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*                                                                    *
*  I M P O R T A N T   N O T E:        STANDARD LIBRARY CHANGES      *
*                                                                    *
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(Member JBIMPNOT on JADEPR.TEXT)
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--->>> As discussed in the JADE Computer meeting 17/10 (and also in JADE Computer Note 66), the many changes to the tracking and smearing routines will now be implemented as standard. These updated (and in some cases totally new) routines were up to now residing on the libraries F22ELS.JMC.S1 and F22ELS.JMC.L1. They have been subjected to tests and should now be released. We propose that this change take place on

THURSDAY 20 OCT. 1983, at about 09.00 - 10.00
****

The change will consist of renaming the following libraries:

F22ELS.JMC.S	---->	F22ELS.JMC.S0
F22ELS.JMC.L	---->	F22ELS.JMC.L0
F22ELS.JMC.S1	---->	F22ELS.JMC.S
F22ELS.JMC.L1	---->	F22ELS.JMC.L

In addition, some routines on F11LHO.JADEGS and F11LHO.JADEGL have to be updated:

EVREAD and EVWRIT: The common /CADMIN/, which is Block Data set in EVREAD, is extended. A bug in EVWRIT (see JCN 66) has been removed.

RDMTCO: This is a copy of the smearing routines on JMC.S and JMC.L; It is also kept on JADEGS and JADEGL to save the general user the trouble of linking JMC.L in standard reading jobs.

JBOVER: This JCL member does the linking of JADE Graphics Modules. The overlay structure has changed in the "RD" branch, some of the previous routines do not exist any more and there are others which are new. There are also some minor changes in other branches. Users with private versions of JBOVER should update them. Note that the standard overlay is now kept in a MACRO, in such a way that private additions are possible.

SUPERV: The general Block Data in this routine has been changed to conform to the corrected errors in BLDAT (see JCN 66).

There are a number of changes to routines on the present JMC.S1 and JMC.L1, which are not mentioned in JADE Computer Note 66. Many of them will be explained in the forthcoming J.C. Note 69 by C. Bowdery, in particular those changes which concern the traceback possibilities now offered. Of immediate importance are the following:

1. The subroutine MUCONW is no longer kept on JMC.S and JMC.L. It is called by WRTMCB to write out the second "Muon Constants Record". Any tracking job must therefore link the library F22ALL.JADEMUL, which is the proper library for muon routines.

2. COMMON /CPROD/ has been extended in dimensions for produced and final particles and now has the appearance shown below. Hopefully this will be big enough to accomodate any exotic physics until a more satisfactory solution for 4-vector formats has been found (as discussed in recent JADE Computer Meetings). The reason for the NP dimension being bigger than the NF one is explained in Computer Note 69. For tracking jobs that read 4-vector events as input data this change of dimensions does not matter. For "merged" jobs, with generation and tracking in the same step, adjustment of private versions of /CPROD/ may be necessary.


```
      COMMON/CPROD/ NEV,BEAM,PT,IPHI,ITHETA,IFLAVR,
     *        NP,NC,NN,PP(4,500),XM(500),JCH(500),JTP(500),JP(500,2),
     *        NF,NCF,NNF,IPF(4,300),IXMF(300),ICF(300),ITF(300),
     *              IPSTRT(3,300)
```

3. In the near future other changes will be implemented in the tracking program, as were also discussed in the above mentioned meeting. This would e.g. be the instalment of the simulation routines for hadronic interactions in leadglass (J.Kanzaki); the instalment could not yet be done, due to an unreadable tape.

--->>> On the present version of JMC.S1 is also kept a copy of the main program for the TP-step, @TPMAIN and the associated JCL-member #TPMAINC. The logical error in this routine, which was described in JCN 66, has been repaired. The change consists in calling the subroutines EVREAD and EVWRIT instead of BREAD and BWRITE. Another error has also been repaired: the subroutines INPATR and INPATC, which are pattern recognition initialization routines, are now called in correct sequence. The same changes will be made on these members on the TP-libraries, F22YAM.TPSOURCE and F22YAM.TPLOAD. Users with private versions of @TPMAIN are strongly urged to update them, since the error in INPATC,INPATR calling sequence will cause reduced resolution of charged track momentum.
Furthermore, the subr. TPINIT will be updated. It contains the same Block Data as SUPERV and BLDAT. As inspection shows, this third version is seriously outdated, with magnetic field and Lorentz angle opposite to the tracking program. However, this does not matter for MC events, since these values are updated from the MTCO event in the beginning of the data set (see JCN 66). For real data, these values are updated by KALIBR.

