4/9/81

'SORT' of Count summary is referenced in IMP-6 documentation, whereas I had thought it a system routine: CHECK for listing

IMP04-5

✓ * file 9 ZBIMP.IMP8.RFLUX.V1
* 10 " " .RFLUXV2.V1

18 ~~ZBIMP~~.PSA.ELEC FLUX

21 ZBIMP.EX32.ENCYDELE

~~ZBA~~ ~~ZBIMP~~
22 check archives
ZBIMP.IMPJ.LEDSECTR

IMP02

✓ * 2 ZBIMP.EX10.DPS6

✓ * 6 ZBIMP.MRGSUMI6

10 ZBIMP.UTILITY6

11 ZBIMP.IMPIRTS6
old IMP6 notes plot

13 ZBIMP.LSTSYSP6

don't * 14 ZBIMP.MERGSUM6

✓ * 15 ZBIMP.IMP7EX28
✓ * 16 ,17.LST28
✓ * 17 .LISTALL7
* 18 .UTILITS7
✓ * 19 .TRPLOTI7

IMP01

1 ~~ZBIMP~~. IMP67. ISOTOP PT
(isotimp ?)

2 misc includ RITCAT
check archives

check all for general

---

several IMP-5 files

---

check flxplot yes (all)

unpack/pack in implot2

transfer CATSUP PENDUP checkings
IFIXIT IDIFF → CNTSMRY6

to utility.source

check PHASM6 + MTSUM + finish MTSUM
for TIMSMALL and XREF

[finish dbg jcl etc in datasets for archiving
dps

& flux done electron flux ✓ subroutine tree + jcl(?) ✓ & ZEFLUX78 ✓
Vletsum8 finish DIR ZVSUMRY8 ✓

DIR ✓ for CNTSMRY add jcl + Z [illegible] ✓
check 16 source IFIXIT + IDIFF vs
FLXPLOT ; put in $XREF

create $DIR for anlimps + dps

check Fmove req. in PIPLOT

put $Dir for anlimp ✓ + dps in overview
INPFLUX FLXUPK from ACCUMPL ✓

✓ ← DFANLIMP locate
✓ ← COPYTAPE locate

✓ GAININ in ZBTAS.LIB.CNTL

✓ PROGRAM1 generates interval #

✓ timcom impø1 file6 ZBIMP, IMPI, RATSPLOT
✓ mount6 " 3 IMP6, ORBITLST

recall FLXPAA no source (see
listings)

and FLUXPLOT(new) ← finish intflux - date in analimp 1'
also other utilities for newflux

EFLUX tree

EFLXMN

CATLOG

EFPLOT

DATE
ADDTSC
4060 → MODESG, SETSMG, OBJ

DATE
INIT

Accum

FLXUPK

ADDATE — DAY, DATE

EFPLPP

OUTFIN

ADDTSC

EFPLFD

OUTPUT

add XREF By MEMBER SUBROUTINE NAME → alphabetical
vs datasets using it

member name progs referencing load lib

---

have a dataset of
dead members, such as
CTTLOG from IEVLTPLT
which are in load libraries

and a overview member
listing them

FLXPLOT. NEWSOURC

FLXPBL
FLXPBX
FLXPMT
FLXPSS
FLXSUP

this vsn has special added code
dead time, etc only

others: ?

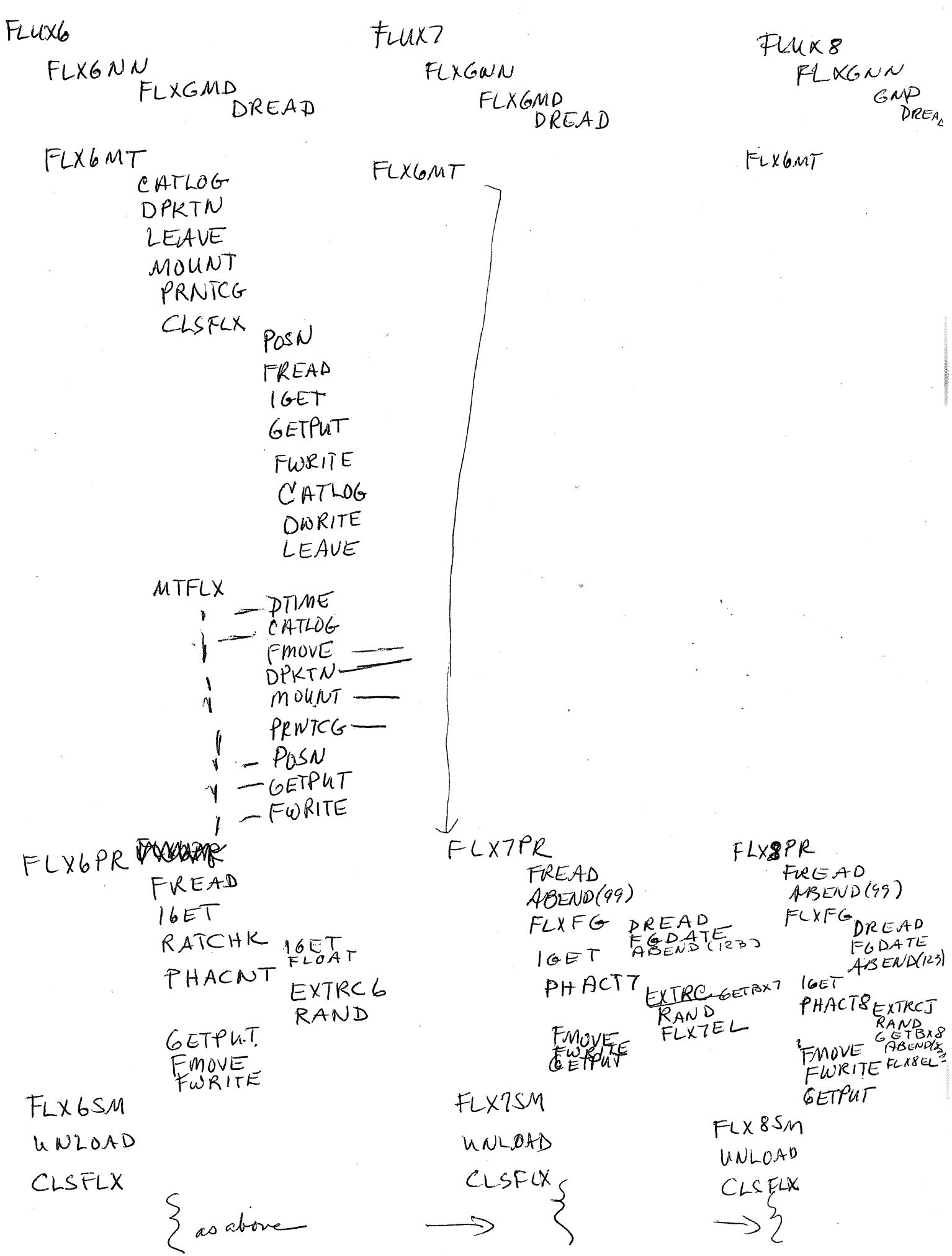
hotflux. new30nuc

special vsns of
maincat
Blankcat
~~CATEXP~~
~~CATMOD~~
~~DMPCAT~~
RSTRCAT

FLXCAT
FLX7BL
FLX7SM
FLX8BL
FLX8SM
MTFLX
PHACT7
PHACT8
PRNFLX

Cntsmry jcl

8 ✓
7 ✓
6 ✓ lib. only


FLUX6
FLX6NN
FLXGMD
DREAD
FLX6MT
CATLOG
DPKTN
LEAVE
MOUNT
PRNTCG
CLSFLX
POSN
FREAD
IGET
GETPUT
FWRITE
CATLOG
DWRITE
LEAVE
MTFLX
DTIME
CATLOG
FMOVE
DPKTN
MOUNT
PRNTCG
POSN
GETPUT
FWRITE
FLX6PR
FREAD
IGET
RATCHK
PHACNT
IGET
FLOAT
EXTRC6
RAND
GETPUT
FMOVE
FWRITE
FLX6SM
UNLOAD
CLSFLX
as above
FLUX7
FLXGNN
FLXGMD
DREAD
FLX6MT
FLX7PR
FREAD
ABEND(99)
FLXFG
DREAD
FGDATE
ABEND(123)
IGET
PHACT7
EXTRC
GETBX7
RAND
FLX7EL
FMOVE
FWRITE
GETPUT
FLX7SM
UNLOAD
CLSFLX
FLUX8
FLXGNN
GMD
DREAD
FLX6MT
FLX8PR
FREAD
ABEND(99)
FLXFG
DREAD
FGDATE
ABEND(123)
IGET
PHACT8
EXTRCJ
RAND
GETBX8
ABENDX
FLX8EL
FMOVE
FWRITE
GETPUT
FLX8SM
UNLOAD
CLSFLX

PRINT OF THE OIERTAB (00000000) DATA SET DATE 77348 TIME 20/35/25

backups:

F analimps ✓
F CNTSMRY ✓
DFANLIMP.LOAD
.SOURCE

DSPLY28.SOURCE
FITTING.SOURCE

SBCID.OPLTPPKP.LOAD ✓

F TIMSUM7, 8 ✓
ZIRFSFIT.LOAD
FITTING.LOAD (rename to Semps)

utility.Source ✓

added
anstmp7
ultsmry
get backs too ✓

note about
unnumbered in
analimps + others

updates from oview are
needed for sources in DIR:

analmp 6, 7, 8 √√

dbg 7, 8

el&lnk78

INTFLUX source use member INTFLUX of oview

I88FLUX

~~EG~~P6, 7, 8

√√ TIMSM7, 8

ask johnorthal about
former vmp valid users
tapes, backups

type ZBODE

do :

imp-6 intflux link

$LOOK$ for flxplot.source

find ~~listings~~ sources of

~~MPXCOM~~ } hlgplot
~~GFPRT~~ } flxplot
RESET } intflux
FGDATE

FLUXPLOT

main source — SEIMP.FLXPLOT.SOURCE
" " .NEWSOURC

main object — K3.ZBJDC.IMPFLUX
ZBPAS.NEWFLUX.OBJ

FLXPLOT PROGRAM

BTMNP (IGET, GETPUT)
DPKTN
CATSUP
IDIFF
IFIXIT
PRNSUP
UNPACK (PACK)
RESET

MODESG SETSMG EXITG
SETMTG PAGEG LEGENDG
PACKZZ SPCXL (SPLAX)
SPPLOT STCYL (STLAY)
SPCXS (SPLAXS) THPLOT
THXLAB

'general' members object	source
K3.ZBJDH.OIMPILIB	seimp.utility.source
" K3.ZBJDC.OIMPMOD	" seimp.implot2.source
↓	↓
K3.ZBJHB.SB001.FLUX.LOAD	??
K3.SEHGD.SB001.FLUXPLOT	?

Intermediate Flux = I (old)

8✓ 7✓ (6) not from run

EXTRC6 in I and anelmp6
(extrc in I + A7 check)

DATE	18,7	2	A7	
EXTCR6	I6	1	I	there is a source in I and A7
EXTRC	17	2	~~I~~	
EXTRCJ	18	5	I — yes	
FGDATE	17,8	1	Finegain.cntl	
FLUX6	I6	5		
FLUX7	17	S	I	
FLUX8	18	S	I	
FLX6MT	17,8,6	5	I	
FLXFG	17,8	5	I	
FLXGMD	17,8,6	5	I	IN = newsource
FLXGNN	17,8,6	5	I	
FLX 6BL	I6	5		
~~FLX 6PR~~	~~I6~~	5		
FLX6SM ~~FLX7BL~~	~~17~~	5	I	FLX7BL
FLX 7EL	17	5	I	
FLX7PR	17	5	I	
FLX7SM	17	5	I	FLX7SM
FLX8BL	18	5	I	FLX8BL
FLX8EL	18	5	I	
FLX8PR	18	5	I	
FLX8SM	18	5	I	FLX8SM

FLXCAT

GetBX7	17	S	I	
GetBX8	18	S	I	
JDAYS	17,8	1	A7	
MTFLX/CLSFLX	17,8,6	5	I	MTFLX
PHACNT	I6	5		
PHACT7	17	S	I	PHACT7
PHACT8	18	S	I	PHACT8
RATCHK	I6	5	A	
TIME/DTIME/FTIME	17,8	1	??	PRNFLX

Intermediate flux

main source — SEIMP. INTFLUX. SOURCE
SEIMP. INTFLUX. NEWSOURC

main object — K3. ZBJDC. IMPFLUX
ZBPAS. NEWFLUX. OBJ

'general'	object	Source	imp 7+8
FMOVE	OIMPI~~lib~~	?	
RAND	"	← ? analimp7	
* DATE	OIMPHLIB		
CATLOG	OIMPLIB	utility. source	
DPKTN	"	"	
← TIME (DTIME, FTIME)	"	Impbdps	
BTMNP	"	"	
JDAYS	"	analimp7	
PRNTCG	"	"	
FGDATE	"	? Finegain. cntl	
KATLOG	"	"	

JDAYS, DATE in ~~impo4, 5 file 22 'ZBIMP. IMPJ.~~ CEDSECTR'
analimp?

* there is also a DATE in oimplib referenced by EX11 dps
in Impo2 file 1 ZBIMP. EX11 DPSG

IMP8DPS.SOURCE

DPSMAIN
MESWTR
OVERLP
SUMARY
TAPDUP
UNPACK
VLETCR/VLETSM offsets are subtracted from VLet PHA
DI, DII + E

IMP7ISM
EXTRCT
TIMFIX
QUAL
TIMECP
RSEQ

IMP6VSM
ADDTIM
COMTIM
(BTMNP
(KATLOG
LOGDEC / LOG10 / LOG12
TPUNPK / TPPACK
SEARCH/
(FMONE
DLTAPE
(CATLOG
TIME / FTIME / DTIME
DATE / DAY

IMP7DPS, SOURCE

EX32MAIN	driver
✓ EXTRCT	extract times + spacecraft clocks
MESWTR	write messages
OVERLP	eliminate data overlap + write ENCY
SUMARY	prints ID records, tape + file summaries, catalog summaries
UNPACK	reformat data into ENCY
✓ TIMFIX	determine if records are time-consistent
? TAPDUP	duplicate ency + time gaps
? QUAL	set ency data qual ~~code~~ value
? TIMECP	does overlap exist btwn 2 ency records
? RSEQ	stores rseq # in ency record
TIME / DTIME (IMP6 vsn) (FTIME)	get current date
LOGDEC / LOG10 IMP6 vsn	decompress the logarithmic compressed counts on decom tape
LOG12 "	
DATE (16 vsn) / DAY	get date from yr, jul + visa versa
ADDTIM "	inc. or dec. by a given time
COMTIM "	compare 2 times + difference returned
SEARCH / TABWRT / TABDEL / TWRITE	(96 version) Check for overlap on new ency + maintain tables for disk data / disk pointer
CATLOG	
TPUNPK / TPPACK (96 vsn)	pack + unpack tape volser
DLTAPE (96 vsn)	blank tapes in catalog

$ common chart in 7/8 doc

IMP6DPS. SOURCE

as per link sheet

DCREAD handles all I/O for experimenter tapes
IMP6 only / TAPEID / FILEID / DATRD / FILSKP / FEOT

IDUNPK unpacks the tape and file ID records

MRTAPE check first file of 2nd tape of multi-reel subset, determine if data is continuation of file of previous tape, or a new file

dps calling sequence

EKS2

MESWTR FTIME
SUMARY

EXTRACT

TIMFIX

UNPACK Log10/Log12

DATE/DAY
VLETCK/SM

OVERLP/ENDTAP
SEARCH/TABWRT/TABDEL/TWRITE
QUAL
TPUNPK
MESWTR
TIMECP
SUMARY
TAPDUP TPUNPK
DLTAPE RSEQ
MESWTR
~~TPUNPK~~

Mount, dread, fread, posn, leave, durate
unload, rewind, fwrite

Rateplot (all imps)
member DIR from
Semp.implot2.Source
gives calling seq. + other utilities used

Object lib = K3.ZBJDC.OIMPMOD
Source = Semp.implot2.Source
Semp.utility.Source

✓ XASSI - YAXS
file 11 IMP02
ZBIMP.IMPIRTS6

8 = 2BIMP, ... file 4 IMP04
— 6 = file 7 IMP02 2BIMP, HLGPLT I6
7 = file 21 IMP02 " . HGPLOT I7
file 12 IMP04 2BIMP, HGPLT7

	source			double check (owsain)	load	some changes that never got into	
x HGPLT8	8	x7	x6	flib	ilib	ilib coords, main program	
[illegible]							
x FILL8	8	x7	x6	x	x	x	accumulate data for one interval (orbit)
✓ ACCUM8	8	x7	✓6 distinct (Replot check)	x	x	x	accumulate MATR tape header records
✓ POTAB0	8			x	x		print a table of number of events vs priority order
✓ PLOT8	8	7	6	x	x	x	plot data of 128 x 128 matrices
x STATS8	8	x7	x6	x	x	x	print out statistics of plot
DIST6F	6			ilib			return the mag. of the vertical incr. of the histograms
FILLUP	6	6	6	ilib			print histograms, if requested
NTIC	6	6	✓6	"			generate the histograms, do peak analysis
HISTOS	6	6	x6	"			
IMPEAK	A8	—	—	flib			unpack the 1st halfword of a pha event in PHA and MATR formats
RHISTP	A8	—	—	flib			return a list of event types which match input card specs
- PHAUPK	A8	—	—	jlib			
- EVLIST	A8	—	—	ilib			return table gain factors
GNFACT	A8	A8	A8	flib			
✓ MTXADD	8	8	8	↓			
✓ GTNODE	8	8	8				
MTXLOD	8	8	8				
✓ MTXCLR	8	8	8				
NOSTAE							
FMOVE							
CATLOG				ilib			print out a 14 X 18 array of # of occurrences of rate readouts vs readout values for each rate
BTMNP				↓			
DPKTN							
PRNTCG							
FTIN							

