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

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

SYMBOL    TYPE                                    VER 15, MOD 00  30/05/22  PAGE   1

#KREAD    MODULE
```

```
ERR LOC  OBJECT CODE     ADDR STMT SOURCE STATEMENT         VER 15, MOD 00  30/05/22  PAGE   2

    0000                         1 #KREAD 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 *       @ERM  EXP-N
                              1347+        PRINT ON
                              1348 *       @SPF  EXP-N
                              1811+        PRINT ON
```

@SPFEQ - SYSTEM PROGRAM FILE EQUATES

```
                      1814 ************************************************************************
                      1815 * 5703-XM1      COPYRIGHT IBM CORP. 1970                             *
                      1816 *                     REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083   *
                      1817 *                                                                    *
                      1818 ************************************************************************
                      1819 *STATUS -                                                            *
                      1820 *    VERSION 1 MODIFICATION 0                                         *
                      1821 *                                                                    *
                      1822 *FUNCTION                                                             *
                      1823 *    KREADN PERFORMS THE FUNCTION OF THE READ KEYWORD.  THIS KEYWORD  *
                      1824 *    CHANGES THE SYSTEM INPUT SOURCE TO CARD OR KEYBOARD,  DEPENDING  *
                      1825 *    ON THE USER'S SPECIFICATION.                                     *
                      1826 *                                                                    *
                      1827 *ENTRY POINTS                                                         *
                      1828 *    THE ONLY ENTRY POINT TO KREADN IS TO THE FIRST BYTE OF THE MODULE.*
                      1829 *                                                                    *
                      1830 *INPUT                                                                *
                      1831 *    INPUT TO KREADN IS THE COMMAND INPUT BUFFER.                     *
                      1832 *                                                                    *
                      1833 *OUTPUT                                                               *
                      1834 *    NONE                                                             *
                      1835 *                                                                    *
                      1836 *EXTERNAL REFERENCES                                                  *
                      1837 *    THE FOLLOWING ARE EXTERNAL REFERENCES MADE IN KREADN:            *
                      1838 *        * $XRSAV - @XR SAVE AREA                                      *
                      1839 *        * $CAERR - ERROR CODE SAVE AREA                              *
                      1840 *        * $IOIND - NUCLEUS I/O INDICATOR BYTE                        *
                      1841 *        * $KEYCD - NUCLEUS KEY AND CARD INDICATOR BYTE               *
                      1842 *        * $CAERK - EXIT TO LOAD ERROR PROGRAM, #ERRPG                *
                      1843 *        * $CAIPL - EXIT TO LOAD #GUFUD, SYSTEM IN KEYBOARD MODE       *
                      1844 *        * $CARPL - EXIT TO LOAD #GUFUD, SYSTEM IN CARD MODE          *
                      1845 *        * $CANIT - ENTRY TO DELIMITER SCAN ROUTINE                   *
                      1846 *        * SCACNT - DELIMITERS SCANNED COUNTER IN SCANIT              *
                      1847 *        * SCAMMA - SCANIT INDICATOR TO SET TO ALLOW A COMMA          *
                      1848 *                                                                    *
                      1849 *EXITS, NORMAL                                                        *
                      1850 *    * $CAIPL IS THE NORMAL EXIT IF 'KEY' IS THE SPECIFIED PARAMETER. *
                      1851 *    * $CARPL IS THE NORMAL EXIT IF THE READ COMMAND CONTAINS THE     *
                      1852 *      'CARD' PARAMETER.                                              *
                      1853 *                                                                    *
                      1854 *EXITS, ERROR                                                         *
                      1855 *    $CAERK IS THE EXIT TAKEN IF AN ERROR OCCURS.                     *
                      1856 *                                                                    *
                      1857 *TABLES/WORKAREAS                                                     *
                      1858 *    NONE                                                             *
                      1859 *                                                                    *
                      1860 *ATTRIBUTES                                                           *
                      1861 *    RELOCATABLE                                                      *
                      1862 *                                                                    *
                      1863 *CHARACTER CODE DEPENDENCY                                            *
                      1864 *    NONE                                                             *
                      1865 *                                                                    *
                      1866 *NOTES                                                                *
                      1867 *    ERROR PROCEDURES                                                 *
                      1868 *        ON DETECTING AN ERROR CONDITION, KREADN SETS THE APPROPRIATE *
                      1869 *        ERROR CODE IN SCAERR AND EXITS TO SCAERK.  IF THE ERROR IS A *
```

```
                              1870 *        SYNTAX ERROR, @XR IS SET TO POINT TO THE INVALID CHARACTER.    *
                              1871 *        FOR NON-SYNTAX ERRORS, @XR IS POINTING OUTSIDE THE INPUT LINE  *
                              1872 *        BUFFER.                                                        *
                              1873 *                                                                       *
                              1874 *    REGISTER USAGE                                                     *
                              1875 *       * REGISTER 1 (@BR) IS USED AS A BASE REGISTER FOR ADDRESS-      *
                              1876 *         ABILITY WITH KRE150 AS THE BASE ADDRESS.                      *
                              1877 *       * REGISTER 2 (@XR) IS USED TO POINT TO THE INPUT LINE BUFFER.   *
                              1878 *                                                                       *
                              1879 *    SAVED/RESTORED AREAS                                               *
                              1880 *       NONE                                                            *
                              1881 *                                                                       *
                              1882 *    MODIFICATION CONSIDERATIONS                                        *
                              1883 *       NONE                                                            *
                              1884 *                                                                       *
                              1885 *    REQUIRED MODULES                                                   *
                              1886 *       * KREADN REQUIRES THE PRESENCE OF THE FOLLOWING EQUATE MODS:    *
                              1887 *          * @SYSEQ - COMMON SYSTEM EQUATES                             *
                              1888 *          * @FXDEQ - NUCLEUS FIXED ADDRESS EQUATES                     *
                              1889 *          * @CANEQ - EQUATES FOR FIXED ADDRESSES OUTSIDE THE NUCLEUS   *
                              1890 *          * @ERMEQ - ERROR MESSAGE EQUATES (SELECTED ERROR CODES)      *
                              1891 *       * KREADN ALSO REQUIRES THAT SCANIT, THE DELIMITER SCAN MODULE,  *
                              1892 *         BE INCLUDED TO ASSEMBLE THE READ PROGRAM.                     *
                              1893 *                                                                       *
                              1894 *    OTHER                                                              *
                              1895 *       NONE                                                            *
                              1896 **********************************************************************
```

```
      #KREAD - READ KEYWORD MODULE


ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  30/05/22  PAGE   6

                          1898 *
                          1899 *          EQUATES
                          1900 *
                     0004 1901 KRE001 EQU   4                      LENGTH OF KEYWORD 'READ'
                     0000 1902 KRE002 EQU   0                      POINTER DISPLACEMENT
                     0003 1903 KRE003 EQU   3                      LENGTH OF 'KEY' PARAMETER
                     0004 1904 KRE004 EQU   4                      LENGTH OF 'CARD' PARAMETER
                     0004 1905 KRE005 EQU   4                      LENGTH OF 'LIST' PARAMETER
                     0006 1906 KRE006 EQU   6                      LENGTH OF 'NOLIST' PARAMETER
                     0003 1907 KRE007 EQU   3                      LENGTH OF 'NUM' PARAMETER
                     0005 1908 KRE008 EQU   5                      LENGTH OF 'NONUM' PARAMETER
                          1909 *
                          1910 *          INITIALIZATION
                          1911 *
                          1912 *        HDR   #KREAD,1             GENERATE PROGRAM HEADER
                          1913 ***************************************************************************
                          1914 *   PROGRAM HEADER FOR DISK LOAD
                          1915 ***************************************************************************
                          1916 *#$KREA EQU   X'02BC'               DISK ADDR OF #KREAD
                          1917 *#$$KRE EQU   X'0C00'               CORE LOAD ADDRESS OF #KREAD
                          1918 *#$@KRE EQU   002                   SECTOR CNT OF #KREAD
  0C00                    1919        ORG   #$$KRE                CORE LOAD ADDRESS
                     0C00 1920 $$$$$$ EQU   *                     FIRST LOCATION IN PROGRAM
  0C00 D2D9C5C1C440  0C05 1921        DC    CL6'KREAD'            PROGRAM NAME
  0C06 15            0C06 1922        DC    IL1'021'              PROGRAM NUMBER OF #KREAD
                     0C07 1923 #KREA  EQU   *                     ENTRY POINT TO PROGPAM
                          1924 *** END OF EXPANSION ***