--->>> Some recent development of software for the Tagging detectors will also be made standard at the above mentioned time. This affects primarily the graphics program, which now has several display options for the 1983 version of the tagging system. For this, some new Commons has been installed as Macros on the JADE Macro library (F11GOD.PATRECSR) :

```
C---------  MACRO CGEO2COM       GEOMETRY OF FORWARD DETECTOR   -------
C
C---  LEAD GLASS BLOCKS
C     FENDC:  WIDTH (AND HEIGHT) OF BLOCKS
C     XYHOL1: DISTANCE FROM BEAM CENTRE TO EDGE OF FIRST
C             HORIZONTAL BLOCK
C     XYHOL2: DISTANCE FROM BEAM CENTRE TO EDGE OF FIRST
C             VERTICAL BLOCK
C     BLDPFW: DEPTH OF BLOCKS
C     ZMINBL: DISTANCE FROM INTERACTION POINT TO FRONT SURFACE
C             OF LEAD GLASS BLOCKS (-Z-DIRECTION, PLUTO/CELLO)
C     ZPLUBL: DISTANCE FROM INTERACTION POINT TO FRONT SURFACE
C             OF LEAD GLASS BLOCKS (+Z-DIRECTION, MARK J)
C---  LUMONITORS
C     XSC:    LENGTH OF LONG EDGE (1: A-COUNTER, 2: B-COUNTER)
C     YSC:    LENGTH OF SHORT EDGE
C     RSC:    DISTANCE FROM BEAM CENTRE TO CENTRE OF INNERMOST LONG
C             EDGE ON A-COUNTER
C     ZMISC:  DISTANCE FROM INTERACTION POINT TO FRONT SURFACE OF
C             LUMONITOR (-Z-DIRECTION, TOWARDS PLUTO/CELLO)
C     ZPLSC:  DISTANCE FROM INTERACTION POINT TO FRONT SURFACE OF
C             LUMONITOR (+Z-DIRECTION, TOWARDS MARK J)
C     DZSC:   THICKNESS OF LUMONITORS
C
C---  DRIFT CHAMBERS
C
C  CHX(I,J): XPOSITION OF WIRE 0 IN CHAMBER I (1-3) IN PLANE J (1-4)
C  CHY AND CHZ ANALOGOUS.     WLEN IS SENSITIVE LENGTH OF WIRES
```

```
C  PITCH IS WIRE DISTANCE IN XY-PLANE, WZDIS DISTANCE IN Z BETWEEN
C  THE ODD AND EVEN WIRE PLANES
C  WIRE 0 IS CLOSEST TO THE BEAM LINE
C  PRESENT DATA SETTING OF WIRES BASED ON "EDUCATED GUESSES"
C
C     ALL VALUES IN MM      BLOCK DATA SETTING IN SUBR. SUPERV
C
C     DATA FENDC/81./,XYHOL1,XYHOL2/141.,151.5/,BLDPFW/400./,
C    1 ZMINBL,ZPLUBL /-5250.,5250./,
C    2 XSC /230.,150./, YSC /150.,70./, RSC /152.48,192.48/,
C    3 ZMISC/-4235.,-4135./, ZPLSC/4235.,4135./, DZSC/6./,
C    4 CHX/140.,-400.,-140.,140.,-400.,-140.,
C    5 140.,-400.,-140.,140.,-400.,-140./,
C    6 CHY /-400.,140.,-400.,-400.,140.,-400.,
C    7 -400.,140.,-400.,-400.,140.,-400./,
C    8 CHZ /-4770.,-4720.,-4770.,-4020.,-3970.,-4020.,
C    9 4020.,3970.,4020.,4770.,4720.,4770./,
C    A WLEN/800./, PITCH /25./, WZDIS/10./
C
C------ END MACRO CGEO2COM

C-----------------------------------------------------------------------
C             MACRO CGEO2 .... JADE FORWARD DETECTOR GEOMETRY
C-----------------------------------------------------------------------
      COMMON /CGEO2/ FENDC,XYHOL1,XYHOL2,BLDPFW,ZMINBL,ZPLUBL
     1,XSC(2),YSC(2),RSC(2),ZMISC(2),ZPLSC(2),DZSC
     2,CHX(3,4),CHY(3,4),CHZ(3,4),WLEN,PITCH,WZDIS
C------------------------ END OF MACRO CGEO2 --------------------------

C-----------------------------------------------------------------------
C      MACRO CGEO3COM..  COMMENTS TO CONTENT OF COMMON /CGEO3/
C-----------------------------------------------------------------------
C  ZMINM2 AND ZPLUM2 ARE DISTANCES FROM INTERACTION POINT TO FRONT SUR-
C  FACE OF -Z AND +Z FORWARD LEADGLASS, 1981-82 VERSION. THE BLOCK
C  DIMENSIONS ARE THE SAME AS FOR 1979-80, IN CGEO2
C
C  1983- ... TAGGING APPARATUS: LEAD SCINTILLATER UNITS
C  NRPBSC ARE NUMBER OF MODULES ON ONE SIDE IN Z
C  PBSCR1-4 ARE THE RADII FROM BEAMLINE TO SEGMENT JOINTPOINTS
C  PBSCZ1-4 GIVE THE Z COORDINATES, FROM MINUS Z TO PLUS Z
C--
c     DATA ZMINM2,ZPLUM2 /-2950.,2950./
c     DATA NRPBSC/8/
c     DATA PBSCR /104.02,120.02,152.02,264.02/
c     DATA PBSCZ /-3470.,-2950.,2950.,3470./
C------------------------ END OF MACRO CGEO3COM ----------------------

C-----------------------------------------------------------------------
C      MACRO CGEO3 .... JADE FORWARD DETECTOR GEOMETRY, 1981-3 VERSION
C-----------------------------------------------------------------------
      COMMON /CGEO3/ ZPLUM2,ZMINM2,NRPBSC,PBSCR(4),PBSCZ(4)
C------------------------ END OF MACRO CGEO3 --------------------------
```

