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IMPROVEMENTS TO NEW JOSHUA (J80) ON THE IBM/MVS OPERATING SYSTEM (U)

By

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INTRODUCTION AND SUMMARY

The SRS reactor physics and charge design codes run under the JOSHUA system (J70) which was developed at SRS in the late 60s and early 70s. This system is based on FORTRAN 66, an unsupported IBM compiler and a modified FORTRAN runtime library. Because of concerns about the maintainability of J70 and the desire to take advantage of hardware and software advances, a new JOSHUA system (J80) was developed in the late 80s.

J80 runs on both the IBM mainframe and the Laboratory VAX computers. On the IBM, J80 required considerably more elapsed time to run than did J70. (No comparison is available on the VAX as the old system is incapable of running on any system other than an IBM.) The long running times were traced to differences in the way direct access IO is handled between the two systems.

J70 did its IO using a highly optimized set of direct access IO routines. This involved modifying the FORTRAN runtime library and writing an assembly language access method. Because of the desire for maintainability and portability, J80 uses standard FORTRAN direct access.

Standard FORTRAN direct access on the IBM requires the disk files to be fixed length and unblocked. This means that for each record read or written to the file, a physical IO is made to the disk. If a job does a lot of IO, it spends much of its time simply waiting on the disk. Furthermore, IBM FORTRAN requires direct access files to formatted before they are used. This means writing the format pattern to every record in the file.

Several methods were tried to reduce the elapsed time of J80 including manually blocking and unblocking records. The final method chosen uses a combination of VIO (virtual IO) and VSAM (virtual storage access method).

Each J80 job has associated with it a system scratch data set and a user scratch data set. Since each J80 data set consists of 2 direct access files (a tree file and a data file), the scratch data sets required 4 files to be allocated and formatted. This is very time consuming. Because the scratch data sets are inherently temporary, they have been moved from disk to VIO. The data sets must still be allocated, but the formatting is now IO to memory. This is much faster than doing physical IO to a disk drive.

The second change was to move the permanent data sets to VSAM files. VSAM files are effectively blocked. This means that when one records is read, a block of records are actually read off the disk. When the next record is read, the system checks to see if it already has it in memory. If it is, it returns the record to the program without having to do a physical IO to disk.

These changes, along with several other minor changes such as increasing the number of buffers allocated to each file, have reduced the running time of J80 to the point that it is comparable to to J70. As an example, a GLASS problem was run under both J70 and J80. J70 required 11.3 minutes of CPU time and 12 minutes elapsed time. J80 required 11.5 minutes of CPU time and 16 minutes elapsed time. The differences in timings between J70 and J80 are of the same magnitude as consecutive runs of the same problem in J70.

Two other changes were made to the J80 system under MVS. The first change allows J80 programs to use the IBM interactive debugger. The second changes allows the Computer Operations Group to recognize J80 datasets and provide for a longer lifetime on the system scratch disks before they are archived.

DISCUSSION

Input/Output Efficiency Improvements

The original JOSHUA system (J70) was developed in the late 60's and early 70's to support the site reactor physics codes. Because of the small memories on the computers and the large amounts of data required by the codes, the codes were designed to shuffle data to and from the JOSHUA database.

To improve the performance of this IO, the JOSHUA Access Method (JAM) was developed. JAM is a set of assembly language routines which handles the low level physical IO to the disks. When J70 requests a logical record, JAM determines the disk track containing the record. It then fetches the data on that track and returns the requested logical record to J70.

To integrate JAM into the J70 environment, JAM replaced a number of entry points in the IBM supplied FORTRAN runtime library.

Because of concerns about the future maintainability of J70, and the desire to take advantage of hardware and software advances, it was decided in the late 80's to develop a new JOSHUA system (J80).

J80 was developed to be maintainable and highly portable. The applications which run under J80 have been converted to standard FORTRAN-77. Also, most of the J80 system itself is written in standard FORTRAN-77. The only exceptions are in the J80 system routines where needed functionality was not available from FORTRAN.

When problems were run under J70 and J80, the CPU time required for the two problems were approximately the same. However, the elapsed time required for J80 was several times that required for J70. This large increase in elapsed time was traced to the way J80 was doing IO.

Standard FORTRAN direct access on the IBM requires the disk files to be fixed length and unblocked. This means that for each record read or written to the file, a physical IO is made to the disk. If a job does a lot of IO, it spends much of its time simply waiting on the disk. Furthermore, IBM FORTRAN requires direct access files to formatted before they are used. This means writing the format pattern to every record in the file when it is created.

Several methods were tried to improve the efficiency of J80 IO.

The first method involved reading and writing blocks of records from the JOSHUA data sets with a single FORTRAN read or write, and buffering the records in memory. When a record was read, the buffers are checked to determine if the record was in memory. If it was, the record was returned without having to do any IO. If the record was not in memory, it along with enough additional records to fill the buffer were read from disk. A similar process was used for writing records.

When this method was implemented, the elapsed time for a sample job increased over the already slow J80 system. The net result of the changes was that the code was doing more IO. Even though FORTRAN was issuing a single IO to read/write the multiple records, the FORTRAN runtime routines were having to issue a physical IO for each unblocked record. Hence the increase in the number of IO's and the increase of in elapsed time.

The second method tried was to pack multiple logical records into a single physical record. This allowed the physical disk IO's to move larger amounts of data than the original J80 system. This approach provided only modest reductions in elapsed time at the expense of more complicated code.

The third method tried, and the one chosen, uses a combination of VIO (virtual IO), VSAM (virtual storage access method) and FORTRAN dynamic file allocation. JOSHUA jobs have associated with them both temporary and permanent data. Because of the differences in

the two types of data, two different approaches to IO were developed.

Temporary (Scratch) J80 Datasets

Each J80 job has associated with it a system scratch data set and a user scratch data set. Since each J80 data set consists of 2 direct access files (a tree file and a data file), the scratch data sets required 4 files to be allocated and formatted. This is very time consuming.

Because the scratch data sets are inherently temporary, they have been moved from disk to VIO. The data sets must still be formatted when they are first opened, but the formatting is now IO to memory. This is much faster than doing physical IO to a disk drive.

The scratch datasets must be available to all modules in a JOSHUA job. Because VIO datasets are not cataloged, the files which make up the scratch datasets are allocated by DD (data definition) cards. When these files are opened or closed, they are referenced by DD name rather than by DSN (OS dataset name) as are the files which make up a permanent JOSHUA dataset. (Permanent JOSHUA data sets are composed of two cataloged OS files:

user_id.JOSHUA_dataset_name.tree and
user_id.JOSHUA_dataset_name.data.)

Finally, J80 supports the concept of "permanent" user scratch datasets. This was implemented to allow for debugging of codes which use the scratch dataset. It also allowed jobs to reuse scratch datasets to avoid having to allocate and format new OS datasets each time a job is run.

The debugging capability of scratch datasets has been retained. To retain the user scratch dataset at the end of a job, the user specifies a SCRATCH_CLOSE_STATUS of keep. Since it is not possible to keep VIO files after the end of a job, "permanent" scratch dataset files are allocate as cataloged VSAM data sets.

Permanent J80 Datasets

The permanent J80 datasets have a different set of requirements than do the temporary datasets. Multiple users may need to access them at the same time and they must exist for more than the duration of a single job. To accomplish this, the files which make up a permanent J80 dataset are allocated to VSAM files.

Unlike the standard FORTRAN direct access files which can only be unblocked, VSAM files are effectively blocked. This means that when one record is read, a block of records are actually read off the disk. When the next record is read, the system checks to see if it already has it in memory. If it is, it returns the record to the program without having to do a physical IO to disk.

Unlike the standard direct access file which FORTRAN can create, VSAM files can only be created with the IBM utility program IDCAMS. Since the J80 system has to be able to create datasets at runtime, it was necessary to build an interface routine to run the IDCAMS program.

VSAM files are created using two new subroutines. Subroutine JSMKVS takes its arguments and builds the commands for IDCAMS. It then calls JSVSAM to execute IDCAMS. If IO tracing is turned on, or if IDCAMS returned an error, JSMKVS copies the output from IDCAMS to the listing file. JSMKVS is written in FORTRAN.

Subroutine JSVSAM takes the file of commands created by JSMKVS and executes IDCAMS. JSVSAM is an assembly language routine which uses the LINK macro to execute IDCAMS.

It should be noted that J80 will still read non-VSAM datasets. However, all new, permanent datasets (ie job and user datasets) will be created as VSAM files. This is true whether the data sets are created by the J80 terminal system or by a batch job.

FORTRAN Dynamic File Allocation

The original version of J80 on the IBM/MVS operating system used a set of assembly language routines to do dynamic file allocation. Dynamic allocation is the ability to acquire a resource (file) for use at any time during job execution.

With a recent release of IBM VS FORTRAN, it became possible to do dynamic file allocation from FORTRAN. The J80 system routines have been modified to use FORTRAN file allocation to handle all of the JOSHUA data sets. This change allows OS files to be referenced either by DD name (the scratch J80 data sets) or by DS name (the permanent J80 data sets) without the use of assembly language routines. This results in much cleaner code which should be easier to maintain.

This change has also been reflected in the IO trace which the user can request. The trace now distinguishes between FORTRAN file allocation which is used for the JOSHUA datasets and assembly language file allocation used for load libraries.

Tree Records

JOSHUA uses a catalog tree to translate from the record name to a logical record number used by FORTRAN direct access. To improve the efficiency of catalog searches for large datasets such as MULTIGRP, the maximum number of tree records kept in core has been increased from 20 to 50. This reduces the number of physical IO's to the TREE files.

Subroutines Changed

The following subroutines have been changed to implement the IO changes described above:

JSADDS	JSALDS
JSCHDS	JSERIO
JSEXEC	JSFIFP
JSIOTR	JSMON
JSOPDS	JSOPXX
JSWRBF	

Changes in the above subroutines are documented in appendix A.

Debugging Support

One of the features of JOSHUA is the ability of one module to execute another. The executed module requires information about the environment in which it is running such as the names of system scratch data files. This information is known as the module boot message.

In the original version of J80 , the boot message was passed as a parameter list. The executed module retrieved this information by walking back up the register save areas until it got to the save area of the calling module. The address of the parameter list was obtained from the save area This address was then used to fetch the passed arguments. This approach relied on a known number of subroutine calls between the routine fetching the parameter list and the routine sending the parameter list.

The new system passes the boot message via a small VIO file associated with a known DD name. The change allows much greater flexibility in the size of the boot message. Also, it no longer

requires tracking save area chains and eliminates several assembly language subroutines.

Because J80 no longer uses the PARM option of the ATTACH macro to pass the boot message, the PARM option can be used to pass the debug key word to the system. This allows J80 modules to be run under the control for the IBM interactive debugger.

This change was implemented by changing subroutines JSPUMS and JSGEMS.

Increase Lifetime on System Scratch Disks

Unless the user requests that a J80 dataset be created on a particular volume using the WRITE_VOLREF key word, J80 datasets are created on the generic device SYSDA. Because of local system restrictions, all datasets larger than a specific size are archived off the scratch disks overnight. This sometimes resulted in users running jobs in the evening and returning in the morning to find that their data had already been archived.

To enable computer operations to differentiate between J80 data files and other data files, the last level qualifiers of the JOSHUA data files were changed. The new last level qualifier for the tree file is now J80TREE. The new last level qualifier for the data file is now J80DATA.

These changes will allow large J80 datasets on SYSDA to remain on-line for several days. To implement this change required modifications to the JSMON main program and the JSPARM include file.