                     0C7C 1926        USING KRE150,@BR            SET VALUE FOR BASE
  0C07 C2 01 0C7C         1927        LA    KRE150,@BR            POINT BR TO ORIGIN
  0C0B 35 02 03C7         1928        L     $XRSAV,@XR            POINT XR TO INPUT LINE AT POINT
                          1929 *                                 * FOLLOWING 'READ'
  0C0F C0 87 0D93         1930        B     SCANIT                RETURN POINTER TO NEXT
                          1931 *                                 * NON-BLANK CHARACTER
  0C13 BD 1E 00           1932        CLI   KRE002(,@XR),@EOS     XR POINTING TO EOS ?
  0C16 F2 81 DD           1933        JE    KRE245                YES, 'REQ PARAM MISSING'
                          1934 *
  0C19 3D 00 0DD3         1935        CLI   SCACNT,KRE002         WERE ANY BLANKS SCANNED ?
  0C1D F2 01 07           1936        JNZ   KRE090                IF BLANK(S), SKIP ERR SETTING
  0C20 3C 18 03CD         1937        MVI   $CAERR,@@E139         ELSE, SET ERR CODE 'INV DELIM'
  0C24 D0 87 FA           1938        B     KRE630(,@BR)          CALL ERROR PROGRAM
                          1939 *
  0C27 3C 01 0DB0         1940 KRE090 MVI   SCAMMA,SCACOM         SET INDICATOR TO ALLOW SCANNING
                          1941 *                                 * OF COMMAS.
```

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ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  30/05/22  PAGE   7

                          1943 *
                          1944 *              CHECK FOR REQUIRED PARAMETER
                          1945 *
   0C2B 8D 02 02 0D7C     1946        CLC    KRE003-1(KRE003,@XR),KRE900  IS PARAMETER = 'KEY' ?
   0C30 D0 81 C0          1947        BE     KRE300(,@BR)             IF YES, PROCESS FOR KEY FORMAT
                          1948 *
   0C33 74 02 F5          1949 KRE100 ST     KRE615+@OP1(,@BR),@XR    SAVE XR
   0C36 8D 03 03 0D80     1950        CLC    KRE004-1(KRE004,@XR),KRE901  IS PARAMETER = 'CARD' ?
   0C3B F2 01 18          1951        JNE    KRE120                   IF NOT, CONTINUE TESTING FOR
                          1952 *                                     *  OTHER PARAMETERS
                          1953 *              CARD INPUT REQUESTED
                          1954 *
   0C3E D0 80 E4          1955 KRE110 BC     KRE600(,@BR),@NOP+*-*    NOP OR JUMP IF 'CARD' PARAMETER
                          1956 *                                     * PROCESSED ALREADY
   0C41 3C 87 0C3F        1957        MVI    KRE110+@Q,@UCB           SET SWITCH FOR BRANCH TO ERROR
                          1958 *                                     * IF 'CARD' IS READ AGAIN
   0C45 E2 02 04          1959        LA     KRE004(,@XR),@XR         INCREMENT POINTER PAST 'CARD'
   0C48 C0 87 0D93        1960        B      SCANIT                   RETURN POINTER TO NEXT
                          1961 *                                     * NON-BLANK CHARACTER
   0C4C D0 82 FA          1962        BL     KRE630(,@BR)             CALL ERR PROG IF ERR IN SCANIT
   0C4F C0 01 0C33        1963        BNZ    KRE100                   TEST NEXT PARAMETER
   0C53 F2 87 93          1964        J      KRE240                   TEST FOR EOS IF THERE WAS NO
                          1965 *                                     * DELIMETER BETWEEN PARAMS
                          1966 *
   0C56 8D 03 03 0D84     1967 KRE120 CLC    KRE005-1(KRE005,@XR),KRE902  IS PARAMETER = 'LIST' ?
   0C5B F2 01 1E          1968        JNE    KRE150                   IF NOT, CONTINUE TESTING FOR
                          1969 *                                     * OTHER PARAMETERS
```

```
      #KREAD - READ KEYWORD MODULE


ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT          VER 15, MOD 00  30/05/22  PAGE   8
                          1971 *
                          1972 *              LIST SPECIFIED
                          1973 *
    0C5E F2 80 FF          1974 KRE130 JC    KRE600,@NOP+*-*          NOP OR JUMP IF 'LIST' PARAMETER
                          1975 *                                     WAS ALREADY SPECIFIED
    0C61 3C 87 0C5F        1976        MVI   KRE130+@Q,@UCB           SET SWITCH FOR ERROR BRANCH IF
                          1977 *                                     * 'LIST' IS READ AGAIN
    0C65 7C 87 13          1978        MVI   KRE170+@Q(,@BR),@UCB     SET SWITCH FOR ERROR BRANCH IF
                          1979 *                                     * 'NOLIST' IS LATER READ
    0C68 F2 80 FC          1980 KRE140 JC    KRE610,@NOP+*-*          NOP OR ERROR BRANCH IF 'NOLIST'
                          1981 *                                     * WIS READ PREVIOUSLY
    0C6B E2 02 04          1982        LA    KRE005(,@XR),@XR         INCREMENT POINTER PAST 'LIST'
    0C6E C0 87 0D93        1983        B     SCANIT                   RETURN POINTER TO NEXT
                          1984 *                                     * NON-BLANK CHARACTER
    0C72 D0 82 FA          1985        BL    KRE630(,@BR)             CALL ERR PROG IF ERR IN SCANIT
    0C75 C0 01 0C33        1986        BNZ   KRE100                   TEST NEXT PARAMETER
    0C79 F2 87 6D          1987        J     KRE240                   TEST FOR EOS IF THERE WAS NO
                          1988 *                                     * DELIMETER BETWEEN PARAMS
                          1989 *
    0C7C 8D 05 05 0D8A     1990 KRE150 CLC   KRE006-1(KRE006,@XR),KRE903  IS PARAM = 'NOLIST' ?
    0C81 F2 01 1E          1991        JNE   KRE180                   IF NOT, CONTINUE TESTING
                          1992 *
                          1993 *              NOLIST SPECIFIED
                          1994 *
    0C84 F2 80 D9          1995 KRE160 JC    KRE600,@NOP+*-*          NOP OR JUMP IF 'NOLIST' PARAM
                          1996 *                                     * WAS ALREADY SPECIFIED
    0C87 7C 87 09          1997        MVI   KRE160+@Q(,@BR),@UCB     SET SWITCH FOR ERROR BRANCH IF
                          1998 *                                     * 'NOLIST' IS READ AGAIN
    0C8A 3C 87 0C69        1999        MVI   KRE140+@Q,@UCB           SET SWITCH FOR ERROR BRANCH IF
                          2000 *                                     * 'LIST' IS LATER READ
    0C8E F2 80 D6          2001 KRE170 JC    KRE610,@NOP+*-*          NOP OR ERROR BRANCH IF 'LIST'
                          2002 *                                     * IS LATER READ
    0C91 E2 02 06          2003        LA    KRE006(,@XR),@XR         INCREMENT POINTER PAST 'NOLIST'
    0C94 C0 87 0D93        2004        B     SCANIT                   RETURN POINTER TO NEXT
                          2005 *                                     * NON-BLANK CHARACTER
    0C98 D0 82 FA          2006        BL    KRE630(,@BR)             CALL ERR PGM IF ERR IN SCANIT
    0C9B C0 01 0C33        2007        BNZ   KRE100                   TEST NEXT PARAMETER
    0C9F F2 87 47          2008        J     KRE240                   TEST FOR EOS IF THERE WAS NO
                          2009 *                                     * DELIMETER BETWEEN PARAMS
                          2010 *
    0CA2 8D 02 02 0D8D     2011 KRE180 CLC   KRE007-1(KRE007,@XR),KRE904  IS PARAM = 'NUM' ?
    0CA7 F2 01 1D          2012        JNE   KRE210                   IF NOT, CONTINUE TESTING
```

