MDI Guide
IDL Calibration and Analysis Software

Ver 1.0 M.Morrison 9-Jun-94

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Some suggested reference books, material, and methods of finding more information:

- "MDI Guide: An Overview of the /mdisw System"
- TBD - what is useful to list here????
- The official MDI IDL software should have a detailed description of the routine in the header of the source file. It is possible to access this header from within IDL by using DOC_LIBRARY. A sample call is:

  IDL> **doc_library,'mdipict'**

If you have general comments, suggestions, or questions regarding this document or software, please send them to:

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Preface

The conventions used in this manual are:

- Bold face for examples of what the user should type
- Program names are capitalized when mentioned in the text, but are not capitalized in the user input examples
- Variable names are italicized when mentioned in the text
- Dates and times are in Universal Time (UT) and have the convention "dd-mmm-yy"
- There are several different types of prompts that appear in the examples. The prompt IDL> is used for when the user has already entered and is running IDL. The prompt % is used to signify Unix commands, and the prompt $ signifies VMS commands. There are also FTP> prompts for 'File Transfer Protocol.'

For example, you would only type **.run show_data** for the following description. You would not type IDL>.

IDL> **.run show_data**

1 Introduction

1.1 Using the /mdisw System

In order for you to use the IDL routines and some of the other capabilities described here, you need to be using the /mdisw setup. A full description of this system is described in the document "An Overview of the /mdisw System". Basically all that you need to do is to add the following line to your ~/.cshrc file

```
source /mdisw/setup/mdi_setup
```

1.2 This Document

A PostScript copy of this document can be found in the file:

```
/mdisw/doc/guide/mdisw_idl.ps
```

If you have an X-terminal, you can view this document using either **gs** to review the PostScript file, or **xdvi** to review the DVI file. The DVI previewer will not show the plots or images. Aliases have been set up to make this easy for you. The commands are:

% **gs_idl**
% **xdvi_idl**

1.3 Telemetry Filenames, Datasets, and MicroVAX Files

The raw telemetry files at LPARL are typically located in one of the following directories:

```
/md60/log/sci160k
/md65/log/sci160k
/md66/log/sci160k
/md54/optest
```

They have names of the form YYMMDD_HHMMSS_EE (e.g. 940420_193742_01.tfr) where "YYMMDD_HHMMSS" is the year, month, day, hour, minutes seconds when the telemetry file was started. "EE" is the extension since the files are closed periodically to avoid having very large files. It starts with "01" and increments up. The extension ".tfr" is for the raw telemtry file. The ".tfd" is for a directory of what is in the file, and it is created as the raw telemetry file is created. The ".tfrx" file is made whenever the RDTFR IDL routine is used, and it is a roadmap of which data products are in the telemetry files and what the starting record number is for each data product. This allows for quick direct reading reading of the telemetry file.

Links are used to access the raw telemetry files at Stanford. You can use the command:

% **ls -l ~soi/data/ | grep tlm**

to find out which telemetry files are on-line. An example of what is returned is:

```
lrwxrwxr-x  1 mark          33 Apr 23 21:39 tlm940423_052704 -> /scr10/mdi_data/tlm/940423_052704
lrwxrwxr-x  1 mark          33 Apr 24 22:48 tlm940423_065147 -> /scr16/mdi_data/tlm/940423_065147
```

The raw telemetry files are converted to FITS files at Stanford. The following convention is used:

Prefix	*Start Series*	*End Series*	*Start Date*	*End Date*	*Description*
OPT	013	438	Nov-92	2-Oct-93	Optical Performance Tests
OCT	500	617	19-Oct-93	7-Nov-93	Optical Calibration Tests
NOV	618a	766	25-Nov-93	29-Mar-94	November Oven Vacuum
APR	800	1200	1-Apr-94	26-Apr-94	April Test
CAT	000	426	29-Jun-93	16-Mar-94	Calibration and Alignment Tests

The following files contain information on which telemetry files were used for each series.

```
-rw-rw-r--  1 rick        1813 Apr 13 16:18 /home/soi/data/aprlog
-rw-rw-r--  1 rick       28246 Apr 18 13:46 /home/soi/data/catlog
-rw-rw-r--  1 rick       14469 Apr 12 18:13 /home/soi/data/novlog
-rw-rw-r--  1 rick       10397 Apr  2 15:52 /home/soi/data/octlog
-rw-rw-r--  1 rick       29471 Mar 30 14:32 /home/soi/data/optlog
-rw-rw-r--  1 rick       43284 Apr 23 17:54 /home/soi/data/tlglog
```

A cross reference listing of the different datasets which are available is shown in the Appendix. This listing shows which telemetry file is used for which datasets, the number of images in the series, the date and time of the first image, the number of minutes it took to complete the series, the control file which was run, whether the telemetry and FITS files are on-line at Stanford, the backup tape and file numbers, and the CCD and oven temperature at the beginning of the series.

1.4 The FITS Header for MDI Images

The following is a sample FITS header for an MDI image.

```
SIMPLE  =                    T / file conforms with FITS standard; SOI v 0.7
BITPIX  =                   16
NAXIS   =                    2
NAXIS1  =                  256
NAXIS2  =                  256
DATE-OBS= '29/11/93'
TIME-OBS= '02:52:23'
IMAGE_T = '1993:11:29:02:52:23'
CONTROL = '   0   1   0   0   0'
DEPSCR_0= '   0   0'
DEPSCR_1= '   0   0'
DEPSCR_2= '   0   0'
DEPSCR_3= '   0   0'
DEPSCR_4= '   0   0'
DEPSCR_5= '   0   0'
DEPSCR_6= '   0   0'
DEPSCR_7= '   0   0'
DEPSCR_8= '   0   0'
DEPSCR_9= '   0   0'
DEPSCR_A= '   0   0'
DEPSCR_B= '   0   0'
DEPSCR_C= '   0   0'
DEPSCR_D= '   0   0'
DEPSCR_E= '   0   0'
DEPSCR_F= '   0   0'
SQID    =                65536
SQNUM   =                    0
SQFRM   =                    0
RSTRT   =                    0
FRMNUM  =                   29
HKPACK  =                23043
DEPVR   = '   0  17'
OCTVR   = '   0   0'
SEQVR   = '   0   2'
IPVR    = '   0   0'
QUEUEVR = '   0   0'
ALIGN   =                    0
C1POS   =                    0
C2POS   =                    0
```

```
MISCSTAT=                    0
LTERRS  = '   0   0   0   0'
LTSTAT  =                    0
HTRSTAT = '   0   0   0   0'
OVNTEMP = '   0   0'
OPTEMPS = ' 134 136'
CCDTMP_0= '   0 255 254   0   0 255 255   0   0 254'
CCDTMP_1= ' 255   0   0 254 255   0   0 255 255   0'
MKM1POS =                    0
MKM2POS =                    0
MKPAPOS =                    0
MKSHPATH= 'DARK'
END
```

There is a list of the FITS fields and their meanings in the Appendix on page 54.

2 General Use Routines

2.1 How to View MDI Data

There are a few different methods to look at MDI data. SHOW_DATA and VIEW_DATA are IDL routines which you can run interactively, but which require that the telemetry or FITS files be available. A Postscript Previewer can access a database of PostScript files and summary pages for all MDI calibration data is available.

2.1.1 VIEW_IMAGE

The routine VIEW_IMAGE prompts the user for a telemetry file name or dataset name, and which images to extract. When prompted for the file name, it is possible to answer "MENU" and to be prompted with the telemetry files or datasets which are available. A sample session is:

IDL> **.run view_image**

The first question asked is if you wish to read some images from a file. If you have already read in the images that you are interested in using VIEW_IMAGE, then you can answer no to this question. If you simply hit $< CR >$, it will use the answer YES.

```
Do you wish to read some images from a file?   [Default: YES ] ?
Do you wish to read a raw telemetry file (other option is FITS)  [Default: NO ] ?
For telemetry files, do not include the extension.   Some examples are:
      940311_232118
      /md66/log/sci160k/940311_232118
Enter MENU to display a menu of the available telemetry files:
Enter the filename (QUIT to abort)  [Default:  ]
```

The second question is whether it is a raw telemetry file. If you simply hit $< CR >$ it will use the Stanford FITS datasets. The third question is the file name. If you know the file name, you can enter it. If you do not, you can enter MENU and a menu of the telemetry files or datasets which are on-line will appear. Click on the dataset that you wish to read. If you have already read a image from a file, and wish to read a different image, it is simple since the default input file name is the last file which was read (ie: you just have to hit $< CR >$).

Next you need to specify the images that you want to read. You are asked to specify the starting image number and the ending image number of the images to read.

```
Number of images available:       43
Enter the starting image to extract (starting at 0)  [Default: 0 ]
Enter the ending image to extract                    [Default: 42 ] 1
```

In the example above, it will read the first two images in the file. The image and the FITS header and in the variables *img* and *head*. These variables are still available even after you finish running VIEW_IMAGE. The image minimum, maximum, average and standard deviation are printed to the screen. The following message is also printed.

```
The image cube is stored in the variable "img"
The header information is stored in the variable "head"
You can run stepper any time using the command "stepper, img, xsiz=512"
Will rebin to XSIZE=512, YSIZE=512
-------- STEPPER Options --------
There are 2 images in the array
There are 2 images selected
Enter "b" to step backwards                "h" to call HARDCOPY
      "s" to select new start index        "z" for ZOOM
      "c" to call LOADCT                   "x" for XLOADCT
      "p" to call the IDL PROFILES routine "l" to call light curve routine
      "g" to overlay SXT solar grid        "o" for observing region location
      "q" to quit                          "m" for movie mode
      "?" to display this help menu        "anything else" to step forward
```

VIEW_IMAGE then then calls the Yohkoh routine STEPPER which is a general purpose routine to display an image. Some of the above options are not available for non-SXT images. The most simple options to step forward or backward are performed by pressing the space bar or "b". A useful method for stretching an image to adjust the contrast is to use XLOADCT (the "x" option). Line and column traces can be accessed using the IDL PROFILE routine using the "p" option. "z" will allow you to zoom in on a feature. "q" will exit STEPPER.

2.1.2 SHOW_DATA

SHOW_DATA is an older version of a simple image reading and displaying routine. It is recommended to use VIEW_IMAGE if possible.

The routine SHOW_DATA is a wrapper around some basic reading and displaying routines that allows a user to display any data in the 160k tlm files and also to choose autoscaling or specifically fix the scaling. Again, the two routines (sepa- rated to have the reader and displayer de-coupled) are in one file "showdata.pro". A sample run is:

IDL> **.run showdata**
IDL> **readata**

Simply answer the questions:

1. input the filename (use the extension to read that specific file, or omit it to read the whole sequence)
2. input the first image to be read

3. input the last image to be read (=first if you want to read only one image altogether) NOTE don't use this method to read and display one image at a time from the same sequence: VERY inefficient; read the FULL RANGE you want. It's the display program below that displays them one at a time...

IDL> **show** ;for autoscaling, convenient for first time
IDL> **show, lo=min, hi=max** ;to set min and max
IDL> **show, lo=1900, hi=2500** ;to set scaling from 1900 to 2500

NOTE If you omit lo it will be set to 0, if you omit hi, it will be set to 4095. Omitting both, of course puts you to autoscaling again.

You will be told how many images You have to your disposition (if you wanted to read 5 to 10, you'll have all 10, cause the program needs to read them all any way - except if you had specified ONLY 10, then you will have only that one) Simply answer the questions:

```
- which do you want to display (enter a number, or 0 for all,
  or Q to quit)
```

It will loop in this mode to let you review the images 'all-you-can-eat' Type Q (case insensitive) to quit show.

You can re-run show again with or without scaling as many times as You wish. To read another set of data, invoke READATA again.

The questions are reasonably fool-proof in terms of logic, but NOT in terms of type conversion error, so type a true integer number where asked for it. If you mistype and IDL "crashes" due to Your type error, just type:

IDL> **retall**

and start again (readata or show).

For the IDL initiated, the data is passed via the common statement, thus, if You want the images to be to your disposition at the MAIN level, just declare the common at the main level (exactly as is):

IDL> **common pictures,a**

Now You have the images in a=intarr(xdim,ydim,numberofimages) to play with.

2.1.3 Access to PostScript Summary Atlas

A set of summary PostScript pages are available for each of the datasets which were taken on the ground. These files are stored at Stanford in the directory `~soi/data/atlas`. There is a subdirectory for each of **apr, nov, oct, opt** and **cat**. A sample of how to display them to the screen with the PostScript previewer is:

% **gs ~soi/data/atlas/apr/apr999.ps**

2.2 How to Read MDI Data (READ_MDI)

The routine READ_MDI will read the raw telemetry data files, the FITS data files, or the "F0" MicroVAX data files. The routine figures out which type of file it is based on the file name. The outputs are the image array plus a FITS header array. Some sample calls are:

```
IDL> read_mdi, infil, images, array, header
IDL> read_mdi, '/md66/log/sci160k/940401_143902', 3, img, h
IDL> read_mdi, 766, [3,6,12,18], img, h
IDL> infil = '/md66/log/sci160k/940401_143902'
IDL> read_mdi, infil, indgen(10), img, h
IDL> read_mdi, infil, indgen(10)+10, img, h
```

The inputs are *infil* which is the input file or series number and *images* which is a list of the images to be read starting with 0. The output is *array* which is a 2-D or 3-D array with the images you requested, and *header* which is a string FITS header of dimensions NxM where you requested M images (N is the number of lines of text in the FITS header for a single image).

In the second example, the fourth image of "940401_143902" is read. In the last two examples, the first and then the second 10 images in the file are read.

The routine has several optional keywords. If you wish to find out how many images are in a data series or a telemetry file, you use a command of the following format:

```
IDL> read_mdi, infil, xxxx, nimages, /nimages
```

The result is returned in the output variable *nimages*.

2.3 How to Make Plots versus Time (UTPLOT)

UTPLOT plots any quantity on a time plot with hours, minutes, and seconds. It will automatically determine the x-axis labels (whether to mark ticks by HH:MM:SS or by DD-MMM-YY). The input to UTPLOT can either be a struture with .TIME and .DAY (where .TIME is milliseconds of day, and .DAY is the number of days since 1-Jan-79) or you can pass a floating point vector which has the number of seconds past a reference time. Some examples are shown below:

```
IDL> utplot, x, y, ref_time, xrange=xrange
```

IDL> **utplot, index, y, timerange=[index(0), index(100)]**
IDL> **utplot, x, y, ref_time, timerange=['1-jun-91','5-jun-91']**
IDL> **utplot, x, y, ref_time, psym=10**

Most typical IDL plotting parameters also apply. You can overplot other quantities using OUTPLOT. For example,

IDL> **utplot, x, y, ref_time**
IDL> **outplot, x2, y2**

2.4 How to Get General Summary Information of an Image (IMG_SUMMARY)

It is possible to get a summary display of a single image by using the routine IMG_SUMMARY. The summary page includes:

- The image displayed in grey scale for the full range and for ±1 sigma around the average.
- Histogram plots in log and linear scale for the full image and also for ±2 sigma around the average (±1 sigma if the standard deviation is large)
- Single line and column plots, and plots of the average of all lines and all columns
- The image average, standard deviation, minimum, maximum, and range for both the whole image and for the image excluding the first and last two columns and lines.
- OPTIONALLY display some comment information
- OPTIONALLY display the location and amplitude of the N brightest pixels (with an additional option to exclude excluding an M pixel margin around the edge of the image).

Some sample calls to IMG_SUMMARY are:

IDL> **img_summary, img**
IDL> **img_summary, img, comments=['Temperature = 22.2', 'Pressure = 1e-5']**
IDL> **img_summary, img, tit=tit, /hc**
IDL> **img_summary, img, brightest=8**
IDL> **img_summary, img, brightest=8, margin=2**

A sample output can be seen in Figure 1.

2.5 How to Direct Which Printer is Used for Hardcopies (SET_PRINTER)

The routine SET_PRINTER prompts the user with a menu to allow the user to interactively define which printer should be used for hardcopy output. The routine PPRINT should be used by all IDL routines to spawn the print commands. The following environment variables are used: $PRINTER for the printer queue name, $PRINT_CMD for the explicit printer command (if defined, PPRINT actually ignores $PRINTER), and $PPRINT_NODE for the computer system to use. If $PPRINT_NODE is used, the user must have a `~/.rhosts` file which allows "rsh" commands into that account. A sample call is:

IDL> **set_printer**

2.6 Manipulation of the FITS Headers

2.6.1 Extracting a Single Field (SXPAR)

To extract the information for a given field from a FITS header, you can use the routine SXPAR. The FITS header is a string array. The routine will figure which string holds the field and what it's data type is (it will return integer, floating or string types). Sample calls are:

IDL> **xpos = sxpar(h, 'LASPOS_X')**
IDL> **m1tune = fix(strmid(sxpar(header0, 'DEPSCR_D'), 0, 4))**

2.6.2 Adding a New Field to an Existing Header (SXADDPAR)

The routine SXADDPAR will allow a user to append or replace certain fields. Sample calls are:

IDL> **sxaddpar, head, 'AVG_OFF1', sum_arr(0)**
IDL> **sxaddpar, head, 'FILENAM', filnam**

NOTE: The routine expects to have the "END" field at the end of the array, and I believe that string has to be 80 characters long.

2.6.3 Building a Basic FITS Header (MK_FITS_HEAD)

MK_FITS_HEAD will build an elementry FITS header with the fields (SIMPLE, BITPIX, NAXIS, NAXIS1, NAXIS2, ...). You can optionally specify the time, date, comment or history lines. Some sample calls are:

IDL> **head = mk_fits_head(data)**
IDL> **head = mk_fits_head(data, time='17:00:01', date='27-Oct-92')**

2.6.4 Reading a FITS File (RFITS2)

The routine RFITS2 will accept an array of file names, and will return a data cube with all of those images. NOTE: All images must be the same size for this option to work. The byte swapping depending on the platform is performed. Sample calls are:

IDL> **imgs = rfits2(filenames, head=heads)**
IDL> **img = rfits2('kitt_peak.mag', head=head)**

2.6.5 Writing an Image to a FITS File (WRT_FITS)

The routine WRT_FITS will save an image and header to a FITS file. The byte swapping depending on the platform is performed. Sample calls are:

IDL> **wrt_fits, outfil, head, image**
IDL> **wrt_fits, 'demo_image.fits', head, image**

If the variable *head* is not defined, then an elementary FITS header is made using the routine MK_FITS_HEAD.

3 LFFT Routines

This chapter describes some of the standard data reduction routines which are available for the long form function test (LFFT) data.

3.1 MDIPICT

The routine MDIPICT produces a single page summary for each image in a series. It is normally run on data from the "mdipict.src" control file, but it can be run on any image series. The summary includes:

- The image displayed in grey scale for the full range and for ± 1 sigma around the average.
- Histogram plots in log and linear scale for the full image and also for ± 2 sigma around the average (± 1 sigma if the standard deviation is large)
- Single line and column plots, and plots of the average of all lines and all columns
- The image average, standard deviation, minimum, maximum, and range for both the whole image and for the image excluding the first and last two columns and lines.
- Information on the conditions and parameters for that image
- The location and amplitude of the 8 brightest pixels (excluding a 2 pixel margin around the edge of the image).

To run MDIPICT you must pass the telemetry file name. Sample calls are shown below. The second sample causes the output to go to a printer instead of the screen.

IDL> **mdipict, '/md66/log/sci160k/940401_143902'**
IDL> **mdipict, '/md66/log/sci160k/940401_143902', /hc**
IDL> **mdipict, infil, tit='MDIPICT Run in Vacuum, Warm'**
IDL> **mdipict, '/md66/log/sci160k/940401_143902', stimg=4, enimg=5**

3.2 MDIFOCUS2

The routine MDIFOCUS2 produces a display of x and y-direction sharpness versus focus step position in full disk and high resolution pixels. It should only be run on the "mdifocus.src" control file output which takes 73 images. The "*" are overplotted from gaussian fits and the center for that gaussian fit is displayed for each plot. All four polarizations are overplotted on each of the four plots. Sample calls are:

IDL> **mdifocus2, '/md66/log/sci160k/940402_045113'**
IDL> **mdifocus2, '/md66/log/sci160k/940402_045113', img, sharp, norm, dark**
IDL> **mdifocus2, '/md66/log/sci160k/940402_045113', /hc**
IDL> **mdifocus2, '/md66/log/sci160k/940402_045113', tit='Focus with new blocker'**

In the second example, *img, sharp, norm* and *dark* are output variables holding the raw images,

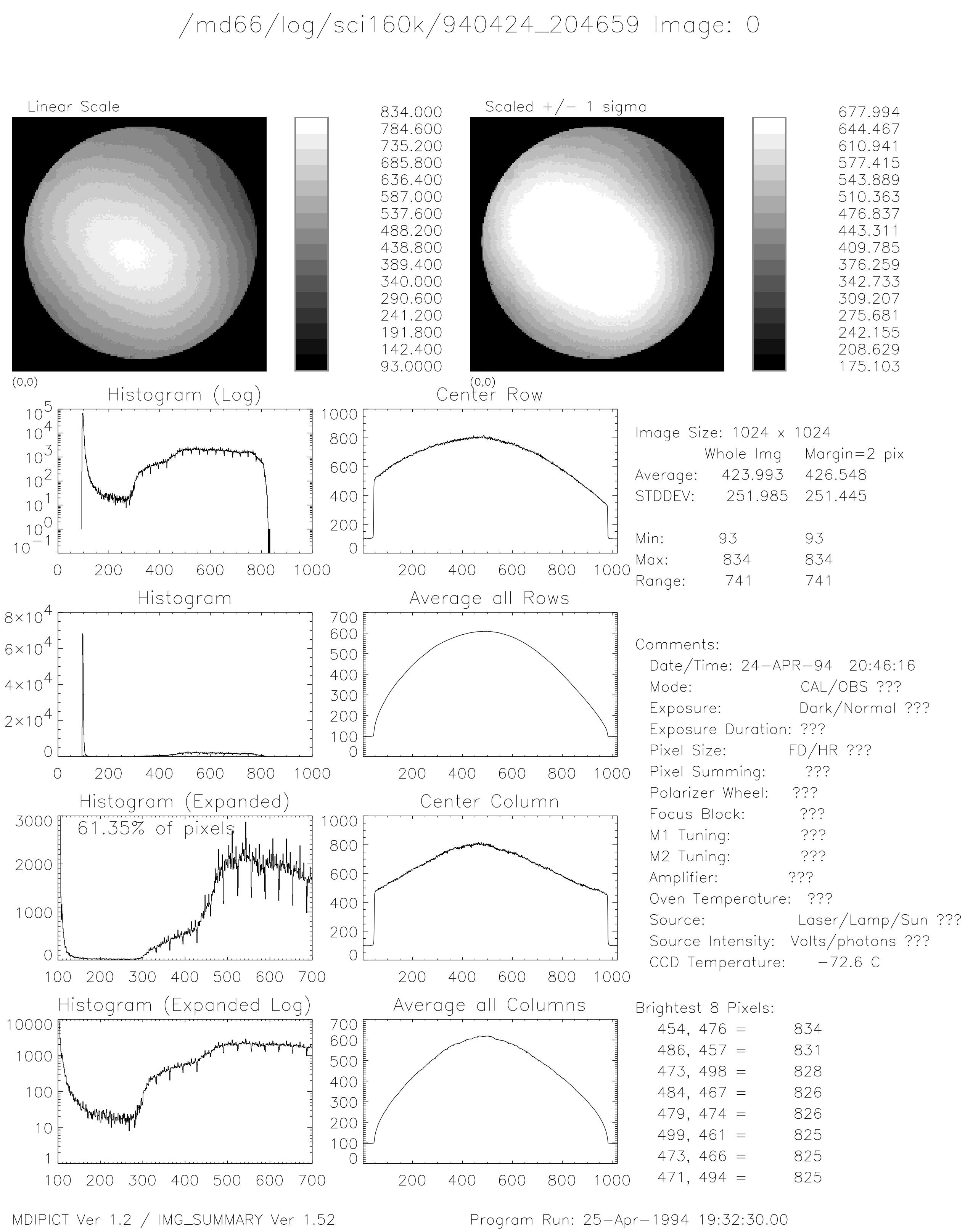

Figure 1: Sample Output for MDIPICT

the sharpness and normalization data arrays, and the dark image used. You can supply a title that is to appear on the hardcopy by supplying the keyword *title*.

3.3 LTC

The routine LTC calculates the light transfer function of the camera. The gain constant in electrons per data number (e/DN) is calculated along with the read noise for the camera. Some sample calls are:

IDL> **ltc**
IDL> **ltc, '/md66/log/sci160k/940401_142048', 120, 60000**
IDL> **ltc, '/md66/log/sci160k/940401_142048', 120, 60000, dev='PS'**

The values of 120 and 60000 are the minimum and maximum exposure times in ticks for the data set.

