753   2681  2697  2700* 2702* 2705* 2713* 3420*
KSSVMS 001  0D25 2745   2688  2701* 2703* 2706* 2714* 3421*
KSSVM0 001  19EA 4915   3252  3254  3255  3352  3446  4916
KSSVM1 001  1AEA 4916   3221  3256  3264  3353  3368  3454
KSSXD1 001  0011 2623   3378*
KSSXD2 001  0012 2624   3379*
KSSX92 001  0D3C 2772   2700  2701
KSSZER 001  0D38 2765   3291
KSS0VM 001  115E 3442   3205  3342* 3345
KSS000 006  0C90 2649   2651  2674  3422
KSS010 003  0CB3 2668   2673*
KSS020 005  0CC8 2677   2668
KSS050 004  0CCD 2680   2710  2715
KSS060 003  0CDF 2695   2712*
KSS070 004  0CF8 2705   2698
KSS090 004  0D1B 2717   2695
KSS1VM 001  1164 3450   3209* 3214  3227* 3231  3236* 3239  3383
KSS100 004  0F00 3144   2566  4886
KSS110 004  0F08 3147
KSS130 003  0F37 3164   3149  3159
KSS140 003  0F41 3167   3156
KSS150 005  0F44 3177   3151  3165
KSS192 001  00C0 2638   2697
KSS200 004  0F6C 3204   3189
KSS205 004  0F90 3219   3211* 3220  3225
KSS207 005  0FA2 3226   3225*
KSS208 004  0FB4 3236   3222
KSS209 004  0FBE 3244   3234
KSS220 004  0FD1 3255   3253  3313
KSS230 004  0FD9 3264
KSS250 003  0FEC 3270   3335  3354
KSS300 004  0FFE 3286
KSS320 003  1035 3302   3193
```

```
KSS325   004  1038 3303    3167  3266
KSS350   004  1063 3315    3296
KSS360   003  1067 3316    3311*
KSS37S   004  1079 3322    3320
KSS370   003  1073 3320    3312* 3316
KSS380   004  108C 3332    3286*
KSS390   006  1090 3334    3273  3276
KSS394   004  10C7 3356    3305* 3307  3341
KSS395   004  10CB 3357    3304*
KSS400   004  10CF 3366
KSS410   003  1119 3389    3386
KSS420   003  1122 3393    3390
KSS430   004  112B 3398    3394
KSS500   004  1131 3414
SALBSE   001  154B 4765    4740  4743
SALCNT   001  15E7 4862    4756* 4794* 4797  4801  4818
SALCT6   001  0006 4725
SALCT8   001  0008 4723
SALERR   003  1561 4871    4783
SALFST   001  0001 4859    4780  4792
SALIDR   001  15E6 4852    4737* 4777  4780  4792* 4795  4823  4835*
SALND0   004  15DE 4843    4742*
SALND2   004  15E2 4844    4744*
SALPHR   001  15EA 4866    3192  4868  4869  4870
SALPHS   002  15F5 4868    4757
SALPH6   001  152F 4741
SALPH8   001  152B 4734    3155
SALPR6   001  15F2 4870    4755*
SALPR7   001  15F3 4869    4754* 4755
SAL001   002  15E9 4865    4794  4808
SAL008   001  0080 4856    4737  4777  4795  4823
SAL100   003  153D 4754
SAL200   003  154B 4766    4811
SAL250   003  1560 4774    4871
SAL350   003  1579 4783    4799  4803  4827
SAL375   004  157C 4784    4747*
SAL400   003  1583 4792    4767  4769  4771  4776
SAL425   004  1586 4794    4778  4782
SAL450   003  159D 4801    4796
SAL500   004  15A7 4808    4800
SAL525   005  15AB 4809    4757* 4808*
SAL750   003  15B6 4818    4774
SAL755   004  15B9 4819    3153*
SAL760   003  15D4 4827    4822  4825
SAL775   004  15D7 4828    4820
SAL800   003  15DB 4835    4785
SCACNT   002  152A 4569    4559* 4560*
SCACOF   001  0087 4541
SCACOM   001  0001 4540
SCAINC   001  0001 4539    4548  4554
SCAMMA   003  1507 4563
SCANIT   001  14EA 4543    3147  4828  4874  4908
SCASVE   002  1528 4568    4545* 4560
SCASV1   001  1527 4567
SCA100   003  14F9 4548    4550
SCA200   003  14FC 4549    4547
```