#KREAD - READ KEYWORD MODULE

```
                                  2014 *
                                  2015 *           NUM SPECIFIED
                                  2016 *
    0CAA F2 80 B3                 2017 KRE190 JC    KRE600,@NOP+*-*            NOP OR JUMP IF 'NUM' PARAMETER
                                  2018 *                                      WAS ALREADY SPECIFIED
    0CAD 7C 87 2F                 2019        MVI   KRE190+@Q(,@BR),@UCB       SET SWITCH FOR ERROR BRANCH IF
                                  2020 *                                      * 'NUM' IS SPECIFIED AGAIN
    0CB0 7C 87 5D                 2021        MVI   KRE230+@Q(,@BR),@UCB       SET SWITCH FOR ERROR BRANCH IF
                                  2022 *                                      * 'NONUM' IS LATER READ
    0CB3 F2 80 B1                 2023 KRE200 JC    KRE610,@NOP+*-*            NOP OR ERROR BRANCH IF 'NONUM'
                                  2024 *                                      * IS LATER READ
    0CB6 E2 02 03                 2025        LA    KRE007(,@XR),@XR           INCREMENT POINTER PAST 'NUM'
    0CB9 C0 87 0D93               2026        B     SCANIT                     RETURN POINTER TO NEXT
                                  2027 *                                      * NON-BLANK CHARACTER
    0CBD D0 82 FA                 2028        BL    KRE630(,@BR)               CALL ERR PROG IF ERR IN SCANIT
    0CC0 C0 01 0C33               2029        BNZ   KRE100                     TEST NEXT PARAMETER
    0CC4 F2 87 22                 2030        J     KRE240                     TEST FOR EOS IF THERE WAS NO
                                  2031 *                                      * DELIMETER BETWEEN PARAMS
                                  2032 *
    0CC7 8D 04 04 0D92            2033 KRE210 CLC   KRE008-1(KRE008,@XR),KRE905  IS PARAM = 'NONUM' ?
    0CCC F2 01 1A                 2034        JNE   KRE240                     IF NOT, IS IT EOS ?
                                  2035 *
                                  2036 *           NONUM SPECIFIED
                                  2037 *
    0CCF F2 80 8E                 2038 KRE220 JC    KRE600,@NOP+*-*            NOP OR JUMP IF 'NONUM' PARAM
                                  2039 *                                      * WAS ALREADY SPECIFIED
    0CD2 7C 87 54                 2040        MVI   KRE220+@Q(,@BR),@UCB       SET SWITCH FOR ERROR BRANCH IF
                                  2041 *                                      * 'NONUM' IS SPECIFIED AGAIN
    0CD5 7C 87 38                 2042        MVI   KRE200+@Q(,@BR),@UCB       SET SWITCH FOR ERROR BRANCH IF
                                  2043 *                                      * 'NUM' IS LATER SPECIFIED
    0CD8 F2 80 8C                 2044 KRE230 JC    KRE610,@NOP+*-*            NOP OR ERROR BRANCH IF 'NUM'
                                  2045 *                                      * IS LATER READ
    0CDB E2 02 05                 2046        LA    KRE008(,@XR),@XR           INCREMENT POINTER PAST 'NONUM'
    0CDE C0 87 0D93               2047        B     SCANIT                     RETURN POINTER TO NEXT
                                  2048 *                                      * NON-BLANK CHARACTER
    0CE2 D0 82 FA                 2049        BL    KRE630(,@BR)               CALL ERR PROG IF ERR IN SCANIT
    0CE5 C0 01 0C33               2050        BNZ   KRE100                     TEST NEXT PARAMETER
```