Appendix A

Subroutine Differences Listing

```
      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE   1
NEW:  T5537.JS.FORT(JSADDS)                                  OLD:  T8079.JS.FORT(JSADDS)

ID      SOURCE LINES                                                                  TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
            JDSTFL(IJDS) = TFL                                                                 00131 00131
            JDSDFL(IJDS) = DFL                                                                 00132 00132
            TEXIST=.TRUE.                                                                      00133 00133
            DEXIST=.TRUE.                                                                      00134 00134
          ENDIF                                                                                00135 00135
                                                                                               00136 00136
    C-------------------------------------------------------------                             00137 00137
    * SELECT CASE (SYSTEM)                                                                     00138 00138
    C-------------------------------------------------------------                             00139 00139
    * CASE ('IBM/MVS')                                                                         00140 00140
I - C                                                                          INS=    12 00141 00141
I - C  CHECK FOR EITHER SYSTEM OR USER SCRATCH.  SET THE ALLOCATION NAME                        00142
I - C  SO JSALOS WILL KNOW.  THIS IS USED TO ALLOW "TEMPORARY" SCRATCH                         00143
I - C  DATASETS TO BE PLACED ON DEVICE VIO.                                                    00144
I - C                                                                                          00145
I -       IF(DSNM.EQ.'.SYSCRAT') THEN                                                          00146
I -         JDSTAL(IJDS)='SYSSCRT'                                                             00147
I -         JDSDAL(IJDS)='SYSSCRD'                                                             00148
I -       ELSE IF(DSNM.EQ.'SCRATCH') THEN                                                      00149
I -         JDSTAL(IJDS)='USRSCRT'                                                             00150
I -         JDSDAL(IJDS)='USRSCRD'                                                             00151
I -       ELSE                                                                                 00152
RE-         JDSTAL(IJDS)=' '                                                   RPN=     2 00153 00141
RO-       JDSTAL(IJDS)=' '
RE-         JDSDAL(IJDS)=' '                                                                   00154 00142
RO-       JDSDAL(IJDS)=' '
I -       ENDIF                                                                INS=     1 00155 00143
    C-------------------------------------------------------------             MAT=    24 00156 00143
    * END SELECT                                                                            00157 00144
    C-------------------------------------------------------------                         00158 00145
                                                                                           00159 00146
          CALL JSALOS (IJDS,OPSTAT,CLSTAT,TEXIST,DEXIST,TSPACE,DSPACE,LOC,                 00160 00147
         >             *9002)                                                              00161 00148
                                                                                           00162 00149
          RETURN                                                                           00163 00150
    9001  RETURN 1                                                                         00164 00151
                                                                                           00165 00152
*** CHANGE SECTION CUTOFF ****************************

      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE   2
NEW:  T5537.JS.FORT(JSALDS)                                  OLD:  T8079.JS.FORT(JSALDS)

ID      SOURCE LINES                                                                  TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
    C-------------------------------------------------------------                         00069 00069
    * CASE ('VAX/VMS')                                                                     00070 00070
    *       INCLUDE 'JSPARM.INC'                                                           00071 00071
    *       INCLUDE 'JSDATA.INC'                                                           00072 00072
    *       INCLUDE 'JSJDST.INC'                                                           00073 00073
    C-------------------------------------------------------------                         00074 00074
    * CASE ('IBM/MVS')                                                                     00075 00075
          INCLUDE (JSPARM)                                                                 00076 00076
          INCLUDE (JSDATA)                                                                 00077 00077
          INCLUDE (JSJDST)                                                                 00078 00078
I -                                                                            INS=     9 00079 00079
I -       CHARACTER*8 JSMVBG                                                               00080
I - C-- used to get info for "write_volref"                                                00081
I -       INTEGER INFO(64)                                                                 00082
I -       CHARACTER CINFO*256,VOLSER*6                                                     00083
I -       EQUIVALENCE (INFO,CINFO)                                                         00084
I - c  set number of IO buffers                                                            00085
I -       PARAMETER(NBUF=10)                                                               00086
I -       LOGICAL EXIST                                                                    00087
    C-------------------------------------------------------------             MAT=    3 00088 00079
    * END SELECT                                                                           00089 00080
    C-------------------------------------------------------------                         00090 00081
D -                                                                            DEL=     1 00091 00082
          INTEGER IJDS,TSPACE,DSPACE                                           MAT=    58 00091 00083
          CHARACTER*8 OPSTAT,CLSTAT                                                        00092 00084
          LOGICAL TEXIST,DEXIST                                                            00093 00085
          CHARACTER*(*) LOC                                                                00094 00086
                                                                                           00095 00087
          CHARACTER*8 STAT                                                                 00096 00088
          CHARACTER*8 JSADAT,JSATIM                                                        00097 00089
          EXTERNAL    JSADAT,JSATIM                                                        00098 00090
                                                                                           00099 00091
    C-------------------------------------------------------------                         00100 00092
*** CHANGE SECTION CUTOFF ****************************

    *     ENDIF                                                                          00139 00131
    *                                                                                    00140 00132
    C------- GET EXACT FILE NAMES (TO BE USED AS ALLOCATION NAMES)                        00141 00133
    *                                                                                    00142 00134
    *     CALL JSQUFN (JDSTFL(IJDS),JDSTAL(IJDS),*9001)                                  00143 00135
    *     CALL JSQUFN (JDSDFL(IJDS),JDSDAL(IJDS),*9001)                                  00144 00136
    *                                                                                    00145 00137
    C-------------------------------------------------------------                       00146 00138
    * CASE ('IBM/MVS')                                                                   00147 00139
                                                                                         00148 00140
I -       CHARACTER*8 TSTATS,DSTATS,TMDISP,DMDISP,UID*9                        INS=    26 00149 00141
I -       CHARACTER*6 SCRVOL,TESTDS*44                                                     00150
I -       LOGICAL FIRST/.TRUE./                                                            00151
```

```
      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE   3
NEW:  T5537.JS.FORT(JSALOS)                                 OLD:  T8079.JS.FORT(JSALOS)

ID      SOURCE LINES                                                                  TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
I -       IF(FIRST) THEN                                                                    00152
I - C                                                                                       00153
I - C  LOCATE SCRATCH VOLUME NAME                                                           00154
I - C    BY CREATING A DATASET ON SYSDA AND THEN CALL JSNVLO TO GET THE                     00155
I - C    VOLUME NAME                                                                        00156
I - C                                                                                       00157
I -         UID=JSNVBG()                                                                    00158
I -         TESTDS=UID(1:INDEX(UID,' ')-1)//'.$1234567'                                     00159
I -         CALL FILEINF(IERR,'MAXREC',1,'LRECL',80,'RECFM','F',                            00160
I -      >                     'DEVICE','SYSDA')                                          00161
I -         CALL UNTANY(IERR,50,99,IUNIT)                                                   00162
I -         OPEN(UNIT=IUNIT,FILE='/'//TESTDS,STATUS='NEW')                                  00163
I -         IERR=JSNVLO(TESTDS(1:INDEX(TESTDS,' ')-1),INFO)                                 00164
I -         IF (IERR.EQ.0) THEN                                                             00165
I -           SCRVOL=CINFO(7:12)                                                            00166
I -         ELSE                                                                            00167
I -           SCRVOL=' '                                                                    00168
I -         ENDIF                                                                           00169
I -         CLOSE(UNIT=IUNIT,STATUS='DELETE')                                               00170
I -         FIRST=.FALSE.                                                                   00171
I -       ENDIF                                                                             00172
I - C                                                                                       00173
I -       LRECL=DARECL                                                                      00174
D -       CHARACTER*8 TSTATS,DSTATS,TMDISP,DMDISP                                 DEL-    2 00149 00141
D -                                                                                         00142
    C------ SET STATS & MDISP BASED ON OPSTAT, CLSTAT, & FILE EXISTENCE            MAT-   63 00173 00143
                                                                                           00174 00144
          IF (CLSTAT .NE. KEEP .AND. CLSTAT .NE. DELETE)                                   00175 00145
         > CALL JSERSE (RETN,*9001,8805,0,                                                 00176 00146
         > 'INVALID CLOSE STATUS ',CLSTAT)                                                 00177 00147
                                                                                           00178 00148
          IF (JDSPRO(IJDS) .EQ. READ) THEN                                                 00179 00149
            IF ((.NOT. TEXIST) .OR. (.NOT. DEXIST))                                        00180 00150
         >    CALL JSERSE (RETN,*9001,8804,0,                                            00181 00151
         >    'TREE AND DATA FILES MUST EXIST FOR READ-ONLY DATA SET',' ')               00182 00152
*** CHANGE SECTION CUTOFF ******************************

            DSTATS = OLD                                                                   00220 00196
            TMDISP = CLSTAT                                                                00221 00197
            DMDISP = CLSTAT                                                                00222 00198
                                                                                           00223 00199
          ELSE                                                                             00224 00200
            CALL JSERSE (RETN,*9001,8805,0,                                                00225 00201
         > 'INVALID OPEN STATUS ',OPSTAT)                                                  00226 00202
                                                                                           00227 00203
          ENDIF                                                                            00228 00204
                                                                                           00229 00205
I -       IF (JDSTAL(IJDS).EQ.' ') THEN                                           INS-   25 00230 00206

      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE   4
NEW:  T5537.JS.FORT(JSALOS)                                 OLD:  T8079.JS.FORT(JSALOS)

ID      SOURCE LINES                                                                  TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
I -         JDSTAL(IJDS)='/'//JDSTFL(IJDS)                                                 00239
I -         JDSDAL(IJDS)='/'//JDSDFL(IJDS)                                                 00240
I -       ELSE                                                                             00241
I - C                                                                                      00242
I - C  CHECK SCRATCH DATASETS.  IF DATASET IS NEW AND TO BE DELETED                        00243
I - C  USE VIO FOR IT.  OTHERWISE PUT IT ON SYSDA OR VOL_REF VOLUME                        00244
I - C  THIS IS DONE BY USING A FORTRAN OPEN BY DDNAME(FOR VIO)                             00245
I - C  OR A FORTRAN OPEN BY DSNAME FOR SYSDA OR VOL_REF                                    00246
I - C  IE.IF JDSTAL(IJDS)(1:1)='/' IT IS A PERMENANT DATASET                               00247
I - C                                                                                      00248
I -         IF(TSTATS.NE.NEW .AND. TMDISP.NE.DELETE) THEN                                  00249
I -           JDSTAL(IJDS)='/'//JDSTFL(IJDS)                                               00250
I -           JDSDAL(IJDS)='/'//JDSDFL(IJDS)                                               00251
I -         ENDIF                                                                          00252
I -       ENDIF                                                                            00253
I - C                                                                                      00254
I - C  GET THE VOLUME TO CREATE THE DATASETS ON                                            00255
I - C                                                                                      00256
I -       IF(LOC.NE.' ') THEN                                                              00257
I -         IERR=JSNVLO(LOC,INFO)                                                          00258
I -         VOLSER=CINFO(7:12)                                                             00259
I -       ELSE                                                                             00260
I -         VOLSER=SCRVOL                                                                  00261
I -       ENDIF                                                                            00262
D - C------ ALLOCATE THE DATA SETS                                                 DEL-    1 00238 00206
                                                                                   MAT-    1 00263 00207
I -                                                                                INS-   20 00264 00208
I - C------ ALLOCATE THE PERMENANT DATA SETS AS VSAM FILES USING THE                        00265
I - C       IBM UTILITY PROGRAM IDCAMS                                                     00266
I -                                                                                        00267
I -       IF(JDSTAL(IJDS)(1:1).EQ.'/' .AND. TSTATS.EQ.NEW) THEN                            00268
I -         CALL JSMKVS (JDSTFL(IJDS),TSPACE,VOLSER,*9001)                                 00269
I -         CALL JSMKVS (JDSDFL(IJDS),DSPACE,VOLSER,*9001)                                 00270
I -       ENDIF                                                                            00271
I -                                                                                        00272
I - C------                                                                                00273
I -                                                                                        00274
I -       IF(IOTLUN.NE.0) THEN                                                             00275
I -         IF(JDSTAL(IJDS)(1:1).EQ.'/') THEN                                              00276
I -           CALL JSIOTR(16,0,TSTATS//JDSTFL(IJDS),0,*9001)                               00277
I -           CALL JSIOTR(16,0,DSTATS//JDSDFL(IJDS),0,*9001)                               00278
I -         ELSE                                                                           00279
I -           CALL JSIOTR(16,1,TSTATS//JDSTAL(IJDS),0,*9001)                               00280
I -           CALL JSIOTR(16,1,DSTATS//JDSDAL(IJDS),0,*9001)                               00281
I -         ENDIF                                                                          00282
I -       ENDIF                                                                            00283
D -       CALL JSMVAD (JDSTFL(IJDS),TSTATS,TMDISP,TSPACE,LOC,JDSTAL(IJDS),        DEL-    4 00264 00208
D -      >             *9001)                                                              00209
```

```
      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE   5
NEW:  T5537.J8.FORT(JSALOS)                                  OLD:  T8079.J8.FORT(JSALOS)

ID      SOURCE LINES                                                                  TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
D -       CALL JSHVAD (JDSOFL(IJDS),DSTATS,DNDISP,DSPACE,LOC,JDSDAL(IJDS),                      00210
D -      >             *9001)                                                                  00211
                                                                                       MAT=    9 00284 00212
          IF (OPSTAT .EQ. NEW .OR. OPSTAT .EQ. REUSE) THEN                                     00285 00213
                                                                                               00286 00214
    C-------- GET UNIT NUMBERS                                                                 00287 00215
                                                                                               00288 00216
          CALL JSGZUN (JDSTUN(IJDS),*9001)                                                     00289 00217
          CALL JSGZUN (JDSDUN(IJDS),*9001)                                                     00290 00218
                                                                                               00291 00219
    C-------- OPEN THE FILES                                                                  00292 00220
I - C                                                                                  INS=    5 00293 00221
I - C  NOTE: The FILEINF call sets FORTRAN IO library parameters used                          00294
I - C        by the OPEN statment in entry JSOPDA in subroutine JSOPXX                         00295
I - C                                                                                          00296
I -         CALL FILEINF(IERR,'BUFNO',NBUF)                                                    00297
D -                                                                                    DEL=    4 00293 00221
D -         IF (OPSTAT .EQ. NEW) THEN                                                          00222
D -           STAT = NEW                                                                       00223
D -         ELSE                                                                             00224
RR-         STAT = 'UNKNOWN'                                                           RPL=    1 00298 00225
RO-           STAT = 'UNKNOWN'
I -         CALL JSOPDA (JDSTUN(IJDS),JDSTAL(IJDS),STAT,LRECL,WRITE,                   INS=    1 00299 00226
D -         ENDIF                                                                      DEL=    3 00299 00226
D -                                                                                            00227
D -         CALL JSOPDA (JDSTUN(IJDS),JDSTAL(IJDS),STAT,TRRECL/RECLLN,WRITE,                   00228
      >                 *9001)                                                         MAT=    1 00300 00229
I -         CALL FILEINF(IERR,'BUFNO',NBUF)                                            INS=    3 00301 00230
I -         STAT = 'UNKNOWN'                                                                   00302
I -         CALL JSOPDA (JDSDUN(IJDS),JDSDAL(IJDS),STAT,LRECL,WRITE,                           00303
D -         CALL JSOPDA (JDSDUN(IJDS),JDSDAL(IJDS),STAT,DARECL/RECLLN,WRITE,           DEL=    1 00301 00230
      >                 *9001)                                                         MAT=   24 00304 00231
                                                                                               00305 00232
    C-------- INITIALISE TREE HEADER RECORD                                                    00306 00233
                                                                                               00307 00234
          JDSTEN(IJDS) = 0                                                                     00308 00235
          JDSDEN(IJDS) = 0                                                                     00309 00236
          JDSTEN(IJDS) = 0                                                                     00310 00237
          JDSDEN(IJDS) = 0                                                                     00311 00238
          JDSCDA(IJDS) = JSADAT()                                                              00312 00239
          JDSCTI(IJDS) = JSATIM()                                                              00313 00240
*** CHANGE SECTION CUTOFF ****************************

      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE   6
NEW:  T5537.J8.FORT(JSCEDS)                                  OLD:  T8079.J8.FORT(JSCEDS)

ID      SOURCE LINES                                                                  TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
    C-------------------------------------------------------------                             00038 00038
    * SELECT CASE (SYSTEM)                                                                     00039 00039
    C-------------------------------------------------------------                             00040 00040
    * CASE ('VAX/VMS')                                                                         00041 00041
    *     INCLUDE 'JSPARM.INC'                                                                 00042 00042
    *     INCLUDE 'JSJDST.INC'                                                                 00043 00043
    C-------------------------------------------------------------                             00044 00044
    * CASE ('IBM/MVS')                                                                         00045 00045
          INCLUDE (JSPARM)                                                                     00046 00046
          INCLUDE (JSJDST)                                                                     00047 00047
I -       INCLUDE (JSDATA)                                                           INS=    3 00048 00048
I -       PARAMETER(NBUF=10)                                                                   00049
I -       INTEGER TUN, DUN                                                                     00050
    C-------------------------------------------------------------                     MAT=    5 00051 00048
    * END SELECT                                                                               00052 00049
    C-------------------------------------------------------------                             00053 00050
                                                                                               00054 00051
          INTEGER IJDS,PRO,TSPACE,DSPACE                                                       00055 00052
I -       CHARACTER*8 STAT,OPSTAT                                                    RPL=    1 00056 00053
D -       CHARACTER*8 STAT
          LOGICAL FLFLG                                                              MAT=   32 00057 00054
          CHARACTER*(*) LOC                                                                    00058 00055
                                                                                               00059 00056
          CHARACTER*8 XCDA,XCTI,XRDA,XRTI                                                      00060 00057
          CHARACTER*(MXFNLN) XTFL,XDFL                                                         00061 00058
          CHARACTER*(MXANLN) XTAL,XDAL                                                         00062 00059
          INTEGER XPRO,XTYP                                                                    00063 00060
                                                                                               00064 00061
          LOGICAL TEXIST,DEXIST                                                                00065 00062
                                                                                               00066 00063
*** CHANGE SECTION CUTOFF ****************************

          XTYP = JDSTYP(IJDS)                                                                  00079 00076
          XPRO = JDSPRO(IJDS)                                                                  00080 00077
          XCDA = JDSCDA(IJDS)                                                                  00081 00078
          XCTI = JDSCTI(IJDS)                                                                  00082 00079
          XRDA = JDSRDA(IJDS)                                                                  00083 00080
          XRTI = JDSRTI(IJDS)                                                                  00084 00081
          XTFL = JDSTFL(IJDS)                                                                  00085 00082
          XDFL = JDSDFL(IJDS)                                                                  00086 00083
          XTAL = JDSTAL(IJDS)                                                                  00087 00084
          XDAL = JDSDAL(IJDS)                                                                  00088 00085
I -       TUN  = JDSTUN(IJDS)                                                        INS=    2 00089 00086
I -       DUN  = JDSDUN(IJDS)                                                                  00090
                                                                                     MAT=   22 00091 00086
          CALL JSCLDS (IJDS,*9002)                                                             00092 00087
          JDSPRO(IJDS) = PRO                                                                   00093 00088
          JDSTYP(IJDS) = INSTD                                                                 00094 00089
```