3.3.1 Details on the Light Transfer Calculation

1. **SIGNAL:** The signal level is the mean signal level in the image pair taken at a given exposure. The mean signal level is computed as follows; Each image is divided into several subimages (usually 256) of 16X16 pixels,positioned to cover most of the CCD area. The corresponding subimages from the two images are then averaged. Mean signal level is then calculated for each subimage. These mean signal levels are then averaged to give the mean signal level for the image pair. Dark current is NOT subtracted prior to the above calculation. Standard deviation is calculated from the 256 mean signal levels for each subimage.
2. **NOISE:** Average of the noise levels of all subimages in the image pair. The noise level of a subimage is the standard deviation of the signal level in that subimage. Standard deiation is calculated from the 256 noise levels for each subimage.
3. **SHOT NOISE:** Shot noise is the average shot noise level of all subimages. The shot noise of a subimage is computed by differencing the corresponding subimages in the image pair and then taking the standard deviation of the difference. The Standard deviation is calculated from 256 shot noise values for the subimages.
4. **LINEARITY:** Linearity is calculated by subtracting the ratio of mean signal at the middle exposure with the mean signal at each exposure, from 1 and multiplying the result by 100.

$$L_k = (1 - \frac{I_m}{I_k}) \times 100$$

   where I_m = Intensity (Dn/Exp) at the midpoint in exposures and I_k = Intesity at (k)th exposure. The linearity curves are calculated for all the sub-areas.
5. **DARK CURRENT:** Dark Current is determined from the two image pairs taken at 30 milliseconds and at 10 second exposures. The image pairs at each exposure are averaged to yield the average dark current at the two exposures. The Dark Current Rate is calculated

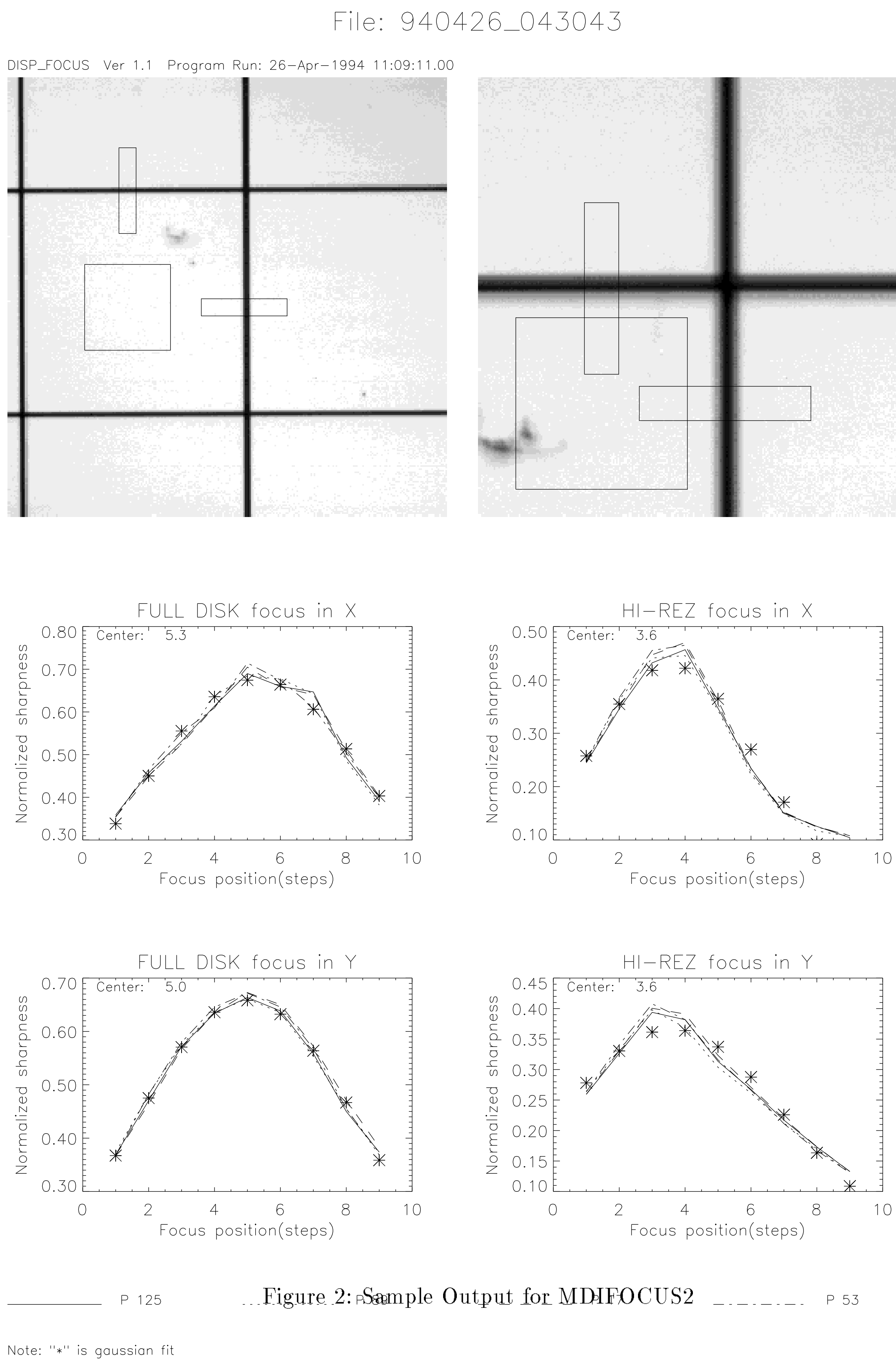

Figure 2: Sample Output for MDIFOCUS2

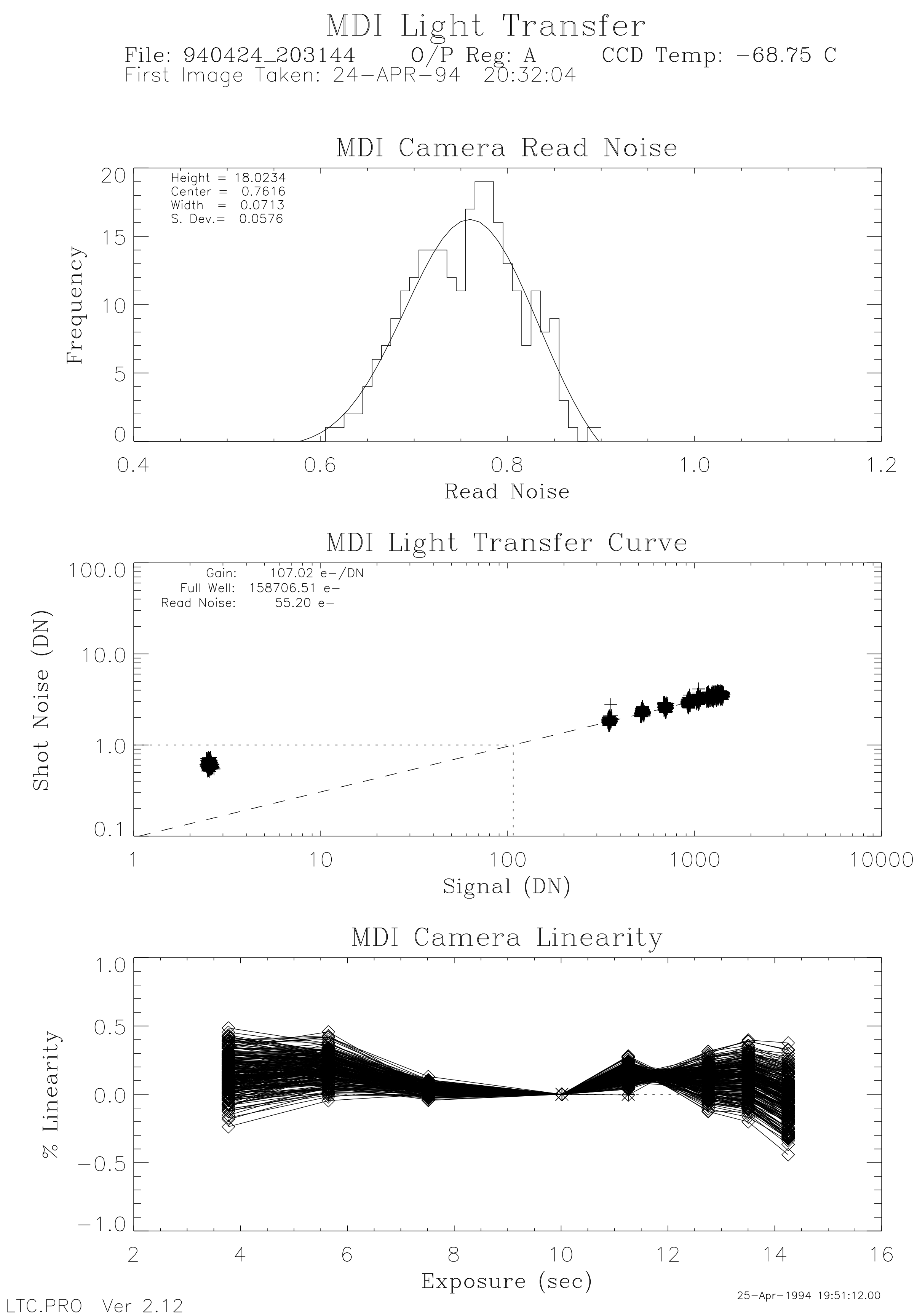

Figure 3: Sample Output for LTC

by,

$$DC_{rate} = \frac{(DC_{high} - DC_{low})}{(EXP_{high} - EXP_{low})}$$

$$DC_{offset} = DC_{low} - (DC_{rate} \times EXP_{low})$$

From these quantities, the dark current at each exposure is calculated using the expression,

$$DC_n = DC_{offset} + (DC_{rate} \times EXP_n)$$

6. **GAIN:** The Gain is determined from the plot of Shot Noise vs Signal. It is calculated by deriving the expression for a straight line through the point representing the shot noise at the exposure number 7, with slope of 0.5. The Signal level corresponding to a shot noise of 1.0 is the Gain of the CCD.
7. **FULL WELL:**

$$Fullwell = MaxSignalLevel \times Gain$$

8. **READ NOISE:**

$$ReadNoise = Readnoiseatlowestexposure \times Gain$$

3.4 MDIISS

When the analysis program MDIISS is run, it displays a representative image and the areas it has selected for sharpness and intensity normalization calculations (HR only). The user hits $< CR >$ to move on to the final result: the plot of sharpness curves, in the x- & y-direction, as a function of input jitter (amplitude in the x-axis, frequency with different linestyles in each panel). The upper panels are for the sine-wave ouputs, the lower ones are plotting the random input. The sharpness values are normalized to the un-distrubed case: i.e 1.0 means as sharp as the un-jittered image. A sample call is:

IDL> **mdiiss, '/md54/log/sci160k/940425_213204', /hc**

You can supply a title that is to appear on the hardcopy by supplying the keyword *title*.

It is very involved to correct for MDIISS images being out of order, and the results will simply not be meaningful at all unless the images are precisely as expected.

3.5 MDILASER

The routine MDILASER will take the data from the "mdilaser.src" control file and produces wavelength uniformity maps for the two Michelsons. The raw images which were used are displayed along with the Michelson maps and the sine curves which were fit. The transmission image and smaller contrast images are also displayed. A variety of information on the average signals and Michelson positions for the maximum transmission are printed on the summary

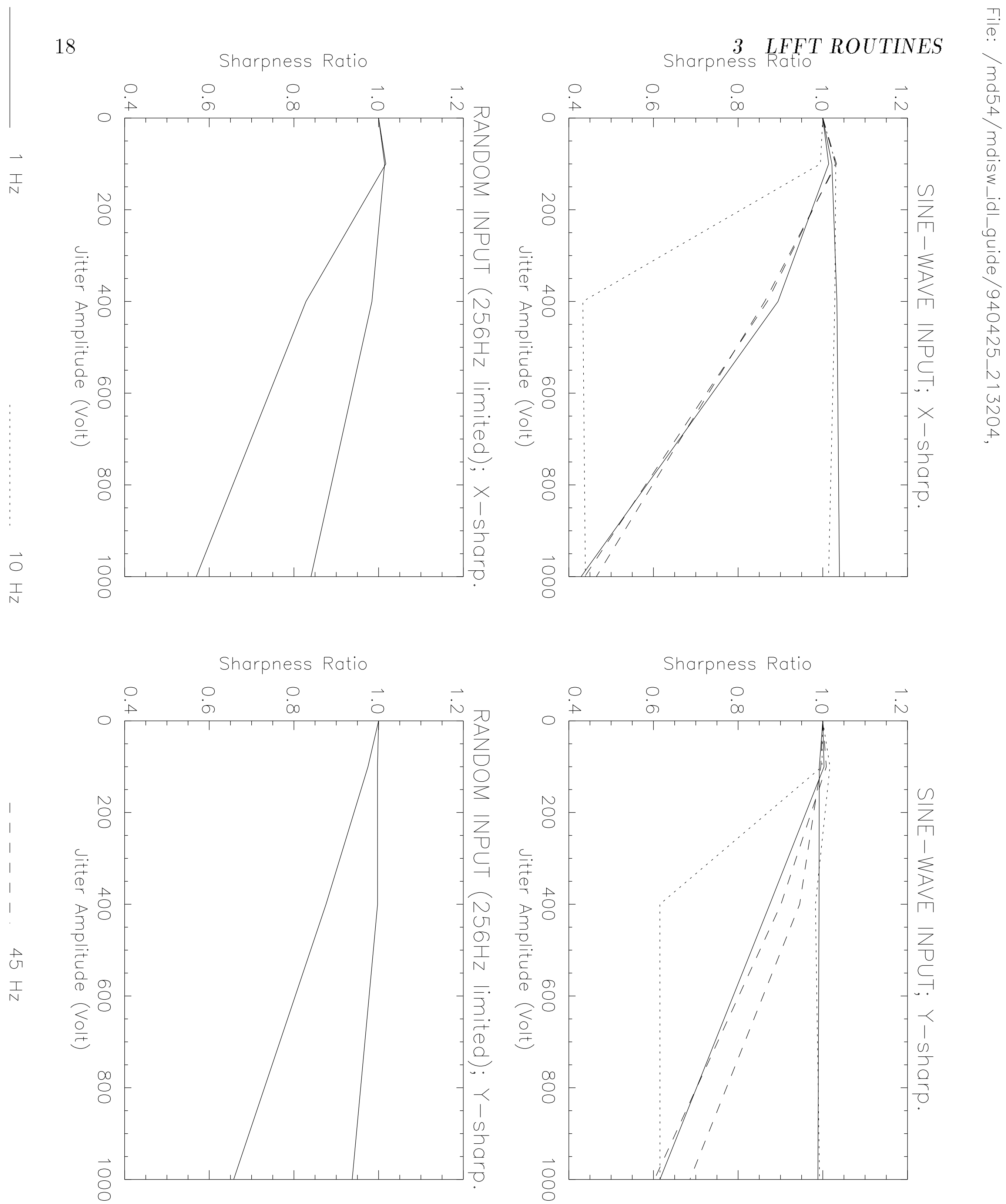

Figure 4: Sample Output for MDIISS

page. Some sample calls are:

IDL> **mdilaser, '/md66/log/sci160k/940402_033500'**
IDL> **mdilaser, infil, /hc**

Nominal results should have two nice sine curves with good fits overplotted with dashed lines as shown in Figure 5. The M1 image should have a dark area in the lower right, and the M2 image should have a bright area in the right edge. Look for approximately 97 mA for the M2 wavelength co-tuning for when M1 wavelength is 50 mA.

3.6 MDIDUST

The routine MDIDUST will take the data from the "mdilaser.src" control file and produces images showing the dust particles on the different optical surfaces. The "mdilaser.src" data set takes CAL mode images using the laser as a source with nine different pointing angles. By shifting the images by different amounts, artifacts in the different surfaces are enhanced. This procedure can be used for both the high resolution and full disk images. Some sample calls are:

IDL> **mdidust, '/md66/log/sci160k/940402_033500'**
IDL> **mdidust, '/md66/log/sci160k/940402_033500', /hc**
IDL> **mdidust, '/md66/log/sci160k/940402_033500', /fd**
IDL> **mdidust, '/md66/log/sci160k/940402_033500', /fd, /obsmode**

3.7 MDIMROT, MDIPROT, and MDIPDIST

The routines MDIMROT, MDIPROT, and MDIPDIST analyze the results from the respective control files. Each of them uses the routine FIT_GCROSS. FIT_GCROSS takes a grid image and locates all of the grid crossings. It then fits two gaussians to the X and Y averages to find the location of the grid crossing to within a few hundreds of a pixel. The results are saved in a text file, and the next time that one of these routines is run for the same set, the calculations are not performed. Instead, the routine reads the results from the text file and simply plots them. You can use the keyword */force_calc* to force the regeneration of the text file which contains the results of the grid locations.

NOTE: The stimulus image drifts with time (due to thermal changes and disturbances in the laboratory). The long term drift can be removed by smoothing the data. There is still some high frequency jitter in the stimulous evident by the lack of repeatablility of results for the same michelson tunings. The first few plots in these programs shows the raw, smoothed and differenced positions (see Figures 7, 8, and 9).

The MDIMROT experiment takes an image through 10 different M1 tunings and repeats those 10 images for a number of repeats (usually 10 or 15 repeats). It then does the same thing for 10 different M2 tunings. The analysis looks to see how much the grid location is shifted for each of the tunings. The results (see Figure 10) should show some distinct clustering for

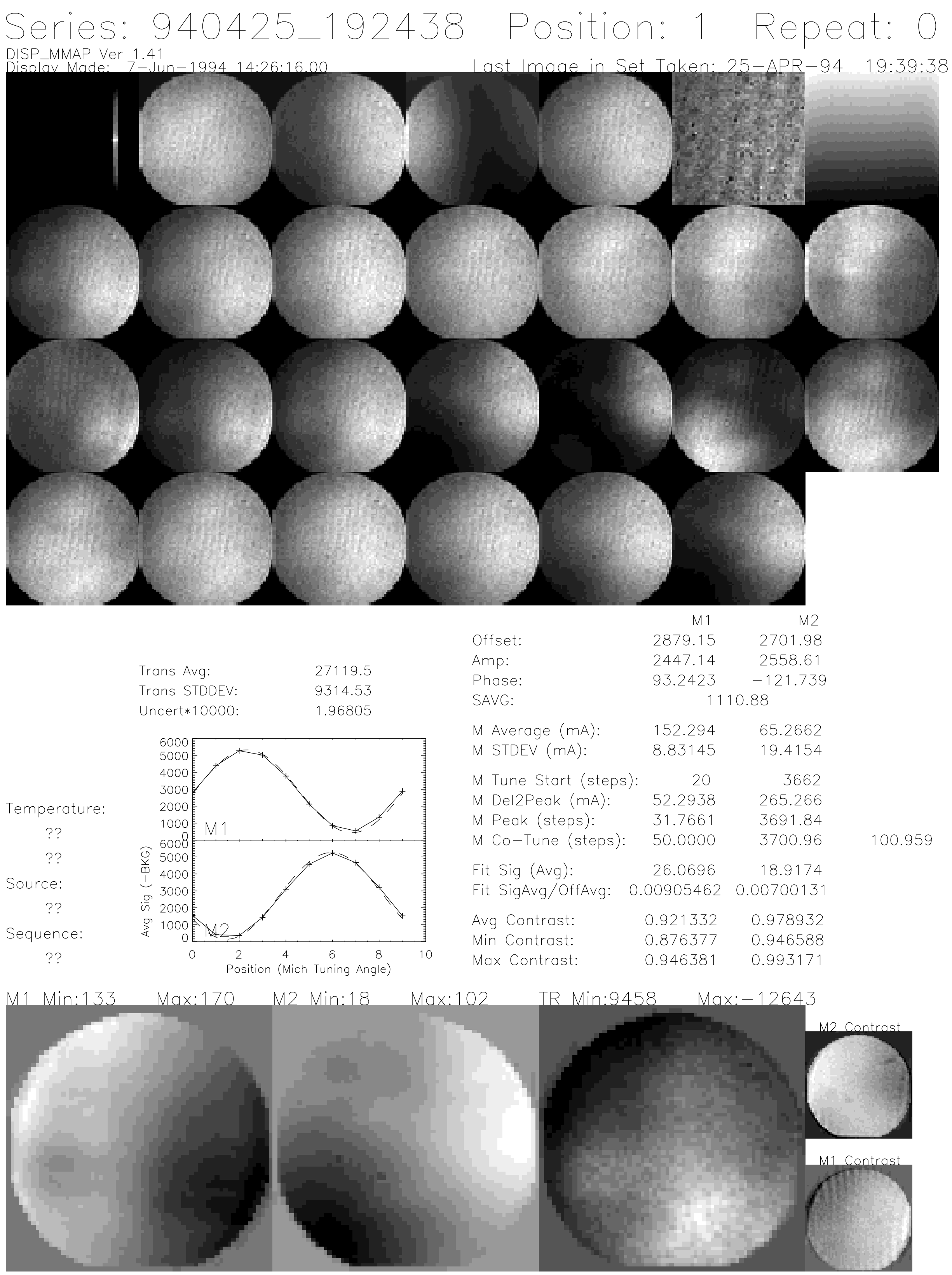

Figure 5: Sample Output for MDILASER

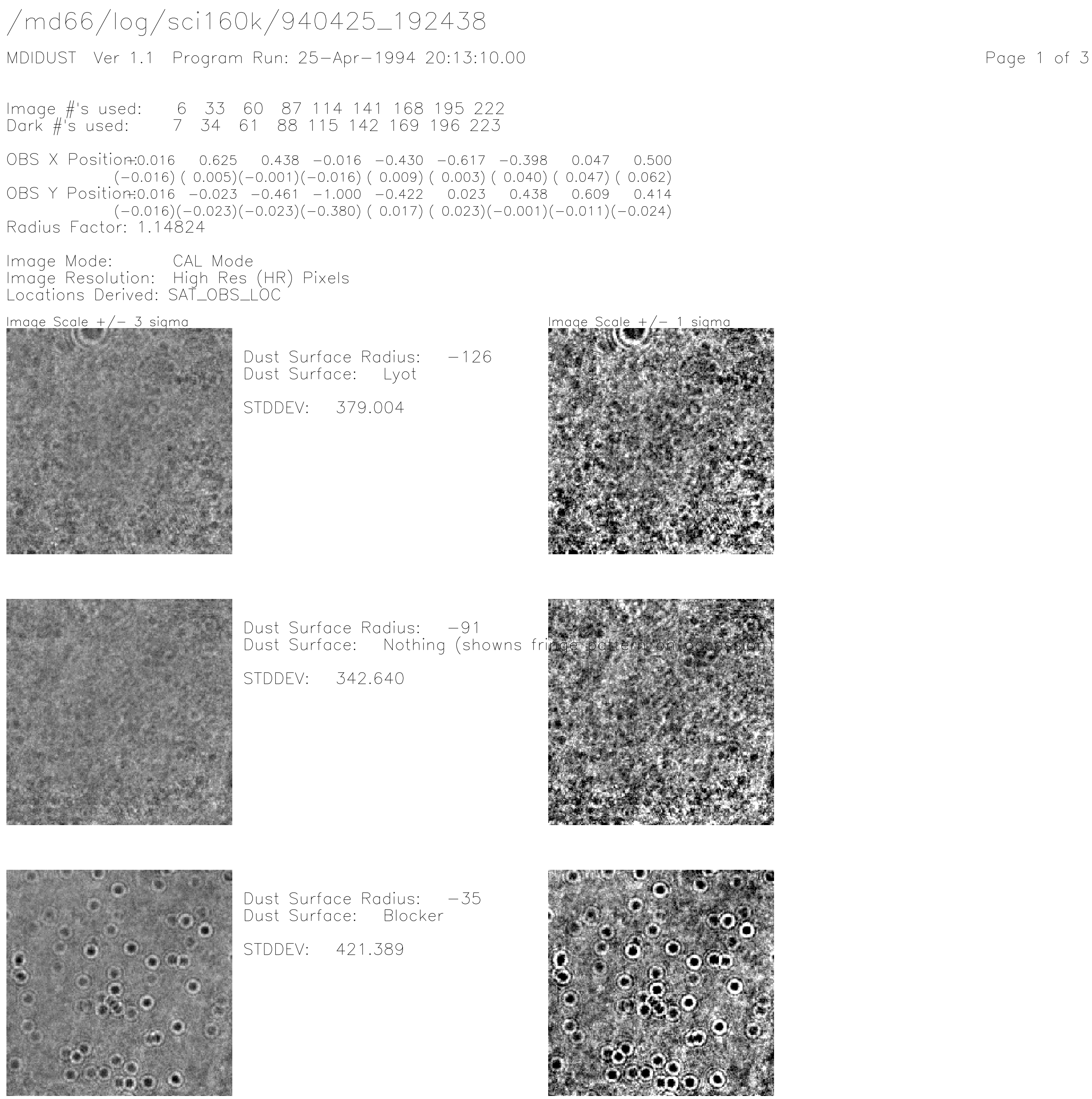

Figure 6: Sample Output for MDIDUST

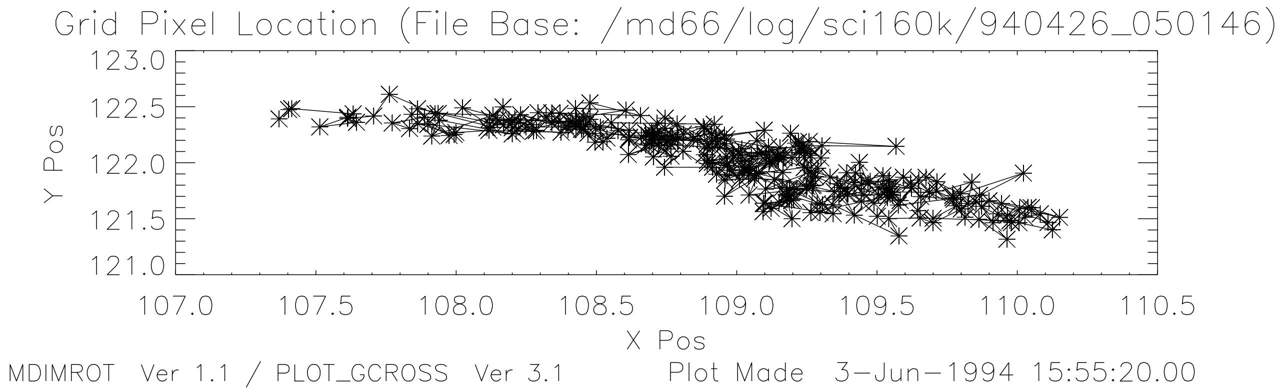

Figure 7: MDIMROT Sample - Raw Grid Positions

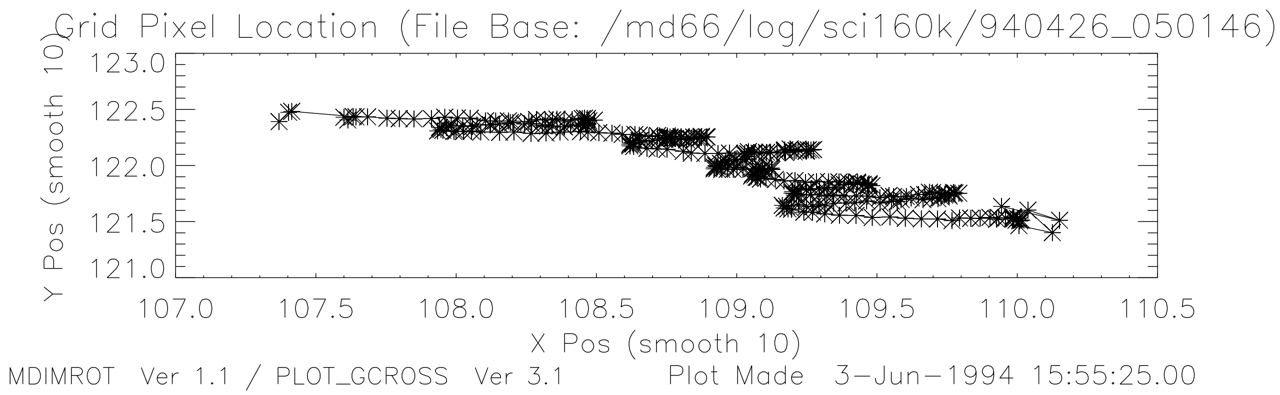

Figure 8: MDIMROT Sample - Positions Smoothed

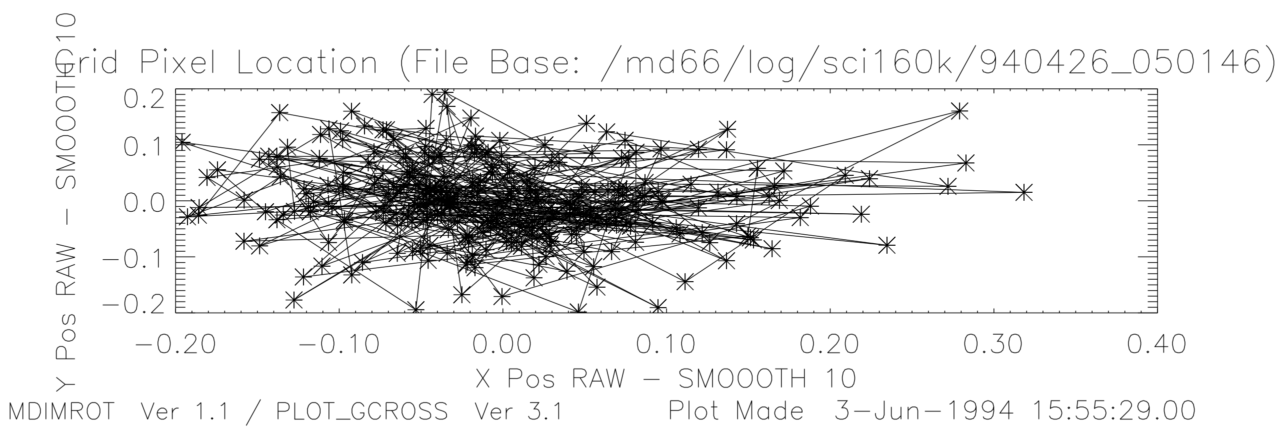

Figure 9: MDIMROT Sample - Remove Stimulus Drift

M1 tunings, especially when comparing tuning 0 with tuning 6. The amplitude of the variation between average tuning positions (lower right plot) should be less than ± 0.2 pixels, and the scatter for each position should be less than ± 0.10 pixels. A sample call is:

IDL> **mdimrot, '/md54/log/sci160k/940426_050146'**

The MDIPROT experiment is similar to MDIMROT, but there are four different polarizations instead. The results (see Figure **??**) should show less than ± 0.05 pixel variation in the average polarization positions, and the scatter for each position should be less than ± 0.10 pixels. It is possible to run MDIPROT once with the ISS on and once with it off. If this is the case, then it is important to use the keyword option */qiss* when calling MDIPROT.