```
SCA250   003  1506 4552   4563
SCA300   003  1509 4554   4556
SCA400   004  1519 4559   4552
SCA500   004  1523 4562   4544* 4558
SFIAST   001  005C 3733   3611
SFIBSE   003  11B5 3740   3595   3596
SFICTR   001  1289 3717   3613* 3622   3625   3631* 3637* 3643* 3649* 3692
SFIDPL   001  128A 3720   3681
SFIEFE   001  00FE 3736   3631   3692
SFIEFF   001  00FF 3737   3719
SFIEND   001  1292 3741
SFIERR   004  103C 3304   3298   3673   3732
SFIETD   001  0006 3742   3698
SFIEXT   004  1288 3713   3597*
SFIE02   001  0002 3734   3643
SFIE03   001  0003 3735   3625   3649
SFIE06   001  0006 3738   3628   3634   3640   3646
SFIE07   001  0007 3739   3630   3636   3642   3648
SFIFND   003  1263 3697
SFINDF   001  1177 3593   3293
SFINTR   001  1291 3725   3698   3701   3726
SFIONE   001  1292 3728   3700
SFIRDA   002  128C 3721   3679*
SFISBR   004  1284 3711   3594*
SFISTR   003  1260 3695
SFISXR   004  1280 3709   3598*
SFITTC   001  1290 3724   3614* 3700* 3701
SFIVOL   004  1198 3606
SFI050   004  1197 3605   3606
SFI100   004  119E 3611   3604
SFI200   003  11B5 3622   3694   3702   3740
SFI210   003  11C4 3628   3647
SFI220   003  11D5 3634   3623
SFI230   003  11E6 3640   3624   3635
SFI240   003  11F7 3646   3626   3641
SFI320   003  1208 3655   3612
SFI340   005  120E 3657   3616
SFI350   004  1213 3661   3607   3632   3638   3644   3650
SFI500   003  1228 3670   3602
SFI505   003  122E 3672   3656
SFI510   005  1235 3677   3671
SFI520   004  124E 3686   3666
SFI540   003  1259 3692   3663
SFI542   003  125F 3694   3695
SFI543   003  1262 3696   3697
SFI545   003  1276 3703   3629   3696   3699
SFI550   004  127D 3708   3665   3688   3693   3709
SFI560   004  1281 3710   3711
SFI570   004  1285 3712   3713
SGECNT   001  131C 3913   3870* 3876* 3887
SGEC01   002  131E 3914   3876
SGEDPL   001  1314 3905   3865   3869   3889* 3891   3894*
SGEEND   001  131F 3916
SGERAD   002  131B 3912   3894
SGETDB   001  1293 3852   3661   3851   3854   4877
SGE050   003  12A9 3861   3862* 3893*
```