6FPRT [illegible] dum = 180

in

file 22 IMP04

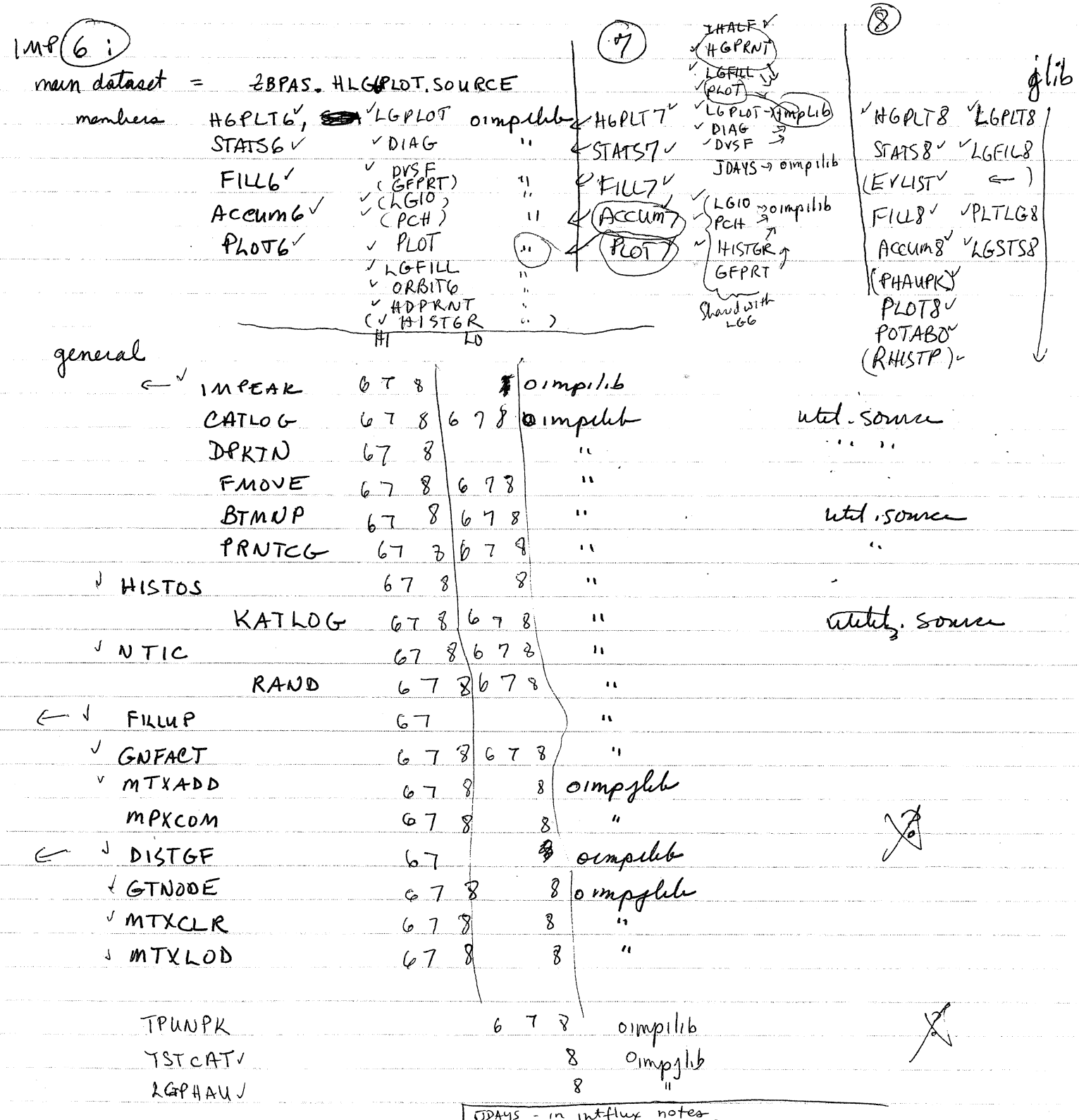
ZBIMP. IMPJ. LED SECTR

also in my backups?

IMP

high gain plot program + Lo gain

add to hgplot.test of ZBPAS HGPLT8, FILL8, STATS8, IMPEAK etc



use KEVENT array as index somehow
event type → dead time correction table

this may need to work as a function of box number
if averaging periods are to be summed

halfword
Imp 7 83 = C 95 = F 99 = G

Need G rate locations

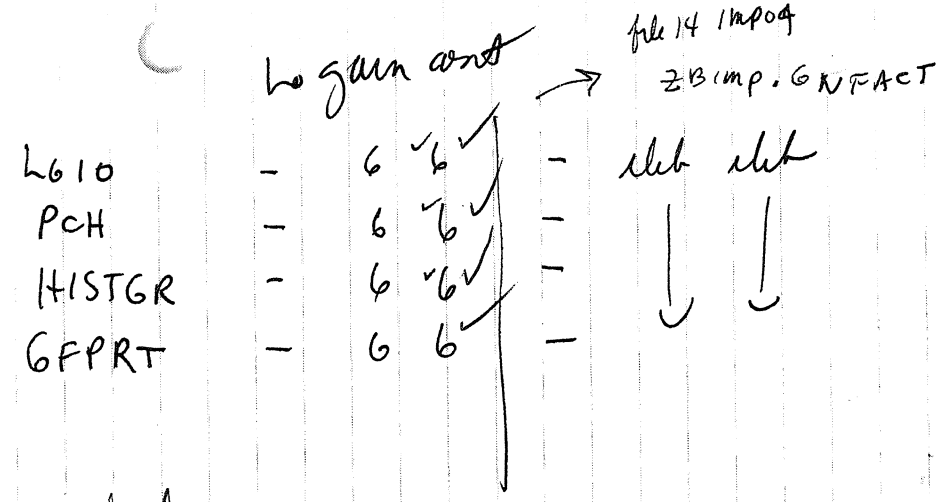
② ①
+ rejected + accepted rate readouts in next word

IMP 7 C = 41 G = 49
F = 47

IMP 8 C = 44 G = 52 Imp8 " 89 = C
F = 50 101 = F
105 = G

Imp 7 Logain plot	IMP02 file 21	ZBIMP, LGPLOTI7	
Imp 7 higain plot	Imp 04, 5 file 12	ZBImp. HGPLT7	
+ 7 other	" " file 14	ZBImp. GNFACT	(GNFACT, LG10, PCH)
6 hlg plot	imp02 file 9	ZBIMP. HLGPLTI6	
8 " "	Imp04 file 4	ZBIMP. IMP8. HLGPLOT. U1	

	Routine							Description
x	LGPLT8 (LGPLOT)	8	✓x 7	x✓ x6	glib	implib	ilib	accumulation driver / accum A vs B + DvsE
x	LGFIL8 (LGFILL)	8	✓x 7	6	glib	implib	ilib	plot matrices
x	PLTLG8 (PLOT)	8	✓x 7	✓6 ✓	glib	implib	ilib	print plot header info
x	LGSTS8	8	✓x H6PKNT	x HDPKNT	glib	implib	ilib	return a list of event types to match input spec
	EVLIST	A8	–	–	glib	–	–	test bits for on status
	TSTCAT	A8	–	–	jlib	–	–	unpack low gain pha events (LOWG)
–	LGPHAU	A8	–	–	jlib	–	–	
	MTXADD	H8	–	–	jlib	–	–	
	MPXCOM		–	–	jlib	–	–	
	GTNODE	H8	–	–	jlib	–	–	
	MTXCLR	H8	–	–	jlib	–	–	
	MTXLOD	in H6 ← H8 H8	–	–	jlib	–	–	
	DIAG	–	✓0 ✓7	✓6 ✓	–	implib	ilib	verify + analyze plot card info
	DVSF	–	✓ ✓7	✓6.	–	implib	ilib	accum DVSF
	JDAYS	–	A7	–	–	ilib	=	return the number of days from time zero (9/23/72) given the date
–	IHALF	–	A7	–	–	implib	=	return 16 bits from the arg. without sign propagation
	HISTOS	✓H6	–	–	ilib	–	–	print out histogram
	GNFACT	A8	A8	A8 A6	glib	glib	glib	— ? return table gain factors
	ORBIT6							
	NTIC	H6	H6	✓H6	ilib	ilib	ilib	return the mag. of the vertical incr. of the histograms
	TPUNPK (no dflt) / TPPACK	dps6	dps6	dps6.	ilib	ilib	ilib	unpack catalog vol ser to be used with FT10
	Nostae	✓	–	–				



transfer matrices from disk to core + visa versa

punch data (128 x 128 matrices)

print out histograms

print out header info relevant to gain factors

generalized

CATLOG
DPKTN (?)
FMOVE
BTMNP
PRNTCG
KATLOG
RAND

FFTIØ

Hi gain plot

H6PLT8
- NOSTAE
- FMOVE
- ✓EVLIST
- ✓FILL8
  - GNFACT
  - ✓Accum8
  - ✓PHAUPK
  - ✓MTXADD ~GTNODE ✓
  - ✓POTABO vs print table in priority order # of event
  - RHISTP
  - ✓PLOT8
    - ✓MTXLOD Rewind Abend
    - ✓STATS8
      - IMPEAK HISTOS
      - ✓MTXCLR rewind

MXXCOM is CSECT in MTXADD dsect elsewhere

Catlog
BTMNP
DPRTN
PRNTCG

MOUNT etc

Lowg (circled) — moveover?

lo gain plot 8

MAIN WOSTAE
EVLIST
TSTCAT
TPUNPK unpack tape #
GNFACT
LGFIL8
~~[illegible]~~ LGPHAU Abend (14) unpack LG PHA
MTXADD