IDL> **mdiprot, '/md54/log/sci160k/940426_060248'**
IDL> **mdiprot, '/md65/log/sci160k/940505_104648', /qiss**

MDIPDIST takes full disk images of the grid stimulus through the four polarizations. There are typically 10 or 15 repeats of the four polarization set. The grid crossing is located for each grid and averaged. These average grid locations can be compared for different polarizations (the long term stimulous drift is effectively removed because the polarization images are interleaved). The difference in the absolute pixel grid location between two polarizations is shown in Figure 12. This result shows the shift in the image between two polarizations, and the amplitude should be approximately 0.1 pixels.

Another plot can show the change in magnification or plate scale size. By chosing four grid locations which form a square, we can examine how the box size changes between the different polarizations. This is done by ratioing two polarization results. Figure 13 shows the results for "left" versus "right" polarization. A sample calling sequence is:

IDL> **mdipdist, '/md54/log/sci160k/940426_061816', /hc**

3.8 IPCOM

The routine IPCOM takes the data from the "ipcom.src" control file and produces a plot of the square root, reciprocal, and velocity tables. In addition to the plots, the routine also (a) checks the telemetry board compression and packing of the images, and (b) checks the image addition and subraction which can be performed by the DMA board. Sample calls are:

IDL> **ipcom, '/md66/log/sci160k/940417_033526'**
IDL> **ipcom, '/md66/log/sci160k/940417_033526', /hc**

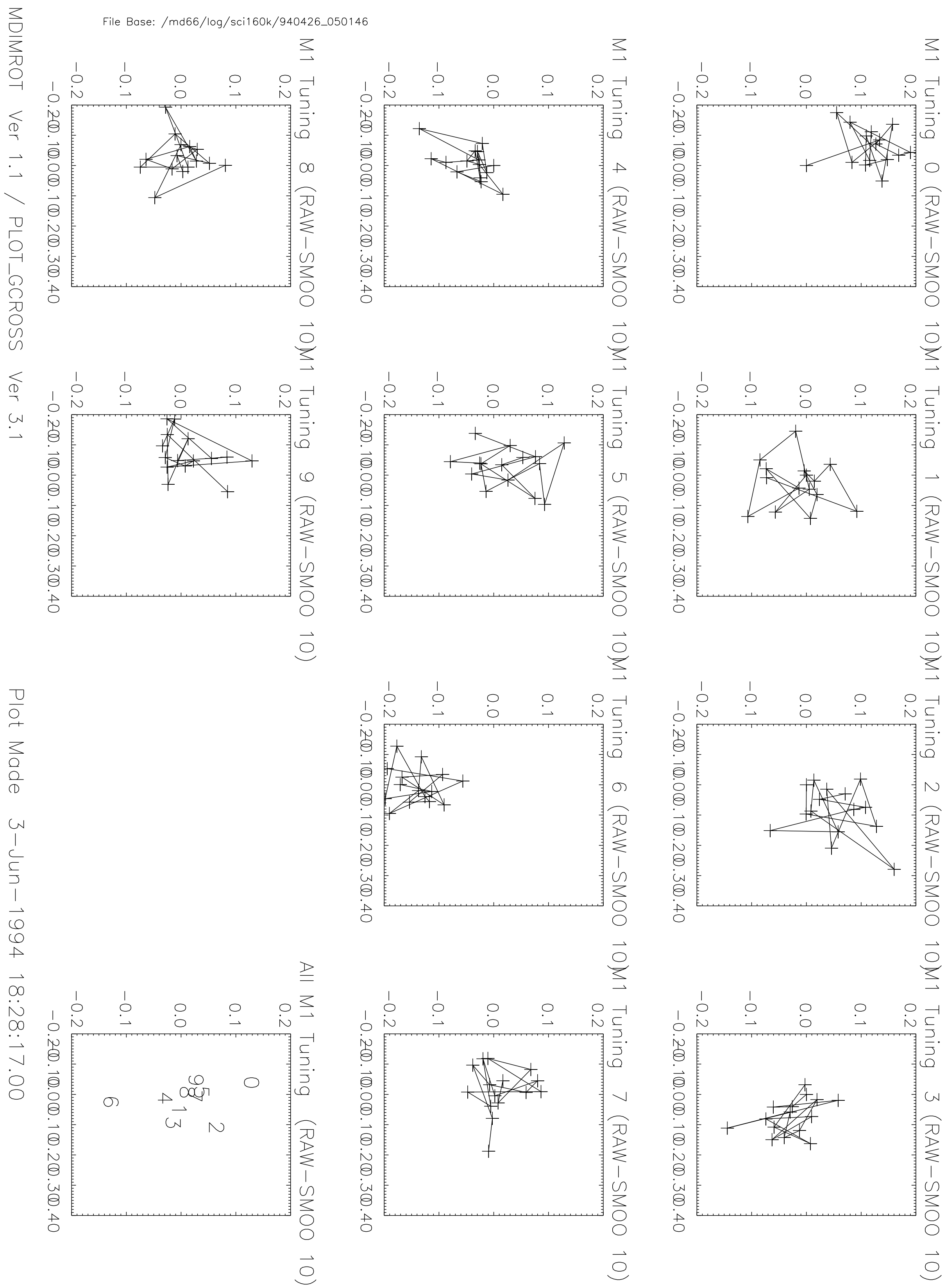

Figure 10: MDIMROT Sample - Michelson 1 Position Shifts for Tunings

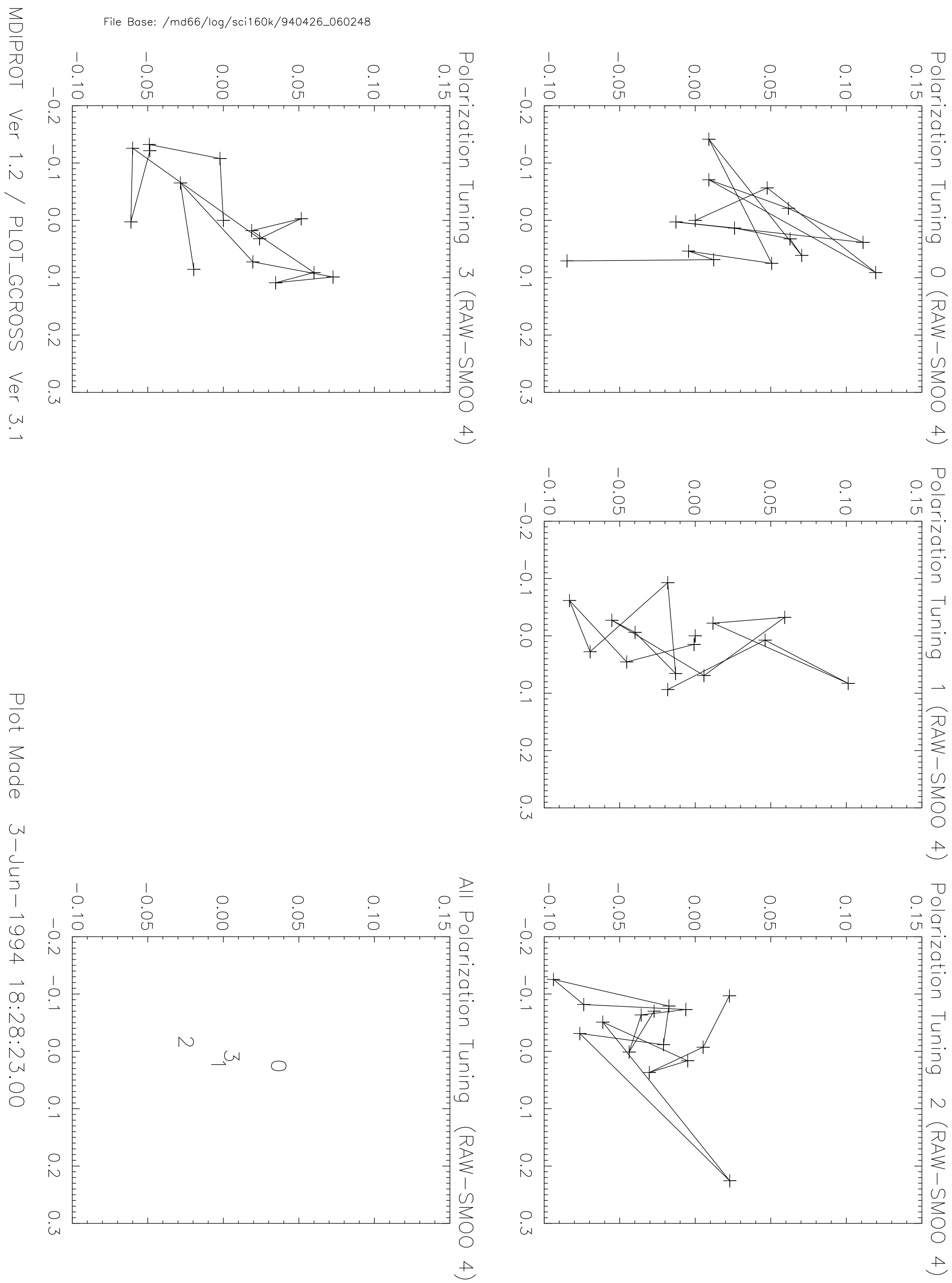

Figure 11: MDIPROT Sample - Position Shifts for Each Polarization

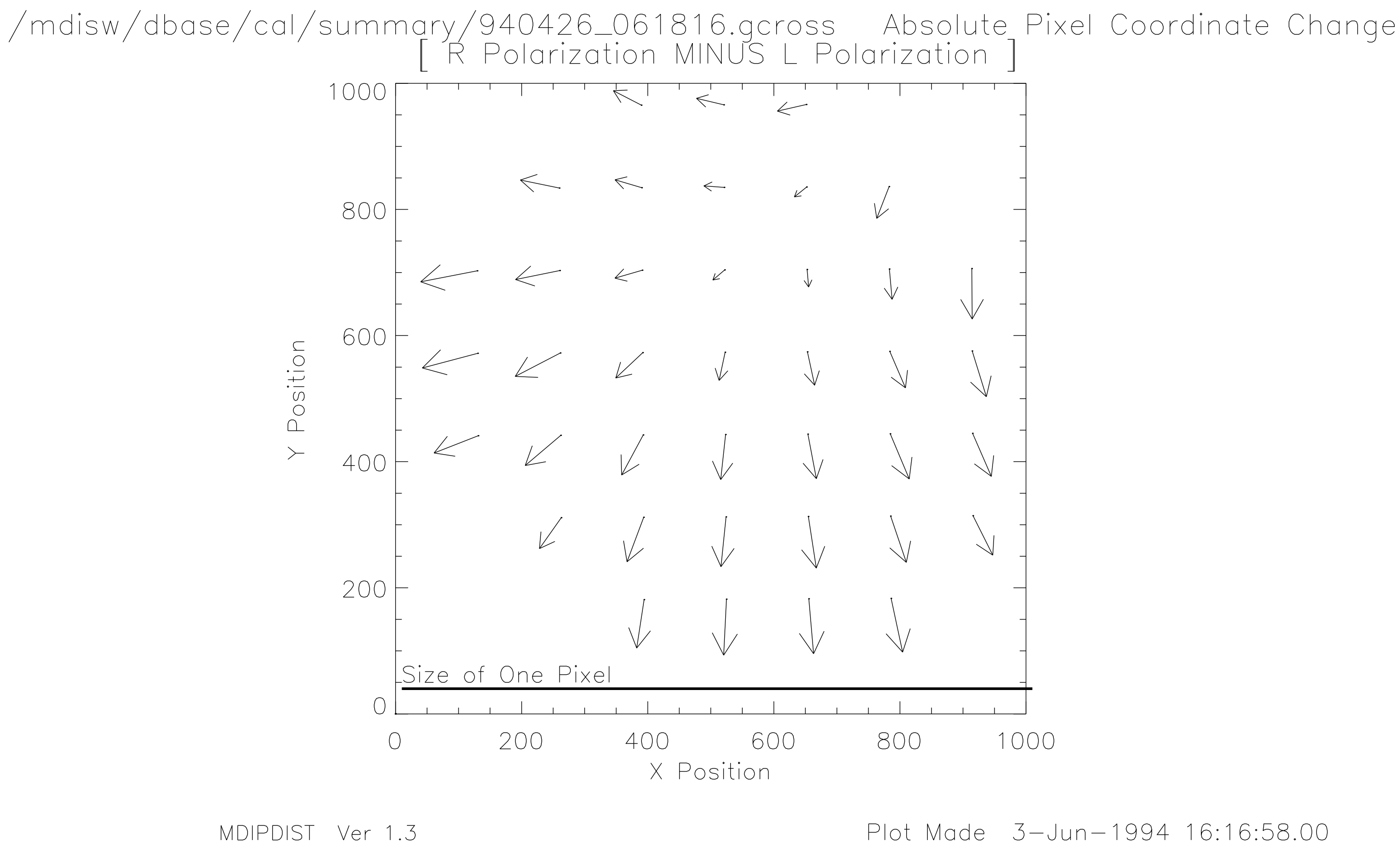

Figure 12: MDIPDIST Sample - Position Shift for Polarization

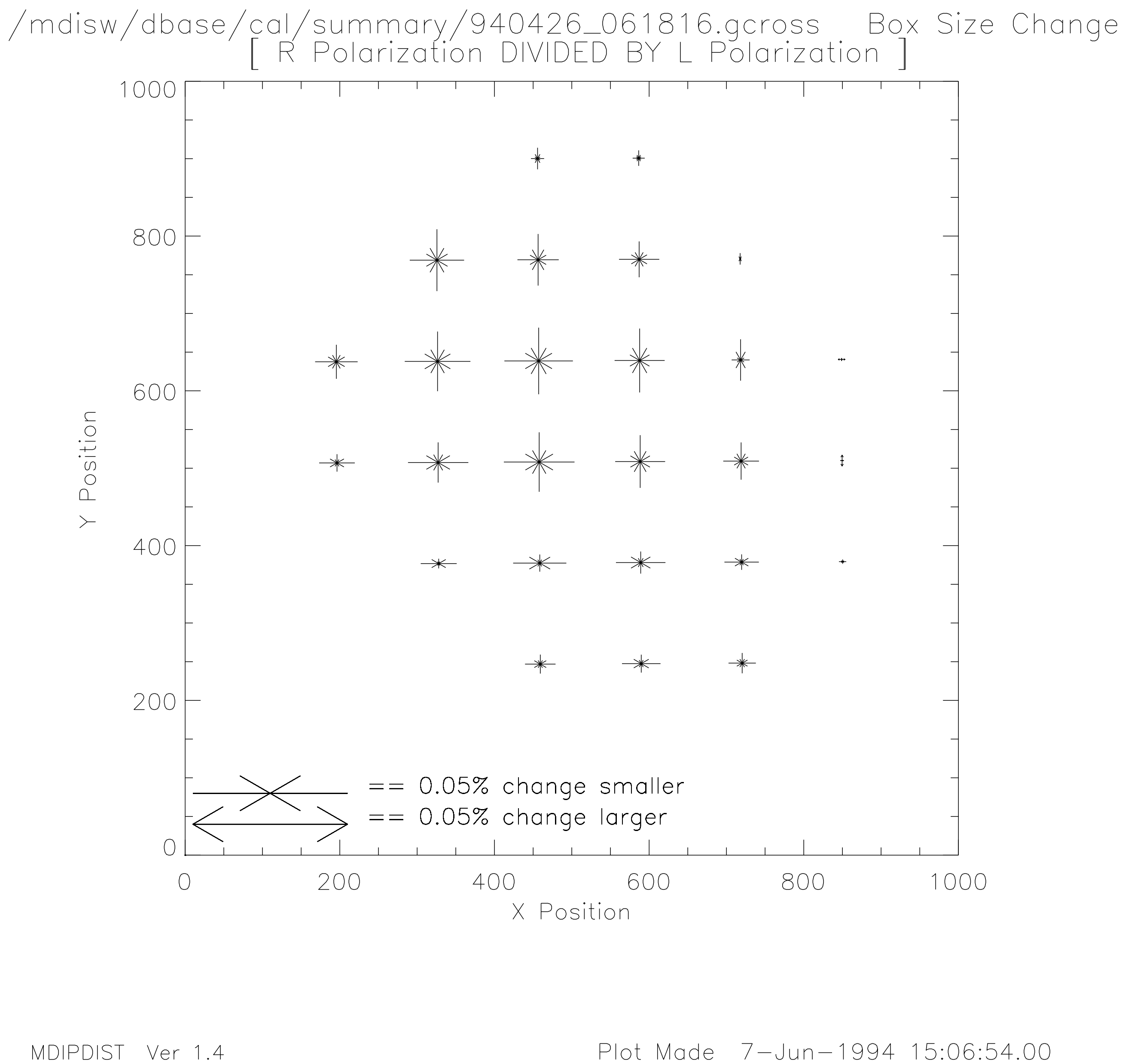

Figure 13: MDIPDIST Sample - Plate Scale Size Change for each Polarization

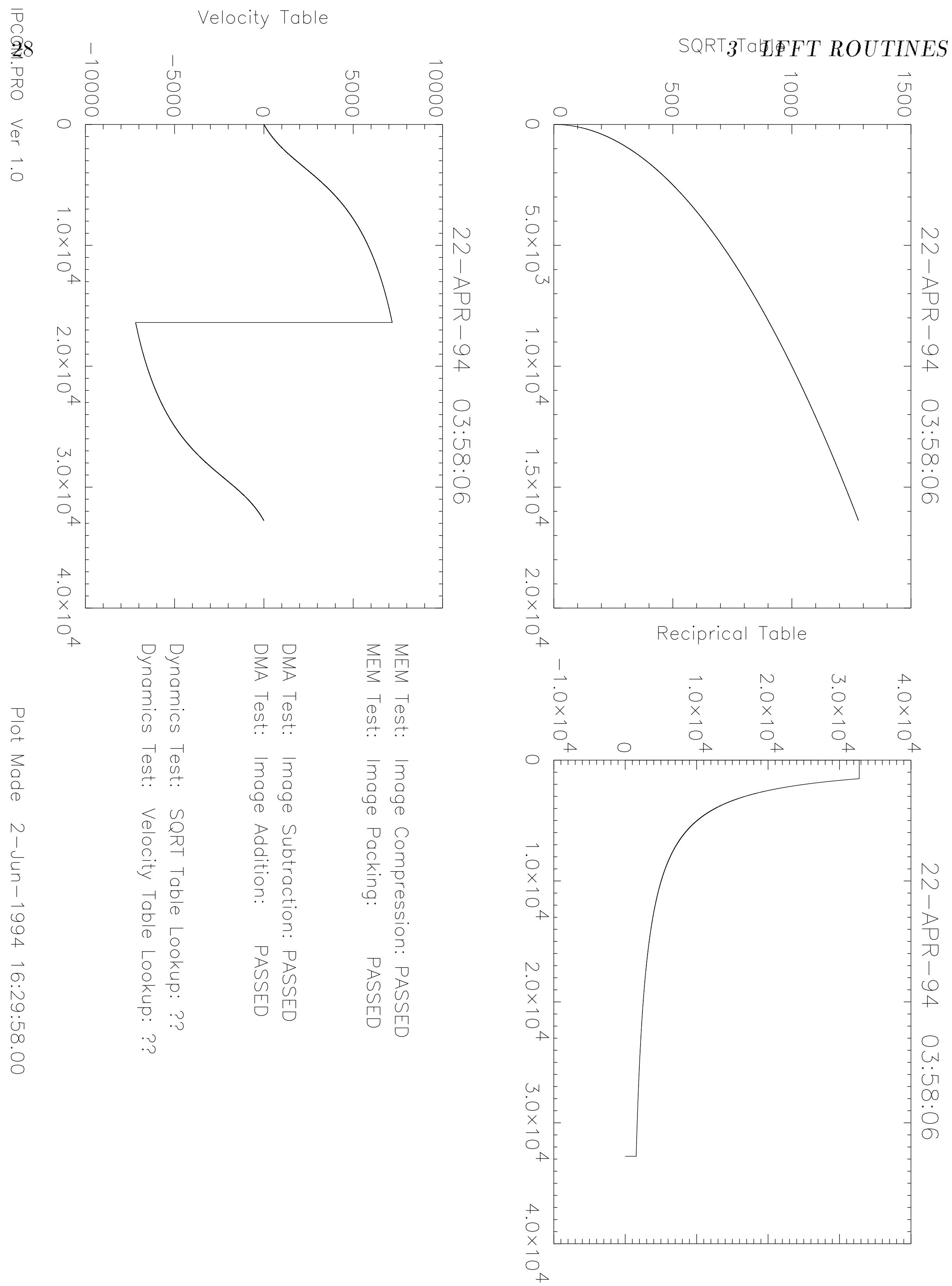

Figure 14: Sample Output for IPCOM

3.9 SHUTEST

This section still needs to be written

3.10 TRAP_CHECK

It is recommended that the routine TRAP_CHECK be run on the camera commision data (part of the ipcom control file). This routine monitors the size of the traps in the CCD and also checks for the development of new traps. Some sample calling sequences are:

IDL> **trap_check, '/md65/log/sci160k/940503_110612', /camera_com**
IDL> **trap_check, '/md65/log/sci160k/940506_120808', /mdipict**
IDL> **trap_check, infil, [5,24]**
IDL> **trap_check, infil, fixed_bad=[450, 362]**

The total integrated signal for column 362 (column 661 for the B amplifier) should be approximately 1200 DN. If it is more than 1400 DN, the program manager should be alerted.

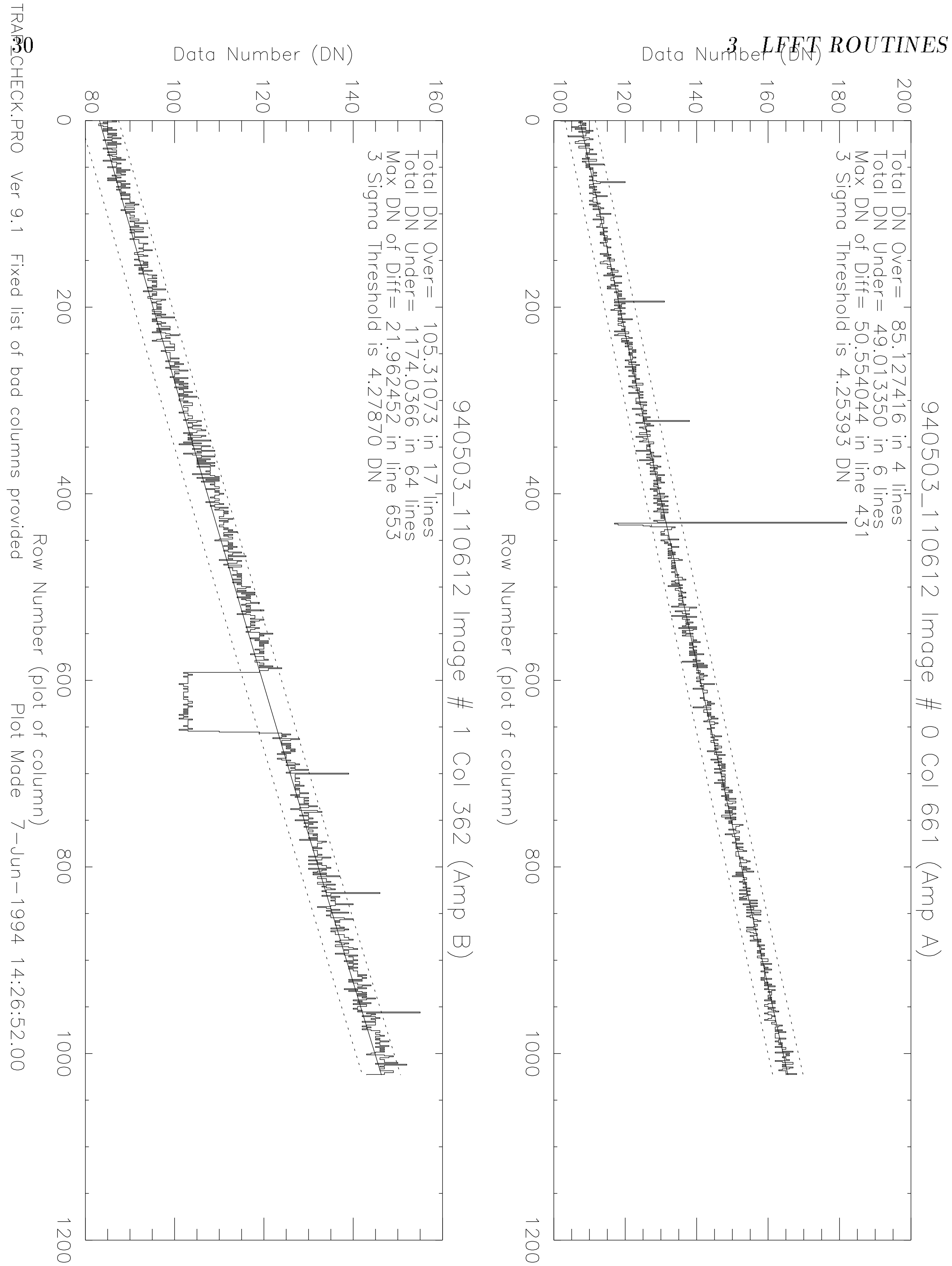

Figure 15: Sample Output for TRAP_CHECK

4 House Keeping Routines

A list of the mnemonics, their meanings, and which words they come from is provided in the Appendix on page 45.