These two geometry Macros are Block Data set in subr. SUPERV on F11LHO.JADEGS, JADEGL as well as in the subr. BLDAT on F22ELS.JMC.S and JMC.L. Still another Block Data setting is present in the subr. TPINIT on F22YAM.TPSOURCE and TPLOAD.

At the same time two new standard libraries for JADE are introduced. F11LHO.TAGGING.S and TAGGING.L contain the routines for tagging analysis. They will be described in a forthcoming note by A. Finch. Presently one can distinguish between the following steps:

Calibration: Complete routines exist for the 1981-82 apparatus.
********** For the 1983 version, a preliminary calibration exists.
For the 1979-80 version the complete calibration is being installed (up to now it existed on the libraries F22HOW.JADEGAMS,JADEGAML and the file F22HOW.CALIBRAC).

OBS!
The JADE graphics program now uses routines on this new library for the calculation of tagging energy and block display. This means

that the load library F11LHO.TAGGING.L must be used in the linking, see member JBOVER on F11LHO.JADEGS.

Cluster analysis: Here routines exist for all versions but work on
********** them is still required since it is not yet possible for data from different periods to be treated in the same job.

--->>> A new routine is installed on F11LHO.JADEGS, JADEGL: MCTR4V. This routine is now called by SUPERV after the Pattern Recognition (level 5) and carries out the last stage of the Monte Carlo traceback scheme. For more information, see Jade Computer Note 69, by C.Bowdery.

--->>> Another facility for detailed study of resolutions is offered in the smearing routines. By setting a flag, it is possible to save the tracked JETC bank (with nr 8), which contains the fine resolution used in the tracking. The smeared JETC bank will then be a separate bank, instead of overwriting the original unsmeared bank. The numbers will then be:

smeared: JETC 8 (as previously)
unsmeared: JETC 9

The switch for this is situated in COMMON /CADMIN/:

```
COMMON /CADMIN/ IEVTP,NRREAD,NRWRIT,NRERR,IDUM(4),IJETCI
```

IJETCI is Block Data set to 0. If set to nonzero, the above operation will take place.

In the graphics program, the command JETC N allows the user to switch between the different JETC banks (the default is the one with the lowest number). Note that the unsmeared bank gives sensible coordinate values only in the various R-FI views. The z-amplitudes have to be modified according to the algorithm described in JCN 66, in order to show sensible z values. This algorithm will be implemented also for the unsmeared bank in the near future.