PLTLG8
LGSTS8 HISTOS
MTXLOD
MTXCLR

Camos
PRNTCG

FT10

H6PLT6

MAIN
FILL
GNFACT
Accum6
FILLUP → DIST6F
MTXADD
PLOT6
MTXLOD
STAT56
IMPEAK
MTXCLR
HISTOS
NATC

CATLOG
DPRTN
PRNTCG

ANALIMP	sources		descrip.
Analimp 8	7	6	driver
Energy	7	6	degrade + calc. particle energies
Evlist	–	–	generate a list of input card compatible event types
HMAIN8	7	6	accum. from MAJR
LMAIN8	7	6	" " LOWG
PRTY8	–	–	print table of events vs priority order
MATRX8	APLOT (6)	6	Print out matrices (phas)
PHFIL8	7	6	accum from PHA
RHISTP	–	–	print # occurrences rate readouts vs readout value for each rate
SPCTR8	SPECTR	6	compute particle distributions about a standard curve + print out [histograms]
GNFACT	7	6	ret. gain factors
PHAUPK	–	–	
EXTRC8	EXTRC	EXTRC6	given the starting @ of 128 PHA data points, extract every elements value
LGPHAU	–	–	
RHISTI	–	–	
TOTAL8	HGPRNT GFPRNT	6 6	print out plot header info print out time periods + gf of plotted rates
TSTCAT	–	–	
FCN/FCNWRT	7	6	define the standard curve used for calculating histograms
DATE (7)	7	–	
JDAYS (7)	7	–	
INCRMN	7	✓6	determine Start + stop times for incr. option
HISTO	7	✓6	print line printer histograms
PDIST	7	✓6	compute 1 dist from a point to a line
VDIST	7	✓6	" vert. " " " "
DISTGF	–	7 ✓6	Set up arrays used to apply reciprocal smoothing technique for gain factor application
IHALF	–	7 –	
ORBIT6	–	– ✓6	table of Imp6 orbit data times
TREND6	–	– ✓6	trend of events counts readouts

in big book analimp
no doc for EXTRC6, TREND6, ORBIT6

Calling order

ANALIMP 8

DATE

EVLIST

HMATN8 — PHANPK, GNFACT

INCKMN

LMATN8 — GNFACT, LGPHAL, [illegible]

MATRX8 — [illegible], TOTAL8

PHFIL8 — GNFACT, EXTRC8, RHISTI

ENERGY, PRTY8

RHISTP

[illegible]

SPCTR8 — FCNWRT, ENGWRT, HISTO, PDIST, VDIST

FCN

ENERGY FCN

dpktm, BTMNP, prntcg, catlog, rand

fmove

FT10

+++ ZBFAS. ANALIMP8. Source archived

++ ZBFAS. ANALIMP7. Source archived

+ ±BJDC. ANALIMP6. Source archived

− ±BJDC, IMP678. UTILITY

ANALIMP8

K3.AIJTD.SB008.OIMPJLIB 3
K3.AIJTD.SB008.OIMPHLIB 2
K3.SBJPH.OIMPILIB 1

✓ ANALIM (analimp8)	+++		main	9
DATE	++			2
✓ ENERGY	+++	ENGWRT	return energy	3
EVLIST	+++			3
FMOVE				1
✓ HMATN8	+++			3
IHCECOMH				
IHCCOMH2				
INCRMN	+			2
JDAYS	++			1
✓ LMATN8	+++			3
✓ PRTY8	+++			3
IHCECVTH				
DPKTN	−			1
IHCFDXPD				
BTMNP	−	IGet	GETPNT	1
✓ MATRX8	+++			3
✓ PHFILB	+++			3
FREAD				
FUNITABL				
FPL1				
FIDNLIST				
RANFAST				
RHISTP	+++			3
✓ SPCTR8	+++			3
IHCEFNTH				
CATLOG	−			1
IHCEFIOS				
IHCFIOS2				
GNFACT	+++			1
IHCERRM				
IHCUOPT				
PHAUPK	+++			3
PRNTCG	−			1
IHCLEXP				
IHCLLOG				
✓ EXTRC8	+++			3
HISTO	+			1
LGPHAU	+++			3
PDIST	+			1
RHISTI	+++			3
✓ TOTAL8	+++			3
TSTCAT	+++			3
VDIST	+			1
DWRITE				
✓ FCN	+++	FCNWRT		3
IHCETRCH				
IHCUATBL				
KATLOG	−			1
IHCSSQRT				

DIR

Analmp8, Hmatr8, Lmatr8, Rhfel8,
energylengart, fen/fcnart,
evhst, rhistp, rhisti
tst col,
lgphan, phaupk, prty8, MATRX8
Spectr8, extrc8, total8
GNFACT

~~artart~~
Analmp7: DATE
JDAYS

Analmp6 INCRMN, histo, phist, vhist

BTMAP, cattog, dpktn, fmove, kattog,
PRNTCG, ranpos

FTIO

+ ZOPAS. ANALIMP7. Source archived
++ ZBJDC. ANALIMP6. Source archived
+++ ZBPAS. ANALIMP 8. Source archived
– ZBJDC. IMP678 UTILITY

analimp7 K3.AIJTD.SB008.OIMPHLIB 2
K3.AIJTD.SB008.OIMPLIB 4
K3.SBJPH.OIMPILIB 1

✓	ANALIM +		2
o	APLOT ++		1
✓	DATE +		2
✓	ENERGY +	ENGWRT	2
??? o	FMOVE		1
✓	GFPRNT +		2
✓	HMATN7 +		2
	IHCECOMH		
	IHCCOMH2		
✓	INCRMN ++		2
o	JDAYS +		1
✓	LMATN7 +		2
	IHCFCVTH		
o	DPRTN		1
	IHCFDXPD		
	FREAD		
	FUNITABL		
	FPLI		
	FDDNLIST		
✓	HGPRNT +		2
o	BTMNP	IGET GETPUT	1
o	IHALF +		4
✓	PHFIL7 +		2
✓	SPECTR +		2
	IHCEFNTH		
o	CATLOG		1
o	DISTGF ++		1
	IHCEFIOS		
	IHCFIOS2		
o	GNFACT +++		1
	IHCERRM		
	IHCUOPT		
o	PRNTCG		1
	IHCLEXP		
	IHCLLOG		
	DWRITE		
	IHCLSQRT		
	EXTRC +		2
✓	FCN +	FCNWRT	2
o	HISTO ++		1
o	KATLOG		1
o	PDIST ++		1
o	VDIST ++		1
	IHCETRCH		
	IHCUATBL		
	IHCSSQRT		

[redacted] Same as intflup. source for impl7 addition

Common
GAIN
HEADER
DISFAC
CTLG
FERMSG

(2)

$DIR

analmp7, hmatn7, lmatn7, phfld7,
energy, pen, spectr, extrac
H6PRNT, 6FPRNT

data, pdays
1half

analmp6 APLOT, incrmn, histo, pdist,
vdist, distgf

analmp8 6NFACT

ANALMP6 $DIR

ANALMP6, hmatn6, lmatn6, phfld6,
energy, pen,

Aplot, spectr, extrac
H6PRNT, 6FPRNT
incrmn histo pdist vdist distgf orbit6
trend6

analmp8 6NFACT

+ Source ZBJDX.ANALIMP6.Source archived

+++ ZBPAS.ANALIMP8.source archived

- ZBJDC.IMP678.UTILITY

Analimp6 K3.SBJPH.OIMPILIB 1

K3.AIJTD.SB008.OIMPHLIB 2

WINMAP MEMBER NAMES

✓	ANALIN (analimp6)	+		1
✓	APLOT	+		1
✓	ENERGY	+	ENGWRT	1
listing ??? o	FMOVE			1
✓	GFPRNT	+		1
✓	HMATN6	+		1
	IHCECOMH			
	IHCCOMA2			
o	INCRMN	+		2
✓	LMATN6	+		1
listing ??? o	ORBIT6	+		1
✓	PHFIL6	+		1
	IHCFCVTH			
o	DPKTN			1
	IHCFDXPD			
	FREAD			
	FUNITABL			
	FPL1			
	FDDNUST			
✓	HGPRNT	+		1
o	BTMNP		IGET GETPUT	1
✓	SPECTR	+		1
	IHCEFNTH			
o	CATLOG			1
✓	DISTGF	+		1
	IHCEFIOS			
	IHCFIOS2			
o	GNFACT	+++		1
	IHCERRM			
	IHCUOPT			
o	PRNTCG			1
	IHCLEXP			
	IHCLLOG			
	DWRITE			
	IHCLSQRT			
✓	EXTRC6	+		1
✓	FCN	+	FCNWRT	1
✓	HISTO	+		1
✓	PDIST	+		1
✓	TREND6	+		1
✓	VDIST	+		1
	IHCETRCH			
	IHCUATBL			
o	KATLOG			1
	IHCSSQRT			

Main program

tape + tape-catalog handling of ~~output~~ MATR + LOWG tapes ←

put all LED + MED PHA data into arrays in core

Clear ~~offset~~ onset bit 2 indicating LED or MED event on LOW GAIN TAPE ←

merge newly sorted data into disk workspace ←

Print out rate histogram ←

convert rate entry to a histogram index

Binary sort - descending order of data ←

apply a rate trend check

Sum binary sorted A + B into ~~arrays~~ summarized arrays for priority + phase

" D E F "

Impb SUMUNT is a common

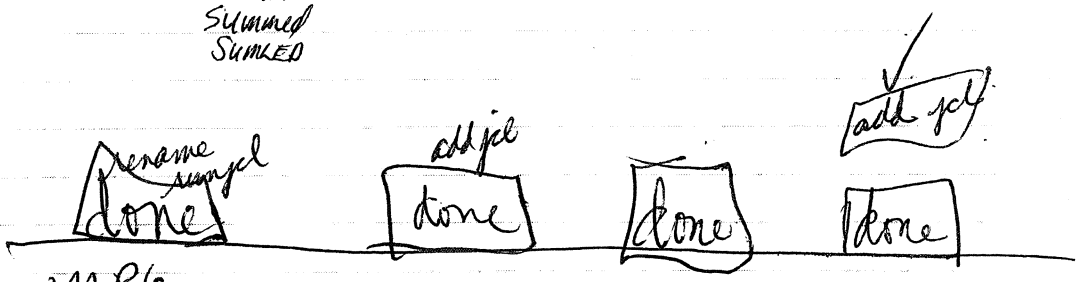
check lengths to see if they are
he commons from imp 7+8, or if they
e some other routines

looks like it may be a CSECT attached
merge ?