4.1 How to Make Temperature and Voltage HK Plots (HKPLOT)

It is possible to make plots of temperatures and voltages from the MDI housekeeping data by using the routine HKPLOT. NOTE: This routine will only run on SGI machines since the IDL routine spawns a call to the C executable READ_HIST. It is also necessary to have defined the environment variable $MDI_HISTORY_DIR to point to the directory which has the .HIS files for the time period you need. A sample specification is:

% **setenv $MDI_HISTORY_DIR /md54/log/history**

It is necessary to know the names of the mnemonics which you wish to have plotted. In the second calling sequence is shown below, the output is sent to a tektronics plotting device.

IDL> **hkplot**
IDL> **hkplot, dev='tek'**

A sample session is shown below. You must specify the starting time and the duration you wish plotted.

```
HKPLOT - History files are assumed to be in directory: /md54/log/history
Enter date (DD-MMM-YY i.e. 01-oct-93) : 17-mar-94
Enter time (HH:MM:SS | HH:MM): 20:00
Enter duration (HH:MM:SS or HH:MM ): 10:00
Enter input file name or hit return for interactive mode
:
file name=
Interactive Mode
type 'plot <mnemonic> [y_low y_high | a]<CR>' for each mnemonic to plot
type 'end' to terminate input mode
Max of 4 mnemonics, Example:
    plot m+5cm      (default to auto y scale)
    plot m+5ip a    ( use auto y scale )
    plot m+5ip 5 30 ( specify y scale )
    plot m+5ip p    ( use previous y scale )
    oplot mtsqopt4  ( overplot filter oven temperature )
    plotave 2 mtopts4 mtopts5 20 30 ( plot ave oven temp)
    end
```

```
: plot mtopts5
: oplot mtopts6
: end
Enter output file name to save plot commands
  output file will go to directory: /md54/tmp
  or just hit return if no save desired
:
Using LVT file: /md54/log/history/READ_HIST.DBS
Select Hard Copy Option (a/0/1/2/3/p/<CR>):
Plot again? (<CR>=YES,y=YES,n=NO):
```

In the example above, the answers:

```
plot mtopts5
oplot mtopts6
end
```

where supplied to plot the mnemonic **mtopts5** and to over plot **mtopts6**. The Y-range plotted could have been specified to be from 10 to 45 by using a command syntax of the form:

```
plot mtopts5 10 45
oplot mtopts6
end
```

4.2 GET_HK_INFO

The IDL routine GET_HK_INFO directly accesses the database which holds the MDI and spacecraft house keeping packets (not the command .HIS files). It uses the same mnemonics as HKPLOT and RTPLOT. You can either get the value of the mnemonic for a single time, a list of times, or a range of times. Some sample calls are:

IDL> **info = get_hk_info(times, mnem)**
IDL> **print, get_hk_info('16-mar-94 09:00', 'mtopts5')**
IDL> **info = get_hk_info(['16-mar-94 5:00', '16-mar-94 14:00'], /range, 'mtopts5')**
IDL> **info = get_hk_info(timerange, /range, mnem, timarr=timarr)**

The input *times* can be a single time or a list of times. If the */range* option is going to be used, then *times* must be the start and stop times (a two element array). *mnem* can be a list of mnemonics if the output are all of the same data type (some outputs are floating point and others are string type to say something like "ON" or "OFF"). The output *timarr* is the time array for each of the values returned. You can plot these results using UTPLOT with a command similar to the following:

IDL> **val = get_hk_info(['16-mar-94 5:00', '16-mar-94 14:00'], /range, $**

```
IDL>                     ['mtopts5', 'mtopts6'], timarr=timarr)
IDL> utplot, timarr, val(*,0)
IDL> outplot, timarr, val(*,1)
```

5 Calibration Routines

5.1 Michelson Tuning Analysis (DO_DISP_MMAP1)

The routine DO_DISP_MMAP1 allows the user to perform the Michelson tuning analysis on most datasets (you can use MDILASER on the nominal laser tuning datasets). It is a program, so you type the following to run it:

IDL> **.run do_disp_mmap1**

A sample session is shown below.

```
------------------------------------------------------------
For LFFT sets, the following parameters are needed:
    "Bogus" image offset:                                 1
    # Images per position:                               27
    Dark Image # within the "one position" series         6
    Obs Image # within the "one position" series          0
    Image # of first of 20 Michelson tuning               7
There are 9 positions available (answer 0-8)
------------------------------------------------------------

Do you wish to select the latest telemetry file  [Default: YES ] ?n
********************************************************************************
Absolute image numbers start counting at zero (first image = image #0)
Telemetry File Name (including directory):      $MDI_SCI160K_LOG_DIR/940312_052339
Directory for the telemetry files:              /disk6/log/sci160k
"Bogus" image offset:                           0
# Images per position:                          22
Dark Image # within the "one position" series   1
Obs Image # within the "one position" series    0
Image # of first of 20 Michelson tuning         2
Automatically save Michelson maps               Yes
Enter position(s) to run   [Default: 0 ]
% Compiled module: TYPE_CONV.
Enter the repeat to run   [Default: 0 ]
Ready to run DISP_MMAP now?   [Default: YES ] ?
Automatically generate a hardcopy               Yes
********************************************************************************
Do you wish to change any of the above parameters?   [Default: N ] ?

--------------------------------------------------------------------------------
To run all 9 positions of "mdilaser" enter:    0,1,2,3,4,5,6,7,8
Enter position(s) to run   [Default: 0 ]
```

```
Enter the repeat to run   [Default: 0 ]
Ready to run DISP_MMAP now?   [Default: YES ] ?
```

If you answer “No” to the question about changing any of the above parameters, you can adjust which images are used for the tuning or the telemetry file name.

6 Command History Routines

Text files have been created with contain a list of the control files and MDI commands which have been executed. The files which are created are in the directory $MDI_CAL_TXT (which is normally /mdisw/dbase/cal/summary). There is a file per month with names of the form `cmd_hist.9405` for May-94. A list of the .HIS files which were used to create the summary list is shown in the beginning of each file.

A sample portion of the full listing is:

```
940504_095350 <         mbltyofs !LI2                          4-MAY-94 09:49:55
940504_095350       mbcmtp3 0 0 4000                           4-MAY-94 09:51:16
940504_095350       mbltclsl                                   4-MAY-94 09:51:41
940504_095350       mbcmtp3 0 0 4000                           4-MAY-94 09:51:58
940504_095350    >> mdipict                                    4-MAY-94 09:52:42
940504_095350           mbcmsumm 1 1                           4-MAY-94 09:52:44
940504_095350           mbiplbic 0 3                           4-MAY-94 09:52:45
940504_095350           mbcmhdr1 0x4040 0x4040 0 1 0           4-MAY-94 09:52:46
940504_095350           mbcmaadc 3                             4-MAY-94 09:52:47
940504_095350           lobsmode                               4-MAY-94 09:53:15
940504_095350       pconf 0x0100 0x0100 0x0100 0x0100 0x0100   4-MAY-94 09:53:18
940504_095350       pconf     13     82    125     55     89   4-MAY-94 09:53:19
940504_095350           mbcmtp1r !GI7 !GI0 !GI0                4-MAY-94 09:53:51
940504_095350           mbcmtp3r !GI7 !GI0 !GI0                4-MAY-94 09:55:43
940504_095350           lcalmode                               4-MAY-94 09:57:34
940504_095350       pconf 0x0100 0x0100 0x0100 0x0100 0x0100   4-MAY-94 09:57:37
940504_095350       pconf     13     82    125     19    125   4-MAY-94 09:57:38
940504_095350           mbcmtp1r !GI7 !GI0 !GI0                4-MAY-94 09:58:05
940504_095350           mbcmtp3r !GI7 !GI0 !GI0                4-MAY-94 09:59:56
940504_095350           mbcmdrkr !GI7 !GI0 !GI0                4-MAY-94 10:01:48
940504_095350           mbcmbadc 3                             4-MAY-94 10:03:40
940504_095350           mbcmdrkr !GI7 !GI0 !GI0                4-MAY-94 10:03:41
```

The symbol $<$ signifies that this is the first command which is associated with the telemetry file, and the symbol $>>$ signifies that it is a command which a user executed (used the "perf" command). It is simple to "grep" the file to search for certain conditions.

The alias **cmdgrep** has been created to search all of the files for a given string. A sample use of that symbol is:

% **cmdgrep mdipict**

to find all instances when **mdipict** was run.

6.1 HIST_SEA

HIST_SEA is the routine which creates the command history summary files. It is a program and a sample call is:

IDL> **.run hist_sea**

6.2 HIST_SUMMARY

The routine HIST_SUMMARY will search through all of the `$MDI_CAL_TXT/cmd_hist.9*` files for every instance that a control file is run. A sample of the default HIST_SUMMARY results are shown in the appendix on page 71. Some sample calls are:

IDL> **hist_summary**
IDL> **hist_summary, /default**
IDL> **hist_summary, ['mdipict', 'mdiltc', 'mdifocus'], outfil='test.hist'**

6.3 HIST_COUNT

The routine HIST_COUNT searches through all of the `$MDI_CAL_TXT/cmd_hist.9*` files and counts the number of times a control file is executed for each month. A sample listing is shown in the appendix. Some sample calls are:

IDL> **hist_count**
IDL> **hist_count, /default**
IDL> **hist_count, ['mdipict', 'mdiltc', 'mdifocus'], outfil='count.hist'**

A Description of the Purpose of Several Control Files

This appendix describes some of the details on a few of the more common control files. For more details you can look at the long form function test (LFFT) procedure or at the source file of the control file.

A.1 MDION

MDION opens a log file if one is not already open. Turns on MDI, except for heaters and power to the front door, the alignment mechanism, and the limb tracker; and resets subsystems to known states. The operator selects the redundant or primary MDI power converters in response to a prompt. After several prompts, a picture is taken (in obs mode) to demonstrate that the instrument and EGSE are functioning nominally. If hung up, manual commands may be required and additional pictures/images should can be taken.

A.2 MDICOM

MDICOM calls a series of control files in order to exercise (commission) the majority of the MDI subsystems. Contains a few operator options for subsystems like the Front Door and Limb Tracker whose use depends on the test configuration. The test flow is as given below.

1. A set of instrument temperatures are recorded. Then, structure heater #3 (fixed power) and the primary oven controller (Set Point 2) are turned on to begin warming things up early in the test flow so that temperature changes will be observable later.
2. The five internal mechanisms (MTM1, MTM2, PAW, CAL1, and CAL2) are simultaneously moved to four different locations and the resultant encoder values are put in the log file.
3. Power to the alignment mechanism is turned on. MDI is pointed to a new location by moving both motors and the potentiometer values are put in the log file. MDI is then returned to the initial pointing.
4. Camera and shutter functionality is demonstrated by taking six images and down linking them. There is no light because the door is closed. In addition, the measured shutter times are put in the log file. The six images are:

Image#0: 1024x1024 1x1 summed dark image, offset 3 (Amp A)

Image#1: 1024x1024 1x1 summed dark image, offset 3 (Amp B)

Image#2: 1024x1024 2x2 summed dark image, offset 3 (Amp A)

Image#3: 1024x1024 2x2 summed dark image, offset 3 (Amp B)

Image#4: 1024x1024 1x1 summed dark image, offset 15 (Amp A)

Image#5: 1024x1024 1x1 summed dark image, offset 15 (Amp B)

This set of images exercises both the A and B amplifiers, the 2x2 camera summing mode, the minimum and maximum offset levels (thus one of the images is put into a state where all data bits are 0's and one to where nearly all are 1's), and the ability to output data through the IP.

5. If the stimulus telescope is to be used and the front door is to be opened, the procedure will prompt the user to open the front door and turns on the limb tracker in the nominal stimulus telescope mode. MDICOM then activates LLTCNTR which takes continuous FD Obs mode images, summed 4x4 in the IP to make the repetition rate acceptable. At a prompt the operator manually moves the stimulus telescope until the image is well centered on the CCD. Continuing on, LLTCNTR iteratively adjusts the X and Y Offsets until the X and Y Average Errors are between 2.2 and 2.4.
6. The limb tracker system is exercised, first with the loop open. If there is no stimulus telescope this only consists of changing the X and Y offsets and noting changes in the X and Y offset readings, and changing the PZT A, B, and C offsets and noting changes in the PZT positions (multiply by 20 to obtain volts). If the stimulus is on, changing X and Y offsets will affect the average error signals as will changing the PZT positions. If the stimulus is on, LLTCOM continues by moving the alignment legs in a small square (8") and records the corresponding changes in the error signals with the loop open. The loop is then closed and both the PZT offsets are changed and the PZT positions should now remain unchanged. Next, the square pattern of pointing is repeated and the error signals should now remain unchanged while the PZT positions do vary to compensate for the off-pointing. Finally, the PA wheel is moved to verify that the DEP software is automatically adjusting the ISS to handle this interruption of the beam. The loop is then opened and power is removed from the alignment mechanism and the ISS.
7. Provided nothing is in the way of opening the door and the cleanliness conditions are acceptable, power to the front door is turned on and if it is open already it is closed. Next the door is opened and closed with motor 1 and then with motor 2. The time it takes for the door to open and close are recorded as an indication of performance. Power is then turned off to avoid accidentally moving the door at an undesired time.
8. The prime oven controller is stepped through five set points. Time is not taken to see corresponding temperature changes. The oven power is then turned off.
9. The backup oven power is turned on and five set points are exercised. At each set point, the INTSIM current is recorded. The backup oven power is then turned off.
10. The optics package structure heater power is turned on and six settings are exercised. At each setting, the INTSIM current is recorded. The structure heater power is then turned off.
11. The CCD main/decontamination heater is turned on, the new (higher) INTSIM current is recorded as is the temperature. Then the CCD heaters is turned off and a full set of temperatures are recorded.
12. The DEP is exercised. The state of the Sequence Registers is put in the log file, the registers are changed, and the new states are put in the log file. An MTM Lookup Table is loaded and the load verified. An optional oven monitoring activity is accomplished if the operator feels conditions are such that it will be meaningful. Next, a sequence is run for about three minutes which takes full disk, 1024x1024 pixel images; sums pixels 4x4 in

the IP; and outputs 256x256, uncompressed images via the high rate telemetry channel. After that, a sequence is loaded via telecommands and run for another three minutes. The high rate data is not saved to disk.

13. The IP is exercised.
    - The first part of the IP commissioning verifies the capability to load and read back the instruction queue, to load tables into memory, and to transfer data using the double buffer.
    - The control file will next perform an IP memory test. Memories are tested in groups of three. There are twenty IP memory pages, so there will be seven tests (one memory is tested twice).
    - The control next does a check of the telemetry board by loading the IP with a test pattern and downlinking that pattern in raw, compressed, and packed form.
    - The control file next verifies that tables have been loaded to the IP correctly. In the process of doing so, the control file executes macro programs from the queue, thus verifying DEP queue control.
    - The control next verifies the DMA controller interface to the camera. An image is taken with the camera and loaded into 4 (0-3) memories. A second image is loaded into memory 1, subtracted from memory 2, and added to memory 3. All 4 images are then downlinked.
    - Next, the control file loads the queue with instructions that execute the dynamics program and then dumps the queue. The control file asks if the dump of the queue is okay.
    - Lastly, fully integrated DEP, camera, and IP functionality is demonstrated. The control file will invoke a DEP sequence that executes one full cycle of the dynamics program. Full disk velocity and square root compressed continuum intensity are downlinked on the high rate channel. A pair of images are displayed. The sequence is allowed to repeat three more times. Following the third repeat, the intermediate sums used to generate the third pair of images are downlinked and will later be used to verify successful execution of the velocity algorithm.
14. If the operator chooses, the Degraded Motor Controller (DMC) is exercised by the DEP. Each mechanism relay is set to the DMC state and the encoder values are recorded. Then, each internal motor except the shutter is moved to a few positions and the encoders are recorded. The motors are moved back and the encoders are recorded again. Lastly, the DMC relays are put back to normal.
15. The DMC capability of the alignment mechanism is verified by switching the appropriate relay and moving the legs over a considerable distance. Then, the DMC relays are put back to normal.
16. "perf mdihoc" to exercise the new/controllable CCD heater. Presently the control file begins by loading a patch to the DEP, but this will not be needed when a future version of the DEP software is resident. It exercises each of the three new heaters individually and then the combination of all three. At each step the operator records the new INTSIM current and after the last step the variation (increase) in CCD header/strap temperature

is noted.

A.3 MDIPICT

MDIPICT is used in order to carefully examine CCD cosmetics and/or MDI contamination, as well as to enhance the evaluation of the CCD camera system. This control file takes the following images:

Image#0: 1024x1024 FD Obs Mode image (Amp A)

Image#1: 1024x1024 HR Obs Mode image (Amp A)

Image#2: 1024x1024 FD Cal Mode image (Amp A)

Image#3: 1024x1024 HR Cal Mode image (Amp A)

Image#4: 1024x1024 dark image (Amp A)

Image#5: 1024x1024 dark image (Amp B)

Image#6: 1024x1024 HR Cal Mode image (Amp B)

A.4 MDILTC

MDILTC produces two classical light transfer curves by taking 12, HR Cal, exposure pairs with each (A & B) amplifier chain. Only the central 256x256 pixels of data are down linked through the IP in order to keep the required test time (8 min) acceptable.

A.5 MDIFOCUS

MDIFOCUS steps through all 9 focus positions, first FD and then in HR mode; and also takes a software dark. Repeats the sequence for each PAW position. Only the central 256x256 pixels of data are down linked through the IP in order to keep the required test time (15 min) acceptable.

A.6 MDIISS

MDIISS collects open loop and closed loop HR images for a matrix of 3 different input jitter frequencies and 3 different amplitudes. These are 1, 10, and 45 Hz and 100, 400, and 1000 volts (peak-to-peak) on the jitter mirror PZT which moves at 45 degrees to the MDI axes thus imparting approximately +.2, +.7, and +1.7 arc sec of jitter. Also collects open and closed loop images for 3 different amplitudes of random input jitter if an appropriate noise generator is available. These are band width limited at 256 Hz and have a peak-to-peak amplitude of 100, 400, and 1000 V. Only the central 256x256 pixels of data are down linked through the IP in order to keep the required test time (15 min) acceptable.

A.7 MDIDSOS

MDIDSOS exercises the degraded science operating system with the prime MDI converters powered by the spacecraft bus B. Demonstrates a dummy block command and the ability to do a memory load and dump. Demonstrates a dummy command and loads a simple DSOS program. This program produces a stable telemetry image of the loaded program in HK1 and sets the prime oven setpoint to 2, the structure heater setpoint to 128, and the new/controllable CCD heater setpoint to 1.

A.8 MDIMROT

MDIMROT looks for image movement with the stepping of a single tuning waveplate, first MTM1 and then MTM2. Each motor is stepped through 10 positions and the sequence for each motor is repeated a least 10 (selectable, with a default of 15) times. Only the central 256x256 pixels of data (HR Obs) are down linked through the IP in order to keep the required test time (57 min) acceptable. This is done with the ISS locked. It is also done using the B amplifier chain of the CCD so the image is reversed from "normal".

A.9 MDIPROT

MDIPROT examines image motion associated with changing positions of the PAW by taking a HR image in each of the 4 locations and then repeating the activity at least 10 (selectable, with a default of 15) times. This is done first with the ISS loop open and then with it closed. Only the central 256x256 pixels of data (HR Obs) are down linked through the IP in order to keep the required test time (24 min) acceptable.

A.10 MDIPDIST

opens the ISS loop and examines image distortions as a function of changing the 4 PAW positions. Does at least 3 (selectable, with a default of 5) repeats of the 4 positions taking FD 1024x1024 images. This requires about 44 minutes.

A.11 MDIDUST

MDIDUST collects a series of images using a sub-aperture mask in order to look for cosmetic non-perfections ("dust") within the MDI optical train.

A.12 MDIKAL

MDIKAL is used to verify functionality of the Keep Alive Power. A pattern of information is loaded into IP table memory and then MDI power converter #1 is turned off. The converter is turned back on and it is verified that the information is still in the IP table memory.

A.13 SHUTEST

SHUTEST takes 100 each 1X and 3X exposures and puts the measured shutter times into the log file. Requires about 25 minutes.

A.14 MDILASER

The laser fiber is fed into the stimulus telescope at its telecentric focus thereby providing a point-source with a spectral delta function. MDILASER uses the alignment mechanism (legs) to point MDI in the 8 cardinal directions (radius user-selectable) plus center. At each pointing (= incident angle) a series of images in CAL mode are taken: a short Michelson de-tune, a strategic selection of images to search for contaminants, as well as a dark and an OBS mode image to identify the particular pointing.

A.15 DMCDOOR1

DMCDOOR1 verifies the functionality of the front door under DMC control. It is not part of any SFFT or LFFT because it can potentially damage the door mechanism.

B Listing of MDI Data Product Codes (DPC)

```
;FILE:
;       $MDI_CAL_INFO/dpc_table.txt
;HISTORY:
;       Created 18-Apr-94 by M.Morrison
;        5-May-94 (MDM) - Adjusted format slightly.  Added Mnemonic column
;
; For Summing:
;       0 means non-image, 1 is full resolution, 4 is 4x4 IP summing
; For NX:
;       -1 means variable length
;
; Data Product    NX      NY    Summing        Mnemonic                        Comments
;   Code

'FFFFFF01'XL     256     256    4       256x256_sum_5fast       # 4 x 4 summed image, 5 images taken fast and stored in IP
'FFFFFF02'XL     256     256    4       256x256_sum             # 4 x 4 summed image
'FFFFFF03'XL     256     256    1       256x256_ext             # 256 x 256 image extracted from 1024x1024
'FFFFFF04'XL    1024    1024    1       1024x1024               # 1024 x 1024 image

'FFFFFF15'XL     128     128    1       128x128_ext             # 128 x 128 image extracted from 1024x1024

'FFFFFF40'XL    1024    1024    1       1024_velocity           # 1024X1024 Velocity
'FFFFFF41'XL    1024    1024    1       1024_continuum          # 1024X1024 square root compressed continuum
'FFFFFF42'XL    1040    1033    1       1024_raw_i1-i3          # i1-i3 raw
'FFFFFF43'XL    1040    1033    1       1024_raw_i2-i4          # i2-i4 raw
'FFFFFF44'XL    1040    1033    1       1024_raw_continuum      # raw continuum

'FFFFFF82'XL    1024    1024    1       mathur_test             # D.Mathur test IP data product
'FFFFFF84'XL    1024    1024    1       1024x1024_comp          # 1024 x 1024 telemetry compressed image from IP

'FFFFFF50'XL    1040    1033    1       ipdmatst_raw            # ipdmatst - raw image
'FFFFFF51'XL    1040    1033    1       ipdmatst_sum            # ipdmatst - DMA addition of two raw images (1st - 2nd)
'FFFFFF52'XL    1040    1033    1       ipdmatst_diff           # ipdmatst - DMA difference of two raw images

'FFFFFF70'XL    '4000'XL  1     0       iptbltst_sqrt           # iptbltst - SQRT table
'FFFFFF71'XL    '8000'XL  1     0       iptbltst_reciprocal     # iptbltst - reciprocal table
'FFFFFF72'XL    '8000'XL  1     0       iptbltst_velocity       # iptbltst - velocity table
'FFFFFF73'XL    -1      1       0       crop_table              # crop table

'FFFFFF60'XL    1040    1033    0       ipmemtst_raw            # ipmemtst - FILL pattern raw
'FFFFFF61'XL    1040    1033    0       ipmemtst_compressed     # ipmemtst - FILL pattern compressed
'FFFFFF62'XL    1040    1033    0       ipmemtst_packed         # ipmemtst - FILL pattern packed

'10000000'XL    -1      1       0       unknown                 # ??
```