#KREAD - READ KEYWORD MODULE

```
                              2052 *
                              2053 *              SET NUCLEUS INDICATORS
                              2054 *
     0CE9 BD 1E 00            2055 KRE240 CLI   KRE002(,@XR),@EOS         IS THERE MORE ?
     0CEC F2 01 7F            2056        JNE   KRE615                    IF YES, JUMP TO GIVE ERROR
                              2057 *                                     * FOR IMPROPER PARAMETER
                              2058 *
     0CEF 3D 87 0C3F          2059        CLI   KRE110+@Q,@UCB            WAS 'CARD' SWITCH TURNED ON ?
     0CF3 D0 81 8B            2060        BE    KRE250(,@BR)              IF YES, SKIP ERROR ROUTINE
                              2061 *
     0CF6 3C 10 03CD          2062 KRE245 MVI   $CAERR,@@E130             SET ERROR CODE FOR REQUIRED
                              2063 *                                     * PARAMETER MISSING
     0CFA F2 87 79            2064        J     KRE630                    SKIP NEXT INSTRUCTION
     0CFD 3C 37 03CD          2065 KRE247 MVI   $CAERR,@@E240             SET ERROR CODE FOR DATA
                              2066 *                                     RECORDER NOT ON SYSTEM
     0D01 D2 02 00            2067 KRE248 LA    KRE002(,@BR),@XR          INCREMENT POINTER OUTSIDE
                              2068 *                                     * BUFFER RANGE
     0D04 F2 87 6F            2069        J     KRE630                    CALL ERROR PROGRAM
                              2070 *
     0D07 38 40 03D2          2071 KRE250 TBN   $IOIND,$DTRDR             IS THE CARD READER ON THE
                              2072 *                                     * SYSTEM ?
     0D0B D0 90 81            2073        BF    KRE247(,@BR)              IF NOT, JUMP TO GIVE ERROR OF
                              2074 *                                     * DATA RECORDER MISSING
     0D0E 3B 08 03E0          2075        SBF   $DBGUF,$CALLI             SET OFF 'CALL' INDR        1-4
     0D12 3A 01 03C3          2076        SBN   $KEYCD,$CARDI             SET ON CARD INPUT INDICATOR
     0D16 7D 87 09            2077        CLI   KRE160+@Q(,@BR),@UCB      WAS 'NOLIST' INDICATED ?
     0D19 F2 81 07            2078        JE    KRE260                    IF YES,SET ON NOLIST INDICATOR
     0D1C 3B 04 03C3          2079        SBF   $KEYCD,$NOLST             SET OFF NOLIST INDICATOR
     0D20 F2 87 04            2080        J     KRE270                    SKIP NEXT STATEMENT

     0D23 3A 04 03C3          2082 KRE260 SBN   $KEYCD,$NOLST             SET ON NOLIST INDICATOR
                              2083 *
     0D27 7D 87 2E            2084 KRE270 CLI   KRE190+*-*(,@BR),@UCB     WAS 'NUM' INDICATED ?
     0D2A F2 81 07            2085        JE    KRE280                    IF YES, SET ON NUM INDICATOR
                              2086 *
     0D2D 3B 40 03C3          2087        SBF   $KEYCD,$DTNMB             OTHERWISE SET OFF NUM INDICATOR
     0D31 F2 87 04            2088        J     KRE290                    SKIP NEXT STATEMENT
                              2089 *
     0D34 3A 40 03C3          2090 KRE280 SBN   $KEYCD,$DTNMB             SET ON NUM INDICATOR
     0D38 C0 87 04A1          2091 KRE290 B     $CARPL                    EXIT
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```
        #KREAD - READ KEYWORD MODULE


ERR LOC   OBJECT CODE      ADDR STMT  SOURCE STATEMENT              VER 15, MOD 00  30/05/22  PAGE  11

                                2093 *
                                2094 *                KEY INPUT REQUESTED
                                2095 *
     0D3C 74 02 F5             2096 KRE300 ST      KRE615+@OP1(,@BR),@XR      SAVE XR VALUE
     0D3F E2 02 03             2097        LA      KRE003(,@XR),@XR           INCREMENT POINTER PAST 'KEY'
     0D42 C0 87 0D93           2098        B       SCANIT                     RETURN POINTER TO NEXT
                                2099 *                                        * NON-BLANK CHARACTER
     0D46 D0 82 FA             2100        BL      KRE630(,@BR)               CALL ERR PROG IF ERR IN SCANIT
     0D49 F2 84 06             2101        JH      KRE400                     IF BLANK(S) SCANNED, SKIP CHECK
                                2102 *
     0D4C BD 1E 00             2103        CLI     KRE002(,@XR),@EOS          IS KEY FOLLOWED BY EOS?
     0D4F F2 01 1C             2104        JNE     KRE615                     NO, RESTORE XR AND SET ERR CODE
     0D52 BD 1E 00             2105 KRE400 CLI     KRE002(,@XR),@EOS          IS THERE MORE ?
     0D55 F2 01 1A             2106        JNE     KRE620                     IF YES, GIVE ERROR FOR
                                2107 *                                        * IMPROPER PARAMETER
     0D58 3B 08 03E0           2108        SBF     $DBGUF,$CALLI              SET OFF 'CALL' INDR          1-4
     0D5C C0 87 049D           2109        B       $CAIPL                     EXIT
     0D60 3C 13 03CD           2110 KRE600 MVI     $CAERR,@@E134              SET CODE FOR 'DUPLICATE
                                2111 *                                        * PARAMETERS USED' ERROR
     0D64 F2 87 0F             2112        J       KRE630                     CALL ERROR PROGRAM
     0D67 3C 15 03CD           2113 KRE610 MVI     $CAERR,@@E136              SET CODE FOR 'CONFLICTING
                                2114 *                                        * PARAMETERS USED' ERROR ?
     0D6B F2 87 08             2115        J       KRE630                     CALL ERROR PROGRAM
     0D6E C2 02 0000           2116 KRE615 LA      *-*,@XR                    RESTORE XR
     0D72 3C 11 03CD           2117 KRE620 MVI     $CAERR,@@E131              SET CODE FOR 'IMPROPER
                                2118 *                                        * PARAMETER USED' ERROR
     0D76 C0 87 0469           2119 KRE630 B       $CAERK                     CALL ERROR PROGRAM
                                2120 *
                                2121 *                CONSTANTS
                                2122 *
     0D7A D2C5E8          0D7C 2123 KRE900 DC      CL(KRE003)'KEY'            KEY PARAMETER IMAGE
     0D7D C3C1D9C4        0D80 2124 KRE901 DC      CL(KRE004)'CARD'           CARD PARAMETER IMAGE
     0D81 D3C9E2E3        0D84 2125 KRE902 DC      CL(KRE005)'LIST'           LIST PARAMETER IMAGE
     0D85 D5D6D3C9E2E3    0D8A 2126 KRE903 DC      CL(KRE006)'NOLIST'         NOLIST PARAMETER IMAGE
     0D8B D5E4D4          0D8D 2127 KRE904 DC      CL(KRE007)'NUM'            NUM PARAMETER IMAGE
     0D8E D5D6D5E4D4      0D92 2128 KRE905 DC      CL(KRE008)'NONUM'          NONUM PARAMETER IMAGE
                                2129 *        $CANI
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                              2131+*****************************************************************************
                              2132+*  5703-XM1    COPYRIGHT IBM CORP. 1970                             *
                              2133+*                 REFER TO INSTRUCTIONS ON COPYRIGHT NOTICE, 120-2083   *
                              2134+*                                                                   *
                              2135+*****************************************************************************
                              2136+*STATUS                                                            *
                              2137+*   VERSION 1 MODIFICATION 0                                        *
                              2138+*                                                                   *
                              2139+*FUNCTION                                                           *
                              2140+*    THE FUNCTION OF SCANIT IS TO SCAN PAST VALID DELIMITERS AND    *
                              2141+*    RETURN A POINTER TO THE FIRST CHARACTER THAT'S NOT A DELIMITER. *
                              2142+*                                                                   *
                              2143+*ENTRY POINTS                                                       *
                              2144+*    * THE ENTRY POINT IS SCANIT.                                    *
                              2145+*    * THE CALLING SEQUENCE IS AS FOLLOWS:                           *
                              2146+*              B    SCANIT                                           *
                              2147+*      WITH REGISTER 2 (@XR) POINTING TO THE FIRST CHARACTER TO BE   *
                              2148+*      EXAMINED.                                                     *
                              2149+*                                                                   *
                              2150+*INPUT                                                              *
                              2151+*   NONE                                                            *
                              2152+*                                                                   *
                              2153+*OUTPUT                                                             *
                              2154+*   NONE                                                            *
                              2155+*                                                                   *
                              2156+*EXTERNAL REFERENCES                                                *
                              2157+*   $CAERR - ERROR CODE SAVE AREA                                    *
                              2158+*                                                                   *
                              2159+*EXITS, NORMAL                                                      *
                              2160+*    NORMAL EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO  *
                              2161+*    SCANIT IN THE CALLING ROUTINE. THE PSR (REGISTER 4) WILL CONTAIN *
                              2162+*    A ZERO IF NO DELIMITERS WERE FOUND OR A HIGH CONDITION IF ONE OR *
                              2163+*    MORE DELIMITERS WERE SCANNED.                                   *
                              2164+*                                                                   *
                              2165+*EXITS, ERROR                                                       *
                              2166+*    ERROR EXIT FROM SCANIT IS TO THE BYTE FOLLOWING THE BRANCH TO   *
                              2167+*    SCANIT IN THE CALLING ROUTINE. THE PSR WILL CONTAIN A LOW       *
                              2168+*    CONDITION.                                                      *
                              2169+*                                                                   *
                              2170+*TABLES/WORKAREAS                                                   *
                              2171+*    * SCACNT - AREA CONTAINING NUMBERS OF DELIMITERS SCANNED        *
                              2172+*    * SCAMMA - LOC WHERE SCACOM MAY BE MOVED IF ONE COMMA IS ALSO    *
                              2173+*      TO BE CONSIDERED A DELIMITER. MOVING SCACOF BACK INTO SCAMMA  *
                              2174+*      INDICATES THAT ONLY BLANKS SHOULD BE CONSIDERED DELIMITERS.   *
                              2175+*                                                                   *
                              2176+*ATTRIBUTES                                                         *
                              2177+*   RELOCATABLE AND RE-USABLE                                        *
                              2178+*                                                                   *
                              2179+*CHARACTER CODE DEPENDENCY                                           *
                              2180+*    THE OPERATION OF THIS MODULE DOES NOT DEPEND UPON A PARTICULAR  *
                              2181+*    INTERNAL REPRESENTATION OF THE EXTERNAL CHARACTER SET.          *
                              2182+*                                                                   *
                              2183+*NOTES                                                              *
                              2184+*    ERROR PROCEDURES                                                *
                              2185+*        THE ONLY ERROR CONDITION DETECTED BY SCANIT IS THE CASE WHERE *
                              2186+*        A CARRIAGE-RETURN CODE FOLLOWS A COMMA.  UPON RETURN TO THE  *
```

```
                              2187+*      CALLING ROUTINE, @PSR WILL BE SET TO A LOW CONDITION, THE        *
                              2188+*      ERROR CODE IS SET IN $CAERR, AND MG WILU BE POINTING TO THE      *
                              2189+*      CARRIAGE-RETURN CHARACTER.                                       *
                              2190+*                                                                       *
                              2191+*  REGISTER USAGE                                                       *
                              2192+*      REGISTER 2 (@XR) IS USED AS A POINTER ACROSS THE AREA BEING      *
                              2193+*      SCANNED FOR DELIMETERS.                                          *
                              2194+*                                                                       *
                              2195+*  SAVED/RESTORED AREAS                                                 *
                              2196+*      UPON ENTRY TO SCANIT, REGISTER 8 (@ARR) IS SAVED AND USED AS     *
                              2197+*      THE RETURN ADDRESS.                                              *
                              2198+*                                                                       *
                              2199+*  MODIFICATION CONSIDERATIONS                                          *
                              2200+*      NONE                                                             *
                              2201+*                                                                       *
                              2202+*  REQUIRED MODULES                                                     *
                              2203+*      * @SYSEQ - COMMON SYSTEM EQUATES                                 *
                              2204+*      * @FXDEQ - FIXED NUCLEUS ADDRESSES EQUATES                       *
                              2205+*                                                                       *
                              2206+*  OTHER                                                                *
                              2207+*      SCANIT IS INITIALIZED TO BYPASS BLANKS ONLY. IF SCACOM IS        *
                              2208+*      MOVED TO SCAMMA, ONE COMMA WILL BE SCANNED ALONG WITH BLANKS.    *
                              2209+*      THE INSTRUCTION TO DO THIS IS AS FOLLOWS:                        *
                              2210+*          MVI   SCAMMA,SCACOM                                          *
                              2211+*                                                                       *
                              2212+*      TO DROP THE COMMA FROM ITS DELIMITER STATUS, SCACOF SHOULD BE    *
                              2213+*      MOVED TO SCAMMA, USING THE FOLLOWING INSTRUCTION:                *
                              2214+*          MVI   SCAMMA,SCACOF                                          *
                              2215+*                                                                       *
                              2216+************************************************************************

                              2218+*
                              2219+*                      EQUATES USED IN THIS SUBROUTINE
                              2220+*
                         0001 2221+SCAINC EQU   1                             TO INCREMENT POINTER
                         0001 2222+SCACOM EQU   @BNE                          SWITCH TO ALLOW SCANNING COMMA
                         0087 2223+SCACOF EQU   @UCB                          SWITCH TO SET OFF THE INDICATON
                              2224+*                                          * FOR SCANNING A COMMA
                         0D93 2225+SCANIT EQU   *                             ENTRY POINT TO THIS SUBROUTINE
  0D93 34 08 0DCF             2226+       ST    SCA500+@OP1,@ARR              SAVE RETURN ADDRESS
  0D97 34 02 0DD1             2227+       ST    SCASVE,@XR                    SAVE POINTER VALUE
  0D9B 3C 04 03CD             2228+       MVI   $CAERR,@@E110                 SET ERROR CODE
  0D9F F2 87 03               2229+       J     SCA200                        GO TO PROCESS
  0DA2 E2 02 01               2230+SCA100 LA    SCAINC(,@XR),@XR              INCREMENT POINTER TO NEXT CHAR
  0DA5 BD 40 00               2231+SCA200 CLI   0(,@XR),@BLANK                IS THIS CHAR BLANK ?
  0DA8 C0 81 0DA2             2232+       BE    SCA100                        YES, FETCH NEXT ONE
  0DAC BD 6B 00               2233+       CLI   0(,@XR),@COMMA                IS IT A COMMA ?
  0DAF F2 87 10               2234+SCA250 JC    SCA400,@UCB                   UCS TO RETURN -- OR NOP IF
                              2235+*                                          * SCAMMA IS ACTIVE AND CHAR
  0DB2 E2 02 01               2236+SCA300 LA    SCAINC(,@XR),@XR              INCREMENT POINTER TO NEXT CHAR
  0DB5 BD 40 00               2237+       CLI   0(,@XR),@BLANK                IS THIS CHAR A BLANK ?
  0DB8 C0 81 0DB2             2238+       BE    SCA300                        YES, FETCH NEXT ONE
  0DBC BD 1F 00               2239+       CLI   0(,@XR),@EOS+1                IS THIS EOS ?
  0DBF F2 82 0A               2240+       JL    SCA500                        IF NOT, SKIP ERROR ROUTINE
  0DC2 34 02 0DD3             2241+SCA400 ST    SCACNT,@XR                    SAVE NEW POINTER VALUE
```

```
       SCANIT - DELIMETER SCAN MODULE

ERR LOC   OBJECT CODE     ADDR STMT SOURCE STATEMENT            VER 15, MOD 00  30/05/22  PAGE  14

    0DC6 0F 01 0DD3 0DD1       2242+      SLC    SCACNT(2),SCASVE              SET PSR TO EQUAL IF POINTER
                               2243+*                                         * NOT ADVANCED
    0DCC C0 87 0000            2244+SCA500 B     *-*                          YES, RETURN
                          0DB0 2245+SCAMMA EQU   SCA250+@Q                     TO SET SCAN COMMA INDICATOR
                               2246+*
                               2247+*                   SAVE AREA
                               2248+*
                          0DD0 2249+SCASV1 EQU   *                            FIRST BYTE OF SCASVE
    0DD0                  0DD1 2250+SCASVE DS    CL2                          ORIGINAL POINTER VALUE SAVE
    0DD2                  0DD3 2251+SCACNT DS    CL2                          SAVE AREA FOR TOTAL CHAR SCAN
                               2252+***                       END OF SCANIT                        ***
                               2253       PRINT ON
                          FFFF 2254       END

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