Yes

To finish Rha + TIMSUM datasets

Imp 8	TIMSUM	PHASUM	Imp 7	TIMSUM	PHASUM
	TIMDIS	dist		(rename members)	DIST
		JLB2CL			-
	MERGEJ	MERGE			MERGE
		SLCTT			SLCTT
		SORT			SORT
	TIMSUM8	SUMMN			SUMMN
					SUMLED
					SUMMED
	del	del		del	del
	JLB2CL	Rhisti		-	-
	Rhisti	Rhistp			
	Rhistp				
	SLCTT				
	SORT				
	Summed				
	SUMLED				



PHP6

MTSUM

PHASUM
add jcl + DIR
leave as is

add sdf.dat to imp new

finish DIR's & correct source locations to final form

TIMSUM8	8	7	6	8	7	6	PHASUMER	8	7	6	8	7	6
TIMSUM MTSUM	T8	T7		3	4	1	SUMMN		P7	P6	3	4	1
SLCTT/CLST	T8[P8]	[P7]		3	4	-			P7	P6	3	4	1
TIMDIS DIST1 DIST	T8	T7		3	4	1	DIST		P7	P6	3	4	1
JLB2CL/JMB2ST	T8[P8]			3	-	-				-	3	-	-
MERGEJ MERGE1 MERGE	T8	T7		3	4	1	MERGE		P7	P6	3	4	1
CSECT // SUMUNT				3	4	- ?	must be incomplete or under a different name				3	4	?
RHISTP				3	-	-				-	3	-	-
RHISTI				3	-	-				-	3	-	-
SORT	T8[P8]			3	4	1			P7	P6	3	4	1
ADDTIM	dps6			1	1	-					-	-	-
TREND				-	-	1				P6	-	-	1
TIME/DTIME/FTIME				1	1	1					1	1	1
SUMLED	T8[P7]			4	4	1			P7	P6	4	4	1
SUMMED	T8[P7]			4	4	1			P7	P6	4	4	1
CATLOG				1	1	1					1	1	1
DPKTN				1	1	1					1	1	1
BTMNP				1	1	1					1	1	1
KATLOG				1	1	1					1	1	1
PRNTCG				1	1	1					1	1	1
NOSTAE				-	-	X					-	-	X

phasumm. Imp6 IMP02 file 4
ZBIMP. PHASUM I6

Imp 02 file 8 ZBIMP. MTMSUM I6
has DIST + MTSUM

IMP04 file 3 ZBIMP. IMP8. PHASUM. V1

mp7? imp04 feb 17

2BIMP. PHASUMMN

TIMSUM8

CATLOG
DPKTN
MOUNT
PRNTCG
FREAD

ADDTIM
SLCTT { catlog dpktn mount printcg, fread, fwrite
POSN BTMNT
UNLOAD FWRITE
UNLOAD DTIME
TIMDIS { RHISTI
JLB2CL
JMB2ST
POSN FWRITE
FWRITE SORT none
MERGEJ
RHISTP
REWIND
CLST

TIMSUM8

ADDTIM
SLCTT/CLST
DTIME

TIMDIS
RHISTI
JLB2CL / JMB2ST
SORT
MERGEJ
SUMLED
SUMMED
FREAD
~~RHISTP~~ FWRITE

RHISTP

phasum6 routine interaction

Summ

SLCTT

DIST

TREND

SORT

MERGE SUMLED SUMMED

CLST

DTIME

Get DPKTN etc

MTSUM6

DTIME

DIST

TREND

SORT

MERGE

SUMLED

SUMMED

main

build a CNTS record from ENCY data

extract PHA data from ency record & build PHA tape record

generate printed report of PHA ~~summary~~ data Summary

a function giving the arithmetic sum of the squares of each byte of a word

determine acceptability + event classification of PHA
(one LED + one MED)

examine time quality + SC

compute Σdqf + Σtqf from ency record

Block Data

trend check on rate readouts; resulting flags appear on CNTS and PHAS tapes

get 4-day interval from PHA or Counts tape record

count # of readouts rejected by trend check + print summary

count # of non-padded readouts of $DPa_3 - 17$ (a_3) for each of its possible values for one album

correct LED sectored rates

set certain event tag bits for LED

tape files: IMP02 file 3 ZBIMP.IMP6.DBG (complete)

IMP04 file 16 ZBIMP.EX32.DBG (complete)

dbg IMP04 file 6 ZBIMP.IMP8.DBG.V1 (complete)

				6	7	8
°IMPIMN	H °	J °	I °	1	4	3
°GENCNT	°	°	°	1	4	3
°GENPHA	°	°	°	1	4	3
°REPORT	°	°	°	1	4	3
°ISQDQF			°	1	—	—
°PACPHA			°	1	—	—
COMMONPHARPT (length 6C)				?	4(A0)	3 (F4)
°TQ$SC			°	1	—	—
TQDQFS	°			—	4	4
TABLE (Block)	°		°	—	4	3
TREND	°		°	—	4	3
INTRVL	°			—	4	4
TRNDSM/TRNSMP	°		°	—	4	3
DPCHEK	°			—	4	—

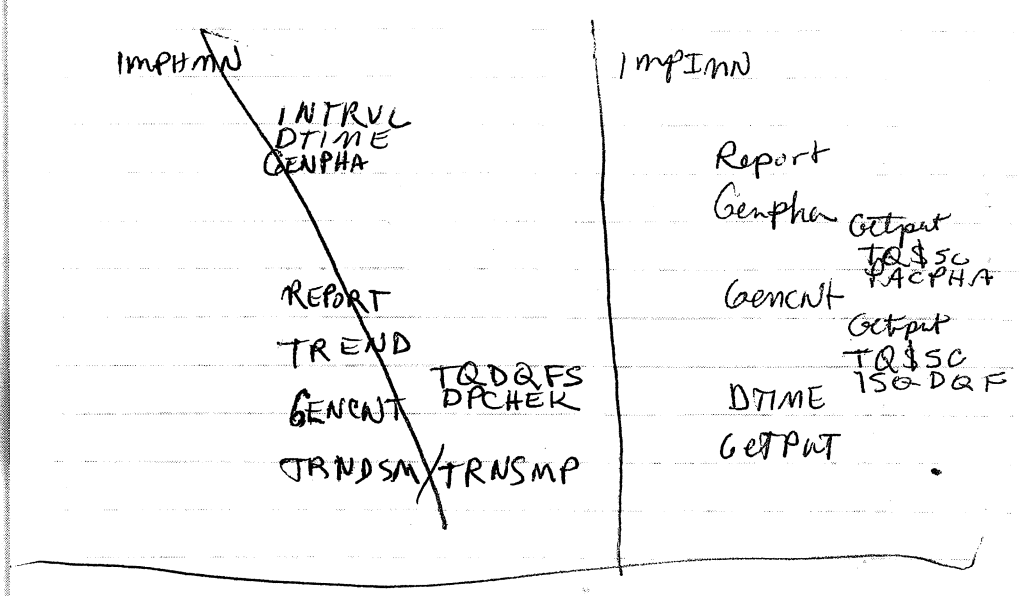
TIME/DTIME/FTIME	dps6	1	1	1
LEDCOR	°	—	—	3
LEDST2	°	—	—	3
COMTIM	dps6	—	—	1

Catlog	7	8	6
DPRTN	7	8	6
BTMNP	7	8	6
PRNTCG	7	8	6
RATLOG	7	8	6

Imp8 DIR not done

TQDQFS, INTRVL in D7 ?

$$CL



IMPHMN (JMN)

INTRVL
REPORT
TREND
TRNDSM
GENPHA
GENCNT
[LEDCOR]
DTIME → [LEDST2]
GETPUT
TRNSMP
[CORSUM]

TQDQFS
DPCHEK

LEDCOR

COMTIM

Black binder with red thumbguides

All yellow IMP-I summary for terminology album, snapshot etc

good

this approach should be used for

introduction/overview

IMP-I telemetry thumbtag I

PCM frame (0-127)
PFM sequence

1 word of data quality flags occurs once per PFM sequence (64 times per album)