C Listing of House Keeping Mnemonics

PR_HK_INFO.PRO Ver 1.0

mkpkfmid	Packet Format ID	MDIHK	0	ff
mkconfr	Configuration Register	MDIHK	1	ff
m+5ae	App. Elec +5 volts; Cnv2	MDIHK	2	ff
m+15ae	App. Elec +15 volts; Cnv2	MDIHK	3	ff
m-15ae	App. Elec -15 volts; Cnv2	MDIHK	4	ff
m+75lt	Limb Tracker +75 volts; Cnv2	MDIHK	5	ff
m+15htr	Heater +15 volts; Cnv2	MDIHK	6	ff
m+15mtr	Motor +15 volts; Cnv2	MDIHK	7	ff
m+5ip	IP AND TLM +5 volts; Cnv1	MDIHK	8	ff
m+5cm	CCD Camera +5 volts; Cnv1	MDIHK	9	ff
m+15cm	CCD Camera +15 volts; Cnv1	MDIHK	10	ff
m-15cm	CCD Camera -15 volts; Cnv1	MDIHK	11	ff
m+30cm	CCD Camera +30 volts;Cnv1	MDIHK	12	ff
mkpwae	Application I/F Power (K2-2)	MDIHK	12	80
mkpwaer	Application I/F Power RAW	MDIHK	13	80
mkpwhpo	Prime Oven Heater Power (K17)	MDIHK	13	40
mkpwhop	Optics Package heater (K18)	MDIHK	13	20
mkpwlt	Limb Tracker Power (K2-3)	MDIHK	13	10
mkpwsh	Shutter Power (K2-4)	MDIHK	13	08
mkpwm1	MTM 1 Power (K2-5)	MDIHK	13	04
mkpwm2	MTM 2 Power (K2-6)	MDIHK	13	02
mkpwc1	Cal 1 Power (K3-1)	MDIHK	13	01
mkpwc2	Cal 2 Power (K3-2)	MDIHK	14	80
mkpwpa	PAW Power (K3-3)	MDIHK	14	40
mkpwfd	Door Power (K3-4)	MDIHK	14	20
mkpwam	Alignment Power (K3-5)	MDIHK	14	10
mkpwdm	DMC Power (K3-6)	MDIHK	14	04
mkpwip	Image Processor Power (K1-2)	MDIHK	14	02
mkpwcm	CCD Camera Power (K1-1)	MDIHK	14	01
mktmsel	IP TLM 1-2 Power (K1-6)	MDIHK	15	80
mkpwhro	B/U Oven Heater Pwr (K29)	MDIHK	15	40
mkpwhcm	CCD Heater Power (K30)	MDIHK	15	20
mkltloop	ISS Loop Open/Closed	MDIHK	15	10
mkfdopn1	Door Open Status 1	MDIHK	15	02
mkfdopn2	Door Open Status 2	MDIHK	15	08
mkfdmtr1	Door Motor 1 Status	MDIHK	15	01
mkfdmtr2	Door Motor 2 Status	MDIHK	15	04
mkfdtime	Door Move Time	MDIHK	16	ff

mkfdfunc	Door Function	MDIHK	17	38
mkfdstat	Door Operation Status	MDIHK	17	04
mkfdmove	Door Moving Indicator	MDIHK	17	02
muhopctl	Optics package Heater Controller	MDIHK	18	ff
muhpobrg	Filter Oven Bridge Out	MDIHK	19	ff
muhpolop	Filter Oven Loop Out	MDIHK	20	ff
muhroctl	Filter Oven Redundant Controller	MDIHK	21	ff
mtopts1	Front Window Mounting Ring	MDIHK	22	ff
mtopts2	Primary Lens	MDIHK	23	ff
mtopts3	Secondary Lens	MDIHK	24	ff
mtopts4	Filter Oven	MDIHK	25	ff
mtopts5	Filter Oven	MDIHK	26	ff
mtopts6	CCD Strap/Header (P)	MDIHK	27	ff
mtopts7	CCD Electronics	MDIHK	28	ff
mtopts8	OP Lid Near CCD Radiator (P)	MDIHK	29	ff
mtopts9	Rear Leg/Struct Interface	MDIHK	30	ff
mtopts10	PA Calib Wheel	MDIHK	31	ff
mtopts11	Outside MLI	MDIHK	32	ff
mtopts12	Wire Harness/OP Struct	MDIHK	33	ff
mtopts13	OP Struct Inside Top	MDIHK	34	ff
mtopts14	OP Struct Oven Ctrl	MDIHK	35	ff
mtopts15	OP Struct Inside Front	MDIHK	36	ff
mtopts16	Beam Dist. Housing	MDIHK	37	ff
mtepts1	Outside Structure	MDIHK	38	ff
mtepts2	Redundant Converter 2	MDIHK	39	ff
mtepts3	Primary Converter 2	MDIHK	40	ff
mtepts4	Outside Side Radiator	MDIHK	41	ff
mxhporef	Temperature Sensor Reference	MDIHK	42	ff
mkam1cws	AM1 Clockwise Switch	MDIHK	43	40
mkam1ccs	AM1 Counterclockwise Switch	MDIHK	43	80
mxam1pos	Leg Potentiometer Wiper 1	MDIHK	43	03
mkam2cws	AM2 Clockwise Switch	MDIHK	45	40
mkam2ccs	AM2 Counterclockwise Switch	MDIHK	45	80
mxam2pos	Leg Potentiometer Wiper 2	MDIHK	45	03
miaemtr	Motor Current Monitor	MDIHK	47	ff
mktccnt	Command counter	MDIHK	48	ff
mktcnvcb	Non-valid Command Blocks	MDIHK	49	f0
mktcvcb	Valid Command Blocks	MDIHK	49	0f
mktclnvc	MLA of Latest NVCB	MDIHK	50	ff
mktcnver	Error code of latest NVCB	MDIHK	52	ff
mktciist	Intra-Instrument Status	MDIHK	53	80
mktciim	Intra-Instrument Master	MDIHK	53	70

mktciix	Intra-Instrument X Coordinate	MDIHK	53	03
mktciie	Intra-Instrument Event	MDIHK	55	70
mktciiy	Intra-Instrument Y Coordinate	MDIHK	55	03
mkpapos	Polarization Analyzer Wheel	MDIHK	57	ff
mkc1pos	Cal/focus wheel 1	MDIHK	58	ff
mkc2pos	Cal/focus wheel 2	MDIHK	59	ff
mkm1pos	Michelson Tuning Motor 1	MDIHK	60	ff
mkm2pos	Michelson Tuning Motor 2	MDIHK	61	ff
multdio1	Limb Tracker Photodiode 1	MDIHK	62	ff
multdio2	Limb Tracker Photodiode 2	MDIHK	63	ff
multdio3	Limb Tracker Photodiode 3	MDIHK	64	ff
multdio4	Limb Tracker Photodiode 4	MDIHK	65	ff
multpzt1	Limb Tracker PZT1	MDIHK	66	ff
multpzt2	Limb Tracker PZT2	MDIHK	67	ff
multpzt3	Limb Tracker PZT3	MDIHK	68	ff
multxmax	Limb Tracker X Max Error	MDIHK	69	ff
multymax	Limb Tracker Y Max Error	MDIHK	70	ff
multxave	Limb Tracker X Average Error	MDIHK	71	ff
multyave	Limb Tracker Y AverageError	MDIHK	72	ff
mkltxofs	Limb Tracker X offset	MDIHK	73	ff
mkltyofs	Limb Tracker Y offset	MDIHK	74	ff
mkltxgn	Limb Tracker X gain	MDIHK	75	ff
mkltygn	Limb Tracker Y gain	MDIHK	76	ff
mkltaos	Limb Tracker A offset	MDIHK	77	ff
mkltbos	Limb Tracker B offset	MDIHK	78	ff
mkltcos	Limb Tracker C offset	MDIHK	79	ff
mkltstat	Limb Tracker Status Register	MDIHK	80	ff
mkovnmax	Filter Oven Max Temp	MDIHK	81	ff
mkhpospt	Prime Oven Set Point	MDIHK	82	e0
mkhpomon	Prime Oven Monitoring	MDIHK	82	10
mkhpomtw	Prime Oven Monitoring Time	MDIHK	82	0f
mkhrodbh	Backup Oven Dead Band High	MDIHK	83	ff
mkhrodbl	Backup Oven Dead Band Low	MDIHK	84	ff
mkhrocbh	Backup Oven Control Band High	MDIHK	85	ff
mkhrocbl	Backup Oven Control Band Low	MDIHK	86	ff
mkhrospt	Backup Oven Set Point	MDIHK	87	ff
mkhrocpt	Backup Oven Control Point	MDIHK	88	ff
mkhcmspt	CCD Heater Set Point	MDIHK	89	e0
mkhromon	Backup Oven Monitoring	MDIHK	89	01
mkhoph2	Optics Package Heater 2 On/Off	MDIHK	90	80
mkhoph3	Optics Package Heater 3 On/Off	MDIHK	90	40
mkhopspt	Optics Package Heater Set Point	MDIHK	90	3f

mkshnexp	Shutter Nominal Exposure	MDIHK	91	ff
mkpadir	PAW Default Direction	MDIHK	93	08
mkm1dir	MTM1 Default Direction	MDIHK	93	04
mkm2dir	MTM2 Default Direction	MDIHK	93	02
mkshpath	Shutter Default Beam Path	MDIHK	93	01
mkdpmerr	Correctable DEP memory errors	MDIHK	94	ff
mkipmerr	Correctable IP memory errors	MDIHK	95	ff
mkdpm0os	Offset for MTM0	MDIHK	96	ff
mkdpm1os	Offset for MTM1	MDIHK	97	ff
mkam1cmd	AM1 Commanded position	MDIHK	98	ff
mkam2cmd	AM2 Commanded position	MDIHK	100	ff
mkshenc	Shutter Encoder Position	MDIHK	102	ff
mkund01	Undefined Byte	MDIHK	103	ff
mkund02	Undefined Byte	MDIHK	104	ff
mksqintc	Interval Counter	MDIHK	105	ff
mksqfqrt	Ref Time occurred in packet	MDIHK	107	80
mksqfqrp	Frame Queue Pointer at Ref Time	MDIHK	107	60
mksqfqpp	Frame Queue Pointer for Packet	MDIHK	107	18
mksqfqne	Number of Frame Queue Entrie	MDIHK	107	07
mksqrt1	Relative Time of Frame 1	MDIHK	108	ff
mksqsho1	Shutter Open Time Frame 1	MDIHK	110	ff
mksqshc1	Shutter Close Time Frame 1	MDIHK	112	ff
mksqpaa1	PAW Actual Position Frame 1	MDIHK	114	ff
mksqm1a1	MTM1 Actual Position Frame 1	MDIHK	115	ff
mksqm2a1	MTM2 Actual Position Frame 1	MDIHK	116	ff
mksqc1a1	CAL1 Actual Position Frame 1	MDIHK	117	ff
mksqc2a1	CAL2 Actual Position Frame 1	MDIHK	118	ff
mksqadr1	Sequence Address of Frame 1	MDIHK	119	ff
mksqun11	Undefined	MDIHK	121	ff
mksqun21	Undefined	MDIHK	122	ff
mksqun31	Undefined	MDIHK	123	ff
mksqun41	Undefined	MDIHK	124	ff
mksqun51	Undefined	MDIHK	125	ff
mksqun61	Undefined	MDIHK	126	ff
mksqun71	Undefined	MDIHK	127	ff
mksqrt2	Relative Time of Frame 2	MDIHK	128	ff
mksqsho2	Shutter Open Time Frame 2	MDIHK	130	ff
mksqshc2	Shutter Close Time Frame 2	MDIHK	132	ff
mksqpaa2	PAW Actual Position Frame 2	MDIHK	134	ff
mksqm1a2	MTM1 Actual Position Frame 2	MDIHK	135	ff
mksqm2a2	MTM2 Actual Position Frame 2	MDIHK	136	ff
mksqc1a2	CAL1 Actual Position Frame 2	MDIHK	137	ff

mksqc2a2	CAL2 Actual Position Frame 2	MDIHK	138	ff
mksqadr2	Sequence Address of Frame 2	MDIHK	139	ff
mksqun12	Undefined	MDIHK	141	ff
mksqun22	Undefined	MDIHK	142	ff
mksqun32	Undefined	MDIHK	143	ff
mksqun42	Undefined	MDIHK	144	ff
mksqun52	Undefined	MDIHK	145	ff
mksqun62	Undefined	MDIHK	146	ff
mksqun72	Undefined	MDIHK	147	ff
mksqrt3	Relative Time of Frame 3	MDIHK	148	ff
mksqsho3	Shutter Open Time Frame 3	MDIHK	150	ff
mksqshc3	Shutter Close Time Frame 3	MDIHK	152	ff
mksqpaa3	PAW Actual Position Frame 3	MDIHK	154	ff
mksqm1a3	MTM1 Actual Position Frame 3	MDIHK	155	ff
mksqm2a3	MTM2 Actual Position Frame 3	MDIHK	156	ff
mksqc1a3	CAL1 Actual Position Frame 3	MDIHK	157	ff
mksqc2a3	CAL2 Actual Position Frame 3	MDIHK	158	ff
mksqadr3	Sequence Address of Frame 3	MDIHK	159	ff
mksqun13	Undefined	MDIHK	161	ff
mksqun23	Undefined	MDIHK	162	ff
mksqun33	Undefined	MDIHK	163	ff
mksqun43	Undefined	MDIHK	164	ff
mksqun53	Undefined	MDIHK	165	ff
mksqun63	Undefined	MDIHK	166	ff
mksqun73	Undefined	MDIHK	167	ff
mksqrt4	Relative Time of Frame 4	MDIHK	168	ff
mksqsho4	Shutter Open Time Frame 4	MDIHK	170	ff
mksqshc4	Shutter Close Time Frame 4	MDIHK	172	ff
mksqpaa4	PAW Actual Position Frame 4	MDIHK	174	ff
mksqm1a4	MTM1 Actual Position Frame 4	MDIHK	175	ff
mksqm2a4	MTM2 Actual Position Frame 4	MDIHK	176	ff
mksqc1a4	CAL1 Actual Position Frame 4	MDIHK	177	ff
mksqc2a4	CAL2 Actual Position Frame 4	MDIHK	178	ff
mksqadr4	Sequence Address of Frame 4	MDIHK	179	ff
mksqun14	Undefined	MDIHK	181	ff
mksqun24	Undefined	MDIHK	182	ff
mksqun34	Undefined	MDIHK	183	ff
mksqun44	Undefined	MDIHK	184	ff
mksqun54	Undefined	MDIHK	185	ff
mksqun64	Undefined	MDIHK	186	ff
mksqun74	Undefined	MDIHK	187	ff
mksqrg0	Sequence Register 0	MDIHK	188	ff

mksqrg1	Sequence Register 1	MDIHK	190	ff
mksqrg2	Sequence Register 2	MDIHK	192	ff
mksqrg3	Sequence Register 3	MDIHK	194	ff
mksqrg4	Sequence Register 4	MDIHK	196	ff
mksqrg5	Sequence Register 5	MDIHK	198	ff
mksqrg6	Sequence Register 6	MDIHK	200	ff
mksqrg7	Sequence Register 7	MDIHK	202	ff
mksqrg8	Sequence Register 8	MDIHK	204	ff
mksqrg9	Sequence Register 9	MDIHK	206	ff
mksqrga	Sequence Register A	MDIHK	208	ff
mksqrgb	Sequence Register B	MDIHK	210	ff
mksqrgc	Sequence Register C	MDIHK	212	ff
mksqrgd	Sequence Register D	MDIHK	214	ff
mksqrge	Sequence Register E	MDIHK	216	ff
mksqrgf	Sequence Register F	MDIHK	218	ff
mksqid	Sequence Identifier	MDIHK	220	ff
mksqnum	Sequence Number	MDIHK	224	ff
mksqfrm	Frame Number in Sequence	MDIHK	226	ff
mksqref0	LOBT Reference 0	MDIHK	228	ff
mksqref1	LOBT Reference 1	MDIHK	229	ff
mksqref2	LOBT Reference 2	MDIHK	230	ff
mksqref3	LOBT Reference 3	MDIHK	231	ff
mksqref4	LOBT Reference 4	MDIHK	232	ff
mksqref5	LOBT Reference 5	MDIHK	233	ff
mkdprstn	DEP Restart Number	MDIHK	234	ff
mkdpfrmn	Frame Number	MDIHK	236	ff
mkdphkpn	Packet Number	MDIHK	240	ff
mkdpswvr	DEP Software Version	MDIHK	244	ff
mkdpswpn	DEP Software Patch	MDIHK	245	ff
mkdpocvr	Optics Config Table Version	MDIHK	246	ff
mkdpolvr	OCT Lookup Table Version	MDIHK	247	ff
mkdpsqvr	DEP Sequence List Version	MDIHK	248	ff
mkdpsqpn	DEP Sequence List Patch	MDIHK	249	ff
mkipfwvr	IP Firmware Version	MDIHK	250	ff
mkipfwpn	IP Firmware Patch	MDIHK	251	ff
mkipiqvr	IP Instruction Queue Version	MDIHK	252	ff
mkipiqpn	IP Instruction Patch	MDIHK	253	ff
mksqam1	AM1 Position and Status	MDIHK	254	ff
mksqam2	AM2 Position and Status	MDIHK	256	ff
mksqc1	C1 Position	MDIHK	258	ff
mksqc2	C2 Position	MDIHK	259	ff
mksqmsta	Misc Status (= byte 21)	MDIHK	260	ff

mksqltxy	LT Errors (= bytes 73-76)	MDIHK	261	ff
mksqltst	Limb Tarcker Status	MDIHK	265	ff
mksqhtrs	Heater Status (=bytes 24 - 27)	MDIHK	266	ff
mtsqopt1	Front Window Temp	MDIHK	270	ff
mtsqopt4	Oven Temperature	MDIHK	271	ff
mtsqopt5	Oven Temperature	MDIHK	272	ff
mtsqopt6	CCD Temp	MDIHK	273	ff
mkiptid1	IP Table ID #1	MDIHK	274	ff
mkiptvr1	IP Table Version #1	MDIHK	276	ff
mkiptal1	IP Table Low address #1	MDIHK	278	ff
mkiptah1	IP Table High Address #1	MDIHK	280	ff
mkiptne1	IP Table Number of Entries #1	MDIHK	282	ff
mkiptid2	IP Table ID #2	MDIHK	284	ff
mkiptvr2	IP Table Version #2	MDIHK	286	ff
mkiptal2	IP Table Low address #2	MDIHK	288	ff
mkiptah2	IP Table High Address #2	MDIHK	290	ff
mkiptne2	IP Table Number of Entries #2	MDIHK	292	ff
mkipdmps	IP Dump Error Status	MDIHK	294	ff
mkipdmp1	IP Dump Word 1	MDIHK	296	ff
mkipdmp2	IP Dump Word 2	MDIHK	298	ff
mkipdmp3	IP Dump Word 3	MDIHK	300	ff
mkipdmp4	IP Dump Word 4	MDIHK	302	ff
mkipdmp5	IP Dump Word 5	MDIHK	304	ff
mkipecnt	IP Error Count	MDIHK	306	ff
mkdpun1	Undefined DEP Status Byte	MDIHK	307	ff
mkdpun2	Undefined DEP Status Byte	MDIHK	308	ff
mkdpspec	DEP Special Error Code	MDIHK	309	ff
mkdpspe1	DEP Special Error Byte 1	MDIHK	310	ff
mkdpspe2	DEP Special Error Byte 2	MDIHK	311	ff
mkdpspe3	DEP Special Error Byte 3	MDIHK	312	ff
mkdpspe4	DEP Special Error Byte 4	MDIHK	313	ff
mkdpamsk	AXIS Mask	MDIHK	314	ff
mkdppxst	Picture State Machine Status	MDIHK	316	ff
mkipstat	Image Processor Status Byte	MDIHK	317	ff
mkiperst	Image Processor Error Status	MDIHK	318	ff
mkipbank	Image Processor Bank	MDIHK	320	ff
mkdpmd	DEP Mode	MDIHK	321	ff
mkdpl9st	DEP Level 9 Status	MDIHK	322	ff
mkdpl9er	DEP Level 9 Error Bits	MDIHK	324	ff
mkdpsqeb	DEP Sequence Error Bits	MDIHK	326	ff
mkdpsqst	DEP Sequence Status	MDIHK	328	ff
mkdpsqpt	DEP Sequence Pointer	MDIHK	330	ff

mkdpltst	DEP Limb Tracker State	MDIHK	332	ff
mkdpun3	Undefined DEP Status Byte	MDIHK	333	ff
mkdpdfsw	Opto Coupler Reg Default	MDIHK	334	ff
mkdpflag	DEP Misc Control Bits	MDIHK	336	ff
mspc1n	Primary Converter 1 Status (N)	SCHK	12	20
mspc1r	Primary Converter 1 Status (R)	SCHK	12	20
msrc1n	Redundant Converter 1 Status (N)	SCHK	12	40
msrc1r	Redundant Converter 1 Status (R)	SCHK	12	40
mspc2n	Primary Converter 2 Status (N)	SCHK	12	80
mspc2r	Primary Converter 2 Status (R)	SCHK	12	80
msrc2n	Redundant Converter 2 Status (N)	SCHK	13	20
msrc2r	Redundant Converter 2 Status (R)	SCHK	13	20
mspwdpn	DEP Power Status (N)	SCHK	13	40
mspwdpr	DEP Power Status (R)	SCHK	13	40
mspwaen	App Electronics Power Status (N)	SCHK	13	80
mspwaer	App Electronics Power Status (N)	SCHK	13	80
mspwipn	IP Power Status (N)	SCHK	12	01
mspwipr	IP Power Status (R)	SCHK	12	01
mspwdsn	DSOS Power Status (N)	SCHK	12	02
mspwdsr	DSOS Power Status (R)	SCHK	12	02
mstmseln	TLM Interface Select (N)	SCHK	12	04
mstmselr	TLM Interface Select (R)	SCHK	12	04
msfdopn	Front Door Open (N)	SCHK	12	08
msfdopr	Front Door Open (R)	SCHK	12	08
msfdcln	Front Door Closed (N)	SCHK	13	01
msfdclr	Front Door Closed (R)	SCHK	13	01
msltaokn	LT PZT A In Range (N)	SCHK	13	02
msltaokr	LT PZT A In Range (R)	SCHK	13	02
msdsokn	DSOS On-Line (N)	SCHK	13	04
msdsokr	DSOS On-Line (R)	SCHK	13	04
msltbokn	LT PZT B In Range (N)	SCHK	13	08
msltbokr	LT PZT B In Range (R)	SCHK	13	08
msltcokn	LT PZT C In Range (N)	SCHK	13	10
msltcokr	LT PZT C In Range (R)	SCHK	13	10
m+5pc1n	Converter 1 +5 Volts	SCHK	1	ff
m+5pc1r	Converter 1 +5 Volts	SCHK	1	ff
m+15pc1n	Converter 1 +15 Volts	SCHK	2	ff
m+15pc1r	Converter 1 +15 Volts	SCHK	2	ff
m-15pc1n	Converter 1 -15 Volts	SCHK	3	ff
m-15pc1r	Converter 1 -15 Volts	SCHK	3	ff
m+5pc2n	Converter 2 +5 Volts	SCHK	4	ff
m+5pc2r	Converter 2 +5 Volts	SCHK	4	ff

m+15pc2n	Converter 2 +15 Volts	SCHK	5	ff
m+15pc2r	Converter 2 +15 Volts	SCHK	5	ff
m-15pc2n	Converter 2 -15 Volts	SCHK	6	ff
m-15pc2r	Converter 2 -15 Volts	SCHK	6	ff
qtopts1n	OP Radiator	SCHK	7	ff
qtopts1r	OP Radiator	SCHK	7	ff
qtopts2n	OP Structure	SCHK	8	ff
qtopts2r	OP Structure	SCHK	8	ff
qtopts3n	Filter Oven	SCHK	9	ff
qtopts3r	Filter Oven	SCHK	9	ff
qtepts1n	Primary Converter 1	SCHK	10	ff
qtepts1r	Primary Converter 1	SCHK	10	ff
qtopts4n	CCD Radiator	SCHK	11	ff
qtopts4r	CCD Radiator	SCHK	11	ff