```
SYMBOL  LEN VALUE DEFN   REFERENCES                        VER 15, MOD 00  30/05/22  PAGE  15

$$$$$$  001  0C00 1920
$$$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
$$BNLN  001  0605 0635   0637
$$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
$$ILHD  001  0600 0627   0629
$$INLN  001  0607 0642   0644   0646
$$INND  001  06FA 0646
$$KBDT  001  09E1 0653   0657
$$KBSN  001  09E2 0657   0662
$$KLD1  001  0600 0717
$$KLD2  001  0700 0719
$$KLD3  001  0C00 0721
$$LPOS  001  09EB 0662
$$PCNT  001  07E9 0678
$$PLYN  001  2004 0692
$$PRES  001  0890 0651   0653   0663   0664   0665   0666   0683
$$PRFL  001  2143 0696
$$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
$$XIND  001  06FF 0708   0711
$$ZERO  001  0000 0223   0224   0226   0227   0228   0232   0690
$ABORT  001  0010 0336
$BASIC  001  0080 0394
$BIGCD  001  0080 0470
$BLDPL  001  0579 0603   0605
$BLNOE  001  0569 0593
$BLOAD  001  0522 0584   0586   0589   0602   0603
$BLRTN  001  0550 0592   0593
$BRSAV  001  03C5 0281   0282
$BSADR  001  0587 0608   0610
$BUFPT  001  03E3 0489   0490
```

```
$CABLD  001  04B4 0562   0563
$CAERK  001  0469 0539   0542  2119
$CAERR  001  03CD 0287   0289  1937* 2062* 2065* 2110* 2113* 2117* 2228*
$CAIPL  001  049D 0558   0560  2109
$CALLI  001  0008 0479   2075  2108
$CARDI  001  0001 0250   2076
$CARPL  001  04A1 0560   0562  2091
$CIENT  001  0483 0549   0550
$CIEXT  001  0480 0548   0549
$CIMSK  001  0476 0545   0548
$CISUS  001  0496 0553   0558
$CLBFR  001  0010 0437
$CMDKY  001  0008 0349
$CMODE  001  0002 0399
$CONFG  001  03DD 0462   0472
$CRPOS  001  03E2 0488   0489
$CRTAD  001  044D 0527   0528
$CRTAV  001  0002 0343
$CRTDN  001  0002 0367
$CRTIN  001  03D3 0364   0371
$CRTNO  001  0004 0346
$CRTPU  001  0004 0368
$CRTSP  001  0008 0369
$CRTUP  001  0001 0366
$CRUSH  001  0080 0475
$CSDPL  001  050E 0574   0575
$C0001  001  0464 0531   0537
$DATE   001  043A 0512   0513
$DBGUF  001  03E0 0474   0483  2075* 2108*
$DBLOK  001  0001 0424
$DFDET  001  03E8 0495   0496
$DISKN  001  0025 0226
$DKERR  001  0008 0405
$DKSIZ  001  03D7 0449   0457  0498
$DK100  001  0001 0451
$DK200  001  0002 0452
$DK400  001  0004 0453
$DK600  001  0008 0454
$DK800  001  0010 0455
$DPLSV  001  0449 0523   0525
$DTNMB  001  0040 0270   2087  2090
$DTRDR  001  0040 0358   2071
$ENDNU  001  0600 0617   0627  0651  0672  0708  0717  0719  0721
$ERDPL  001  046F 0542   0544
$ERFIL  001  0040 0297
$ERHRD  001  0004 0429
$ERKEY  001  0080 0301
$ERLOG  001  0345 0231
$ERMAD  001  0472 0544   0545
$ERPND  001  0004 0402
$ERRCT  001  03CF 0303
$ERRPG  001  03CE 0291
$ERSFL  001  0035 0296
$ERSTK  001  0030 0294
$ER050  001  0363 0232
$ER1N2  001  0050 0299
```

```
                              CROSS REFERENCE

SYMBOL  LEN VALUE DEFN   REFERENCES                        VER 15, MOD 00  30/05/22  PAGE  17

$EXADR  001  0517 0577   0579
$EXCMD  001  0001 0331
$EXFTR  001  043B 0513   0518
$FCIND  001  0010 0409
$FDIND  001  0040 0416
$FEARR  001  0004 0224
$FEMAP  001  0588 0610   0611
$FILIB  001  03DA 0460   0461
$FITIN  001  0010 0385
$FUIND  001  0020 0414
$GUFIO  001  0583 0607   0608
$GUFIR  001  0008 0259
$HISTE  001  042E 0510   0511
$HIST1  001  0435 0511   0512
$HRDER  001  0020 0355
$INDR1  001  03D4 0371   0397
$INDR2  001  03D5 0397   0422
$INDR3  001  03D6 0422   0449
$INLNO  001  03CF 0289   0291  0303  0310
$INRPT  001  0020 0267
$IOIND  001  03D2 0338   0364  2071
$IOPGS  001  0010 0478
$IOYES  001  0002 0253
$IPLDV  001  05FF 0614   0617
$IRKEY  001  0020 0477
$KEYBD  001  03E1 0483   0488
$KEYCD  001  03C3 0247   0281  2076* 2079* 2082* 2087* 2090*
$KEYDT  001  0040 0391
$KE090  001  00DE 0227
$KE130  001  01D5 0228
$KYBSY  001  0010 0264
$LDRTN  001  0571 0602
$LEVEL  001  03DF 0472   0474
$LIST   001  0002 0426
$LMRGN  001  03C1 0242   0244
$LNPTR  001  0080 0361
$LOADB  001  054A 0586
$LOADR  001  051A 0579   0582
$LPRIO  001  03EA 0496
$LPROS  001  03E5 0491   0493
$LPRP3  001  03E4 0490   0491
$MOUNT  001  0020 0440
$MPDWN  001  0001 0340
$NEXTB  001  03E6 0493   0494
$NEXTL  001  03E7 0494   0495
$NOENB  001  0008 0432
$NOLST  001  0004 0256   2079  2082
$NUCBS  001  03C0 0239   0240
$NWRKF  001  0080 0445
$NWRKR  001  0040 0442
$PASWD  001  042D 0509   0510
$PAUSD  001  04BA 0563   0565
$PAUSE  001  0002 0333
$PGMDT  001  0020 0388
$PGMST  001  0010 0352
$PKERT  001  0419 0507   0509
```