IMP terminology

1 PFM frame = 16 channels = 1/16 sequence
(1 sequence = 256 channels)

1 PCM frame = 128 channels = 1/2 sequence

1 PCM frame = 8 PFM frames

1 Album = 128 PCM frames = 64 sequence
ie 4 pages

1 Album = 128 major frames (= 1024 minor frames)

1 Page = 4 snapshots

Snapshot = 4 sequences

1 sequence = 2 major frames [PCM]

1 minor frame = 16 channels

⇒ 1 minor frame = 1 PFM frame
(= 1/16 sequence)

1 major frame = 8 minor frames

⇒ 1 major FRAME = 1 PCM Frame
(= 1/2 sequence)

16 minor frames = 1 sequence

the SCC advances once per major frame
(.64 sec)

redut electron flux
member

main pgm
accumulate data
return gain factors MED from tables
update Write data to output in NOAA format
+ print out data

plot data

} see electron flux

PFLUX

INIT
Catlog
IGet
DAY
ADDTSC
DPRTN
DATE
ACCUMP
PUTPUT ABEND(99)
PFPLOT DAY ADDTSC DATE + SD4060 pkg
PRINFK
OUTFIN
EFPLFO
EFPLFF ADDTSC DATE + SD4060 pkg

Subr. tree

it looks to me like 'flux' is
cnts/sec only of the data

done 12/1/80 uses? tapes
looks like PHA = yes

Proton flux program I8PROFLUX

	source	load
PFLUX		6
ACCUMP		6
GAIN8D	modify for finegain/interwd	6
PROTFX / PRINFX		6
PUTPUT / OUTFIN		6
PFPLOT / EFPLFD / EFPLFF		6
ADDATE		3
ADDTSC		3
DATE / DAY		1
INIT		3
FLXUPR		3
FLXBUF		3
CATLOG		1
DPKTN		1
BTMNP		1
KATLOG		1

put note about caution in changing load modules as source is strangely commented - perhaps untrustworthy

It was not updated on comments as it was worked on

IMP04 files 9 + 10

9 = ZBIMP. IMP8. RFLUX. V1

10 = ZBIMP. IMP8. RFLUXU2. V1

~~Gain8D~~

~~PFLUX~~

IMP01 file 16

ZBIMP. IMPS. IMPSPINR — Accump, Gain8D, //PFLUX //, PUTPUT → no; not boxes defined, ok not matching

file 17

ZBIMP. FLUX. RNGENRGY — Accump //, //PFLUX //, PFPLOT, PUTPUT → boxes defined as in add-to matches, ok

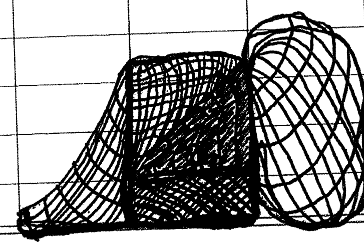
file 8 ZBIMP. IMP6. ENCY DUPS

PFPLOT — comments belong to IMP-7 elf prog; numbering different that file 17

PROTFX

matching

file 16 GAIN8D ACCUMP
file 17 PFLUX
" " " PFPLOT
PUTPUT
file 8 PROTFX



diffo listen file 16 + 17 involve addition of dead time + definition of boxes

DEFG electron plug main program

process phadata into boxes

add time increments to input arguments in tenths of sec. to time

plot data ↑ unpack G, DIEIFG rates and MED event types + D pulse heights

output accumulated data

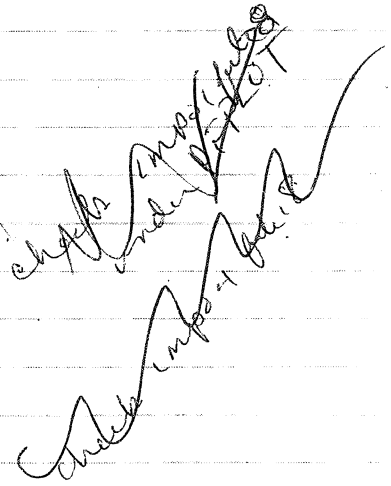
Csect in PLXNPK

initialize arrays & prints heading

file 13 IMP04
ZBIMP:I78.DEFG, ELFLUX

Electron Flux n, p

DEFG	load
EFLXMN ✓	3
ACCUM ✓	3
ADDATE ✓	3
ADDTSC ✓	3
source missing EFPLOT /EFPLFL ✓ EFPLFF	3
FLXUPK ✓	3
OUTPUT / OUTFIN ✓	3
FLXBUF	3
DATE /DAY	1
INIT ✓	3
DPKTN	
BTMNP	
CATLOG	
KATLOG	



Semp. ELFLUX78.Source

note that specs are available →

modified pioneer phe summary prog.
read summary data records + accumulate plots
generate printed histograms
generate printed 2-detector plots

initialize plot array specified
store start & end times of summary intervals / print out intervals summarized

write a line printer plot (one command)

used WCNVMJD : convert fraction of day to the mmss of day

@choose plot type

convert interval to yr mth day hr mn sec

mq1400

Set FT04 F001 to out=6 plots histograms
also FT02

additional doc. refer to
Pioneer F/G the summary plot pgm modifications 'note'

impo4 file2 2BIMP.IMP8.VLETPLOT.V1

Simp. ~~VLETPLT8~~ I8VLTPLT .source

VLETPlot imp 8

simpj lib:

✓ PIPLOT

✓ PFILLP

✓ PHISTP

✓ PPLOTP

✓ ~~[illegible]~~ PTAPEP ✓ rename member to PTAPE P — Source has CATLOG written in

✓ PINITP / PFILL / PRETRV — initialize arrays; add data to plot coordinates; get plot start + stop time

✓ TIMEIN / TIMOUT / IGLOO

✓ PUPDAP

✓ WRITE — write plots

mark as obsolete ✓ CTLLOG — this version is for only 6 records [no KATLOG!]

✓ FRCHMS — fractions of hours time converter to hr min sec

11] PCARDP

PCHOSP

PPARMP / PARMUP — # PIPLOT pioneer

SKIP

CNVMJD / CNVDAT — # PIODR ~~general sources~~ general routines ?

CONTIM — convert ms to h/m/s

QBIT / $PRIVATE — set ~~[illegible]~~ or test a bit

10] FREAD etc

FUNITABL

FPL1

FERMSG

14] FMOVE

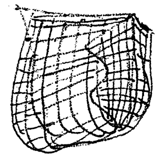
1] DPKTN

PIPLOT

- PCARDP
- PTAPEP { TIMEIN, CNVMJD
- PCHOSP { CONTIM
- PFILLP { SKIP, PUPDAP, PFILL
- PPLOTP { WRITE, PRETRV
- PHISTP { TIMOUT

Timout

← in file2 IMPØ4

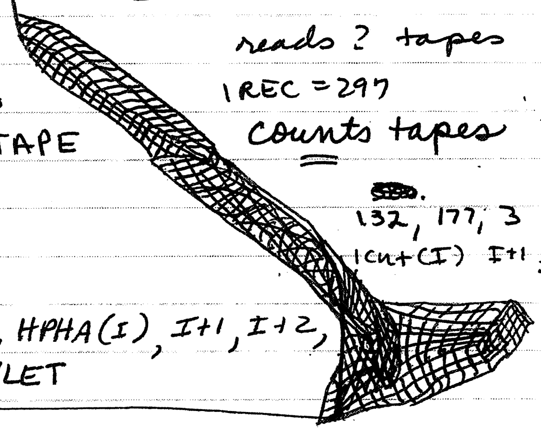


Vlet List

~~[illegible]~~ BLGLST — low gain
VLETLIST
(DTAPEP) ??
must be PTAPEP — yes

BLGLST 3

CATLOG ← VLETLIST 3
DATE/DAY ←
DPKTN ←
PRNTCG ←
KATLOG ←



reads ? tapes
IREC = 297
counts tapes
132, 177, 3
ICNT(I) I+1, I+2

D.E.F.G (DEE)1 E.F.G
low gain on PHA TAPE

check tape format,
words 139, 774, 5
HPHA(49), HPHA(I), I+1, I+2,
to see if related to VLET

Main
tape handling
Summarize VLETP## & Rates for the CATS
tape record

Call an ahead dep. on org host

See analmap

Vlet summary

note that specs are available

3] VLSMMN
SKVLET / CVLST
VLTSUM / VSM FIN
IFLIP
VLETPK
TMESGE

11] CNVMJD / CNVDAT
PSORT
PSUM
~~[illegible]~~

[] ADDTIM
TIME
TSTCAT a8 = source

1] CATLOG
OPKTN
BTMNP
KATLOG
PRNTCG

10] FREAD
FUNITABL
FPL1
fermsg

VLSMMN

- VLTSUM
- SLVLET
- ~~VLSMNEW~~
- ~~CVLSUM~~

  - CNVDAT
  - IFLIP (non-null phe event)
  - VLETPK
  - PSORT
  - PSUM

- ADDTIM

- VSMFIN
- CVLST

  - CNVDAT
  - CNVMJD
  - PSORT
  - PSUM

vlet flat "plot"

Vlet-summary

Check ZOJDC $AI & tape backups

also me

file9 IMP04
RFLUX ?? etc
file10 ? RFLUXU2. ?