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      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE   7
NEW:  T5537.JS.FORT(JSCEDS)                                  OLD:  T8079.JS.FORT(JSCEDS)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
                                                                                                 00095 00090
          IF (FLFLG) THEN                                                                        00096 00091
            CALL JSFIDF (JDSNM(IJDS),STAT,JDSTFL(IJDS),JDSDFL(IJDS),TEXIST,                      00097 00092
         >              DEXIST,*9002)                                                           00098 00093
            CALL JSALDS (IJDS,STAT,KEEP,TEXIST,DEXIST,TSPACE,DSPACE,LOC,                         00099 00094
         >              *9002)                                                                  00100 00095
*** CHANGE SECTION CUTOFF ****************************

    C------ JUST CHANGE THE DATA SET PROTECTION                                                 00103 00098
                                                                                                 00104 00099
    C-------------------------------------------------------------------------                 00105 00100
    * SELECT CASE (SYSTEM)                                                                      00106 00101
    C-------------------------------------------------------------------------                 00107 00102
    * CASE ('VAX/VMS')                                                                         00108 00103
    *                                                                                          00109 00104
    *       CALL JSOPDS (IJDS,*9002)                                                           00110 00105
    C-------------------------------------------------------------------------                 00111 00106
    * CASE ('IBM/MVS')                                                                         00112 00107
I -         CONTINUE                                                                  INS-   24 00113 00108
I - C       JDSTUN(IJDS)=TUN                                                                   00114
I - C       JDSDUN(IJDS)=DUN                                                                   00115
I - C       LRECL=DARECL                                                                       00116
I - C       OPSTAT='UNKNOWN'                                                                   00117
I - C       IF (PRO .EQ. WRITE) THEN                                                           00118
I - C         CALL FILEINF(IERR,'BUFNO',NBUF)                                                  00119
I - C         CALL JSOPDA(JDSTUN(IJDS),JDSTAL(IJDS),OPSTAT,LRECL,                              00120
I - C    >      WRITE,*9002)                                                                  00121
I - C         IF(IOTLUN.NE.0) CALL JSIOTR(16,0,OLD//JDSTTL(IJDS),0,*9002)                      00122
I - C         CALL FILEINF(IERR,'BUFNO',NBUF)                                                  00123
I - C         CALL JSOPDA(JDSDUN(IJDS),JDSDAL(IJDS),OPSTAT,LRECL,                              00124
I - C    >      WRITE,*9002)                                                                  00125
I - C         IF(IOTLUN.NE.0) CALL JSIOTR(16,0,OLD//JDSDFL(IJDS),0,*9002)                      00126
I - C       ELSE                                                                               00127
I - C         CALL FILEINF(IERR,'BUFNO',NBUF)                                                  00128
I - C         CALL JSOPDA(JDSTUN(IJDS),JDSTAL(IJDS),OPSTAT,LRECL,                              00129
I - C    >      READ ,*9002)                                                                  00130
I - C         IF(IOTLUN.NE.0) CALL JSIOTR(16,0,SHR//JDSTTL(IJDS),0,*9002)                      00131
I - C         CALL FILEINF(IERR,'BUFNO',NBUF)                                                  00132
I - C         CALL JSOPDA(JDSDUN(IJDS),JDSDAL(IJDS),OPSTAT,LRECL,                              00133
I - C    >      READ ,*9002)                                                                  00134
I - C         IF(IOTLUN.NE.0) CALL JSIOTR(16,0,SHR//JDSDFL(IJDS),0,*9002)                      00135
I - C       ENDIF                                                                              00136
D -         IF (PRO .EQ. WRITE) THEN                                                  DEL-    7 00113 00108
D -           CALL JSMVAD (JDSTFL(IJDS),OLD,BLKS,0,' ',JDSTAL(IJDS),*9002)                                00109
D -           CALL JSMVAD (JDSDFL(IJDS),OLD,BLKS,0,' ',JDSDAL(IJDS),*9002)                    00110
D -         ELSE                                                                               00111
D -           CALL JSMVAD (JDSTFL(IJDS),SHR,BLKS,0,' ',JDSTAL(IJDS),*9002)                    00112
D -           CALL JSMVAD (JDSDFL(IJDS),SHR,BLKS,0,' ',JDSDAL(IJDS),*9002)                    00113