```
$PLST1   001  0454 0528    0529
$PLST2   001  045B 0529    0530
$PLST3   001  0462 0530    0531
$PRDEV   001  044B 0525    0527
$PRESN   001  0002 0376
$PROCI   001  0001 0373
$PRPOS   001  03C2 0244    0247
$PSDBR   001  04FA 0568
$PSDXR   001  04F2 0567    0568
$PSTEP   001  0004 0334
$PSTMT   001  0008 0335
$PTCH1   001  03F5 0498    0502
$READY   001  0080 0418
$REORD   001  0040 0476
$RLOAD   001  051E 0582    0584
$RMRGN   001  03C0 0240    0242
$RSTR    001  04D6 0565    0567  0569  0574
$RUNIT   001  0001 0312
$SFAID   001  050D 0570
$SPRNT   001  0465 0537    0539
$SRTRN   001  04FE 0569    0570
$STEPT   001  0002 0313
$SWPCR   001  0511 0575    0577
$TABLN   001  03CB 0284    0287
$TFLOW   001  0008 0319
$TRACE   001  0004 0314
$TRALL   001  0010 0320
$TROVR   001  054E 0589    0592
$TRUNK   001  0080 0272
$TRVAR   001  0020 0321
$UNMSK   001  048D 0550    0553
$USRDR   001  03DC 0461    0462
$VMDEF   001  0080 0325
$VOLF1   001  03FE 0504    0505
$VOLF2   001  040E 0506
$VOLID   001  03F6 0502    0503  0507
$VOLR1   001  03F6 0503    0504
$VOLR2   001  0406 0505    0506
$WAITF   001  057F 0605    0607
$WFDEF   001  0040 0519
$WFLOK   001  0008 0382
$WFNME   001  0443 0518    0523
$WSIND   001  0004 0379
$XIND1   001  03D0 0310    0329
$XIND2   001  03D1 0329    0338
$XIND3   001  03D8 0457    0460
$XPREC   001  0040 0322
$XRSAV   001  03C7 0282    0284  1928
$ZTRAD   001  05A2 0611
$12K     001  0004 0466
$16CKY   001  0008 0468
$16K     001  0002 0465
$22IMP   001  0001 0463
#$$#BL   001  0000 1672
#$$#CK   001  0000 1800
#$$#CN   001  0000 1768
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SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER 15, MOD 00 30/05/22 PAGE 19
#$$#CO	001	0000	1560		
#$$#CS	001	0000	1620		
#$$#DR	001	0000	1364		
#$$#ER	001	0000	1564		
#$$#FS	001	0000	1660		
#$$#IN	001	0000	1804		
#$$#PW	001	0000	1808		
#$$#RS	001	0000	1640		
#$$#SA	001	0000	1628		
#$$#SS	001	0000	1624		
#$$#VU	001	0600	1584		
#$$#0T	001	0700	1356		
#$$#1T	001	0000	1360		
#$$BCO	001	0600	1372		
#$$BOV	001	0800	1644		
#$$DPR	001	0700	1380		
#$$DRE	001	0889	1396		
#$$DSP	001	2800	1416		
#$$ECM	001	0C00	1676		
#$$EFK	001	0C00	1696		
#$$ERR	001	0C00	1668		
#$$EXM	001	0C00	1556		
#$$FIL	001	0E00	1636		
#$$FIS	001	0E00	1632		
#$$FML	001	0200	1764		
#$$FMS	001	0200	1604		
#$$GRA	001	0889	1528		
#$$GUF	001	0C00	1664		
#$$INL	001	0600	1744		
#$$INS	001	0600	1368		
#$$KAL	001	0C00	1532		
#$$KCA	001	0C00	1748		
#$$KCH	001	0C00	1500		
#$$KCN	001	0C00	1616		
#$$KCT	001	0C00	1468		
#$$KDE	001	0C00	1464		
#$$KDI	001	0D00	1544		
#$$KDN	001	0C00	1452		
#$$KDO	001	0E00	1548		
#$$KED	001	0C00	1388		
#$$KEN	001	0C00	1392		
#$$KEX	001	0C00	1412		
#$$KGO	001	0C00	1384		
#$$KHE	001	0C00	1568		
#$$KKE	001	0C00	1796		
#$$KLI	001	0C00	1472		
#$$KLL	001	0920	1772		
#$$KLO	001	0C00	1476		
#$$KME	001	0D00	1456		
#$$KMO	001	0C00	1400		
#$$KNA	001	0C00	1512		
#$$KOV	001	0E00	1432		
#$$KPA	001	0C00	1408		
#$$KPO	001	0C00	1496		
#$$KPR	001	0C00	1520		
#$$KRE	001	0C00	1440	1919	