D Listing of FITS Fields

The following is a copy of the document ~`soi/doc/TechNotes/92.085` which describes the fields in the FITS headers.

```
SOI FITS Keyword List

R. S. Bogart & J. Suryanarayanan
1992.IX.10
rev. 1992.IX.24
rev. 1994 Jun 7 JKS

SOI Technical Note 92-085

This is a prototype list of standard FITS keywords to be used in the
SOI project.  The list is not intended to be exclusive, but represents
the full set of project reserved keywords.

Designations for value indicators are as follows:
char:   character strings delimited by single quotes as described in
        the FITS standard 5.3.1.
bool:   characters T or F as described in 5.3.2.
int:    integer representations as described in 5.3.3.
real:   floating point representations as described in 5.3.4.  The standard
        is not clear on whether the ASCII character string "NaN" is an
        acceptable representation for a floating point NaN.  We assume it is.

1.  Keywords reserved by the FITS standard

[blank]
        Any number may appear.  Column 9 may not contain "=".
AUTHOR  = char
BITPIX  = int
        Mandatory in all headers.  Must be second keyword in header.
BLANK   = int
        May be used only if BITPIX value is positive (integer data).
BLOCKED = bool
        If present, value must apparently be T.  Deprecated.
BSCALE  = real
BUNIT   = char
BZERO   = real
CDELTn  = real          [n = 1, 999]
COMMENT
        No value.  Any number may appear.  Column 9 may not contain "=".
CONVENTN= string
        Convention used to describe how the binary tables are used to store data.
        This keyword will appear in the binary table extension header. The value
        of this keyword will be TDIM.
CRPIXn  = real          [n = 1, 999]
CROTAn  = real          [n = 1, 999]
CRVALn  = real          [n = 1, 999]
CTYPEn  = char          [n = 1, 999]
DATAMAX = real
DATAMIN = real
DATE    = 'DD/MM/YY'
        Date on which the Header Data Unit was created.  DD, MM, and YY are
        two-digit integers (with leading 0's) giving the day of the month,
        month number, and year mod 100, respectively.
DATE-OBS= 'DD/MM/YY'
        UT date on which the observations were made.  Values as described
```

```
        under DATE keyword.
END
        Mandatory in all headers.  Must be last keyword in header.
EPOCH   = char
        Deprecated
EQUINOX = char
EXTEND  = bool
        Mandatory in primary header if data set contains extensions, in
        which case it must immediately follow the last NAXISn keyword card
        image (or NAXIS if NAXIS = 0).
EXTLEVEL= int
EXTNAME = char
EXTVER  = int
GCOUNT  = int
        Mandatory in extension headers, in which case it must immediately
        follow the PCOUNT keyword.
GROUPS  = bool
HISTORY
        No value.  Any number may appear.  Column 9 may not contain "=".
INSTRUME= char
        'MDI     ' and 'Michelson Doppler Imager' are appropriate values.
NAXIS   = int
        Mandatory in all headers.  Must be third keyword in header.
NAXISn  = int           [n = 1, 999]
        Mandatory in all headers up to n = NAXIS of the header.  Must follow
        NAXIS keyword in order (NAXIS1, NAXIS2, ...) unless NAXIS = 0.  It is
        not clear whether additional NAXISn keywords may be present, but the
        implication is that the number of NAXISn keywords should be exactly
        equal to the value of NAXIS.
OBJECT  = char
OBSERVER= char
ORIGIN  = char
PCOUNT  = int
        Mandatory in extension headers.
PSCALn  = real          [n = 1, 999]
PTYPEn  = char          [n = 1, 999]
PZEROn  = real          [n = 1, 999]
REFERENC= char
SIMPLE  = bool
        Mandatory in primary header; not permitted in extension headers.
        The value must be false if the file does not conform to the
        FITS standard.  Otherwise it should be true.  Must be first keyword
        in header.
TBCOLn  = int           [n = 1, 999]
        Mandatory in ASCII Tables Extension headers, in which case the number
        of these keywords must be equal to the value of TFIELDS and they must
        appear in order, analogously to NAXISn.
TDELTn  = string
        Extension of CDELTn keywords to binary tables.
TDESCn  = string
        Extension of CTYPEn keywords to binary tables. Has the format
        TDESCn='(desc1,desc2,. .).' where each element in the list corresponds
        to one of the dimensions in the associated TDIMnnn keyword.
TDIMn   = string    [n = 1, 999]
        The value is a character string containing the dimensions of a
        multidimensional array stored in column nnn in a binary table, with
        the format TDIMn='(dim1,dim2,. .).
TDISn   = ???       [n = 1, 999]
TDMINn  = real          [n = 1, 999]
        Equivalent of DATAMIN keyword for a column in an ASCII or binary table.
```

```
TDMAXn  = real          [n = 1, 999]
        Equivalent of DATAMAX keyword for a column in an ASCII or binary table.
TELESCOP= char
TFIELDS = int
        Mandatory in ASCII Tables Extension headers, in which case it must
        immediately follow the GCOUNT keyword.
TFORMn  = char          [n = 1, 999]
        Mandatory in ASCII Tables Extension headers, in which case the number
        of these keywords must be equal to the value of TFIELDS and they must
        appear in order, analogously to NAXISn.  The first TFORMn keyword in
        an ASCII Tables Extension header must immediately follow the last
        TBCOLn keyword.
THEAP   = ???
TNULLn  = char          [n = 1, 999]
        Reserved only for ASCII Tables extension data.  Should be treated as
        reserved.
TROTAn  = char
        Extension of CROTAn keywords to binary tables. Has the format
        TROTAn='(rota1,rota2,. .).' where each element in the list corresponds to
        one of the dimensions in the associated TDIMnnn keyword.
TRPIXn  = char
        Extension of CRPIXn keywords to binary tables.
TRVALn  = char
        Extension of CRVALn keywords to binary tables.
TSCALn  = real          [n = 1, 999]
        Reserved only for ASCII Tables extension data.  Should be treated as
        reserved.
TTYPEAn = char          [n = 1, 999]
        Reserved only for ASCII Tables extension data.  Should be treated as
        reserved.
TUNITn  = char          [n = 1, 999]
        Reserved only for ASCII Tables extension data.  Should be treated as
        reserved.
TZEROn  = real          [n = 1, 999]
        Reserved only for ASCII Tables extension data.  Should be treated as
        reserved.
XTENSION= char
        Mandatory in extension header; not permitted in primary headers.
        Must be first keyword in header.

2.  Keywords specifically associated with SOHO

ANGLE   = real
        Angle of rotation of the vertical axis of the instrument field-of-view
        relative to solar north.
AIT_END = real
        On-board value for the time of the end of data acquisition.
AIT_TIME= real
        On-board value for the starting time of data acquisition.
CMP_NAME= character
        Name of observing campaign.
CMP_NO  = integer
        Unique identifier for an observing campaign.
COMMENTS= character
        Either \Y" or \N", depending on whether or not an entry in a database is
        commented or not. For use in the online catalogs only.
COMM_NO = integer
        Comment number.  For use in the online catalogs only.
COUNT   = integer
        Number of repeated observing sequences within an observing program.
```

```
DATE_END= char
        Ending date of data acquisition, in UT. Shall be in the same format
        as DATE_OBS.
DATE_MOD= date
        Date that an entry in a catalog was last modified. For use in the online
        catalogs only.
DATE_OBS= char
        Starting date of data acquisition, in UT. Shall be in the format
        YYYY/MM/DD (Note the distinction between this and the standard FITS keyword     DATE-OBS. The standard
        an underscore.)
DETECTOR= char
        Detector used to acquire the data.
EXPCOUNT= integer
        Number of exposures within an observing sequence.
EXP_IND = integer
        Index of an exposure within an observing sequence, from one to the value
        of EXPCOUNT.
EXPTIME = real
        Exposure time in seconds, to millisecond accuracy.
FILENAME= char
        Name of data file. The use of this keyword will not be construed to mean
        that the FITS header will need to be changed if the file is copied from
        one computer to another, or to another media such as tape.
FILEORIG= char
        Original filename as collected.
HEIGHT  = real
        Maximum height of the instrument field-of-view in the direction along the
        vertical axis as used in keyword ANGLE.
INS_ROLL= real
        Instrument roll angle relative to the spacecraft, i.e.  the angle between
        the instrument Y-axis and the spacecraft Y-axis, measured in a
        counter-clockwise direction from the spacecraft Y-axis toward the
        spacecraft Z-axis.
INSTITUT= character
        Name of an intrument team or institution taking part in an observing
        campaign.
INS_Y   = real
        Pointing of instrument along the instrument Y-axis.
INS_YO  = real
        Pointing of instrument origin along the spacecraft Y-axis.
INS_Z   = real
        Pointing of instrument along the instrument Z-axis.
INS_ZO  = real
        Pointing of instrument origin along the spacecraft Z-axis.
OBJ_ID  = char
        Object identifier, e.g. active region number.
OBS_MODE= char
        Observing mode.
OBS_PROG= char
        The observing program.
OBS_SEQ = char
        The name of the observing sequence used.
PROG_ID = integer
        Observing program identification number. PROG_ID is used to asociate
        individual observations together as being part of the same observing
        program. In particular, an observing program that is not contiguous
        in time, for instance an observation made at the same time each day,
        or once every solar rotation, could be identified by the same value
        of PROG_ID.
PROG_NUM= integer
```

```
        Unique identifier for the observing program. Each observing program is
        assigned a unique identifier number each time it's run, even if it's a
        continuation of an earlier program.
SC_ROLL = real
        Spacecraft roll angle relative to solar coordinates.
SC_Y0   = real
        Spacecraft pointing along the solar Y-axis as defined in the Science
        Operations Plan.
SC_Z0   = real
        Spacecraft pointing along the solar Z-axis as defined in the Science
        Operations Plan.
SCI_OBJ = char
        The science objective.
SEQ_FROM= integer
        First value of SEQ_NUM in a series of observing sequences.
SEQ_IND = integer
        Index of an observing sequence within an observing program, from one to
        the value of COUNT.
SEQ_NUM = integer
        Unique number assigned to an execution of an observing sequence.
        Depending on how an instrument team organizes their data, this number
        may represent an individual observing sequence or a repeated series of
        the same observing sequence.
SEQONLIN= character
        Either \Y" or \N", denoting whether or not the data from an observing
        sequence is online or not.
SEQ_TO  = integer
        Last value of SEQ_NUM in a series of observing sequences.
SEQVALID= character
        Either \Y" or \N", denoting whether or not the data from an observing
        sequence has scientific value.
SFDUADID= char
        Standard Formatted Data Unit (SFDU) Authority and Description Identifier
        (ADID) for a data object.  Corresponds to bytes 1{4 and 9{12 of the SFDU
        label associated with the data object (file). Associating this keyword
        with the data maintains this information even if the SFDU labels are
        separated from it.
SOLAR_P0= real
        The solar P0 angle.
SOLAR_B0= real
        The solar B0 angle.
TIME_END= char
        Ending time of data acquisition, in UT. Shall be in the same format as
        TIME_OBS.
TIME_MOD= time
        Time that an entry in a catalog was last modified.  For use in the online
        catalogs only.
TIME_OBS= char
        Starting time of data acquisition, in UT. Shall be in the format
        HH:MM:SS.SSS
WAVELNTH= real
        The  wavelength  of  observation,  in  nm.    Also, TWAVEnnn for binary
        tables.  When used for observations that cover a range of wavelengths,
        then this keyword represents the wavelength of interest, not necessarily
        the central wavelength.
WAVEMIN = real
        Minimum wavelength of observation, in nm.  Also, TWMIN for binary tables.
WAVEMAX = real
        Maximum wavelength of observation, in nm.  Also, TWMAX for binary tables.
WIDTH   = real
```

```
        Maximum width of the instrument field-of-view in the direction
        perpendicular to the vertical axis as used in keyword ANGLE.
YCEN    = real
        Center of the instrument field-of-view along the solar Y-axis.
ZCEN    = real
        Center of the instrument field-of-view along the solar Z-axis.

3.  Keywords corresponding to MDI housekeeping mnemonics

Note: A few of Lockheed's proposed Keywords had to be changed to confirm to
FITS standard and some others were changed for consistency.  For that purpose
"+" in the keyword name has been changed to "VP" (Voltage Plus) and "-" in the
keyword name has been changed to "VM" (Volt Minus).

MFLTXOFS
        Limb Tracker X offset
MFLTYOFS
        Limb Tracker Y offset; differs from proposed mnemonic MFLTXOFS which
        is not unique
MFLTAOS
        Limb Tracker A offset
MFLTBOS
        Limb Tracker B offset
MFLTCOS
        Limb Tracker C offset
MFLTSTAT
        Limb Tracker Status Register
MFLTXGN
        Limb Tracker X gain
MFLTYGN
        Limb Tracker Y gain
MIAEMTR
        Motor Current Monitor
MKC1POS = int
        Calibration/focus wheel 1
        Range: 0 - 143
MKC2POS = int
        Calibration/focus wheel 2
        Range: 0 - 143
MKDPMERR
        Correctable DEP memory errors
MKDPPATN
        DEP Patch Number
MKDPSWVR
        DEP Software Version
MKFDMTR1
        Door Motor 1 Status
MKFDMTR2
        Door Motor 2 Status
MKFDOPN1
        Door Open Status 1
MKFDOPN2
        Door Open Status 2
MKHOPH2
        Optics Package Heater 2 On/Off
MKHOPH3
        Optics Package Heater 3 On/Off
MKHOPSPT
        Optics Package Heater Set Point
MKHPOMON
```

```
        Prime Oven Monitoring
MKHPOMTW
        Prime Oven Monitoring Time
MKHPOSPT
        Prime Oven Set Point
MKHROCBH
        Backup Oven Control Band High
MKHROCBL
        Backup Oven Control Band Low
MKHROCPT
        Backup Oven Control Point
MKHRODBH
        Backup Oven Dead Band High
MKHROMON
        Backup Oven Monitoring
MKHRODBL
        Backup Oven Dead Band Low
MKHROSPT
        Backup Oven Set Point
MKIPFLAG
        IP Flags
MKIPMAC
        IP Macro Load Number
MKIPMASK
        IP Mask Set
MKIPMERR
        Correctable IP memory errors
MKIPPATN
        IP Patch Number
MKIPSWVR
        IP Firmware Version
MKLTLOOP
        ISS Loop Open/Closed
MKM1DIR
        MTM1 Default Direction
MKM2DIR
        MTM2 Default Direction
MKM1POS = int
        Michelson Tuning Motor 1
        Range: 0 - 179
MKM2POS = int
        Michelson Tuning Motor 2
        Range: 0 - 179
MKOVNMAX
        Filter Oven Max Temp
MKPADIR
        PAW Default Direction
MKPAPOS = int
        Polarization Analyzer Wheel
        Range: 0 - 143
MKPKFMID
        Packet Format ID
MKPWAE
        Application I/F Power
MKPWAM
        Alignment  Power
MKPWC1
        Cal 1 Power
MKPWC2
        Cal 2 Power
```

```
MKPWCM
        CCD Camera Power
MKPWDM
        DMC Power
MKPWFD
        Door Power
MKPWHCM
        CCD Heater Power
MKPWHOP
        Prime Oven Heater Power
MKPWHPO
        Optics Package heater
MKPWHRO
        Red. Oven Heater Pwr
MKPWIP
        Image Processor Power
MKPWLT
        Limb Tracker Power
MKPWM1
        MTM 1 Power
MKPWM2
        MTM 2 Power
MKPWPA
        PAW Power
MKPWSH
        Shutter Power
MKPWTM
        IP TLM 1-2 Power
MKSHNEXP
        Shutter Nominal Exposure
MKSHPATH= char
        Shutter Default Beam Path
        'DARK    ', 'FULL DISK', 'HIREZ   ', and 'UNDEF   ' are valid values.
MKSQAPA1
        APU Address Frame 1
MKSQAPA2
        APU Address Frame 2
MKSQAPA3
        APU Address Frame 3
MKSQAPA4
        APU Address Frame 4
MKSQC1A1
        CAL1 Actual Position Frame 1
MKSQC1A2
        CAL1 Actual Position Frame 2
MKSQC1A3
        CAL1 Actual Position Frame 3
MKSQC1A4
        CAL1 Actual Position Frame 4
MKSQC2A1
        CAL2 Actual Position Frame 1
MKSQC2A2
        CAL2 Actual Position Frame 2
MKSQC2A3
        CAL2 Actual Position Frame 3
MKSQC2A4
        CAL2 Actual Position Frame 4
MKSQCA
        Sequence Current Address
MKSQDM11
```

```
        DMA Control Word 1 Frame 1
MKSQDM12
        DMA Control Word 1 Frame 2
MKSQDM13
        DMA Control Word 9 Frame 3; should probably be Word 1
MKSQDM14
        DMA Control Word 1 Frame 4
MKSQDM21
        DMA Control Word 2 Frame 1
MKSQDM22
        DMA Control Word 2 Frame 2
MKSQDM23
        DMA Control Word 2 Frame 3
MKSQDM24
        DMA Control Word 2 Frame 4
MKSQDM31
        DMA Control Word 3 Frame 1
MKSQDM32
        DMA Control Word 3 Frame 2
MKSQDM33
        DMA Control Word 3 Frame 3
MKSQDM34
        DMA Control Word 3 Frame 4
MKSQDM41
        DMA Control Word 4 Frame 1
MKSQDM42
        DMA Control Word 4 Frame 2
MKSQDM43
        DMA Control Word 4 Frame 3
MKSQDM44
        DMA Control Word 4 Frame 4
MKSQIP11
        IP Parameter 1 Frame 1
MKSQIP12
        IP Parameter 1 Frame 2
MKSQIP13
        IP Parameter 1 Frame 3
MKSQIP14
        IP Parameter 1 Frame 4
MKSQIP21
        IP Parameter 2 Frame 1
MKSQIP22
        IP Parameter 2 Frame 2
MKSQIP23
        IP Parameter 2 Frame 3
MKSQIP24
        IP Parameter 2 Frame 4
MKSQIP31
        IP Parameter 3 Frame 1
MKSQIP32
        IP Parameter 3 Frame 2
MKSQIP33
        IP Parameter 3 Frame 3
MKSQIP34
        IP Parameter 3 Frame 4
MKSQIP41
        IP Parameter 4 Frame 1
MKSQIP42
        IP Parameter 4 Frame 2
MKSQIP43
```

```
        IP Parameter 4 Frame 3
MKSQIP44
        IP Parameter 4 Frame 4
MKSQIP51
        IP Parameter 5 Frame 1
MKSQIP52
        IP Parameter 5 Frame 2
MKSQIP53
        IP Parameter 5 Frame 3
MKSQIP54
        IP Parameter 5 Frame 4
MKSQIP61
        IP Parameter 6 Frame 1
MKSQIP62
        IP Parameter 6 Frame 2
MKSQIP63
        IP Parameter 6 Frame 3
MKSQIP64
        IP Parameter 6 Frame 4
MKSQIP71
        IP Parameter 7 Frame 1
MKSQIP72
        IP Parameter 7 Frame 2
MKSQIP73
        IP Parameter 7 Frame 3
MKSQIP74
        IP Parameter 7 Frame 4
MKSQIP81
        IP Parameter 8 Frame 1
MKSQIP82
        IP Parameter 8 Frame 2
MKSQIP83
        IP Parameter 8 Frame 3
MKSQIP84
        IP Parameter 8 Frame 4
MKSQIPC1
        IP Control Frame 1
MKSQIPC2
        IP Control Frame 2
MKSQIPC3
        IP Control Frame 3
MKSQIPC4
        IP Control Frame 4
MKSQLBA
        Sequence Last Branch Address
MKSQM1A1
        MTM1 Actual Position Frame 1
MKSQM1A2
        MTM1 Actual Position Frame 2
MKSQM1A3
        MTM9 Actual Position Frame 3; should probably be MTM1
MKSQM1A4
        MTM1 Actual Position Frame 4
MKSQM1P1
        MTM1 Planned Position Frame 1
MKSQM1P2
        MTM1 Planned Position Frame 2
MKSQM1P3
        MTM9 Planned Position Frame 3; should probably be MTM1
MKSQM1P4
```

```
        MTM1 Planned Position Frame 4
MKSQM2A1
        MTM2 Actual Position Frame 1
MKSQM2A2
        MTM2 Actual Position Frame 2
MKSQM2A3
        MTM2 Actual Position Frame 3
MKSQM2A4
        MTM2 Actual Position Frame 4
MKSQM2P1
        MTM2 Planned Position Frame 1
MKSQM2P2
        MTM2 Planned Position Frame 2
MKSQM2P3
        MTM2 Planned Position Frame 3
MKSQM2P4
        MTM2 Planned Position Frame 4
MKSQNFRM
        Number of Frames
MKSQNK1
        Compression Control Frame 1
MKSQNK2
        Compression Control Frame 2
MKSQNK3
        Compression Control Frame 3
MKSQNK4
        Compression Control Frame 4
MKSQOCC1
        Optics Config. Control Frame 1
MKSQOCC2
        Optics Config. Control Frame 2
MKSQOCC3
        Optics Config. Control Frame 3
MKSQOCC4
        Optics Config. Control Frame 4
MKSQPAA1
        PAW Actual Position Frame 1
MKSQPAA2
        PAW Actual Position Frame 2
MKSQPAA3
        PAW Actual Position Frame 3
MKSQPAA4
        PA Actual Position Frame 4
MKSQPAP1
        PAW Planned Position Frame 1
MKSQPAP2
        PAW Planned Position Frame 2
MKSQPAP3
        PAW Planned Position Frame 3
MKSQPAP4
        PAW Planed Position Frame 4
MKSQREF0
        LOBT Reference 0
MKSQREF1
        LOBT Reference 1
MKSQREF2
        LOBT Reference 2
MKSQREF3
        LOBT Reference 3
MKSQREF4
```

```
        LOBT Reference 4
MKSQREF5
        LOBT Reference 5
MKSQRG0
        Sequence Register 0
MKSQRG1
        Sequence Register 1
MKSQRG2
        Sequence Register 2
MKSQRG3
        Sequence Register 3
MKSQRG4
        Sequence Register 4
MKSQRG5
        Sequence Register 5
MKSQRG6
        Sequence Register 6
MKSQRG7
        Sequence Register 7
MKSQRG8
        Sequence Register 8
MKSQRG9
        Sequence Register 9
MKSQRGA
        Sequence Register A
MKSQRGB
        Sequence Register B
MKSQRGC
        Sequence Register C
MKSQRGD
        Sequence Register D
MKSQRGE
        Sequence Register E
MKSQRGF
        Sequence Register F
MKSQRT1
        Relative Time Frame 1
MKSQRT2
        Relative Time Frame 2
MKSQRT3
        Relative Time Frame 3
MKSQRT4
        Relative Time Frame 4
MKSQSA
        Sequence Start Address
MKSQSHC1
        Shutter Close Time Frame 1
MKSQSHC2
        Shutter Close Time Frame 2
MKSQSHC3
        Shutter Close Time Frame 3
MKSQSHC4
        Shutter Close Time Frame 4
MKSQSHO1
        Shutter Open Time Frame 1
MKSQSHO2
        Shutter Open Time Frame 2
MKSQSHO3
        Shutter Open Time Frame 3
MKSQSHO4
```

```
        Shutter Open Time Frame 4
MKSQSNUM
        Sequence Serial Number
MKSQTMC1
        Telemetry Control Frame 1
MKSQTMC2
        Telemetry Control Frame 2
MKSQTMC3
        Telemetry Control Frame 3
MKSQTMC4
        Telemetry Control Frame 4
MKTCCNT
        Command counter
MKTCLNVC
        MLA of Latest NVCB
MKTCNVCB
        Non-valid Command Blocks
MKTCNVER
        Error code of latest NVCB
MKTCVCB
        Valid Command Blocks
MTEPTS1
        Electronics Temp 1  (PRT)
MTEPTS2
        Electronics Temp 2  (Thermistor)
MTEPTS3
        Electronics Temp 3  (Thermistor)
MTEPTS4
        Electronics Temp 4  (PRT)
MTOPTS1
        Optics Temp 1  (Thermistor)
MTOPTS2
        Optics Temp 2  (Thermistor)
MTOPTS3
        Optics Temp 3  (Thermistor)
MTOPTS4
        Optics Temp 4  (Thermistor)
MTOPTS5
        Optics Temp 5  (Thermistor)
MTOPTS6
        Optics Temp 6  (PRT)
MTOPTS7
        Optics Temp 7  (Thermistor)
MTOPTS8
        Optics Temp 8  (PRT)
MTOPTS9
        Optics Temp 9  (Thermistor)
MTOPTS10
        Optics Temp 10  (Thermistor)
MTOPTS11
        Optics Temp 11  (PRT)
MTOPTS12
        Optics Temp 12  (Thermistor)
MTOPTS13
        Optics Temp 13  (Thermistor)
MTOPTS14
        Optics Temp 14  (Thermistor)
MTOPTS15
        Optics Temp 15  (Thermistor)
MTOPTS16
```

```
        Optics Temp 16  (Thermistor)
MUHOPCTL
        Optics package Heater Controller
MUHPOBRG
        Filter Oven Bridge Out
MUHPOLOP
        Filter Oven Loop Out
MUHROCTL
        Filter Oven Redundant Controller
MULTDIO1
        Limb Tracker Photodiode 1
MULTDIO2
        Limb Tracker Photodiode 2
MULTDIO3
        Limb Tracker Photodiode 3
MULTDIO4
        Limb Tracker Photodiode 4
MULTPZT1
        Limb Tracker PZT1
MULTPZT2
        Limb Tracker PZT2
MULTPZT3
        Limb Tracker PZT3
MULTXAVE
        Limb Tracker X Average Error
MULTYAVE
        Limb Tracker Y AverageError
MULTXMAX
        Limb Tracker X Max Error
MULTYMAX
        Limb Tracker Y Max Error
MVM15AE
        App. Elec  -15 volts; Cnv2; differs from proposed mnemonic M-15AE for
        consistency with positive voltage keywords
MVM15CM
        CCD Camera -15 volts; Cnv1; differs from proposed mnemonic M-15CM for
        consistency with positive voltage keywords
MVP05AE
        App. Elec  +5 volts; Cnv2; differs from proposed mnemonic M+5AE which
        violates FITS standard
MVP05CM
        CCD Camera +5 volts; Cnv1; differs from proposed mnemonic M+5CM which
        violates FITS standard
MVP05IP
        IP AND TLM +5 volts; Cnv1; differs from proposed mnemonic M+5IP which
        violates FITS standard
MVP15AE
        App. Elec  +15 volts; Cnv2; differs from proposed mnemonic M+15AE which
        violates FITS standard
MVP15CM
        CCD Camera +15 volts; Cnv1; differs from proposed mnemonic M+15CM which
        violates FITS standard
MVP15HTR
        Heater +15 volts; Cnv2; differs from proposed mnemonic M+15HTR which
        violates FITS standard
MVP15MTR
        Motor +15 volts; Cnv2; differs from proposed mnemonic M+15MTR which
        violates FITS standard
MVP30CM
        CCD Camera +30 volts; Cnv1; differs from proposed mnemonic M+30CM which
```

```
        violates FITS standard
MVP75LT
        Limb Tracker +75 volts; Cnv2; differs from proposed mnemonic M+75LT
        which violates FITS standard
MXAM1POS
        Leg Potentiometer Wiper 1
MXAM2POS
        Leg Potentiometer Wiper 2
MXHPOREF
        Temperature Sensor Reference

3.  Other SOI reserved keywords

    A.  General

MISSING = real

    B.  Ephemerides

HGDCLAT = real
        Heliographic Latitude of observed Solar Disc Center
HGDCLON = real
        Heliographic Longitude of observed Solar Disc Center
SUNRAD  = real
        Apparent semidiameter of Solar Disc
SUNDIST =real
        Distance from Observer to center of Sun
TIME-OBS= 'HH:MM:SS.XXX'
        UT time of observation.  Values as described under TIME keyword

    C.  Creation Parameters

TIME    = 'HH:MM:SS.XXX ZZZ'
        Time at which the Header Data Unit was created.  HH and MM are
        two-digit integers (with leading 0's) giving the hour and minute,
        respectively.  SS.XXX, if present, is either a real or two digit
        integer (with leading 0's) representing seconds.  ZZZ, if present,
        is a character string representing time zone information.  If it is
        not present, UT (Universal Time) is assumed.

4.  FITS Keywords for MDI PF Testing

The following is a list of proposed keywords for images taken by the MDI
breadboard camera (the parentheses indicate the corresponding f0 structure).
Not included are FITS keywords listed in Sections 1 and 2 above.

BLS_PIX = int
        Number of BLS pixels (bls)
CENTER_X= int
        x-Coordinate of image center in millipixels used in gain calculation
CENTER_Y= int
        y-Coordinate of image center in millipixels used in gain calculation
RADIUS  = int
        Radius of image in pixels used in gain calculation
IMAGENO = int
        Image serial number (imnum)
EXT_COLS= int
        Number of extended pixels (eper)
EXT_ROWS= int
        Number of extended rows (eler)
```

```
FRAME   = char
        Frame position descriptor (frame)
FTYPE   = char
        Datatype descriptor (ftype)
SEQUENCE= char
        sequencename, incl. serial number (seq)
SITE    = char
        Observing site (site)
SUMMING = char
        Summing mode (sum)
TEMPn   = int           n = [0, 9]
        Temperature n from camera string (temp(n))
VIDEODSK= bool
        flag if image on videodisk (vdsk)
```

E Listing of How Many Times Some Control Files were Run (HIST_COUNT output)

```
HIST_COUNT  Ver 1.1    Program Run: 24-May-1994 18:55:08.00

Input file spans: 30-JUN-93 19:00:04 to 12-MAY-94 18:09:48
```

	9306	9307	9308	9309	9310	9311	9312	9401	9402	9403	9404	9405	Total
mdipict	0	0	0	1	3	0	10	3	0	5	11	2	35
mdiltc	0	0	3	0	2	13	13	3	4	10	13	2	63
mdifocus	0	0	0	1	2	3	10	3	1	3	8	9	40
mdiiss	0	0	0	0	3	8	5	5	0	0	2	1	24
mdidust	0	0	0	0	3	0	0	0	0	0	0	0	3
mdilaser	0	0	0	0	0	0	1	2	0	5	5	1	14
mdidtune	0	0	0	0	29	6	4	0	0	0	0	0	39
big	0	13	26	0	35	23	3	0	0	3	3	0	106
supersun	0	0	0	0	2	0	0	0	0	0	0	0	2
vfdlscan	0	3	7	0	12	15	0	0	4	4	22	0	67
mtmtune	0	0	0	0	0	70	0	0	0	0	2	0	72
maplaser	0	0	0	0	0	3	0	0	0	0	0	0	3
mapgrad	0	0	0	0	0	4	0	0	0	0	3	0	7
mdiprot	0	0	0	1	3	0	1	1	0	0	2	2	10
mdimrot	0	0	0	1	2	0	1	1	0	0	3	1	9
mdipdist	0	0	0	3	2	0	1	0	0	0	2	1	9
" mdion "	0	11	20	2	28	38	55	41	22	44	53	10	324
lfdclose	0	0	17	2	11	18	39	23	30	25	40	10	215
mbfdbc	0	62	69	30	35	33	45	24	28	25	35	11	397
lfdopen	0	0	8	2	27	22	29	16	30	39	25	5	203
mbfd1o	3	52	55	18	35	38	43	24	30	25	36	12	371

F Listing of When Control Files were Run (HIST_SUMMARY output)

NOTE: It is possible to search the calibration log CAL_LOG to list all datasets which were created using a certain control file. This list would most likely be a subset of the command summary list below because the are occassions when execution of control files is aborted before completion. The listing from the CAL_LOG would include the CCD and oven temperatures. A sample use of the alias **calgrep** is:

% **calgrep mdipict**

```
HIST_SUMMARY  Ver 1.2    Program Run: 24-May-1994 18:00:23.00

Searching for: mdipict,mdiltc,mdifocus,mdiiss,mdidust,mdilaser,shutest,mdicom,lcmcom,ipcom,ipmemtst,iptbltst,ipdmatst,ipdynmac,ipseqtst,lsqcom,mdidtune,bigtune,supersun,vfdlscan,mtmtune,maplaser,mapgrad,mdiprot,mdimrot,mdipdist

Input file spans: 30-JUN-93 19:00:04 to 12-MAY-94 18:09:48


------------------------------ Searching for mdipict ------------------------------
930901_061019 <  >>     mdipict                                 1-SEP-93 06:10:30
931001_194438    >> mdipict                                     1-OCT-93 19:44:05
931008_010431    >> mdipict                                     8-OCT-93 01:04:03
931018_210208 <  >>         mdipict                            18-OCT-93 21:01:14
931218_011846    >>     mdipict                                18-DEC-93 01:17:56
931218_214831    >> mdipict                                    18-DEC-93 21:47:07
931220_064308 <  >> mdipict                                    20-DEC-93 06:41:52
931221_194038    >> mdipict                                    21-DEC-93 20:32:53
931221_210002    >> mdipict                                    21-DEC-93 20:59:13
931222_134717    >>                             mdipict        22-DEC-93 16:36:45
931222_163837    >>                             mdipict        22-DEC-93 16:37:21
931223_012013 <  >> mdipict                                    23-DEC-93 01:19:35
931223_055631 <  >> mdipict                                    23-DEC-93 05:55:36
931223_163917    >>     mdipict                                23-DEC-93 16:38:13
940112_224104 <  >> mdipict                                    12-JAN-94 22:40:24
940120_115542    >>     mdipict                                20-JAN-94 11:54:31
940120_121041 <  >>     mdipict                                20-JAN-94 12:09:48
940304_214902 <  >>     mdipict                                 4-MAR-94 21:48:18
940304_223746 <  >>         mdipict                             4-MAR-94 22:35:47
940315_210948 <  >>     mdipict                                14-MAR-94 21:07:23
940315_210948    >>     mdipict                                14-MAR-94 21:08:50
940327_150141 <  >>     mdipict                                27-MAR-94 15:00:55
940401_143902 <  >>     mdipict                                 1-APR-94 14:37:51
940406_141503 <  >>     mdipict                                 6-APR-94 14:13:43
940410_140323    >> mdipict                                    10-APR-94 14:02:27
940422_203742    >> mdipict                                    22-APR-94 20:36:35
940423_021755    >>             mdipict                        23-APR-94 02:16:40
940423_043634    >>         mdipict                            23-APR-94 04:35:20
940424_204659 <  >>     mdipict                                24-APR-94 20:46:05
XXXXXX_XXXXXX    >> mdipict                                    26-APR-94 03:45:14
940426_035009    >>     mdipict                                26-APR-94 03:48:58
940426_035538 <  >>     mdipict                                26-APR-94 03:54:49
940426_044621 <  >>             mdipict                        26-APR-94 04:45:27
940504_095350    >> mdipict                                     4-MAY-94 09:52:42
```

```
940506_120808    >> mdipict                                  6-MAY-94 12:07:02

------------------------------ Searching for mdiltc ------------------------------
XXXXXX_XXXXXX    >>     mdiltc                              20-AUG-93 01:51:31
XXXXXX_XXXXXX    >>     mdiltc                              20-AUG-93 01:54:48
XXXXXX_XXXXXX    >>     mdiltc                              20-AUG-93 02:06:57
931001_200012 <  >> mdiltc                                   1-OCT-93 19:59:46
931008_011902 <  >> mdiltc                                   8-OCT-93 01:18:33
931103_013705    >> mdiltc                                   3-NOV-93 02:41:54
931103_013705    >> mdiltcs2                                 3-NOV-93 02:57:29
931103_013705    >> mdiltcs2                                 3-NOV-93 03:04:49
931103_013705    >> mdiltcs2                                 3-NOV-93 03:13:26
931103_013705    >> mdiltcs2                                 3-NOV-93 03:20:48
931103_013705    >> mdiltcs2                                 3-NOV-93 03:32:14
931122_235018    >> mdiltc                                  22-NOV-93 23:49:30
931123_085214 <  >>     mdiltc                              23-NOV-93 08:51:53
931123_232756    >> mdiltc                                  23-NOV-93 23:27:15
931124_082454 <  >> mdiltc                                  24-NOV-93 08:23:51
931124_083139    >> mdiltc                                  24-NOV-93 08:31:10
931124_083549 <  >> mdiltc                                  24-NOV-93 08:35:20
931124_083856 <  >> mdiltc                                  24-NOV-93 08:38:26
931218_010148 <  >> mdiltc                                  18-DEC-93 01:00:53
931218_220431 <  >> mdiltc                                  18-DEC-93 22:03:34
931220_065852 <  >> mdiltc                                  20-DEC-93 06:58:01
931223_013528 <  >> mdiltc                                  23-DEC-93 01:34:37
931223_061445 <  >> mdiltc                                  23-DEC-93 06:13:36
931223_165515 <  >>     mdiltc                              23-DEC-93 16:54:14
931228_163045    >> mdiltcs1                                28-DEC-93 16:29:22
931228_172003 <  >> mdiltcs2                                28-DEC-93 17:18:14
931228_183645    >> mdiltcs4                                28-DEC-93 18:35:41
931228_195938    >> mdiltcs4                                28-DEC-93 19:58:55
931228_221532    >> mdiltcs1                                28-DEC-93 22:14:44
931228_235936 <  >> mdiltcs2                                28-DEC-93 23:59:03
931229_134517 <  >> mdiltcs2                                29-DEC-93 13:44:39
940112_230148 <  >> mdiltc                                  12-JAN-94 22:59:46
940119_163231    >> mdiltc                                  19-JAN-94 18:00:39
940119_180239    >>     mdiltc                              19-JAN-94 18:01:52
940220_071248 <  >>     mdiltc                              19-FEB-94 07:11:58
940224_162658 <  >>     mdiltc                              24-FEB-94 16:21:39
940227_145237 <  >>     mdiltc                              27-FEB-94 14:48:06
940227_145237    >>     mdiltc                              27-FEB-94 14:49:34
940304_212004 <  >>     mdiltc                               4-MAR-94 21:18:58
940304_222132    >>         mdiltc                           4-MAR-94 22:20:29
940305_195329 <  >>             mdiltc                       5-MAR-94 19:50:18
940305_195329    >>             mdiltc                       5-MAR-94 19:51:47
940305_202112    >>             mdiltc                       5-MAR-94 20:19:42
940313_155528    >> mdiltc                                  12-MAR-94 15:54:16
940313_155528    >> mdiltc                                  12-MAR-94 15:56:31
940314_155356 <  >> mdiltc                                  13-MAR-94 15:51:40
940314_155356    >> mdiltc                                  13-MAR-94 15:52:48
940315_212548 <  >> mdiltc                                  14-MAR-94 21:24:55
940401_142048    >>     mdiltc                               1-APR-94 14:19:44
940406_140020    >>     mdiltc                               6-APR-94 13:59:27
940408_063328    >>     mdiltcs1                             8-APR-94 06:32:09
940408_072850    >>     mdiltcs1                             8-APR-94 07:27:37
940408_083541 <  >>     mdiltcs2                             8-APR-94 08:34:29
940408_094207 <  >> mdiltcs4                                 8-APR-94 09:40:52
940422_202556    >> mdiltc                                  22-APR-94 20:24:44
940423_023654 <  >>             mdiltc                      23-APR-94 02:36:10
940424_193854    >>                     mdiltc              24-APR-94 20:14:40
```

```
940424_202445    >>     mdiltc                                  24-APR-94 20:23:41
940424_202445    >>     mdiltc                                  24-APR-94 20:29:43
940424_203144 <  >>     mdiltc                                  24-APR-94 20:30:53
940426_041407 <  >>     mdiltc                                  26-APR-94 04:10:34
940504_101134    >> mdiltc                                       4-MAY-94 10:10:26
940506_122453 <  >> mdiltc                                       6-MAY-94 12:23:11

------------------------------ Searching for mdifocus ------------------------------
930901_063001 <  >>     mdifocus                                 1-SEP-93 06:30:09
931001_202439    >> mdifocus                                     1-OCT-93 20:24:17
931008_013816    >>     mdifocus                                 8-OCT-93 01:37:49
931121_200140    >> mdifocus                                    21-NOV-93 20:01:20
931121_200140    >> mdifocus                                    21-NOV-93 20:18:48
931123_001958    >> mdifocus                                    23-NOV-93 00:19:40
931218_013527 <  >>     mdifocus                                18-DEC-93 01:33:51
931218_221904 <  >> mdifocus                                    18-DEC-93 22:18:37
931220_071334 <  >> mdifocus                                    20-DEC-93 07:13:21
931220_223624    >> mdifocus                                    20-DEC-93 22:36:05
931222_202513    >>     mdifocus                                22-DEC-93 20:24:31
931223_010434 <  >> mdifocus                                    23-DEC-93 01:04:17
931223_013528    >>     mdifocus                                23-DEC-93 05:33:11
931223_053833    >> mdifocus                                    23-DEC-93 05:37:59
931223_170953 <  >>     mdifocus                                23-DEC-93 17:09:14
931223_174402    >>     mdifocus                                23-DEC-93 17:43:41
940106_232957    >>                     mdifocus                 6-JAN-94 23:29:40
940112_233031    >> mdifocus                                    12-JAN-94 23:30:08
940120_131844    >> mdifocus                                    20-JAN-94 13:17:54
940219_025607    >>             mdifocus                        19-FEB-94 02:55:44
940305_081947    >>         mdifocus                             5-MAR-94 08:19:21
940322_034029    >>         mdifocus                            22-MAR-94 03:40:13
940326_010023    >> mdifocus                                    26-MAR-94 01:24:09
940402_045113    >> mdifocus                                     2-APR-94 04:50:59
940406_010943 <  >>     mdifocus                                 6-APR-94 01:09:23
940406_012550    >> mdifocus                                     6-APR-94 01:25:29
940407_000702    >>     mdifocus                                 7-APR-94 00:06:44
940407_151311    >> mdifocus                                     7-APR-94 15:12:53
940422_195952    >> mdifocus                                    22-APR-94 19:59:36
940422_200839    >> mdifocus                                    22-APR-94 20:08:22
940426_043043    >>             mdifocus                        26-APR-94 04:30:13
940503_162350    >> mdifocus                                     3-MAY-94 16:23:24
940504_080320    >>     mdifocus                                 4-MAY-94 08:02:50
940504_092535    >>     mdifocus                                 4-MAY-94 09:25:13
940505_115723    >> mdifocus                                     5-MAY-94 11:57:00
940505_124057    >> mdifocus                                     5-MAY-94 12:39:04
940505_141459    >> mdifocus                                     5-MAY-94 14:14:36
940505_171316    >> mdifocus                                     5-MAY-94 17:12:59
940506_102651    >>     mdifocus                                 6-MAY-94 10:26:27
940506_110703    >> mdifocus                                     6-MAY-94 11:03:24

------------------------------ Searching for mdiiss ------------------------------
931001_204141 <  >> mdiiss                                       1-OCT-93 20:40:51
931001_205218 <  >> mdiiss                                       1-OCT-93 20:50:00
931008_015736 <  >>     mdiiss                                   8-OCT-93 01:56:40
931129_024915    >> mdiiss                                      29-NOV-93 02:47:53
931129_032516    >>     mdiiss                                  29-NOV-93 03:21:30
931129_040346    >>     mdiiss                                  29-NOV-93 04:03:08
931129_041502    >>     mdiiss                                  29-NOV-93 04:14:23
931129_041502    >> mdiiss                                      29-NOV-93 04:45:07
931129_044855    >> mdiiss                                      29-NOV-93 04:48:13
931129_051101    >> mdiiss                                      29-NOV-93 05:09:44
```

```
931129_061106    >> mdiiss                                    29-NOV-93 06:10:25
931222_230333    >> mdiiss                                    23-DEC-93 00:39:52
931223_004152    >> mdiiss                                    23-DEC-93 00:40:53
931223_074514    >> mdiiss                                    23-DEC-93 07:43:51
931223_193352    >>     mdiiss                                23-DEC-93 21:46:41
931223_193352    >>     mdiiss                                23-DEC-93 21:47:22
940113_073052    >>     mdiiss                                13-JAN-94 07:29:55
940113_172735 <  >> mdiiss                                    13-JAN-94 17:24:21
940113_181243 <  >> mdiiss                                    13-JAN-94 18:10:17
940120_180210    >> mdiiss                                    20-JAN-94 18:01:08
940121_093056    >>     mdiiss                                21-JAN-94 09:29:13
940401_183733    >> mdiiss                                     1-APR-94 18:35:05
940425_213204    >> mdiiss                                    25-APR-94 21:29:47
940504_103717    >> mdiiss                                     4-MAY-94 10:36:14

------------------------------ Searching for mdidust ------------------------------
931001_234506    >> mdidust                                    1-OCT-93 23:44:52
931002_214453    >> mdidust                                    2-OCT-93 21:44:33
931008_201704 <  >>     mdidust                                8-OCT-93 20:16:19

------------------------------ Searching for mdilaser ------------------------------
931229_070623    >>                 mdilaser                  29-DEC-93 07:04:24
940113_011157    >> mdilaser                                  13-JAN-94 01:08:38
XXXXXX_XXXXXX    >>             mdilaser                      21-JAN-94 14:56:53
XXXXXX_XXXXXX    >> mdilaser                                  29-MAR-94 00:14:02
940329_003243    >> mdilaser                                  29-MAR-94 00:30:51
XXXXXX_XXXXXX    >>     mdilaser                              29-MAR-94 03:52:57
940329_035721    >>     mdilaser                              29-MAR-94 03:56:31
XXXXXX_XXXXXX    >>     mdilaser                              29-MAR-94 04:54:58
940402_033500    >> mdilaser                                   2-APR-94 03:33:55
940406_185418    >>                 mdilaser                   6-APR-94 18:52:56
940412_170906    >>         mdilaser                          12-APR-94 17:24:17
940412_183825 <  >> mdilaser                                  12-APR-94 18:36:11
940425_192438    >>         mdilaser                          25-APR-94 19:22:44
940504_143015    >> mdilaser                                   4-MAY-94 15:23:59

------------------------------ Searching for shutest ------------------------------
XXXXXX_XXXXXX    >>     shutest                               21-JUL-93 22:35:03
XXXXXX_XXXXXX    >>     shutest                               22-JUL-93 15:20:17
XXXXXX_XXXXXX    >>     shutest                               22-JUL-93 21:20:36
XXXXXX_XXXXXX    >>     shutest                               22-JUL-93 21:26:52
XXXXXX_XXXXXX    >>     shutest                               26-JUL-93 23:46:57
XXXXXX_XXXXXX    >>     shutest                               26-JUL-93 23:49:20
XXXXXX_XXXXXX    >>     shutest                               29-JUL-93 18:58:54
930729_200816    >>     shutest                               29-JUL-93 20:41:54
930729_200816    >>     shutest                               29-JUL-93 20:53:13
930729_200816    >>     shutest                               29-JUL-93 20:56:52
930729_200816    >>     shutest                               29-JUL-93 21:00:20
931008_152008    >>     shutest                                8-OCT-93 17:04:33
931008_152008    >>     shutest                                8-OCT-93 17:09:10
931223_193352    >>     shutest                               23-DEC-93 20:49:52
940505_124057    >> shutest                                    5-MAY-94 13:44:47

------------------------------ Searching for mdicom ------------------------------
XXXXXX_XXXXXX    >>     mdicom                                28-JUL-93 21:47:53
XXXXXX_XXXXXX    >>     mdicom                                28-JUL-93 22:26:47
XXXXXX_XXXXXX    >>     mdicom                                28-JUL-93 22:40:42
XXXXXX_XXXXXX    >>     mdicom                                 4-AUG-93 16:50:43
XXXXXX_XXXXXX    >>     mdicom                                 4-AUG-93 16:58:18
XXXXXX_XXXXXX    >>     mdicom                                 5-AUG-93 17:27:20
```

```
XXXXXX_XXXXXX    >>     mdicom                                19-AUG-93 05:23:05
XXXXXX_XXXXXX    >>     mdicom                                21-AUG-93 17:41:59
XXXXXX_XXXXXX    >>     mdicom                                12-SEP-93 20:19:04
XXXXXX_XXXXXX    >>     mdicom                                 1-OCT-93 15:16:29
XXXXXX_XXXXXX    >>     mdicom                                12-OCT-93 18:25:32
XXXXXX_XXXXXX    >>     mdicom                                12-OCT-93 18:45:40
XXXXXX_XXXXXX    >> mdicom                                    20-NOV-93 17:48:56
XXXXXX_XXXXXX    >>     mdicom                                20-NOV-93 20:11:31
XXXXXX_XXXXXX    >>     mdicom                                21-NOV-93 17:49:52
XXXXXX_XXXXXX    >>     mdicom                                22-NOV-93 21:43:40
XXXXXX_XXXXXX    >>     mdicom                                23-NOV-93 05:44:34
931123_103215    >>     mdicom                                23-NOV-93 21:37:18
XXXXXX_XXXXXX    >>     mdicom                                24-NOV-93 04:39:21
XXXXXX_XXXXXX    >>                 mdicom                     5-DEC-93 22:03:31
XXXXXX_XXXXXX    >>     mdicom                                14-DEC-93 00:40:03
XXXXXX_XXXXXX    >>     mdicom                                17-DEC-93 22:13:32
XXXXXX_XXXXXX    >>     mdicom                                18-DEC-93 20:23:14
931218_203257    >>         mdicom                            18-DEC-93 20:50:29
931218_203257    >>         mdicom                            18-DEC-93 20:51:07
931218_203257    >>         mdicom                            18-DEC-93 20:53:15
931218_203257    >>         mdicom                            18-DEC-93 21:01:23
XXXXXX_XXXXXX    >>     mdicom                                19-DEC-93 17:35:54
931220_071334    >> mdicom                                    20-DEC-93 07:31:46
931220_090106    >> mdicom                                    20-DEC-93 20:57:01
XXXXXX_XXXXXX    >>     mdicom                                21-DEC-93 07:46:30
XXXXXX_XXXXXX    >>     mdicom                                21-DEC-93 18:16:35
931222_030252    >>         mdicom                            22-DEC-93 03:11:18
931222_052755    >>         mdicom                            22-DEC-93 10:06:26
XXXXXX_XXXXXX <  >>     mdicom                                22-DEC-93 10:27:04
931222_163837    >>                                mdicom     22-DEC-93 17:22:15
931222_173317    >>                                mdicom     22-DEC-93 17:46:58
931223_111900    >>         mdicom                            23-DEC-93 13:36:49
XXXXXX_XXXXXX    >>     mdicom                                11-JAN-94 03:40:57
XXXXXX_XXXXXX    >>     mdicom                                12-JAN-94 14:40:18
XXXXXX_XXXXXX    >>     mdicom                                13-JAN-94 22:55:04
XXXXXX_XXXXXX    >>     mdicom                                19-JAN-94 15:29:07
XXXXXX_XXXXXX    >>     mdicom                                15-FEB-94 18:42:38
XXXXXX_XXXXXX    >>     mdicom                                 2-APR-94 18:55:13
940406_012550    >> mdicom                                     6-APR-94 02:22:47
XXXXXX_XXXXXX    >>     mdicom                                17-APR-94 01:59:57
XXXXXX_XXXXXX    >>     mdicom                                19-APR-94 21:13:44
XXXXXX_XXXXXX    >>     mdicom                                20-APR-94 18:44:45
940422_003739    >> mdicom                                    22-APR-94 02:27:59
XXXXXX_XXXXXX    >>     mdicom                                25-APR-94 16:30:31
XXXXXX_XXXXXX    >>     mdicom                                 3-MAY-94 10:53:50
940505_141459    >> mdicom                                     5-MAY-94 15:19:04

------------------------------ Searching for lcmcom ------------------------------
XXXXXX_XXXXXX               lcmcom                            19-AUG-93 05:26:26  ## Camera/Shutter commissioning
XXXXXX_XXXXXX           lcmcom                                19-AUG-93 05:26:26  ## Camera/Shutter commissioning
XXXXXX_XXXXXX               lcmcom                            21-AUG-93 17:53:49  ## Camera/Shutter commissioning
XXXXXX_XXXXXX           lcmcom                                21-AUG-93 17:53:49  ## Camera/Shutter commissioning
930908_220032    >>     lcmcom2                                9-SEP-93 00:29:35
930909_221948    >>     lcmcom2                                9-SEP-93 23:59:38
930910_004348    >>     lcmcom2                               10-SEP-93 00:48:18
930910_004348    >>     lcmcom2                               10-SEP-93 00:49:51
930912_203245 <             lcmcom                            12-SEP-93 20:34:31  ## Camera/Shutter commissioning
930912_203245           lcmcom                                12-SEP-93 20:34:31  ## Camera/Shutter commissioning
930912_203958 <         lcmcom                                12-SEP-93 20:40:21  ## Camera/Shutter commissioning
930912_203958               lcmcom                            12-SEP-93 20:40:21  ## Camera/Shutter commissioning
```

```
930912_205724 <         lcmcom                                12-SEP-93 20:57:59  ## Camera/Shutter commissioning
930912_205724               lcmcom                            12-SEP-93 20:57:59  ## Camera/Shutter commissioning
931001_152636               lcmcom                             1-OCT-93 15:26:37  ## Camera commissioning
XXXXXX_XXXXXX    >>     lcmcom                                 7-OCT-93 19:14:27
931007_223139               lcmcom                             7-OCT-93 22:31:40  ## Camera commissioning
931012_185700               lcmcom                            12-OCT-93 18:57:01  ## Camera commissioning
931120_175953           lcmcom                                20-NOV-93 17:59:54  ## Camera commissioning
931120_202146               lcmcom                            20-NOV-93 20:21:47  ## Camera commissioning
931121_180055               lcmcom                            21-NOV-93 18:00:56  ## Camera commissioning
931122_215549               lcmcom                            22-NOV-93 21:55:50  ## Camera commissioning
931123_055608               lcmcom                            23-NOV-93 05:56:09  ## Camera commissioning
931123_214817               lcmcom                            23-NOV-93 21:48:18  ## Camera commissioning
931124_044913               lcmcom                            24-NOV-93 04:49:14  ## Camera commissioning
931205_221408                           lcmcom                 5-DEC-93 22:14:09  ## Camera commissioning
931214_004957               lcmcom                            14-DEC-93 00:49:58  ## Camera commissioning
931217_222334               lcmcom                            17-DEC-93 22:23:35  ## Camera commissioning
931218_203257               lcmcom                            18-DEC-93 20:32:58  ## Camera commissioning
931219_174652               lcmcom                            19-DEC-93 17:46:53  ## Camera commissioning
931220_074608           lcmcom                                20-DEC-93 07:46:10  ## Camera commissioning
931220_210852           lcmcom                                20-DEC-93 21:08:53  ## Camera commissioning
931221_075531               lcmcom                            21-DEC-93 07:55:32  ## Camera commissioning
931221_182624               lcmcom                            21-DEC-93 18:26:25  ## Camera commissioning
931222_032258                   lcmcom                        22-DEC-93 03:22:59  ## Camera commissioning
931222_101439                   lcmcom                        22-DEC-93 10:14:40  ## Camera commissioning
931222_103549               lcmcom                            22-DEC-93 10:35:50  ## Camera commissioning
931222_173317                                         lcmcom  22-DEC-93 17:33:19  ## Camera commissioning
931223_134655                   lcmcom                        23-DEC-93 13:46:56  ## Camera commissioning
940111_035400               lcmcom                            11-JAN-94 03:54:01  ## Camera commissioning
940112_145145               lcmcom                            12-JAN-94 14:51:46  ## Camera commissioning
940119_154231               lcmcom                            19-JAN-94 15:42:32  ## Camera commissioning
940215_185257               lcmcom                            15-FEB-94 18:52:58  ## Camera commissioning
940402_191303               lcmcom                             2-APR-94 19:13:04  ## Camera commissioning
940406_023226           lcmcom                                 6-APR-94 02:32:28  ## Camera commissioning
940417_021220               lcmcom                            17-APR-94 02:12:22  ## Camera commissioning
940419_212453               lcmcom                            19-APR-94 21:24:54  ## Camera commissioning
940420_185642               lcmcom                            20-APR-94 18:56:43  ## Camera commissioning
940422_024117           lcmcom                                22-APR-94 02:41:18  ## Camera commissioning
940425_164209               lcmcom                            25-APR-94 16:42:11  ## Camera commissioning
940503_110612               lcmcom                             3-MAY-94 11:06:13  ## Camera commissioning
940505_152950           lcmcom                                 5-MAY-94 15:29:51  ## Camera commissioning

------------------------------ Searching for ipcom ------------------------------
XXXXXX_XXXXXX           lipcom                                19-AUG-93 05:24:40  ## IP commissioning
XXXXXX_XXXXXX               lipcom                            19-AUG-93 05:24:41  ## IP commissioning
XXXXXX_XXXXXX           lipcom                                21-AUG-93 17:48:03  ## IP commissioning
XXXXXX_XXXXXX               lipcom                            21-AUG-93 17:48:04  ## IP commissioning
XXXXXX_XXXXXX           lipcom                                21-AUG-93 17:52:22  ## IP commissioning
XXXXXX_XXXXXX               lipcom                            21-AUG-93 17:52:23  ## IP commissioning
930912_205724               lipcom                            12-SEP-93 22:32:54  ## IP commissioning
931008_214523 <  >>         lipcom                             8-OCT-93 21:44:53
931110_003654           lipcom                                10-NOV-93 00:36:24  ## IP commissioning
931124_084903    >> ipcom                                     24-NOV-93 21:30:32
931124_084903    >> ipcom                                     24-NOV-93 21:33:07
931124_084903    >> ipcom                                     24-NOV-93 22:05:20
931205_231740           ipcom                                  5-DEC-93 23:47:58  ## IP commissioning
931217_230607           ipcom                                 17-DEC-93 23:13:29  ## IP commissioning
931218_211911           ipcom                                 18-DEC-93 21:27:17  ## IP commissioning
931219_190432           ipcom                                 19-DEC-93 19:12:26  ## IP commissioning
931219_192526    >> tvipcom                                   20-DEC-93 00:57:00
931219_192526    >>     tvipcom                               20-DEC-93 01:06:48
```

```
931219_192526    >>     tvipcom                              20-DEC-93 01:08:47
931219_192526    >>     tvipcom                              20-DEC-93 01:10:49
931220_090106 <         ipcom                                20-DEC-93 08:57:21  ## IP commissioning
931220_215334           ipcom                                20-DEC-93 22:02:17  ## IP commissioning
931220_223624    >> ipcom                                    20-DEC-93 22:56:00
931221_082209           ipcom                                21-DEC-93 08:30:21  ## IP commissioning
931221_191940           ipcom                                21-DEC-93 19:28:11  ## IP commissioning
931222_105703               ipcom                            22-DEC-93 11:04:43  ## IP commissioning
931222_182058           ipcom                                22-DEC-93 18:28:56  ## IP commissioning
931223_145437           ipcom                                23-DEC-93 15:07:47  ## IP commissioning
XXXXXX_XXXXXX    >>         ipcom                            11-JAN-94 15:02:41
940112_154832           ipcom                                12-JAN-94 15:58:26  ## IP commissioning
940120_141706    >> ipcom                                    20-JAN-94 15:21:21
940215_210515           ipcom                                15-FEB-94 21:16:15  ## IP commissioning
940411_204121    >> ipcom                                    11-APR-94 22:25:12
940417_030620           ipcom                                17-APR-94 03:13:57  ## IP commissioning
XXXXXX_XXXXXX    >>     ipcom                                20-APR-94 01:21:36
940422_033011           ipcom                                22-APR-94 03:39:44  ## IP commissioning
940503_123543    >>     ipcom                                 3-MAY-94 13:01:55

------------------------------ Searching for ipmemtst ------------------------------
931129_210217    >> ipmemtst                                 29-NOV-93 21:02:30
931129_210217    >> ipmemtst                                 29-NOV-93 21:05:25
931129_210217    >> ipmemtst                                 29-NOV-93 21:08:53
XXXXXX_XXXXXX    >>     ipmemtst                              4-DEC-93 16:45:42
931204_165529    >> ipmemtst                                  4-DEC-93 17:42:12
940111_151731    >> ipmemtst                                 11-JAN-94 16:29:24
XXXXXX_XXXXXX    >>         ipmemtst                          1-MAR-94 18:49:55
XXXXXX_XXXXXX    >>     ipmemtst                              1-MAR-94 19:54:55
XXXXXX_XXXXXX    >>     ipmemtst                              1-MAR-94 21:34:45
XXXXXX_XXXXXX    >>     ipmemtst                              1-MAR-94 22:00:55
940302_143456    >>     ipmemtst                              2-MAR-94 16:17:54
940303_003621    >> ipmemtst                                  3-MAR-94 02:05:20
940303_003621    >> ipmemtst                                  3-MAR-94 02:06:41
940303_003621    >> ipmemtst                                  3-MAR-94 04:09:24
XXXXXX_XXXXXX    >>     ipmemtst                              4-MAR-94 20:35:32
940309_022837    >>     ipmemtst                              9-MAR-94 14:29:54
940309_022837    >>     ipmemtst                              9-MAR-94 14:31:15
XXXXXX_XXXXXX               ipmemtst                         20-APR-94 01:28:03
940422_033011               ipmemtst                         22-APR-94 03:44:46
940503_123543               ipmemtst                          3-MAY-94 13:04:33
940506_110703    >> ipmemtst                                  6-MAY-94 11:38:13

------------------------------ Searching for iptbltst ------------------------------
931201_181306    >>     iptbltst                              1-DEC-93 18:13:13
931201_211929    >>                 iptbltst                  1-DEC-93 21:43:09
931204_165529    >>     iptbltst                              4-DEC-93 16:55:39
931222_030252    >>         iptbltst                         22-DEC-93 03:03:08
931222_221349    >> iptbltst                                 22-DEC-93 22:14:45
931229_134517    >> iptbltst                                 29-DEC-93 22:49:03
931229_134517    >> iptbltst                                 29-DEC-93 22:51:30
940111_151731    >>             iptbltst                     11-JAN-94 16:18:13
940111_151731    >>             iptbltst                     11-JAN-94 16:23:13
940111_151731    >>     iptbltst                             11-JAN-94 16:35:21
XXXXXX_XXXXXX    >>     iptbltst                             11-JAN-94 18:21:19
940111_185730    >>     iptbltst                             11-JAN-94 18:57:39
940228_220408    >> iptbltst                                 28-FEB-94 22:04:14
940228_220408    >> iptbltst                                 28-FEB-94 22:17:40
XXXXXX_XXXXXX    >>     iptbltst                              1-MAR-94 18:26:46
XXXXXX_XXXXXX    >>     iptbltst                              1-MAR-94 19:59:50
```

```
XXXXXX_XXXXXX    >>     iptbltst                              1-MAR-94 21:23:26
XXXXXX_XXXXXX    >>     iptbltst                              1-MAR-94 21:24:55
XXXXXX_XXXXXX    >>     iptbltst                              1-MAR-94 21:30:24
XXXXXX_XXXXXX    >>     iptbltst                              1-MAR-94 22:19:03
XXXXXX_XXXXXX    >>     iptbltst                              1-MAR-94 22:23:41
940302_143456    >>     iptbltst                              2-MAR-94 16:15:08
940302_143456    >>     iptbltst                              2-MAR-94 16:23:39
940303_003621    >> iptbltst                                  3-MAR-94 02:10:19
940303_003621    >> iptbltst                                  3-MAR-94 02:13:50
940303_003621    >> iptbltst                                  3-MAR-94 04:08:18
940303_003621    >> iptbltst                                  3-MAR-94 04:12:39
940303_041355    >> iptbltst                                  3-MAR-94 04:14:00
940303_041454 <  >> iptbltst                                  3-MAR-94 04:15:20
940303_145012    >>             iptbltst                      3-MAR-94 15:39:56
940303_145012    >>             iptbltst                      3-MAR-94 15:42:33
XXXXXX_XXXXXX    >>     iptbltst                              4-MAR-94 20:39:22
XXXXXX_XXXXXX    >>     iptbltst                              4-MAR-94 20:40:46
940304_233629    >>             iptbltst                      4-MAR-94 23:47:12
940305_174506    >>             iptbltst                      5-MAR-94 18:08:45
940311_200352    >>         iptbltst                         11-MAR-94 21:20:35
940312_161816    >>     iptbltst                             12-MAR-94 16:23:47
940316_164656    >>     iptbltst                             16-MAR-94 17:54:18
XXXXXX_XXXXXX    >>             iptbltst                     19-APR-94 15:11:28
XXXXXX_XXXXXX    >>             iptbltst                     19-APR-94 16:10:17
940420_013337               iptbltst                         20-APR-94 01:44:18
940422_035054               iptbltst                         22-APR-94 03:57:47
940423_223815    >> iptbltst                                 24-APR-94 00:02:22
940423_223815    >> iptbltst                                 24-APR-94 00:06:19
940503_131002               iptbltst                          3-MAY-94 13:20:35

------------------------------ Searching for ipdmatst ------------------------------
931204_165529    >>         ipdmatst                          4-DEC-93 16:57:50
XXXXXX_XXXXXX    >>     ipdmatst                             10-JAN-94 16:51:11
940420_013337               ipdmatst                         20-APR-94 01:44:58
940422_035054               ipdmatst                         22-APR-94 03:58:27
940503_131002                   ipdmatst                      3-MAY-94 13:21:16

------------------------------ Searching for ipdynmac ------------------------------
931105_210122    >> ipdynmac                                  5-NOV-93 21:30:25
931105_210122    >> ipdynmac                                  5-NOV-93 21:34:55
931124_084903    >> ipdynmac                                 24-NOV-93 21:57:56
931124_223018    >>     ipdynmac                             24-NOV-93 23:22:15
931219_192526    >>     ipdynmac                             19-DEC-93 20:31:32
931222_221349    >> ipdynmac                                 22-DEC-93 22:19:23
931222_221349    >> ipdynmac                                 22-DEC-93 22:21:13
931229_134517    >> ipdynmac                                 29-DEC-93 22:53:04
940111_151731    >>     ipdynmac                             11-JAN-94 16:36:15
940111_185730    >>     ipdynmac                             11-JAN-94 18:58:34
XXXXXX_XXXXXX    >>     ipdynmac                             11-JAN-94 20:22:52
940314_155356    >> ipdynmac                                 13-MAR-94 18:27:32
940314_155356    >> ipdynmac                                 13-MAR-94 18:34:53
940314_184353    >> ipdynmac                                 13-MAR-94 18:52:35
940314_194041    >> ipdynmac                                 13-MAR-94 19:47:38
940316_164656    >>     ipdynmac                             16-MAR-94 17:58:22
940411_223537    >> ipdynmac                                 11-APR-94 23:00:33
940420_013337               ipdynmac                         20-APR-94 02:01:26
940422_035054           ipdynmac                             22-APR-94 04:12:36
940503_131002           ipdynmac                              3-MAY-94 13:37:49

------------------------------ Searching for ipseqtst ------------------------------
```

```
931124_223018    >>     ipseqtst                             24-NOV-93 23:24:15
XXXXXX_XXXXXX    >>                 ipseqtst                 29-NOV-93 19:07:40
XXXXXX_XXXXXX    >>                 ipseqtst                 29-NOV-93 19:17:42
XXXXXX_XXXXXX    >> ipseqtst                                 29-NOV-93 19:30:51
931129_212531    >> ipseqtst                                 29-NOV-93 21:25:41
931129_213607    >> ipseqtst                                 29-NOV-93 21:36:17
931129_213607    >>     ipseqtst                             29-NOV-93 22:36:28
931129_213607    >>     ipseqtst                             29-NOV-93 22:41:58
931129_224230    >> ipseqtst                                 29-NOV-93 22:53:13
931129_225448    >> ipseqtst                                 29-NOV-93 22:58:05
931130_222455    >>     ipseqtst                             30-NOV-93 22:25:00
XXXXXX_XXXXXX    >>             ipseqtst                      1-DEC-93 21:17:31
XXXXXX_XXXXXX    >>         ipseqtst                          2-DEC-93 22:21:11
XXXXXX_XXXXXX    >>         ipseqtst                          2-DEC-93 22:22:44
XXXXXX_XXXXXX    >>         ipseqtst                          2-DEC-93 22:30:29
XXXXXX_XXXXXX    >>         ipseqtst                          3-DEC-93 00:37:28
931203_004511    >>         ipseqtst                          3-DEC-93 00:45:44
XXXXXX_XXXXXX    >>         ipseqtst                          3-DEC-93 19:20:13
931204_165529    >>         ipseqtst                          4-DEC-93 17:00:40
931204_165529    >>         ipseqtst                          4-DEC-93 17:16:13
XXXXXX_XXXXXX    >>     ipseqtst                              8-DEC-93 23:26:20
XXXXXX_XXXXXX    >>     ipseqtst                              8-DEC-93 23:27:43
XXXXXX_XXXXXX    >>     ipseqtst                              8-DEC-93 23:38:38
XXXXXX_XXXXXX    >>     ipseqtst                              9-DEC-93 00:48:56
XXXXXX_XXXXXX    >>     ipseqtst                              9-DEC-93 01:14:07
XXXXXX_XXXXXX    >> ipseqtst                                 10-DEC-93 22:18:06
XXXXXX_XXXXXX    >>     ipseqtst                             10-DEC-93 22:39:07
931214_020937    >> ipseqtst                                 14-DEC-93 02:28:26
XXXXXX_XXXXXX    >>     ipseqtst                             14-DEC-93 14:59:51
931215_163228    >> ipseqtst                                 15-DEC-93 16:32:37
931219_192526    >>     ipseqtst                             19-DEC-93 20:32:47
931219_192526    >>     ipseqtst                             19-DEC-93 21:35:13
931222_221349    >> ipseqtst                                 22-DEC-93 22:24:19
931222_224109    >> ipseqtst                                 22-DEC-93 22:41:21
931229_134517    >> ipseqtst                                 29-DEC-93 22:54:59
931229_225715    >> ipseqtst                                 29-DEC-93 23:21:57
940111_185730    >>     ipseqtst                             11-JAN-94 19:00:05
940314_184201    >> ipseqtst                                 13-MAR-94 18:43:01
940314_185641    >> ipseqtst                                 13-MAR-94 18:56:57
940411_223537    >> ipseqtst                                 11-APR-94 23:03:42
940420_013337               ipseqtst                         20-APR-94 02:02:31
940422_035054           ipseqtst                             22-APR-94 04:14:09
940503_131002           ipseqtst                              3-MAY-94 13:43:31

------------------------------ Searching for lsqcom ------------------------------
931001_164601           lsqcom                                1-OCT-93 16:46:02  ## DEP sequence interpreter commissioning
931007_234103           lsqcom                                7-OCT-93 23:41:04  ## DEP sequence interpreter commissioning
931012_210906           lsqcom                               12-OCT-93 21:09:08  ## DEP sequence interpreter commissioning
931120_184514           lsqcom                               20-NOV-93 18:45:16  ## DEP sequence interpreter commissioning
931120_210453           lsqcom                               20-NOV-93 21:04:55  ## DEP sequence interpreter commissioning
931121_192739           lsqcom                               21-NOV-93 19:27:40  ## DEP sequence interpreter commissioning
931122_230301           lsqcom                               22-NOV-93 23:03:03  ## DEP sequence interpreter commissioning
931123_070030           lsqcom                               23-NOV-93 07:00:31  ## DEP sequence interpreter commissioning
931123_225411           lsqcom                               23-NOV-93 22:54:12  ## DEP sequence interpreter commissioning
931124_055501           lsqcom                               24-NOV-93 05:55:02  ## DEP sequence interpreter commissioning
931124_055501    >> lsqcom                                   24-NOV-93 06:15:38
931124_055501    >> lsqcom                                   24-NOV-93 06:31:35
931205_231740           lsqcom                                5-DEC-93 23:17:41  ## DEP sequence interpreter commissioning
931214_020937           lsqcom                               14-DEC-93 02:09:38  ## DEP sequence interpreter commissioning
931217_230607           lsqcom                               17-DEC-93 23:06:08  ## DEP sequence interpreter commissioning
```