Imp6orb.mrg file6 imp02
mergsum6 ? file14 imp02

TRPHOT file19 imp02
(Solar electron

ZBIMP.CNTSSUM6
imp92 file 12
IMP6

lord ↓

6 CNTSUM 5
BLKDAT 5
6 SECTOR 5
6 PACKC 5

6 LOOP 5
6 MESSAG 5
6 OUTREC 5
6 PREPTP 5
6 SUMORB 5
6 INIT 5

6 CLSTAP 5

6 MNTAP 5

6 do xrefs IFIXIT 5
6 IDIFF 5 compare w/ f4+plot
6 UNPACK/PACK

6 in ds ? INREC 5
6 CONV 5

NOSTAG
REMTIM

BTMNP PRNTCG
CATLOG
DPKTN
KATLOG

IMP04 file. ZBIMP. IMP8. SUMMARYC. VI

IMP02 file. ZD ZBIMP. SUMMARY.

Counts. Summary

	8	IMP7		
⑦	J	HSMCT	⑦	
⑧	J	HDATA	⑦	
⑧	J	HACUMS	⑦	Pack sectored rates
⑧	J	HACUMX	⑦	pack nonsectored rates
⑧	J	HCAL	⑦	calculate accumulation intervals
⑧	J	HCOORD	⑦	Transfer coordinate INFO
⑧	J	HLOOK	⑦	Set up rates table
⑧	J	HMESS	⑦	Print diagnostic messages
⑧	J	HOUT	⑦	write record & update catalog
⑧	J	HPREP	⑦	1) Mount CNTS Tape 2) close up tapes
⑧	J	HSUMRB	⑦	Print Orbit Summary
⑧	J	HTAB	⑦	set up event time-table

shared w 7+8

CLTAPE ⑦ unload SMCT tape(s); write catalog

SORT

MNTAPE ⑦ Mount SMCT tape(s)

UNPACK 8 6 ~~??, source (implot2?)~~

IFIXIT 8 6

IDIFF 8 6

TIME/DTIME/FTIME 8,6

Fmore 8,6

catlog
btmnp
katlog
prntcg
dpkctn

remtim
nostae

main

blkdat

plot rate data

returns corrected or uncorrected SRates

draw cams

plot header

minimize fit function

read & process magnetic field data

plot magnetic field data

plot data from Srate disk files

Time converter dec -> day hr min sec . 1 secs

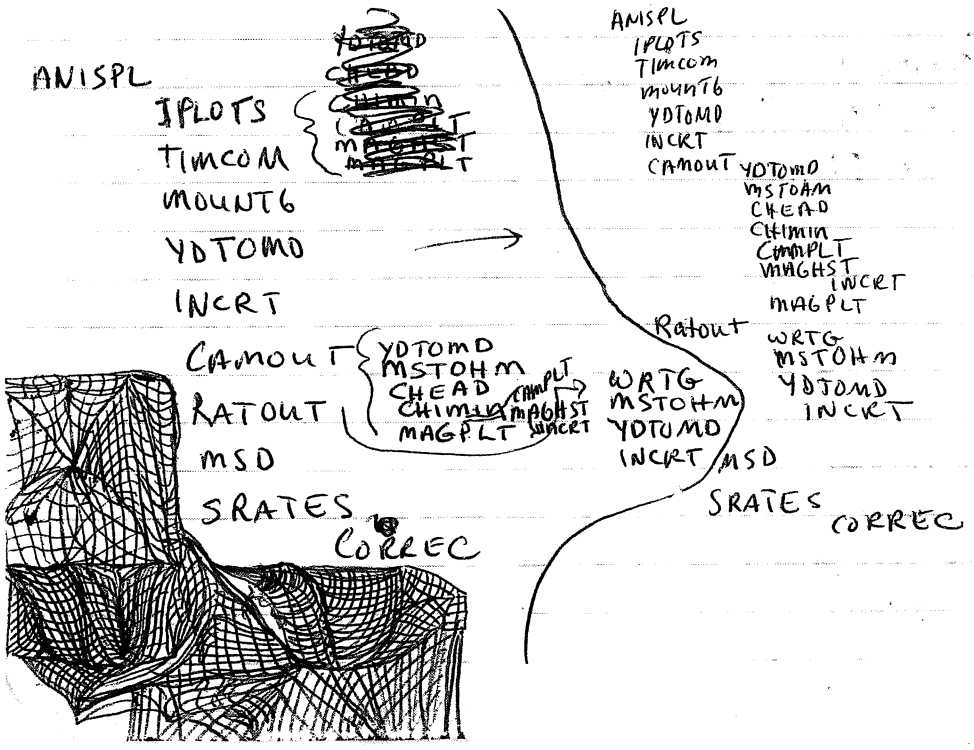
increment time

time converter

ms of day -> hr min sec ms

angle correction

write message on plot



ANISOTROPY DISPLAY

	load lib	source	load
ANISPL	4 ✓	6	ANSTRP 8
ALL	4	✓6	
RATOUT	4	✓6	
SRATES	4 ✓	6	
CAMPLT	4	✓6	CAMSP. 8
CHEAD	4	✓6	HEADR8 8
CHIMIN	4	✓6	CHIMI8. 8
MAGHST	4	✓6	
MAGPLT	4	✓6	
IPLOTS/CAMOUT	4	✓6	? DSPLY 8 8
TENTOD/etc	4	✓ 6	
INCRT	4	✓ 6	
MSD	4	✓ 6	
MSTOHM	4	✓ 6	
CORREC	4	✓ 6	
GRTG	4	✓ 6	

listing in bound book with Utility Progs (at very end)

MOUNT6 = ORBITLST ? impol file 3 ?

TIMCOM = impol file 6

cattog Railby

IMP6 IMP04 file 11
ZBIMP. I6. SECT. DISPLAY

no notation of documentation being in existence

MODESG OBJCTG SUBJEG
SETBMG PSUBJG
EXITG PCIRG
PNUMG PLINEG
NUMBRG PAGEG

FIND min Σ^2 for
FN(I)=FNO +
A * COS (T(I) - TA)

CAMS8 draw cam plots
CHIM78

ANSTRPY8

INPAR8 CONV78 print + plot input params
CONV78 convert YR+doy to MTDA HRmin JULDAY

TAPE78
INTRVL
PROCE8 process sectored rates from counts tapes
DSPLY8 display accumulation interval
SUMPR8 MAGAC8
CAMS8
CHIM78
HEADR8 write SD4060 page header info
CONV78
LABEL8 label camplot
MAGD78 display mag field data
TAPOU8 11/70 output tape
INTRVL

MAGAC8 read mag field tapes + accumulate data

ANSTRPY7

INPART CONV78
TAPE78
INTRVL source-database gen -7 is old
PROCE7 PREPR7
DSPLY7 ——— MAGAC7
CAMS7
CHIM78
SUMPR7 process from SMCT TAPES HEADR7 CONV78
LABEL7
MAGD78
TAPOU7
INTRVL

FMOVE
REWIND

PREPR7 fix up 2 bugs on IMP7 CNTS tapes
1) med trend check flags were set incorrectly
2) Let-U flag was set to undetermined on even records

GETPUT

Copy lines 200-3300 PREPR7 put in $ZCOMMAND

CNTSUMARY files

Impl

CNTSUM
- NOSTAE
- REMTIM
- PREPTP
  - CATLOG
  - PRNTCG
  - CLSTAP
    - GETPUT
    - PRNTCG
    - FMOVE
  - MNTAP
    - DTIME
    - FMOVE
    - PRNTCG
    - IGET
    - GETPUT
- INREC
  - MESSAGE
    - UNPACK
  - IGET
- OUTREC
  - LOOP
    - SECTOR
    - PACKC
      - MESSAG
        - UNPACK
  - GETPUT
- CONV
  - GETPUT
- INIT
  - IFIXIT
- IDIFF
- LOOP
  - SECTOR
  - PACKC
    - MESSAG
      - UNPACK
- SUMORB

HSMCT

NOSTAG

HALOOK

REMTIM

HPREP CATLOG
IGET
PRNTGG
CLTAPE GETPUT
MNTAPE CATLOG
PRNTCG
FMOVE

HCAL

HTAB HMESS UNPACK *
SORT GETPUT
HOUT
IFIXIT
HACUMX iget
HACUMS iget
HSUMRB HCOORD HCLOSE IFIXIT

* HTAB:

HMESS UNPACK
SORT
HPREP(2)
CLTAPE

MNTAPE

DTIME
CATLOG
FMOVE
PRNTCG
Iget
GETPUT

HOUT

HCLOSE IFIXIT
GETPUT

ANSTRPY adds:

		hlib
OIMPJLIB:	ANSTRPY8	7
	CAMS8	7
	DSPLY8	7
~~delete MAGDS8~~ ~~CHIM18~~	HEADR8	7
	INPAR8	7
	LABEL8	7
	PROCE8	7
	(SUMPR8) —	7
	TAPOU8	7
	MAGAC8 → was hlib	7
		PREPR7
		~~SUMPR7~~

CHIM78
CONV78 } put in implib
MAGD78

delete oimplib CHIM18
delete oimphlib MAGDS8, ANSTRPY7, DSPLY, MAGACC, MAGDSP? SUMPR7

oimphlib INTRVL
oimplib TAPE78, BYTES

(leave for now ?)