      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE   8
NEW:  T5537.JS.FORT(JSCEDS)                                  OLD:  T8079.JS.FORT(JSCEDS)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
D -         ENDIF                                                                                00114
    C-------------------------------------------------------------------------           MAT-   27 00137 00115
    * END SELECT                                                                               00138 00116
    C-------------------------------------------------------------------------                 00139 00117
                                                                                               00140 00118
          ELSE                                                                                 00141 00119
            CALL JSERSE (RETN,*9002,9061,0,' ',' ')                                            00142 00120
          ENDIF                                                                                00143 00121
                                                                                               00144 00122
          RETURN                                                                               00145 00123
    9001  RETURN 1                                                                            00146 00124
*** CHANGE SECTION CUTOFF ****************************
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      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE   9
NEW:  T5537.JS.FORT(JSERIO)                                  OLD:  T8079.JS.FORT(JSERIO)

ID      SOURCE LINES                                                                  TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
    C-------------------------------------------------------------                          00032 00032
    * END SELECT                                                                           00033 00033
    C-------------------------------------------------------------                         00034 00034
                                                                                           00035 00035
          CHARACTER*(*) MSG                                                                00036 00036
          INTEGER LUN,IOS,AFLG                                                             00037 00037
                                                                                           00038 00038
          CHARACTER*(MXINCH) CLUN,CIOS                                                     00039 00039
          CHARACTER*80 XMSG                                                                00040 00040
                                                                                           00041 00041
I - C-------------------------------------------------------------                  INS=   12 00042 00042
I - * SELECT CASE (SYSTEM)                                                               00043
I - C-------------------------------------------------------------                       00044
I - * CASE ('IBM/MVS')                                                                   00045
I - C-------------------------------------------------------------                       00046
I -       INTEGER*2 IOS2(2)                                                              00047
I -       INTEGER   IOSTAT                                                               00048
I -       EQUIVALENCE (IOS2(1),IOSTAT)                                                   00049
I -       CHARACTER*2 VSAMRC,REASON*4                                                    00050
I - C-------------------------------------------------------------                       00051
I - * END SELECT                                                                         00052
I - C-------------------------------------------------------------                       00053
          INTRINSIC LEN                                                          MAT=    2 00054 00042
                                                                                         00055 00043
I -       IOSTAT=IOS                                                             INS=    1 00056 00044
          L = LEN(MSG)                                                           MAT=   12 00057 00044
          XMSG(1:L) = MSG                                                                00058 00045
                                                                                         00059 00046
          IF (L .GE. 8) THEN                                                             00060 00047
            IF (XMSG(1:8) .EQ. 'INTERNAL')                                               00061 00048
         >    CALL JSERSE (AFLG,*9000,1200,0,                                           00062 00049
         >    'SYSTEM ERROR ON '//XMSG(1:L)//'\ IOSTAT='//CIOS(1:LCIOS),' ')            00063 00050
          ENDIF                                                                          00064 00051
                                                                                         00065 00052
          CALL JSCVIC (LUN,CLUN,LCLUN)                                                   00066 00053
          CALL JSCVIC (IOS,CIOS,LCIOS)                                                   00067 00054
                                                                                         00068 00055
I - C-------------------------------------------------------------                  INS=    6 00069 00056
I - * SELECT CASE (SYSTEM)                                                               00070
I - C-------------------------------------------------------------                       00071
I - * CASE ('IBM/MVS')                                                                   00072
I - C-------------------------------------------------------------                       00073
I -       IF(IOSTAT.LT.65536) THEN                                                       00074
RM-         CALL JSERSE (AFLG,*9000,1200,0,                                      RPM=    3 00075 00056
RO-       CALL JSERSE (AFLG,*9000,1200,0,
RM-      >  'SYSTEM ERROR ON '//XMSG(1:L)//                                              00076 00057
RO-      >'SYSTEM ERROR ON '//XMSG(1:L)//
RM-      >  '\UNIT='//CLUN(1:LCLUN)//'\IOSTAT='//CIOS(1:LCIOS),' ')                     00077 00058

      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  10
NEW:  T5537.JS.FORT(JSERIO)                                  OLD:  T8079.JS.FORT(JSERIO)

ID      SOURCE LINES                                                                  TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
RO-      >'\UNIT='//CLUN(1:LCLUN)//'\IOSTAT='//CIOS(1:LCIOS),' ')
I -       ELSE                                                                  INS=   17 00078 00059
I -         WRITE(VSAMRC,'(I2)') IOS2(1)                                                 00079
I -         WRITE(REASON,'(I4)') IOS2(2)                                                 00080
I -         CALL JSERSE (AFLG,*9000,1200,0,                                              00081
I -      >  'SYSTEM ERROR ON '//XMSG(1:L)//                                              00082
I -      >  '\UNIT='//CLUN(1:LCLUN)//'\VSAM RC='//VSAMRC//                               00083
I -      >  '\VSAM REASON='//REASON,' ')                                                 00084
I -       ENDIF                                                                         00085
I - C-------------------------------------------------------------                       00086
I - * CASE DEFAULT                                                                      00087
I - C-------------------------------------------------------------                       00088
I - *     CALL JSERSE (AFLG,*9000,1200,0,                                              00089
I - *     >  'SYSTEM ERROR ON '//XMSG(1:L)//                                           00090
I - *     >  '\UNIT='//CLUN(1:LCLUN)//'\IOSTAT='//CIOS(1:LCIOS),' ')                   00091
I - C-------------------------------------------------------------                       00092
I - * END SELECT                                                                       00093
I - C-------------------------------------------------------------                       00094
                                                                                MAT=    3 00095 00059
    9000  RETURN 1                                                                      00096 00060
          END                                                                          00097 00061
```

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       SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00                PAGE  11
NEW:  T5537.J8.FORT(J8EXEC)                                  OLD:  T8079.J8.FORT(J8EXEC)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
        *     character*1 machid                                                                 00129 00129
        *     character*8 xname,chrcnv                                                           00130 00130
        *     integer bool                                                                       00131 00131
        C======= CTSS common with message from controller                                        00132 00132
        *     common /qmessc/ nmess,imess(10)                                                    00133 00133
        C--------------------------------------------------------------------                    00134 00134
        * CASE ('IBM/VM')                                                                       00135 00135
        *     CHARACTER*8 IMS(7)                                                                 00136 00136
        C--------------------------------------------------------------------                    00137 00137
        * CASE ('IBM/MVS')                                                                      00138 00138
I -           CHARACTER*(MXIMLN) IMS(7)                                          RPL=    1 00139 00139
D -           CHARACTER*8 IMS(7)
              CHARACTER*8 MEMBER                                                 MAT=  416 00140 00140
              INTEGER RC,INFO                                                              00141 00141
              CHARACTER*(MXINCH) CRC,CINFO                                                 00142 00142
              CHARACTER*11 SRC,SINFO                                                       00143 00143
              CHARACTER*4 FLAG                                                             00144 00144
              LOGICAL LEX                                                                  00145 00145
        C--------------------------------------------------------------------                00146 00146
        * END SELECT                                                                        00147 00147
        C--------------------------------------------------------------------                00148 00148
                                                                                           00149 00149
*** CHANGE SECTION CUTOFF ****************************

       SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00                PAGE  12
NEW:  T5537.J8.FORT(J8FIFP)                                  OLD:  T8079.J8.FORT(J8FIFP)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
        *     FILE = FSPEC                                                                       00101 00101
        *     RETURN                                                                             00102 00102
        *                                                                                        00103 00103
        C--------------------------------------------------------------------                    00104 00104
        * CASE ('IBM/MVS')                                                                      00105 00105
                                                                                               00106 00106
              CHARACTER*8 HM,STAT                                                              00107 00107
              CHARACTER*(*) PATH(*),SUFFIX                                                     00108 00108
              INTEGER NPATH,IPATH                                                              00109 00109
              CHARACTER*(MXFNLN) FILE                                                          00110 00110
I -           LOGICAL EXIST,EXST                                                 RPL=    1 00111 00111
D -           LOGICAL EXIST

              CHARACTER*(MXFNLN) FSPEC                                           MAT=   22 00112 00112
              INTEGER RC                                                                   00113 00113
              CHARACTER*4 SUF                                                              00114 00114
                                                                                           00115 00115
              INTEGER JSNLEN                                                               00116 00116
              EXTERNAL JSNLEN                                                              00117 00117
                                                                                           00118 00118
              IF (SUFFIX .NE. TSUFIX .AND. SUFFIX .NE. DSUFIX)                             00119 00119
             >  CALL JSERSE (RETN,*9001,9044,0,' ',' ')                                    00120 00120
*** CHANGE SECTION CUTOFF ****************************                                     00121 00121


              DO 100 IPATH = 1,NPATH                                                       00124 00124
                                                                                           00125 00125
                L = JSNLEN(PATH(IPATH))                                                    00126 00126
                IF (L.GT.0) THEN                                                           00127 00127
                  FSPEC = PATH(IPATH)(1:L)//'.'//HM//SUFFIX                                00128 00128
                ELSE                                                                       00129 00129
                  FSPEC = HM//SUFFIX                                                       00130 00130
                ENDIF                                                                      00131 00131
                CALL JSDEAL (FSPEC,L)                                                      00132 00132
I -             INQUIRE(FILE='/'//FSPEC,EXIST=EXST)                                        00133 00133
                                                                                 INS=    1 00134 00134
I - Ccccccc WRITE(6,*) 'EXIST=',EXST,' STATUS=',STAT,' FILE=',FSPEC              MAT=    1 00135 00134
D -             CALL JSMVTE (FSPEC,'PS','F',512,512,RC,*9001)                    INS=    1 00136 00135
D -                                                                              DEL=    2 00136 00135
                                                                                           00136
                IF (STAT .EQ. REUSE) THEN                                        MAT=    1 00137 00137
I -               IF (EXST) THEN                                                 INS=    1 00138 00138
D -               IF (RC.EQ.3) THEN                                              DEL=    4 00138 00138
D -                 EXIST = .FALSE.                                                               00139
D -                 GOTO 110                                                                      00140
D -               ELSE IF (RC.EQ.0) THEN                                                        00141
                    EXIST = .TRUE.                                               MAT=    1 00139 00142
I - C                                                                            INS=   15 00140 00143
I - C  WITH THE POSSIBILITY OF PACKED RECORDS, JUST SEE IF THE ACTUAL                         00141
```