```
SGE055  003  12C1 3869   3861
SGE060  005  12CB 3873   3877
SGE070  004  12E1 3883   3874
SGE080  004  12F7 3889
SGE900  004  1308 3897   3853* 3886   3888
SGE901  004  130C 3898   3855*
SGE902  004  1310 3899   3856*
SMAEND  001  18EA 4912   4914
SMALES  004  0F00 4886   4887
SMBFDA  004  0F1A 4897   3630* 3636* 3642* 3648* 3657* 3678* 3863   4266* 4291   4422* 4898
SMDAAD  004  0F2E 4907
SMFNAM  004  0F16 4895   3288* 4896
SMFUDA  004  0F2A 4905   3682* 3884* 4906
SMIND1  004  0F00 4887   3287* 3295   3617* 3662   3664   3687   3704* 3860* 3878* 3885   4893
SMNDBA  004  0F2C 4906   4013   4056   4907
SMNDEA  004  0F20 4900   4039* 4067* 4901
SMNETD  004  0F24 4902   4903
SMNSCT  004  0F22 4901   4024   4074   4077   4902
SMNULT  004  0F1E 4899   4014* 4030* 4900
SMPDB1  001  14EA 4908   3909   4909   4910
SMPEAD  004  0F28 4904   3883* 4905
SMPIBS  001  14EA 4909
SMPSWD  004  0F0E 4894   3601   3611   3873   4895
SMUDBA  004  0F1C 4898   3322   4899
SMUDB1  001  14EA 4910   3723   4911
SMUDB2  001  16EA 4911   4912
SMUDEA  004  0F18 4896   3315   4897
SMUPEN  004  0F26 4903   4904
SMVOID  004  0F06 4893   3603   4264   4410   4894
SM1FNE  001  0080 4888   3295   3687   3704
SM1NPD  001  0040 4889
SM1PDS  001  0010 4891   3664   3885
SM1PNF  001  0008 4892   3295   3617   3662   3860   3878
SM1STN  001  0020 4890
SRCHFN  001  131F 4094   3686
SUPBUF  001  1293 4878
SURCHN  001  131F 4004   4094
SURCNT  003  1342 4019   4016* 4032* 4050*
SURC00  002  13BD 4090   4014   4018   4067
SURC01  001  13BE 4091   4032   4050   4057   4080
SURC48  002  13C0 4092   4078   4082
SURE01  001  0001 4005   4016   4032   4050
SURE02  001  0002 4089   4014   4057   4077   4078   4082
SURSWK  003  13B7 4084   4075* 4080*
SUR0A2  005  135E 4039   4025
SUR0A3  005  1393 4074   4043
SUR0G2  005  138B 4067   4020
SUR000  004  1323 4008   4006   4008
SUR010  003  1341 4018   4019   4033
SUR020  004  1366 4049   4054
SUR024  004  1377 4056   4051
SUR03C  003  13B6 4083   4084
SUR033  004  13B2 4082   4079
SUR034  004  13A4 4078   4081
SUR900  004  137F 4061   4007* 4068   4085
SUR910  004  1383 4062   4009*
```

```
                              CROSS REFERENCE

SYMBOL  LEN VALUE DEFN   REFERENCES                        VER 15, MOD 00  27/02/22  PAGE  94

SUR920  004  1387 4063   4010*
SVOBSE  001  13D3 4263   4250   4252
SVOBUF  001  14EA 4874
SVOCT1  001  141A 4316   4269* 4317
SVOCT2  001  141B 4320   3291* 3297   4267* 4280   4321
SVODSK  008  14DD 4437   3289*
SVOEND  001  00FF 4241
SVOERR  004  103C 3732   4305
SVOINP  001  0100 4240
SVOIOF  008  14E9 4443   3290*
SVOLID  001  13C1 4249   3605
SVOLN1  001  0001 4235   4267   4269
SVOMES  001  14E2 4441   4440
SVOMMS  001  14D6 4435   4434
SVOONE  001  141C 4323   4267   4269
SVOPPL  001  14DE 4438   4350
SVOPPM  001  14D2 4432   4345
SVO001  001  00F1 4237   4390
SVO002  001  00F2 4238   4393
SVO100  005  13D3 4264   4270
SVO200  003  13E4 4268   4265
SVO260  004  13FB 4291   4424
SVO270  004  1406 4294   4282   4333   4412
SVO274  004  140A 4302   4251* 4292
SVO276  004  140E 4303   4253*
SVO280  004  1412 4305   4294*
SVO290  004  1416 4306   4254*
SVO300  004  141D 4331   4283
SVO310  004  1421 4332
SVO315  003  1425 4333
SVO320  001  1428 4341   4394   4400   4408
SVO330  001  1452 4365
SVO333  004  1452 4367
SVO335  004  145C 4370   4355*
SVO350  004  1464 4372   4373
SVO360  003  147A 4386   4388
SVO400  003  1494 4396   4391
SVO440  003  14A4 4402   4397
SVO445  003  14A7 4403   4405
SVO450  005  14B8 4410


TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY =      0


OL105 I   THE CODE LENGTH OF #KSSPN IS  5622 DECIMAL.
OL103 I   TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS   15
          NAME-#KSSPN,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-R,CATEGORY-000
```

```
        OVERLAY LINKAGE EDITOR CORE USAGE MAP     27/02/22


 START      CATEGORY   NAME AND       CODE LENGTH
ADDRESS                  ENTRY     HEXADECIMAL DECIMAL

 0C00          0       #KSSPN          15F6    5622


OL100 I  THE TOTAL CORE USED BY #KSSPN IS  5622 DECIMAL.
OL101 I  THE START CONTROL ADDRESS OF THIS MODULE IS 0C00.
OL104 I  TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS   22
         NAME-#KSSPN,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-O
```