~~need source~~

~~for TAPE78~~

for anstrpy7

Sys2.SD4060
01mphlib
dd
dd
01mpclib
01mplib

DVSF Analimp
/IMP 8 db edit pgm

tables CALORB, RITCAT etc

refers to records being deleted problem

FLUX DISPLAY PROGRAM
(0603,5, IMPI)
(See user guides)

TAILOR

?? Program (user guides: MERGE) 01mpdb

B1 = bound IMP 6
B2 = bound IMP 7/8

Doc. collection

	doc	guide	tape fmt
dps 6	B1		
7			
8			

Doc. missing

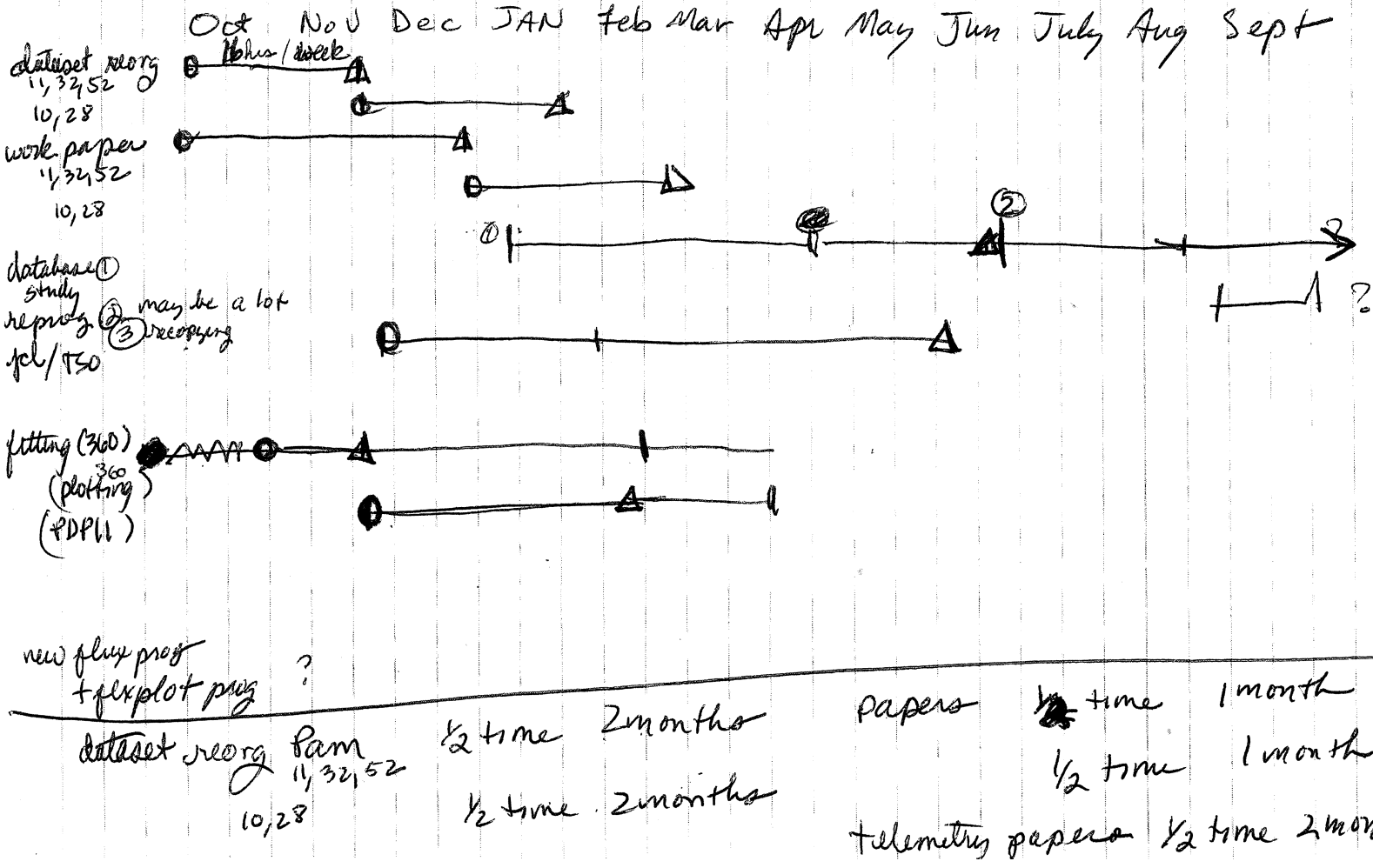
B1

Exp10 alt 3-1 Solar Elect.
DPS

B1 Orbital Merge section 8 B1

MERGE (ORBMRG) main
CRTSTK initialize data stacks
MRGHDR initialize IHDR
FKMRG initalize data stacks
MNTMRG tape mounts when incoming data on from old Merge tape
(entry)
CLSMRG catalog update
WRTMRG put data on tape, from stacks
MRGORB merge data
MRGHDR accumulate header info from each merged orbit

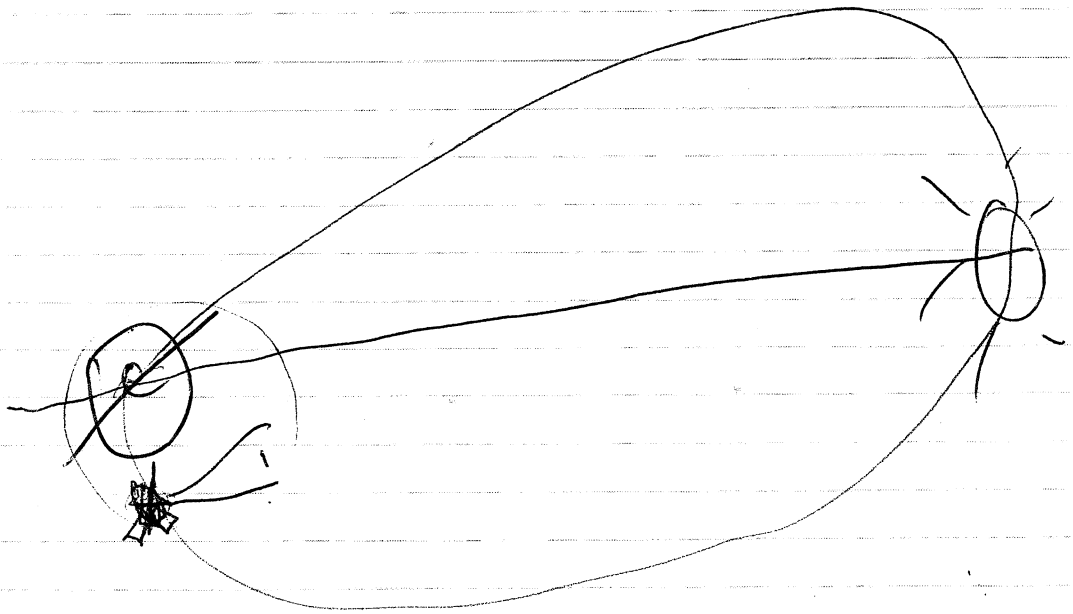
Cattoy
16ET
DPRTN
PRNTCG
FMOVE
NOSTAE
abend
FT10


Oct Nov Dec JAN Feb Mar Apr May Jun July Aug Sept
dataset reorg
11,32,52
10,28
16hrs/week
work paper
1,32,52
10,28
database
study
reprog
jcl/TSO
may be a lot
recopying
fitting (360)
(plotting 360)
(PDP11)
new flux prog
+flexplot prog ?
dataset reorg Pam
11,32,52
10,28
½ time 2months
½ time 2months
papers ½ time 1month
½ time 1month
telemetry papers ½ time 2months

Load module feasibility studies for IMP ~1/month ½ time
after ds reorg.

new flux program ½ time for 6 months
flxplot ½ time for 6 months

maintainance ~ ½ time Pam



1) tree of processing
2) Summary of program names + utility programs
3) individual (6, 7, 8) programs
   A. comparison of 3 wrt old. libs
   B. individual member name lists for sources + backups
   C. extent + loc. of doc. + user guide
4) load library xref to individual prog members

24.230 50.031

Int.
673-6 1.350 1.001 1.355

24.453 49.935 13.199

↑

~~1.348~~ 1.348 1.000 1.355
23.813 49.854 13.202

↑

1.348 .999 1.355
24.450✓ 49.894 13.204✓

↑

1.336 .994 1.355
23.618 low 49.183 low 13.228✓

D (pumps) ↑ ↑ 6 pumps

1.359 1.005 1.355
24.656 hi 50.603 hi timeout

1.359 1.336
24.656 23.618

1.038
.612

.5896 toward 1.359

1.3495 would be my guess

1.348 was Betty's

679-681

1.359	1.005	1.355
24.360 ✓	49.977 ✓	13.177 ✓

65860

1.395	1.004	1.377
24.165	49.916	13.364
1.395	1.005	1377
24.254	50.513	13.360

Terminal Clist programs to develop

(Sort) job to list catalogs / gam tables
job to restore catalogs / gam table

job to change by terminal, gam table

Create a load module which will
be able to access + list
improview .text as a 'data' ?

ie like a help 'imp' command with
subcommands

check system 'help' operation