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      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  13
NEW:  T5537.JS.FORT(JSFIFP)                                  OLD:  T8079.JS.FORT(JSFIFP)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
I - C  RECORD LENGTH IS DIVISIBLE BY DARECL                                                    00142
I - C                                                                                          00143
I -              CALL UNTHOFD(IRC,50.99,IUNIT)                                                 00144
I -              OPEN(UNIT=IUNIT,FILE='//'//FSPEC,STATUS='UNKNOWN',                            00145
I -       >           ACTION='READ',IOSTAT=IOST)                                             00146
I -              IF(IOST.NE.0)                                                                 00147
I -       >        CALL JSERSE (RETN,*9001,8003,0,                                           00148
I -       >        SUF//' UNABLE TO OPEN FILE TO GET RECORD LENGTH',' ')                     00149
I -              INQUIRE(FILE='//'//FSPEC,RECL=IRECL)                                          00150
I -              CLOSE(UNIT=IUNIT)                                                             00151
I -              IF(MOD(IRECL,DARECL).NE.0)                                                    00152
I -       >        CALL JSERSE (RETN,*9001,8003,0,                                           00153
I -       >        SUF//' FILE EXISTS, BUT HAS WRONG CHARACTERISTICS',' ')                   00154
                 GOTO 110                                                           MAT-    2 00155 00143
               ELSE                                                                          00156 00144
D -              CALL JSERSE (RETN,*9001,8003,0,                                   DEL-    5 00157 00145
D -       >      SUF//' FILE EXISTS, BUT HAS WRONG CHARACTERISTICS',' ')                              00146
D -            ENDIF                                                                                00147
D -          ELSE IF (STAT .EQ. NEW) THEN                                                           00148
D -            IF (RC.EQ.3) THEN                                                                    00149
                 EXIST = .FALSE.                                                   MAT-    2 00157 00150
                 GOTO 110                                                                     00158 00151
               ENDIF                                                               INS-    6 00159 00152
I -          ENDIF                                                                            00160
I -                                                                                           00161
I -          IF (STAT .EQ. NEW) THEN                                                          00162
I -            IF (EXST) THEN                                                                 00163
I -              EXIST = .TRUE.                                                               00164
D -            ELSE                                                                DEL-    1 00159 00152
                 CALL JSERSE (RETN,*9001,8004,0,                                   MAT-    2 00165 00153
         >       SUF//' FILE SUPPOSED TO BE NEW, BUT ALREADY EXISTS',' ')                     00166 00154
D -            ENDIF                                                               DEL-    4 00167 00155
D -          ELSE IF (STAT .EQ. OLD) THEN                                                     00156
D -            IF (RC.EQ.0) THEN                                                              00157
D -              EXIST = .TRUE.                                                               00158
                 GOTO 110                                                          MAT-    1 00167 00159
               ELSE                                                                INS-   19 00168 00160
I -              EXIST=.FALSE.                                                                00169
I -              GOTO 110                                                                     00170
I -            ENDIF                                                                          00171
I -          ENDIF                                                                            00172
I -                                                                                           00173
I -          IF (STAT .EQ. OLD) THEN                                                          00174
I -            IF (EXST) THEN                                                                 00175
I -              EXIST = .TRUE.                                                               00176
I -              CALL UNTHOFD(IRC,50.99,IUNIT)                                                00177
I -              OPEN(UNIT=IUNIT,FILE='//'//FSPEC,STATUS='UNKNOWN',                           00178
I -       >           ACTION='READ',IOSTAT=IOST)                                             00179

      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  14
NEW:  T5537.JS.FORT(JSFIFP)                                  OLD:  T8079.JS.FORT(JSFIFP)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
I -              IF(IOST.NE.0)                                                                 00180
I -       >        CALL JSERSE (RETN,*9001,8003,0,                                           00181
I -       >        SUF//' UNABLE TO OPEN FILE TO GET RECORD LENGTH',' ')                     00182
I -              INQUIRE(FILE='//'//FSPEC,RECL=IRECL)                                          00183
I -              CLOSE(UNIT=IUNIT)                                                             00184
I -              IF(MOD(IRECL,DARECL).NE.0)                                                    00185
I -       >        CALL JSERSE (RETN,*9001,8003,0,                                           00186
D -            ELSE IF (RC.NE.3) THEN                                              DEL-    2 00168 00160
D -              CALL JSERSE (RETN,*9001,8003,0,                                             00161
RM-       >        SUF//' FILE EXISTS, BUT HAS WRONG CHARACTERISTICS',' ')           RPM-    1 00167 00162
RO-       >      SUF//' FILE EXISTS, BUT HAS WRONG CHARACTERISTICS',' ')
I -              GOTO 110                                                           INS-    3 00188 00163
I -            ELSE                                                                          00189
I -              EXIST=.FALSE.                                                               00190
               ENDIF                                                               MAT-  147 00191 00163
             ENDIF                                                                           00192 00164
                                                                                             00193 00165
     100  CONTINUE                                                                           00194 00166
                                                                                             00195 00167
    C------- FILE NOT FOUND                                                                  00196 00168
                                                                                             00197 00169
          IPATH=0                                                                            00198 00170
          FILE = ' '                                                                         00199 00171
          RETURN                                                                             00200 00172
*** CHANGE SECTION CUTOFF ****************************
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      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  15
NEW:  T5537.JS.FORT(JSGEMS)                                      OLD:  T8079.JS.FORT(JSGEMS)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
     ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
     *      TAL    = MS(1)                                                                      00122 00122
     *      DAL    = MS(2)                                                                      00123 00123
     *      DSNM   = MS(3)                                                                      00124 00124
     *      CALLER = MS(4)                                                                      00125 00125
     *      CALLEE = MS(5)                                                                      00126 00126
     *      ID     = MS(6)                                                                      00127 00127
     *      IOLIST = MS(7)                                                                      00128 00128
     *                                                                                          00129 00129
     C--------------------------------------------------------------------                     00130 00130
     * CASE ('IBM/MVS')                                                                        00131 00131
I -        INCLUDE (JSPARM)                                                          INS-    1 00132 00132
                                                                                     MAT-    3 00133 00132
           CHARACTER*(*) TAL,DAL,DSNM,CALLER,CALLEE,ID,IOLIST                                  00134 00133
                                                                                               00135 00134
I -        CHARACTER*(MXLNLN) MS(7)                                                  RPL-    1 00136 00135
D -        CHARACTER*8 MS(7)
                                                                                     MAT-    1 00137 00136
I - C  GET UNIT NUMBER                                                               INS-   10 00138 00137
I -        CALL UNTNOFD(IRC,50,99,MSG)                                                         00139
I -        IF(IRC.NE.0) GO TO 9001                                                             00140
I -          OPEN(UNIT=MSG,FILE='BOOTMSG',STATUS='UNKNOWN',                                    00141
I -       >     FORM='UNFORMATTED')                                                            00142
I -          REWIND(UNIT=MSG)                                                                  00143
I - C        WRITE(6,*)' JSGEMS: READING MESSAGE ON UNIT ',MSG                                 00144
I -          READ(MSG) MS                                                                      00145
I -          CLOSE(UNIT=MSG)                                                                   00146
I -                                                                                            00147
D -        CALL JSMVGM (MS)                                                          DEL-    1 00138 00137
           TAL    = MS(1)                                                            MAT-    2 00148 00138
           DAL    = MS(2)                                                                     00149 00139
I -        DSNM   = MS(3)(1:8)                                                      RPL-    5 00150 00140
D -        DSNM   = MS(3)
I -        CALLER = MS(4)(1:8)                                                                 00151 00141
D -        CALLER = MS(4)
I -        CALLEE = MS(5)(1:8)                                                                 00152 00142
D -        CALLEE = MS(5)
I -        ID     = MS(6)(1:8)                                                                 00153 00143
D -        ID     = MS(6)
I -        IOLIST = MS(7)(1:8)                                                                 00154 00144
D -        IOLIST = MS(7)
                                                                                     MAT-    8 00155 00145
     C--------------------------------------------------------------------                     00156 00146
     * END SELECT                                                                             00157 00147
     C--------------------------------------------------------------------                     00158 00148
                                                                                               00159 00149
           RETURN                                                                              00160 00150
     9001  RETURN 1                                                                           00161 00151
           END                                                                                 00162 00152

      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  16
NEW:  T5537.JS.FORT(JSIOTR)                                      OLD:  T8079.JS.FORT(JSIOTR)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
     ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
     C                                 6 - READ RECORD                                           00020 00020
     C                                 7 - WRITE RECORD                                          00021 00021
     C                                 8 - DELETE RECORD OR SUBTREE                              00022 00022
     C                                 9 - LIST SUBTREE                                          00023 00023
     C                                10 - RENAME SUBTREE                                        00024 00024
     C                                11 - COPY RECORD OR SUBTREE                                00025 00025
     C                                12 - SET READ HIERARCHY                                    00026 00026
     C                                13 - MASS (CTSSC only)                                     00027 00027
     C                                14 - FILEDEF (VM only)                                     00028 00028
     C                                15 - ALLOCATE FILE (MVS only)                              00029 00029
I - C                                16 - FORTRAN ALLOCATE (MVS)                       INS-    1 00030 00030
     C   IFLG1     I        i     Depends on OP                                      MAT-    9 00031 00030
     C                                 5 - index in Data Set Table                               00032 00031
     C                                 6 - flags list or no list                                 00033 00032
     C                                 7 - flags list or no list                                 00034 00033
     C                                 9 - flags list or no list                                 00035 00034
     C                                11 - =1 begin copy section                                 00036 00035
     C                                   =2 continue beginning copy section                      00037 00036
     C                                   =3 end copy section                                     00038 00037
     C                                13 - flag success of MASS operation                        00039 00038
I - C                                16 - =0 allocate by dsn                           INS-    2 00040 00039
I - C                                   =1 allocate by ddn                                      00041
     C                               else - ignored                                     MAT-   18 00042 00039
     C   STR       C*(*)    i     Depends on OP                                                 00043 00040
     C                                 1 - STR(1:8) module name                                  00044 00041
     C                                     STR(9:)  module id string                             00045 00042
     C                                 2 - module name                                           00046 00043
     C                                 3 - module name                                           00047 00044
     C                                 4 - STR( 1: 8) parent module name                         00048 00045
     C                                     STR( 9:16) child module name                          00049 00046
     C                                     STR(16:)   file name of child                         00050 00047
     C                                 5 - status of the data set                                00051 00048
     C                                10 - new qualifier                                         00052 00049
     C                                11 - if IFLG1=1, subtree source for copy                   00053 00050
     C                                        IFLG1=2, subtree target for copy                   00054 00051
     C                                   else, ignored                                           00055 00052
     C                                15 - STR( 1: 8) ddname file allocated                      00056 00053
     C                                     STR( 9:52) dsname of file                             00057 00054
     C                                     STR(53:60) STATS of file                              00058 00055
     C                                     STR(61:68) MDISP of file                              00059 00056
I - C                                16 - STR( 1:8 ) STATS of file                     INS-    3 00060 00057
I - C                                     STR( 9:)   DSN if IFLG1=0                             00061
I - C                                                DDN if IFLG1=1                             00062
     C                               else - ignored                                     MAT-   65 00063 00057
     C   IFLG2     I        i     Depends on OP                                                 00064 00058
     C                                 6,8,10,11 - =0 record found                               00065 00059
     C                                             =1 record not found                           00066 00060
     C                                 7         - =1 write successful                         00067 00061
```

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      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  17
NEW:  T5537.JS.FORT(JSIOTR)                                      OLD:  T8079.JS.FORT(JSIOTR)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
    +----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
    C                                      =2 bad record name                                    00068 00062
    C                                 else      - ignored                                         00069 00063
    C   *label                    Error alternate return                                         00070 00064
    C                                                                                            00071 00065
    CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC  00072 00066
*** CHANGE SECTION CUTOFF ******************************

        DATA LISSTR(-1)     /'      '/                                                       00118 00112
       >     LISSTR(NOLIST) /'NOLIST'/                                                       00119 00113
       >     LISSTR(LIST)   /'LIST  '/                                                       00120 00114
       >     FNDSTR(0)      /'        '/                                                    00121 00115
       >     FNDSTR(1)      /'not found'/                                                   00122 00116
       >     FNDSTR(2)      /'bad name '/                                                   00123 00117
       >     DELIM(0)       /':'/                                                           00124 00118
       >     DELIM(1)       /'.'/                                                           00125 00119
       >     DELIM(2)       /'.'/                                                           00126 00120
                                                                                            00127 00121
I -     GOTO (10,20,30,40,50,60,70,80,90,100,110,120,130,140,150,160) OP            RPL=    1 00128 00122
D -     GOTO (10,20,30,40,50,60,70,80,90,100,110,120,130,140,150) OP
        GOTO 9000                                                                   MAT=  216 00129 00123
                                                                                            00130 00124
    C------- BEGIN                                                                          00131 00125
                                                                                            00132 00126
     10   CONTINUE                                                                          00133 00127
          IF (LEN(STR) .EQ. 9 .AND. STR(9:9) .EQ. ' ') THEN                                 00134 00128
            WRITE (IOTLUN,8001,ERR=9004,IOSTAT=IOS)                                         00135 00129
         >    'BEGIN ',STR(1:8),'(no id)',('=',I=1,49)                                      00136 00130
          ELSE                                                                              00137 00131
            WRITE (IOTLUN,8001,ERR=9004,IOSTAT=IOS)                                         00138 00132
*** CHANGE SECTION CUTOFF ******************************

          ENDIF                                                                             00335 00329
          WRITE (IOTLUN,8010,ERR=9004,IOSTAT=IOS)                                           00336 00330
         >   STR(1:8),STR(9:52)(1:JSNLEN(STR(9:52))),DISP(1:LDISP)                         00337 00331
    8010  FORMAT (' DYNAMIC ALLOCATE   //',A,' DD  DSN=',A,',DISP=',A)                     00338 00332
          GOTO 9000                                                                         00339 00333
                                                                                            00340 00334
    C-------------------------------------------------------------                          00341 00335
    * END SELECT                                                                           00342 00336
    C-------------------------------------------------------------------------------       00343 00337
                                                                                            00344 00338
I - 160   CONTINUE                                                              INS=    1 00345 00339
                                                                                 MAT=    1 00346 00339
I - C-------------------------------------------------------------------------  INS=   22 00347 00340
I - * SELECT CASE (SYSTEM)                                                                  00348
I - C-------------------------------------------------------------                          00349
I - * CASE ('IBM/MVS')                                                                      00350
I - C------- FORTRAN ALLOCATE                                                              00351

      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  18
NEW:  T5537.JS.FORT(JSIOTR)                                      OLD:  T8079.JS.FORT(JSIOTR)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
    +----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
I -                                                                                         00352
I -       L1=INDEX(STR(1:8),' ')-1                                                          00353
I -       L2=INDEX(STR(9:) ,' ')-1                                                          00354
I -       IF(IFLG1.EQ.0) THEN                                                               00355
I -         WRITE (IOTLUN,8012,ERR=9004,IOSTAT=IOS) STR(9:9+L2),STR(1:L1)                   00356
I - 8012    FORMAT(' FORTRAN ALLOCATE BY DSNAME. DSNAME=',A,' DISP=',A)                     00357
I -       ELSE                                                                              00358
I -         WRITE (IOTLUN,8013,ERR=9004,IOSTAT=IOS) STR(9:9+L2),STR(1:L1)                   00359
I - 8013    FORMAT(' FORTRAN ALLOCATE BY DDNAME. DDNAME=',A,' DISP=',A)                     00360
I -       ENDIF                                                                             00361
I -       GOTO 9000                                                                         00362
I -                                                                                         00363
I - C-------------------------------------------------------------                          00364
I - * END SELECT                                                                           00365
I - C-------------------------------------------------------------------------------       00366
I -                                                                                         00367
I -                                                                                         00368
    9000  RETURN                                                                MAT=   25 00369 00340
    9001  RETURN 1                                                                        00370 00341
    9004  CALL JSERIO ('WRITE IO trace file',IOTLUN,IOS,RETN,*9001)                       00371 00342
                                                                                          00372 00343
    8001  FORMAT (' === ',A6,1X,A8,' ',A,' ',59A1)                                        00373 00344
    8002  FORMAT (' === ',A6,1X,A8,1X,59('='))                                            00374 00345
    8003  FORMAT (1X,A6,1X,A6,1X,A9,1X,A8,A1,11(A8,'.'),(/34X,11(A8,'.')))               00375 00346
    8004  FORMAT (1X,A6,1X,A6,1X,A8,2X,                                                   00376 00347
         >        'Created: ',A8,1X,A8,2X,'Revised: ',A8,1X,A8/                         00377 00348
    C-------------------------------------------------------------------------------     00378 00349
*** CHANGE SECTION CUTOFF ******************************
```