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#$$KRL  001  0700 1536
#$$KRM  001  0C00 1404
#$$KRN  001  0700 1424
#$$KRO  001  0D00 1428
#$$KRS  001  0C00 1752
#$$KRU  001  0C00 1448
#$$KRV  001  0800 1540
#$$KSA  001  0C00 1484
#$$KSE  001  0E00 1524
#$$KSO  001  0C20 1576
#$$KSS  001  0C00 1508
#$$KSV  001  0980 1504
#$$KSY  001  0C00 1516
#$$KWI  001  0C00 1444
#$$KWR  001  0C00 1436
#$$LOA  001  0600 1376
#$$MIP  001  0C00 1572
#$$SDS  001  0C00 1684
#$$SFF  001  0E00 1688
#$$SFL  001  0F00 1680
#$$SFO  001  1500 1652
#$$SFS  001  0C00 1648
#$$SPA  001  0C00 1488
#$$SPO  001  0806 1492
#$$SPS  001  0C00 1480
#$$STR  001  1600 1656
#$$TDC  001  1000 1460
#$$TSY  001  1000 1420
#$$TVK  001  0FC0 1596
#$$UAL  001  0C00 1612
#$$UAT  001  0900 1708
#$$UCD  001  0900 1716
#$$UCN  001  0C00 1700
#$$UCP  001  0700 1704
#$$UDE  001  0C00 1720
#$$UDI  001  0C00 1724
#$$UEX  001  0C00 1608
#$$UIN  001  0C00 1712
#$$UPA  001  0C00 1692
#$$UPO  001  0C00 1760
#$$UPT  001  0C00 1756
#$$VCR  001  2000 1552
#$$VLO  001  0600 1588
#$$VOD  001  0600 1592
#$$VVM  001  0000 1600
#$$VXI  001  0600 1580
#$$ZDU  001  1100 1732
#$$ZLB  001  1100 1776
#$$ZLO  001  1100 1736
#$$ZLV  001  0F00 1792
#$$ZL1  001  0F00 1780
#$$ZL2  001  0F00 1784
#$$ZL3  001  0C00 1788
#$$ZTR  001  1000 1728
#$$ZUT  001  0C00 1740
#$#BLN  001  18D4 1671
```

SYMBOL	LEN	VALUE	DEFN	REFERENCES
#$#CKT	001	2118	1799	
#$#CNF	001	2000	1767	
#$#COR	001	0800	1559	
#$#CSA	001	1000	1619	
#$#DRT	001	0000	1363	
#$#ERM	001	0928	1563	
#$#FSP	001	1880	1659	
#$#INV	001	212C	1803	
#$#PWR	001	2300	1807	
#$#RSP	001	1780	1639	
#$#SAV	001	1180	1627	
#$#SSA	001	1128	1623	
#$#VUF	001	0B08	1583	
#$#0TR	001	0000	1355	
#$#1TR	001	0080	1359	
#$@#BL	001	0001	1673	
#$@#CK	001	0004	1801	
#$@#CN	001	0001	1769	
#$@#CO	001	003A	1561	
#$@#CS	001	003A	1621	
#$@#DR	001	0008	1365	
#$@#ER	001	0032	1565	
#$@#FS	001	0030	1661	
#$@#IN	001	003A	1805	
#$@#PW	001	00C0	1809	
#$@#RS	001	0030	1641	
#$@#SA	001	0108	1629	
#$@#SS	001	0001	1625	
#$@#VU	001	0002	1585	
#$@#0T	001	0018	1357	
#$@#1T	001	0018	1361	
#$@BCO	001	0018	1373	
#$@BOV	001	0018	1645	
#$@DPR	001	0005	1381	
#$@DRE	001	0001	1397	
#$@DSP	001	0004	1417	
#$@ECM	001	0006	1677	
#$@EFK	001	0002	1697	
#$@ERR	001	0003	1669	
#$@EXM	001	0003	1557	
#$@FIL	001	0009	1637	
#$@FIS	001	0009	1633	
#$@FML	001	0052	1765	
#$@FMS	001	0052	1605	
#$@GRA	001	0003	1529	
#$@GUF	001	0010	1665	
#$@INL	001	0010	1745	
#$@INS	001	0010	1369	
#$@KAL	001	000F	1533	
#$@KCA	001	000C	1749	
#$@KCH	001	000C	1501	
#$@KCN	001	0010	1617	
#$@KCT	001	0009	1469	
#$@KDE	001	0010	1465	
#$@KDI	001	0005	1545	
#$@KDN	001	0010	1453	

SYMBOL	LEN	VALUE	DEFN	REFERENCES
#$@KDO	001	000C	1549	
#$@KED	001	000E	1389	
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#$@KEX	001	0003	1413	
#$@KGO	001	0002	1385	
#$@KHE	001	000C	1569	
#$@KKE	001	0006	1797	
#$@KLI	001	0011	1473	
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#$@KLO	001	0008	1477	
#$@KME	001	0003	1457	
#$@KMO	001	0004	1401	
#$@KNA	001	0008	1513	
#$@KOV	001	0009	1433	
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#$@KPR	001	0009	1521	
#$@KRE	001	0002	1441	
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#$@KRM	001	0003	1405	
#$@KRN	001	0003	1425	
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#$@KRU	001	0003	1449	
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#$@KSO	001	0005	1577	
#$@KSS	001	000B	1509	
#$@KSV	001	0002	1505	
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#$@LOA	001	0013	1377	
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#$@SPA	001	0004	1489	
#$@SPO	001	0003	1493	
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#$@STR	001	0002	1657	
#$@TDC	001	0003	1461	
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#$@TVK	001	0001	1597	
#$@UAL	001	0011	1613	
#$@UAT	001	000C	1709	
#$@UCD	001	000B	1717	
#$@UCN	001	0009	1701	
#$@UCP	001	000F	1705	
#$@UDE	001	000E	1721	
#$@UDI	001	0008	1725	
#$@UEX	001	000E	1609	
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SYMBOL	LEN	VALUE	DEFN	REFERENCES	VER 15, MOD 00 30/05/22 PAGE 23
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#$@VOD	001	0016	1593		
#$@VVM	001	0030	1601		
#$@VXI	001	0002	1581		
#$@ZDU	001	0008	1733		
#$@ZLB	001	0002	1777		
#$@ZLO	001	000C	1737		
#$@ZLV	001	0006	1793		
#$@ZL1	001	0007	1781		
#$@ZL2	001	000D	1785		
#$@ZL3	001	000A	1789		
#$@ZTR	001	0001	1729		
#$@ZUT	001	0014	1741		
#$BCOM	001	0080	1371		
#$BOLV	001	1780	1643		
#$DPRI	001	014C	1379		
#$DREA	001	0200	1395		
#$DSPL	001	0240	1415		
#$ECMA	001	1900	1675		
#$EFKE	001	1990	1695		
#$ERRP	001	18C0	1667		
#$EXMS	001	07D4	1555		
#$FILN	001	1724	1635		
#$FIST	001	1700	1631		
#$FMLN	001	1E00	1763		
#$FMST	001	0D00	1603		
#$GRAP	001	0690	1527		
#$GUFU	001	1880	1663		
#$INLN	001	1C84	1743		
#$INST	001	0020	1367		
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#$KCAL	001	1CC4	1747		
#$KCHA	001	053C	1499		
#$KCND	001	0F80	1615		
#$KCTL	001	03BC	1467		
#$KDEL	001	035C	1463		
#$KDIS	001	0744	1543		
#$KDNT	001	0300	1451		
#$KDOV	001	0780	1547		
#$KEDI	001	0188	1387		
#$KENA	001	01C4	1391		
#$KEXT	001	0234	1411		
#$KGOS	001	0180	1383		
#$KHEL	001	0A30	1567		
#$KKEY	001	2100	1795		
#$KLIS	001	0400	1471		
#$KLLA	001	2004	1771		
#$KLOG	001	0444	1475		
#$KMER	001	030C	1455		
#$KMOU	001	0204	1399		
#$KNAM	001	05C0	1511		
#$KOVM	001	0290	1431		

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                            CROSS REFERENCE

SYMBOL  LEN VALUE DEFN  REFERENCES                        VER 15, MOD 00  30/05/22  PAGE  24

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#$KPOO  001  0508 1495
#$KPRT  001  063C 1519
#$KREA  001  02BC 1439
#$KRLA  001  0700 1535
#$KRMO  001  0214 1403
#$KRNU  001  0280 1423
#$KROV  001  028C 1427
#$KRSU  001  1D24 1751
#$KRUN  001  02CC 1447
#$KRVL  001  0710 1539
#$KSAV  001  0488 1483
#$KSET  001  0680 1523
#$KSOV  001  0AC8 1575
#$KSSP  001  0594 1507
#$KSVL  001  058C 1503
#$KSYM  001  0600 1515
#$KWID  001  02C4 1443
#$KWRI  001  02B4 1435
#$LOAD  001  0100 1375
#$MIPP  001  0A80 1571
#$SDSY  001  192C 1683
#$SFFI  001  193C 1687
#$SFLO  001  1918 1679
#$SFOV  001  1844 1651
#$SFSY  001  1800 1647
#$SPAC  001  04CC 1487
#$SPOV  001  04DC 1491
#$SPSY  001  0484 1479
#$STRO  001  1850 1655
#$TDCK  001  0350 1459
#$TSYK  001  0250 1419
#$TVKB  001  0BAC 1595
#$UALL  001  0F00 1611
#$UATR  001  1A38 1707
#$UCDI  001  1AD8 1715
#$UCNF  001  19B8 1699
#$UCPL  001  19DC 1703
#$UDEL  001  1B24 1719
#$UDIS  001  1B5C 1723
#$UEXL  001  0EA8 1607
#$UINI  001  1A88 1711
#$UPAC  001  1980 1691
#$UPOV  001  1D24 1759
#$UPTF  001  1D5C 1755
#$VCRT  001  07B4 1551
#$VLOA  001  0B80 1587
#$VODK  001  0B88 1591
#$VVMR  001  0C00 1599
#$VXIT  001  0B00 1579
#$ZDUM  001  1BA4 1731
#$ZLBM  001  2008 1775
#$ZLOA  001  1BC4 1735
#$ZLVR  001  20B0 1791
#$ZL1M  001  2010 1779
#$ZL2M  001  2030 1783
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CROSS REFERENCE

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#$ZUTM   001  1C14 1739
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@@E005   001  0003 1265   1267
@@E006   001  0004 1267   1269
@@E007   001  0005 1269   1271
@@E008   001  0006 1271   1273
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@@E011   001  0009 1277   1279
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@@E019   001  0011 1293   1295
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@@E025   001  0016 1303   1305
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@@E031   001  001C 1315   1317
@@E032   001  001D 1317   1319
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@@E040   001  0023 1329   1331
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@@E045   001  0028 1339   1341
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@@E122	001	000C	0755	0757	
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@@E135	001	0014	0771	0773	