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       SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  19
NEW:  T5537.JS.FORT(JSMON)                                    OLD:  T8079.JS.FORT(JSMON)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
     ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
     C-------------------------------------------------------------------------                    00135 00135
     * SELECT CASE (SYSTEM)                                                                       00136 00136
     C-------------------------------------------------------------------------                    00137 00137
     * CASE ('VAX/VMS','IBM/VM')                                                                  00138 00138
     *      DATA JSIN,JSTFL,JSDFL /'JSIN','JSSTDT','JSSTDD'/                                      00139 00139
     C-------------------------------------------------------------------------                    00140 00140
     * CASE ('SCS/CTSS','CRAY/CTSS')                                                              00141 00141
     *      data JSIN,JSTFL,JSDFL /'jsin',&hjsstdt  ,&hjsstdd  /                                  00142 00142
     C-------------------------------------------------------------------------                    00143 00143
     * CASE ('IBM/MVS')                                                                           00144 00144
I -       DATA JSIN,JSTFL,JSDFL /'JSIN','JSSTD.JS.J80TREE',                              RPL=    2 00145 00145
D -       DATA JSIN,JSTFL,JSDFL /'JSIN','JSSTD.JS.TREE','JSSTD.JS.DATA'/,
I -      >                       'JSSTD.JS.J80DATA'/,LOC/' '/                                     00146 00146
D -      >     LOC/' '/
     C-------------------------------------------------------------------------          MAT=   11 00147 00147
     * END SELECT                                                                                 00148 00148
     C-------------------------------------------------------------------------                    00149 00149
                                                                                                  00150 00150
     C------------ INITS                                                                         00151 00151
                                                                                                  00152 00152
          JOBCPU = 0.0                                                                            00153 00153
          CALL JSTIOM                                                                             00154 00154
          RUNDAT = JSADAT()                                                                       00155 00155
          RUNTIM = JSATIM()                                                                       00156 00156
          MODNM = 'JSMON   '                                                                      00157 00157
I -       MODUID = 'VERSION 2.6'                                                         RPL=    1 00158 00158
D -       MODUID = 'VERSION 2.5'
          LMODUI = 11                                                                    MAT=  595 00159 00159
          CALL JSERCL                                                                             00160 00160
                                                                                                  00161 00161
     C-------------------------------------------------------------------------                    00162 00162
     * SELECT CASE (SYSTEM)                                                                       00163 00163
     C-------------------------------------------------------------------------                    00164 00164
     * CASE ('IBM/MVS')                                                                           00165 00165
     CC---- TURN OFF MESSAGE PRINTED WHEN NEW DIRECT ACCESS FILE IS FORMATTED                      00166 00166
          CALL ERRSET (151,256,-1,1)                                                              00167 00167
     C-------------------------------------------------------------------------                    00168 00168
*** CHANGE SECTION CUTOFF ****************************

          GOTO 9111                                                                               00744 00744
     9110   CALL JSFREM  (DFOLUN,T,1)                                                           00745 00745
     9111 CONTINUE                                                                                00746 00746
                                                                                                  00747 00747
     C-------------------------------------------------------------------------                    00748 00748
     * SELECT CASE (SYSTEM)                                                                       00749 00749
     C-------------------------------------------------------------------------                    00750 00750
     * CASE ('IBM/MVS')                                                                           00751 00751
                                                                                                  00752 00752

       SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  20
NEW:  T5537.JS.FORT(JSMON)                                    OLD:  T8079.JS.FORT(JSMON)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
     ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
     CC---- DEALLOCATE ALL THE JOSHUA DATASETS                                                    00753 00753
I - CANDY  NOT NEEDED, AS FORTRAN IO LIB TAKES CARE OF IT                                INS=    1 00754 00754
                                                                                         MAT=    1 00755 00754
I - C     DO 100 I = 1,JDSCT                                                             RPL=    4 00756 00755
D -       DO 100 I = 1,JDSCT
I - C       CALL JSMVUN (JDSTAL(I)(1:8))                                                        00757 00756
D -         CALL JSMVUN (JDSTAL(I)(1:8))
I - C       CALL JSMVUN (JDSDAL(I)(1:8))                                                        00758 00757
D -         CALL JSMVUN (JDSDAL(I)(1:8))
I - C100  CONTINUE                                                                            00759 00758
D -  100  CONTINUE
                                                                                         MAT=   73 00760 00759
     C------------ DEALLOCATE THE DATA SETS ON THE MODULE PATH                                   00761 00760
                                                                                                  00762 00761
          DO 110 I = 1,NFPATH(1)                                                                  00763 00762
            CALL JSMVUN (MODULE_PATH_DD(I))                                                       00764 00763
      110 CONTINUE                                                                                00765 00764
                                                                                                  00766 00765
     C-------------------------------------------------------------------------                    00767 00766
     * END SELECT                                                                                 00768 00767
     C-------------------------------------------------------------------------                    00769 00768
*** CHANGE SECTION CUTOFF ****************************
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      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  21
NEW:  T5537.JS.FORT(JSOPDS)                                  OLD:  T8079.JS.FORT(JSOPDS)

ID      SOURCE LINES                                                                  TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
        *     INCLUDE 'JSPARM.INC'                                                              00036 00036
        *     INCLUDE 'JSDATA.INC'                                                              00037 00037
        *     INCLUDE 'JSJDST.INC'                                                              00038 00038
        *     INCLUDE 'JSSTAT.INC'                                                              00039 00039
        C-------------------------------------------------------------------                    00040 00040
        * CASE ('IBM/MVS')                                                                     00041 00041
              INCLUDE (JSPARM)                                                                00042 00042
              INCLUDE (JSDATA)                                                                00043 00043
              INCLUDE (JSJDST)                                                                00044 00044
              INCLUDE (JSSTAT)                                                                00045 00045
I -           PARAMETER(NBUF=10)                                                    INS=    1 00046 00046
        C-------------------------------------------------------------------      MAT=   22 00047 00046
        * END SELECT                                                                          00048 00047
        C-------------------------------------------------------------------                  00049 00048
                                                                                             00050 00049
              INTEGER IJDS                                                                   00051 00050
                                                                                             00052 00051
        C-------------------------------------------------------------------                  00053 00052
        * SELECT CASE (SYSTEM)                                                               00054 00053
        C-------------------------------------------------------------------                  00055 00054
        * CASE ('SCS/CTSS')                                                                  00056 00055
*** CHANGE SECTION CUTOFF ******************************

        * END SELECT                                                                         00059 00058
        C-------------------------------------------------------------------                  00060 00059
                                                                                             00061 00060
        C-------- GET UNIT NUMBERS                                                           00062 00061
                                                                                             00063 00062
              CALL JSGEUN (JDSTUN(IJDS),*9005)                                               00064 00063
              CALL JSGEUN (JDSDUN(IJDS),*9005)                                               00065 00064
                                                                                             00066 00065
        C-------- OPEN                                                                       00067 00066
                                                                                             00068 00067
I - C         WRITE(6,111) JDSTAL(IJDS),JDSDAL(IJDS)                                INS=    3 00069 00068
I - C111      FORMAT(' IN JSOPDS: OPEN ',A45)                                               00070
I -           CALL FILEINF(IERR,'BUFNO',NBUF)                                               00071
              CALL JSOPDA (JDSTUN(IJDS),JDSTAL(IJDS),OLD,TRRECL/RECLLN,              MAT=    2 00072 00068
             >             JDSFRO(IJDS),*9003)                                             00073 00069
I -           CALL FILEINF(IERR,'BUFNO',NBUF)                                       INS=    1 00074 00070
              CALL JSOPDA (JDSDUN(IJDS),JDSDAL(IJDS),OLD,DARECL/RECLLN,             MAT=   46 00075 00070
             >             JDSFRO(IJDS),*9003)                                             00076 00071
                                                                                             00077 00072
        C-------- GET VALUES FOR TREE AND DATA FILE 'ENDS'                                   00078 00073
                                                                                             00079 00074
              READ (JDSTUN(IJDS),REC=1,ERR=9006,IOSTAT=IOS)                                  00080 00075
             >      JDSTEN(IJDS),JDSDEN(IJDS),                                             00081 00076
             >      JDSCDA(IJDS),JDSCTI(IJDS),JDSRDA(IJDS),JDSRTI(IJDS),                   00082 00077
             >      JDSLCO(IJDS),JDSCOM(IJDS)                                              00083 00078

      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  22
NEW:  T5537.JS.FORT(JSOPDS)                                  OLD:  T8079.JS.FORT(JSOPDS)

ID      SOURCE LINES                                                                  TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
              IF (JDSTEN(IJDS) .LT. 0  .OR. JDSDEN(IJDS) .LT. 0)                             00084 00079
*** CHANGE SECTION CUTOFF ******************************
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      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE    23
NEW:  T5537.J8.FORT(JSOPXX)                                  OLD:  T8079.J8.FORT(JSOPXX)

                    LISTING OUTPUT SECTION (LINE COMPARE)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
    C------------------------------------------------------------------                          00097 00097
    * CASE ('IBM/MVS','IBM/VM')                                                                 00098 00098
          CHARACTER*(MXINCH) CIOS                                                               00099 00099
    CC    CHARACTER*8 DDNAME,FF                                                                 00100 00100
          LOGICAL DDEXIS,FIEXIS,OPENED                                                          00101 00101
    CC    DATA FF /$FFFFFFFFFFFFFFFF/                                                           00102 00102
    C------------------------------------------------------------------                          00103 00103
    * END SELECT                                                                               00104 00104
    C==================================================================                          00105 00105
                                                                                                00106 00106
I -       CHARACTER*9 ACTION                                                          INS=    1 00107 00107
          DATA ACCESS /'DIRECT    ','SEQUENTIAL'/                                     MAT=  118 00108 00107
                                                                                                00109 00108
          ENTRY JSOPDA (LUN,FILE,STAT,RECL,PRO,*)                                               00110 00109
                                                                                                00111 00110
          FLG = DIR                                                                             00112 00111
          GOTO 1                                                                                00113 00112
                                                                                                00114 00113
          ENTRY JSOPSQ (LUN,FILE,STAT,APND,PRO,*)                                               00115 00114
                                                                                                00116 00115
          FLG = SEQ                                                                             00117 00116
*** CHANGE SECTION CUTOFF ****************************

    *                                                                                           00216 00215
    *9003 call JSCVIC (ios,cios,lcios)                                                         00217 00216
    *     call JSERSE (RETN,*9002,1187,0,                                                       00218 00217
    *    >'SYSTEM ERROR, IOSTAT = '//cios(1:lcios)//'\',' ')                                    00219 00218
    *                                                                                          00220 00219
    *9004 call JSERIO ('WRITE to newly opened file',LUN,IOS,RETN,*9002)                        00221 00220
    *                                                                                          00222 00221
    C------------------------------------------------------------------                          00223 00222
    * CASE ('IBM/MVS','IBM/VM')                                                                 00224 00223
          IF (LUN.EQ.6) RETURN                                                                  00225 00224
I -       IF(PRO.EQ.1) THEN                                                           INS=    5 00226 00225
I -         ACTION='READ'                                                                       00227
I -       ELSE                                                                                  00228
I -         ACTION='READWRITE'                                                                  00229
I -       ENDIF                                                                                 00230
          IF (FLG .EQ. SEQ) THEN                                                      MAT=    1 00231 00225
I - C       WRITE (6,2) LUN,STAT,ACTION,FILE                                          INS=    5 00232 00226
I - C 2     FORMAT (' JSOPSQ: UNIT=',I2,' STATUS=',A8,' PROT=',A9,' FILE=',                     00233
I - C    >          A56)                                                                      00234
I -         OPEN (LUN,FILE=FILE,STATUS='UNKNOWN',ACTION=ACTION,                               00235
I -      >        ERR=9003,IOSTAT=IOS)                                                        00236
D -         OPEN (LUN,FILE=FILE,STATUS='UNKNOWN',ERR=9003,IOSTAT=IOS)                 DEL=    1 00232 00226
            IF (STAT .EQ. NEW) REWIND (LUN,ERR=9003,IOSTAT=IOS)                       MAT=    2 00237 00227
          ELSE                                                                                  00238 00228
I - C       WRITE (6,3) LUN,STAT,ACTION,FILE,RECL                                     INS=    4 00239 00229

      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  24
NEW:  T5537.J8.FORT(JSOPXX)                                  OLD:  T8079.J8.FORT(JSOPXX)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
I - C 3     FORMAT (' JSOPDA: UNIT=',I2,' STATUS=',A8,' PROT=',A9,' FILE=',                     00240
I - C    >          A56,/'   RECL=',I5)                                                       00241
I - C       WRITE(6,*)'JSOPXX: RECL,EXIST',RECL,EXIST                                         00242
            OPEN (LUN,FILE=FILE,STATUS=STAT,ACCESS='DIRECT',RECL=RECL,                MAT=    1 00243 00229
I -      >        ACTION=ACTION,ERR=9003,IOSTAT=IOS)                                  RPL=    1 00244 00230
D -      >        ERR=9003,IOSTAT=IOS)
          ENDIF                                                                       MAT=    1 00245 00231
D -                                                                                   DEL=    3 00246 00232
D - CC    WRITE (*,2) 'OPEN UNIT=',LUN,' FILE=',FILE(1:8),' STATUS=',STAT                       00233
D - CC2   FORMAT (1X,A,I3,A,A,A,A)                                                              00234
                                                                                      MAT=    4 00246 00235
          RETURN                                                                              00247 00236
                                                                                              00248 00237
     9003 CALL JSCVIC (IOS,CIOS,LCIOS)                                                        00249 00238
I -       CALL JSERSE (RETN,*9002,1187,0,                                           RPL=    1 00250 00239
D -       call JSERSE (RETN,*9002,1187,0,
         >'SYSTEM ERROR, IOSTAT = '//CIOS(1:LCIOS)//'\',' ')                        MAT=   86 00251 00240
                                                                                              00252 00241
    C------------------------------------------------------------------                        00253 00242
    * END SELECT                                                                             00254 00243
    C==================================================================                        00255 00244
                                                                                              00256 00245
                                                                                              00257 00246
    C*BEGIN*SYSTEM*DEPENDENT* VM ************************************                         00258 00247
    CC                                                                                        00259 00248
    CC    DDNAME = FILE                                                                       00260 00249
*** CHANGE SECTION CUTOFF ****************************
```

```
      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  25
NEW:  T5537.JS.FORT(JSPUMS)                                      OLD:  T8079.JS.FORT(JSPUMS)

ID      SOURCE LINES                                                                          TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
    C   TAL       C*(*)     i     Allocation name of tree file for SYSCRAT                          00014 00014
    C   DAL       C*(*)     i     Allocation name of data file for SYSCRAT                          00015 00015
    C   DSNM      C*(*)     i     Data set name of SYSCRAT                                          00016 00016
    C   CALLER    C*(*)     i     Name of parent module                                             00017 00017
    C   CALLEE    C*(*)     i     Name of child module (being called)                               00018 00018
    C   ID        C*(*)     i     Id (timestamp) of child module                                    00019 00019
    C   IOLIST    C*(*)     i     IOLIST option, 'Y' for LIST, 'N' for none                         00020 00020
    C   MS        I         o     VMS:  Not used                                                    00021 00021
    C             I         o     CTSS: Integer array w/ Hollerith message                          00022 00022
    C             C*8       o     VM:   C*8 array w/ message for child                              00023 00023
I - C             C*56      o     MVS:  C*56 array w/ message for child                   RPL=   1  00024 00024
D - C             C*8       o     MVS:  C*8 array w/ message for child
    C   *label                     Error alternate return                                  MAT=  77  00025 00025
    C                                                                                               00026 00026
    C PROGRAM LOGIC:                                                                                00027 00027
    C                                                                                               00028 00028
    C     VMS:  Place pieces of the message into a single logical Names                             00029 00029
    C     CTSS: Install character message pieces in integer array                                   00030 00030
    C     VM:   Install character message pieces in C*8 array                                       00031 00031
    C     MVS:  Install character message pieces in C*8 array                                       00032 00032
    C                                                                                               00033 00033
    CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC  00034 00034
*** CHANGE SECTION CUTOFF ****************************

    *     ms(2) = TAL                                                                               00092 00092
    *     ms(3) = DAL                                                                               00093 00093
    *     ms(4) = DSNM                                                                              00094 00094
    *     ms(5) = CALLER                                                                            00095 00095
    *     ms(6) = bool (CALLEE)                                                                     00096 00096
    *     ms(7) = bool (ID)                                                                         00097 00097
    *     ms(8) = bool (IOLIST)                                                                     00098 00098
    *                                                                                               00099 00099
    C-------------------------------------------------------------------------                      00100 00100
    * CASE ('IBM/MVS','IBM/VM')                                                                     00101 00101
I -       INCLUDE (JSPARM)                                                          INS=   1  00102 00102
                                                                                    MAT=   3  00103 00102
          CHARACTER*(*) TAL,DAL,DSNM,CALLER,CALLEE,ID,IOLIST                                        00104 00103
                                                                                                    00105 00104
I -       CHARACTER*(MXANLN) MS(7)                                                  RPL=   1  00106 00105
D -       CHARACTER*8 MS(*)
                                                                                    MAT=   8  00107 00106
          MS(1) = TAL                                                                               00108 00107
          MS(2) = DAL                                                                               00109 00108
          MS(3) = DSNM                                                                              00110 00109
          MS(4) = CALLER                                                                            00111 00110
          MS(5) = CALLEE                                                                            00112 00111
          MS(6) = ID                                                                                00113 00112
          MS(7) = IOLIST                                                                            00114 00113

      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  26
NEW:  T5537.JS.FORT(JSPUMS)                                      OLD:  T8079.JS.FORT(JSPUMS)

ID      SOURCE LINES                                                                          TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
I - C  GET UNIT NUMBER                                                          INS=  10  00115 00114
I -       CALL UNTNOFD(IRC,50,99,MSG)                                                           00116
I -       IF(IRC.NE.0) GO TO 9001                                                               00117
I -       CALL FILEINF(IRC,'RECFM','F','LRECL',400)                                             00118
I -       OPEN(UNIT=MSG,FILE='BOOTMSG',STATUS='UNKNOWN',                                        00119
I -      >     FORM='UNFORMATTED')                                                              00120
I -       REWIND(UNIT=MSG)                                                                      00121
I - C     WRITE(6,*)' JSPUMS: WRITING MESSAGE ON UNIT ',MSG                                     00122
I -       WRITE(MSG) MS                                                                         00123
I -       CLOSE(UNIT=MSG)                                                                       00124
D -                                                                             DEL=   1  00115 00114
    C-------------------------------------------------------------------------  MAT=   7  00125 00115
    * END SELECT                                                                                00126 00116
    C=========================================================================                  00127 00117
                                                                                                00128 00118
          RETURN                                                                                00129 00119
    9001  RETURN 1                                                                              00130 00120
          END                                                                                   00131 00121
```

```
      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  27
NEW:  T5537.JS.FORT(JSWRBF)                                  OLD:  T8079.JS.FORT(JSWRBF)