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@@E138	001	0017	0777	0779	
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                                   CROSS REFERENCE

SYMBOL   LEN VALUE DEFN   REFERENCES                      VER 15, MOD 00  30/05/22  PAGE  27

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@@E400   001  005C 0915   0917
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@@E473   001  006F 0953   0955
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@@E476   001  0072 0959   0961
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                                        CROSS REFERENCE

SYMBOL   LEN VALUE DEFN    REFERENCES                        VER 15, MOD 00  30/05/22  PAGE  28

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@@E756  001  00CD 1141   1143
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@@E772  001  00DD 1173   1175
@@E773  001  00DE 1175   1177
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@@E790   001  00EC 1203   1205
@@E791   001  00ED 1205   1207
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@@E802   001  FFFF 1253
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@@E804   001  FFFF 1257
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@BF      001  0090 0052
@BH      001  0084 0041
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@BM      001  0082 0054
@BNE     001  0001 0046   2222
@BNH     001  0004 0044
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@BNM     001  0002 0057
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@BNP     001  0004 0056
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@BOZ     001  0088 0047
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SYMBOL  LEN VALUE DEFN  REFERENCES                              VER 15, MOD 00  30/05/22  PAGE  31

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@CHARF  001  00C6 0073
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@CHARZ  001  00E9 0075
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@CLON   001  0011 0093
@COMMA  001  006B 0066  2233
@CPLUS  001  004E 0079
@DADDR  001  0002 0140
@DBFR1  001  0004 0129
@DBFR2  001  0005 0130
@DCALK  001  0001 0081
@DCBCY  001  0009 0115
@DCBT1  001  0050 0117
@DCNT   001  0003 0128
@DCST1  001  0040 0116
@DCTRL  001  0000 0125
@DCYL   001  0001 0126
@DD2    001  0003 0030
@DGET   001  0001 0134
@DOLAR  001  005B 0068
@DOP2   001  0004 0028
@DPLNG  001  0006 0132
@DPOS   001  0000 0133
@DPUT   001  0002 0135
@DSAD   001  0002 0127
@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
@EOF    001  001C 0077
@EOFTC  001  0075 0162
@EOS    001  001E 0076  1932  2055  2103  2105  2239
@FDDBC  001  0000 0195
@FDE1   001  000C 0200
@FDFNA  001  000B 0198
@FDHLN  001  0002 0208
@FDLNC  001  0002 0193
@FDNSC  001  0003 0210
@FDSD   001  0000 0206
@FLACE  001  0009 0197
@FLDBC  001  0001 0196
```

```
@FLENT  001  0004 0201
@FLFNA  001  0002 0199
@FLHLN  001  0002 0209
@FLLNC  001  0002 0194
@FLNSC  001  0001 0211
@FLSD   001  0001 0207
@HDRLN  001  0007 0092  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
@MINUS  001  0060 0080
@NOP    001  0080 0040  1955  1974  1980  1995  2001  2017  2023  2038  2044
@NUMBR  001  007B 0070
@OPD2   001  0004 0029
@OP1    001  0003 0027  1949* 2096* 2226*
@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
@PRINT  001  0040 0152  0154
@PSR    001  0004 0015
@PWAIT  001  00FF 0158
@P1IAR  001  0020 0018
@P2IAR  001  0040 0019
@Q      001  0001 0024  1957* 1976* 1978* 1997* 1999* 2019* 2021* 2040* 2042* 2059  2077  2245
@REGL   001  0002 0012
@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
@SDFLN  001  0007 0090
@SDF0   001  0000 0166
@SDF1   001  0001 0167
@SDF2   001  0002 0168
@SDF3   001  0003 0169
@SECCY  001  0030 0086
@SIST   001  0001 0181
@SLASH  001  0061 0067
@SLAST  001  0002 0183
@SMIDL  001  0003 0182
@SNULL  001  0080 0173
@SONLY  001  0000 0180
@STEXT  001  0007 0172
@STYPE  001  0006 0171
```

```
@TBCNT   001 0000 0160
@TBLEF   001 0010 0155   0157
@TBLIX   001 0011 0157
@UCB     001 0087 0039   1957  1976  1978  1997  1999  2019  2021  2040  2042  2059  2077  2084
                         2223  2234
@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
@VQ      001 0001 0025
@WSFIT   001 0500 0101
@WSTBL   001 0503 0102
@XR      001 0002 0014   1928* 1932  1946  1949  1950  1959  1959* 1967  1982  1982* 1990  2003
                         2003* 2011  2025  2025* 2033  2046  2046* 2055  2067* 2096  2097  2097*
                         2103  2105  2116* 2227  2230  2230* 2231  2233  2236  2236* 2237  2239
                         2241
@ZERO    001 0000 0062
KRE001   001 0004 1901
KRE002   001 0000 1902   1932  1935  2055  2067  2103  2105
KRE003   001 0003 1903   1946  1946  2097  2123
KRE004   001 0004 1904   1950  1950  1959  2124
KRE005   001 0004 1905   1967  1967  1982  2125
KRE006   001 0006 1906   1990  1990  2003  2126
KRE007   001 0003 1907   2011  2011  2025  2127
KRE008   001 0005 1908   2033  2033  2046  2128
KRE090   004 0C27 1940   1936
KRE100   003 0C33 1949   1963  1986  2007  2029  2050
KRE110   003 0C3E 1955   1957* 2059
KRE120   005 0C56 1967   1951
KRE130   003 0C5E 1974   1976*
KRE140   003 0C68 1980   1999*
KRE150   005 0C7C 1990   1926  1927  1968
KRE160   003 0C84 1995   1997* 2077
KRE170   003 0C8E 2001   1978*
KRE180   005 0CA2 2011   1991
KRE190   003 0CAA 2017   2019* 2084
KRE200   003 0CB3 2023   2042*
KRE210   005 0CC7 2033   2012
KRE220   003 0CCF 2038   2040*
KRE230   003 0CD8 2044   2021*
KRE240   003 0CE9 2055   1964  1987  2008  2030  2034
KRE245   004 0CF6 2062   1933
KRE247   004 0CFD 2065   2073
KRE248   003 0D01 2067
KRE250   004 0D07 2071   2060
KRE260   004 0D23 2082   2078
KRE270   003 0D27 2084   2080
KRE280   004 0D34 2090   2085
KRE290   004 0D38 2091   2088
KRE300   003 0D3C 2096   1947
KRE400   003 0D52 2105   2101
```

```
                            CROSS REFERENCE

SYMBOL   LEN VALUE DEFN    REFERENCES                          VER 15, MOD 00  30/05/22  PAGE  34

KRE600   004  0D60 2110    1955   1974   1995   2017   2038
KRE610   004  0D67 2113    1980   2001   2023   2044
KRE615   004  0D6E 2116    1949*  2056   2096*  2104
KRE620   004  0D72 2117    2106
KRE630   004  0D76 2119    1938   1962   1985   2006   2028   2049   2064   2069   2100   2112   2115
KRE900   003  0D7C 2123    1946
KRE901   004  0D80 2124    1950
KRE902   004  0D84 2125    1967
KRE903   006  0D8A 2126    1990
KRE904   003  0D8D 2127    2011
KRE905   005  0D92 2128    2033
SCACNT   002  0DD3 2251    1935   2241*  2242*
SCACOF   001  0087 2223
SCACOM   001  0001 2222    1940
SCAINC   001  0001 2221    2230   2236
SCAMMA   003  0DB0 2245    1940*
SCANIT   001  0D93 2225    1930   1960   1983   2004   2026   2047   2098
SCASVE   002  0DD1 2250    2227*  2242
SCASV1   001  0DD0 2249
SCA100   003  0DA2 2230    2232
SCA200   003  0DA5 2231    2229
SCA250   003  0DAF 2234    2245
SCA300   003  0DB2 2236    2238
SCA400   004  0DC2 2241    2234
SCA500   004  0DCC 2244    2226*  2240


TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY =       0


OL105 I   THE CODE LENGTH OF #KREAD IS  3540 DECIMAL.
OL103 I   TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS     3
          NAME-#KREAD,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-R,CATEGORY-000
```

```
          OVERLAY LINKAGE EDITOR CORE USAGE MAP     30/05/22


    START      CATEGORY   NAME AND       CODE LENGTH
   ADDRESS                  ENTRY     HEXADECIMAL DECIMAL

    0C00          0      #KREAD         0DD4    3540


OL100 I   THE TOTAL CORE USED BY #KREAD IS  3540 DECIMAL.
OL101 I   THE START CONTROL ADDRESS OF THIS MODULE IS 0C00.
OL104 I   TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS   14
          NAME-#KREAD,PACK-R1R1R1,UNIT-R1,RETAIN-P,LIBRARY-O
```