ID      SOURCE LINES                                                                  TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
    *     common /jsncoc/icioc,lociob                                                                00060 00060
    *     pointer (lociob,iob)                                                                       00061 00061
    C-------------------------------------------------------------------------                       00062 00062
    * CASE ('IBM/VM')                                                                               00063 00063
    *     CHARACTER*(DARECL) MOVBUF                                                                  00064 00064
    *     INTEGER REWRIT                                                                             00065 00065
    *     CHARACTER*8 ERR232                                                                         00066 00066
    C-------------------------------------------------------------------------                       00067 00067
    * CASE ('IBM/MVS')                                                                              00068 00068
          CHARACTER*(DARECL) MOVBUF                                                                  00069 00069
I -       CHARACTER*8 ERR232,ERR167                                                  RPL=    1 00070 00070
D -       CHARACTER*8 ERR232
    C-------------------------------------------------------------------------      MAT=   24 00071 00071
    * END SELECT                                                                                    00072 00072
    C=========================================================================                      00073 00073
                                                                                                    00074 00074
    C=========================================================================                      00075 00075
    * SELECT CASE (SYSTEM)                                                                          00076 00076
    C-------------------------------------------------------------------------                       00077 00077
    * CASE ('SCS/CTSS')                                                                             00078 00078
    *     INTEGER  JSHDAT,JSHTIM                                                                     00079 00079
    *     EXTERNAL JSHDAT,JSHTIM                                                                     00080 00080
*** CHANGE SECTION CUTOFF ****************************

    C-------------------------------------------------------------------------                       00085 00085
    * END SELECT                                                                                    00086 00086
    C=========================================================================                      00087 00087
                                                                                                    00088 00088
    C=========================================================================                      00089 00089
    * SELECT CASE (SYSTEM)                                                                          00090 00090
    C-------------------------------------------------------------------------                       00091 00091
    * CASE ('IBM/MVS','IBM/VM')                                                                     00092 00092
          CALL ERRSAV (232,ERR232)                                                                  00093 00093
          CALL ERRSET (232,256,-1,1)                                                                00094 00094
I -       CALL ERRSAV (167,ERR167)                                                   INS=    2 00095 00095
I -       CALL ERRSET (167,256,-1,1)                                                              GG0096
    C-------------------------------------------------------------------------      MAT=  104 00097 00095
    * END SELECT                                                                                    00098 00096
    C=========================================================================                      00099 00097
                                                                                                    00100 00098
    C------- IF NECESSARY, MOVE RECORD SO FAR TO THE END OF THE DATA FILE                           00101 00099
                                                                                                    00102 00100
    5     CONTINUE                                                                                  00103 00101
                                                                                                    00104 00102
          IF (IORBG(WW)+IORCT(WW) .LE. JDSDEN(IODS(WW)) .AND.                                       00105 00103
         >    IORCT(WW) .EQ. IOMXR(WW)) THEN                                                       00106 00104
*** CHANGE SECTION CUTOFF ****************************

      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.00              PAGE  28
NEW:  T5537.JS.FORT(JSWRBF)                                  OLD:  T8079.JS.FORT(JSWRBF)

ID      SOURCE LINES                                                                  TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
    C=========================================================================                      00191 00189
                                                                                                    00192 00190
          IOP(WW) = MAX(1,1 + K)                                                                    00193 00191
    C     CALL JSFILL (' ',IOBFLN-IOP(WW)+1,IOBUF(WWX+IOP(WW)-1))                                   00194 00192
                                                                                                    00195 00193
    C=========================================================================                      00196 00194
    * SELECT CASE (SYSTEM)                                                                          00197 00195
    C-------------------------------------------------------------------------                       00198 00196
    * CASE ('IBM/MVS','IBM/VM')                                                                     00199 00197
          CALL ERRSTR (232,ERR232)                                                                  00200 00198
I -       CALL ERRSTR (167,ERR167)                                                   INS=    1 00201 00199
    C-------------------------------------------------------------------------      MAT=   13 00202 00199
    * END SELECT                                                                                    00203 00200
    C=========================================================================                      00204 00201
                                                                                                    00205 00202
          RETURN                                                                                    00206 00203
                                                                                                    00207 00204
    9001  CONTINUE                                                                                  00208 00205
                                                                                                    00209 00206
    C=========================================================================                      00210 00207
    * SELECT CASE (SYSTEM)                                                                          00211 00208
    C-------------------------------------------------------------------------                       00212 00209
    * CASE ('IBM/MVS','IBM/VM')                                                                     00213 00210
          CALL ERRSTR (232,ERR232)                                                                  00214 00211
I -       CALL ERRSTR (167,ERR167)                                                   INS=    1 00215 00212
    C-------------------------------------------------------------------------      MAT=   78 00216 00212
    * END SELECT                                                                                    00217 00213
    C=========================================================================                      00218 00214
                                                                                                    00219 00215
          RETURN 1                                                                                  00220 00216
                                                                                                    00221 00217
    9002  CALL JECVIC (IORBG(WW)+1,CREC,LCREC)                                                      00222 00218
          CALL JSERIO ('READ data file for data set '//JDSNM(IODS(WW))//                            00223 00219
         >'\REC='//CREC(1:LCREC),JDSDUN(IODS(WW)),IOS,RETH,*9001)                                   00224 00220
                                                                                                    00225 00221
*** CHANGE SECTION CUTOFF ****************************
```

Appendix B

Include File Differences Listing

```
      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.03              PAGE     1
NEW:  T5537.J8.INCLUDE(JSPARM)                                OLD:  T8079.J8.INCLUDE(JSPARM)

                    LISTING OUTPUT SECTION (LINE COMPARE)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
    *    >          MXINCR=11,  MXRLCR=15,  MXDPCR=24,                                          00213 00213
    *    >          RECLLN=1,   TRRECL=512, DARECL=512,                                         00214 00214
    *    >          MXFWLN=24,  MXAWLN=0,   MXPALN=1,   MXSFLN=1,                               00215 00215
    *    >          N1LN=4,N2LN=8,CHLN=1,MXLN=8,                                                00216 00216
    *    >          MXDMLN=DARECL-3*N1LN)                                                       00217 00217
    C---------------------------------------------------------------                          00218 00218
    * CASE ('IBM/MVS')                                                                        00219 00219
         PARAMETER (MXINTG=(2**30-1)+2*30,                                                   00220 00220
        >          MXINCR=11,  MXRLCR=15,  MXDPCR=24,                                       00221 00221
        >          RECLLN=1,   TRRECL=512, DARECL=512,                                      00222 00222
I -     >          MXFWLN=44,  MXAWLN=45,  MXPALN=MXFWLN, MXSFLN=8,                 RPL=    1 00223 00223
D -     >          MXFWLN=44,  MXAWLN=8,   MXPALN=MXFWLN, MXSFLN=5,
        >          N1LN=4,N2LN=8,CHLN=1,MXLN=8,                                     MAT=   10 00224 00224
        >          MXDMLN=DARECL-3*N1LN)                                                    00225 00225
    C---------------------------------------------------------------                      00226 00226
    * END SELECT                                                                          00227 00227
    C-------------------------------------------------------------------                 00228 00228
                                                                                         00229 00229
         INTEGER MXTIME,MNTIME,TRNDLN,TRNDCT,TRNDBG,MXRRCT,MXQUAL,MXFAST,                00230 00230
        >        MNLUN,MXLUN,TMOLUN,MXDSCT,MXTRCT,FANDCT,MXPACT,                         00231 00231
        >        MXDSCO,MXUIDL,MXJRLN,MXUSML,MXNSDS                                      00232 00232
                                                                                         00233 00233
I - C-------------------------------------------------------------------------          INS=    4 00234 00234
I - * SELECT CASE (SYSTEM)                                                               00235
I - C---------------------------------------------------------------                     00236
I - * CASE ('IBM/MVS')                                                                   00237
         PARAMETER (MXTIME=MXINTG-1, MNTIME=-MXTIME,                                 MAT=    4 00238 00234
        >          TRNDLN=8*CHLN+2*N1LN, TRNDCT=TRRECL/TRNDLN, TRNDBG=2,                    00239 00235
        >          MXDSCT=32, MXRRCT=8,    MXQUAL=13, MXFAST=5,                             00240 00236
        >          MNLUN=54,  MXLUN=99,    TMOLUN=50,                                       00241 00237
I -     >          MXTACT=50, FANDCT=300, MXPACT=10,                                RPL=    1 00242 00238
D -     >          MXTRCT=20, FANDCT=300, MXPACT=10,
        >          MXDSCO=80, MXUIDL=64,  MXJRLN=9*MXQUAL, MXUSML=80,               MAT=    2 00243 00239
        >          MXNSDS=15)                                                               00244 00240
I - C-------------------------------------------------------------------------          INS=   13 00245 00241
I - * CASE DEFAULT                                                                       00246
I - *                                                                                    00247
I - *    PARAMETER (MXTIME=MXINTG-1, MNTIME=-MXTIME,                                     00248
I - *    >          TRNDLN=8*CHLN+2*N1LN, TRNDCT=TRRECL/TRNDLN, TRNDBG=2,                00249
I - *    >          MXDSCT=32, MXRRCT=8,    MXQUAL=13, MXFAST=5,                         00250
I - *    >          MNLUN=54,  MXLUN=99,    TMOLUN=50,                                   00251
I - *    >          MXTRCT=20, FANDCT=300, MXPACT=10,                                    00252
I - *    >          MXDSCO=80, MXUIDL=64,  MXJRLN=9*MXQUAL, MXUSML=80,                   00253
I - *    >          MXNSDS=15)                                                           00254
I - C---------------------------------------------------------------                     00255
I - * END SELECT                                                                        00256
I - C-------------------------------------------------------------------                 00257
                                                                                 MAT=  126 00258 00241

      SUPERC - FILE/LINE/WORD/BYTE COMPARE PGM - V2.7(87/03/27)   91/03/12     9.03              PAGE     2
NEW:  T5537.J8.INCLUDE(JSPARM)                                OLD:  T8079.J8.INCLUDE(JSPARM)

ID      SOURCE LINES                                                                    TYPE  LEN N-LN# O-LN#
    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
         INTEGER MXIOB,IOBFLN,RR,WW,RT,RRX,WWX,RTX                                           00259 00242
         PARAMETER (MXIOB=3,                                                                 00260 00243
        >          IOBFLN=DARECL+MXLN,                                                      00261 00244
        >          RR=1,                                                                    00262 00245
        >          WW=2,                                                                    00263 00246
        >          RT=3,                                                                    00264 00247
        >          RRX=(RR-1)*IOBFLN+1,                                                     00265 00248
        >          WWX=(WW-1)*IOBFLN+1,                                                     00266 00249
        >          RTX=(RT-1)*IOBFLN+1)                                                     00267 00250
*** CHANGE SECTION CUTOFF ****************************

    *    >          TERMO  = 'J8TERMO ',                                                    00374 00357
    *    >          MSUFIX = ' ',                                                           00375 00358
    *    >          TSUFIX = 'T',                                                           00376 00359
    *    >          DSUFIX = 'D')                                                           00377 00360
    C---------------------------------------------------------------                      00378 00361
    * CASE ('IBM/MVS')                                                                    00379 00362
         CHARACTER*8 TERMI,TERMO                                                         00380 00363
         PARAMETER (TERMI  = 'J8TERMI ',                                                 00381 00364
        >          TERMO  = 'J8TERMO ',                                                  00382 00365
        >          MSUFIX = ' ',                                                         00383 00366
I -     >          TSUFIX = '.J80TREE',                                             RPL=    2 00384 00367
D -     >          TSUFIX = '.TREE',
I -     >          DSUFIX = '.J80DATA')                                                  00385 00368
D -     >          DSUFIX = '.DATA')
    C---------------------------------------------------------------                      00386 00369
    * END SELECT                                                                         00387 00370
    C-------------------------------------------------------------------                 00388 00371
                                                                                         00389 00372
```