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931218_211911          lsqcom                                18-DEC-93 21:19:13  ## DEP sequence interpreter commissioning
931219_190432          lsqcom                                19-DEC-93 19:04:33  ## DEP sequence interpreter commissioning
931220_084656          lsqcom                                20-DEC-93 08:46:57  ## DEP sequence interpreter commissioning
931220_215334          lsqcom                                20-DEC-93 21:53:35  ## DEP sequence interpreter commissioning
931221_082209          lsqcom                                21-DEC-93 08:22:10  ## DEP sequence interpreter commissioning
931221_191940          lsqcom                                21-DEC-93 19:19:41  ## DEP sequence interpreter commissioning
931222_042245          lsqcom                                22-DEC-93 04:22:46  ## DEP sequence interpreter commissioning
931222_105703              lsqcom                            22-DEC-93 10:57:04  ## DEP sequence interpreter commissioning
931222_182058          lsqcom                                22-DEC-93 18:20:59  ## DEP sequence interpreter commissioning
931223_145437          lsqcom                                23-DEC-93 14:54:39  ## DEP sequence interpreter commissioning
940111_043557          lsqcom                                11-JAN-94 04:35:58  ## DEP sequence interpreter commissioning
940112_154832          lsqcom                                12-JAN-94 15:48:33  ## DEP sequence interpreter commissioning
940119_163231          lsqcom                                19-JAN-94 16:32:33  ## DEP sequence interpreter commissioning
940215_210515          lsqcom                                15-FEB-94 21:05:16  ## DEP sequence interpreter commissioning
940402_202654          lsqcom                                 2-APR-94 20:26:55  ## DEP sequence interpreter commissioning
940406_031203          lsqcom                                 6-APR-94 03:12:04  ## DEP sequence interpreter commissioning
940417_030620          lsqcom                                17-APR-94 03:06:21  ## DEP sequence interpreter commissioning
940419_221546          lsqcom                                19-APR-94 22:15:47  ## DEP sequence interpreter commissioning
940420_193742          lsqcom                                20-APR-94 19:37:43  ## DEP sequence interpreter commissioning
940422_033011          lsqcom                                22-APR-94 03:30:13  ## DEP sequence interpreter commissioning
940423_002948    >>        lsqcom                            23-APR-94 01:56:56
940425_173206          lsqcom                                25-APR-94 17:32:07  ## DEP sequence interpreter commissioning
940425_173206    >> lsqcom                                   25-APR-94 18:27:57
XXXXXX_XXXXXX    >>        lsqcom                            26-APR-94 02:48:30
XXXXXX_XXXXXX    >>        lsqcom3                           26-APR-94 02:57:40
XXXXXX_XXXXXX    >>        lsqcom                            26-APR-94 03:02:37
XXXXXX_XXXXXX    >>        lsqcom3                           26-APR-94 03:22:18
XXXXXX_XXXXXX    >> lsqcom                                   26-APR-94 03:27:21
940426_061816    >> lsqcom                                   26-APR-94 07:04:32
940503_123543 <     lsqcom                                    3-MAY-94 12:37:06
940503_123543    >>     lsqcom                                3-MAY-94 12:37:07
940503_123543       lsqcom                                    3-MAY-94 12:41:41
940503_123543    >>     lsqcom                                3-MAY-94 12:41:42
XXXXXX_XXXXXX              lsqcom                             4-MAY-94 12:30:02
940505_155753              lsqcom                             5-MAY-94 15:57:55  ## DEP sequence interpreter commissioning

------------------------------ Searching for mdidtune ------------------------------
931002_211056 <  >>                      mdidtune             2-OCT-93 21:10:32
931008_211021 <  >>     mdidtune                              8-OCT-93 21:09:44
931019_215619    >>     mdidtune                             19-OCT-93 21:56:02
931020_214216 <  >>             mdidtune                     20-OCT-93 21:41:54
931021_205245    >>                      mdidtune            21-OCT-93 23:07:52
931021_230906    >>                          mdidtune        21-OCT-93 23:08:49
931022_002305    >>                              mdidtune    22-OCT-93 00:22:47
931022_015725    >> mdidtune                                 22-OCT-93 01:57:04
931023_000744    >>     mdidtune                             23-OCT-93 00:07:23
931023_013033    >>     mdidtune                             23-OCT-93 01:30:09
931027_233428    >>     mdidtune                             27-OCT-93 23:34:10
931028_002639    >> mdidtune                                 28-OCT-93 00:26:13
931028_155016    >>         mdidtune                         28-OCT-93 15:48:53
931028_183039    >>         mdidtune                         28-OCT-93 18:29:26
931028_190116    >>     mdidtune                             28-OCT-93 18:59:14
931028_195052    >>     mdidtune                             28-OCT-93 19:50:33
931028_212849    >> mdidtune                                 28-OCT-93 21:28:31
931028_223530    >>             mdidtune                     28-OCT-93 22:35:13
931028_234149    >>     mdidtune                             28-OCT-93 23:41:31
931029_014038    >>         mdidtune                         29-OCT-93 01:40:09
931029_021639    >>         mdidtune                         29-OCT-93 02:12:58
931029_024958    >> mdidtune                                 29-OCT-93 02:49:22
931029_034842    >> mdidtune                                 29-OCT-93 03:48:12
```

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931029_041446    >> mdidtune                                  29-OCT-93 04:14:20
XXXXXX_XXXXXX    >>     mdidtune                              29-OCT-93 17:31:19
931029_173353    >> mdidtune                                  29-OCT-93 17:32:05
931029_191854    >>     mdidtune                              29-OCT-93 19:17:21
931029_224151    >> mdidtune                                  29-OCT-93 22:40:58
931029_225806    >> mdidtune                                  29-OCT-93 22:56:42
931104_234942    >>     mdidtune                               4-NOV-93 23:48:56
931105_002930    >>     mdidtune                               5-NOV-93 00:28:57
931105_182100    >>     mdidtune                               5-NOV-93 19:38:00
931105_194016    >>         mdidtune                           5-NOV-93 19:39:41
931105_201216    >> mdidtune                                   5-NOV-93 20:11:40
931126_200554 <  >>         mdidtune                          26-NOV-93 20:05:10
931201_202222 <  >>                 mdidtune                   1-DEC-93 20:22:09
931201_211929    >>                     mdidtune               1-DEC-93 22:10:21
931201_221344    >> mdidtune                                   1-DEC-93 22:15:26
931202_190458    >> mdidtune                                   2-DEC-93 19:04:24

------------------------------ Searching for bigtune ------------------------------
XXXXXX_XXXXXX    >>     vbigtune                              14-JUL-93 02:15:34
XXXXXX_XXXXXX    >>     vbigtune                              14-JUL-93 14:41:24
XXXXXX_XXXXXX    >>     vbigtune                              14-JUL-93 14:42:34
XXXXXX_XXXXXX    >>     vbigtune                              14-JUL-93 15:02:21
930714_161132    >>     vbigtune                              15-JUL-93 00:10:18
930714_161132    >>     vbigtune                              15-JUL-93 00:30:11
930714_161132    >>     vbigtune                              15-JUL-93 00:54:24
XXXXXX_XXXXXX    >>     vbigtune                              16-JUL-93 18:59:03
XXXXXX_XXXXXX    >>     vbigtune                              16-JUL-93 19:16:07
XXXXXX_XXXXXX    >>     vbigtune                              31-JUL-93 14:08:15
930731_144820    >>     vbigtune                              31-JUL-93 16:32:53
930731_164519    >>     vbigtune                              31-JUL-93 18:18:22
930731_183233    >>     vbigtune                              31-JUL-93 20:00:18
XXXXXX_XXXXXX    >>     vbigtune                               1-AUG-93 01:00:29
XXXXXX_XXXXXX    >>     vbigtune                               1-AUG-93 01:01:50
XXXXXX_XXXXXX    >>     vbigtune                               1-AUG-93 01:03:28
XXXXXX_XXXXXX    >>     vbigtune                               1-AUG-93 01:21:50
XXXXXX_XXXXXX    >>     vbigtune                               4-AUG-93 01:51:04
XXXXXX_XXXXXX    >>     vbigtune                               4-AUG-93 05:31:17
XXXXXX_XXXXXX    >>     vbigtune                               4-AUG-93 05:47:42
XXXXXX_XXXXXX    >>     vbigtune                               4-AUG-93 06:12:07
XXXXXX_XXXXXX    >>     vbigtune                               4-AUG-93 06:23:24
XXXXXX_XXXXXX    >>     vbigtune                               4-AUG-93 06:34:33
XXXXXX_XXXXXX    >>     vbigtune                               4-AUG-93 13:47:30
XXXXXX_XXXXXX    >>     bigtune                                9-AUG-93 22:59:49
XXXXXX_XXXXXX    >>     bigtune                                9-AUG-93 23:02:20
XXXXXX_XXXXXX    >>     bigtune                                9-AUG-93 23:45:09
XXXXXX_XXXXXX    >>     bigtune                               10-AUG-93 00:01:21
XXXXXX_XXXXXX    >>     bigtune                               21-AUG-93 01:06:27
XXXXXX_XXXXXX    >>     bigtune                               21-AUG-93 01:08:37
XXXXXX_XXXXXX    >>     bigtune                               21-AUG-93 01:23:09
XXXXXX_XXXXXX    >>     bigtune                               21-AUG-93 20:08:43
XXXXXX_XXXXXX    >>     bigtune                               21-AUG-93 20:11:32
XXXXXX_XXXXXX    >>     bigtune                               21-AUG-93 20:17:13
XXXXXX_XXXXXX    >>     bigtune                               21-AUG-93 20:35:17
XXXXXX_XXXXXX    >>     bigtune                               21-AUG-93 21:40:04
XXXXXX_XXXXXX    >>     bigtune                               21-AUG-93 21:56:46
XXXXXX_XXXXXX    >>     bigtune                               21-AUG-93 22:09:40
XXXXXX_XXXXXX    >>     bigtune                               21-AUG-93 22:28:06
931002_211056                             bigtune              2-OCT-93 21:10:58
931008_211021               bigtune                            8-OCT-93 21:10:23
931019_212049               bigtune                           19-OCT-93 21:20:51
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931019_212138                       bigtune                  19-OCT-93 21:21:40
931019_215619               bigtune                          19-OCT-93 21:56:21
931020_214216                       bigtune                  20-OCT-93 21:42:19
931021_230906                                      bigtune   21-OCT-93 23:09:27
931022_002305                                       bigtune  22-OCT-93 00:23:26
931022_015725           bigtune                              22-OCT-93 01:57:45
931023_000744               bigtune                          23-OCT-93 00:08:03
931023_013033               bigtune                          23-OCT-93 01:30:53
XXXXXX_XXXXXX               bigtune                          27-OCT-93 17:04:29
931027_203724               bigtune                          27-OCT-93 21:40:43
931027_233428               bigtune                          27-OCT-93 23:34:49
931028_002639           bigtune                              28-OCT-93 00:27:00
931028_155016                   bigtune                      28-OCT-93 15:50:37
931028_183039                   bigtune                      28-OCT-93 18:31:01
931028_190116               bigtune                          28-OCT-93 19:01:37
931028_195052               bigtune                          28-OCT-93 19:51:14
931028_212849           bigtune                              28-OCT-93 21:29:10
931028_223530                       bigtune                  28-OCT-93 22:35:51
931028_234149               bigtune                          28-OCT-93 23:42:10
931029_014038                   bigtune                      29-OCT-93 01:40:59
931029_021639                   bigtune                      29-OCT-93 02:17:01
931029_024958           bigtune                              29-OCT-93 02:50:19
931029_034842           bigtune                              29-OCT-93 03:49:05
931029_041446           bigtune                              29-OCT-93 04:15:07
XXXXXX_XXXXXX           bigtune                              29-OCT-93 15:57:09
931029_173353           bigtune                              29-OCT-93 17:34:14
931029_173353           bigtune                              29-OCT-93 18:03:12
931029_191854               bigtune                          29-OCT-93 19:19:15
931029_203324           bigtune                              29-OCT-93 20:55:17
931029_224151           bigtune                              29-OCT-93 22:42:13
931029_225806           bigtune                              29-OCT-93 22:58:26
931029_225806           bigtune                              29-OCT-93 23:19:33
931104_234942               bigtune                           4-NOV-93 23:50:03
931105_002930               bigtune                           5-NOV-93 00:29:51
931105_194016                   bigtune                       5-NOV-93 19:40:37
931105_201216           bigtune                               5-NOV-93 20:12:37
931106_073424                   bigtune                       6-NOV-93 07:35:38
931106_073424                   bigtune                       6-NOV-93 07:52:47
931106_073424                   bigtune                       6-NOV-93 08:09:50
931106_073424           bigtune                               6-NOV-93 08:27:18
931106_073424           bigtune                               6-NOV-93 08:44:02
931106_073424           bigtune                               6-NOV-93 09:01:10
931106_073424           bigtune                               6-NOV-93 09:18:17
931106_073424           bigtune                               6-NOV-93 09:36:19
931106_073424           bigtune                               6-NOV-93 09:53:02
931106_101607           bigtune                               6-NOV-93 10:17:30
931106_101607           bigtune                               6-NOV-93 10:33:45
931106_101607           bigtune                               6-NOV-93 10:49:55
931106_101607           bigtune                               6-NOV-93 11:05:50
931106_101607           bigtune                               6-NOV-93 11:21:45
931106_101607           bigtune                               6-NOV-93 11:42:04
931106_101607           bigtune                               6-NOV-93 11:58:15
931106_101607           bigtune                               6-NOV-93 12:15:58
931106_101607           bigtune                               6-NOV-93 12:31:53
931126_200554                   bigtune                      26-NOV-93 20:06:17
931201_202248                           bigtune               1-DEC-93 20:23:11
931201_221559           bigtune                               1-DEC-93 22:16:22
931202_190458           bigtune                               2-DEC-93 19:05:22
940409_221733 <  >> bigtune                                   9-APR-94 22:17:38
```

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------------------------------ Searching for supersun ------------------------------
931025_220928    >>         supersun                          25-OCT-93 22:09:13
931025_231427    >>     supersun                              25-OCT-93 23:14:03

------------------------------ Searching for vfdlscan ------------------------------
XXXXXX_XXXXXX    >>     vfdlscan                              31-JUL-93 05:43:53
XXXXXX_XXXXXX    >>     vfdlscan                              31-JUL-93 05:45:45
XXXXXX_XXXXXX    >>     vfdlscan                              31-JUL-93 06:07:28
XXXXXX_XXXXXX    >>     vfdlscan                               4-AUG-93 01:40:19
XXXXXX_XXXXXX    >>     vfdlscan                               4-AUG-93 01:41:52
XXXXXX_XXXXXX    >>     vfdlscan                               4-AUG-93 01:43:41
XXXXXX_XXXXXX    >>     vfdlscan                               4-AUG-93 20:40:28
XXXXXX_XXXXXX    >>     vfdlscan                               4-AUG-93 20:43:18
XXXXXX_XXXXXX    >>     vfdlscan                               4-AUG-93 21:35:32
XXXXXX_XXXXXX    >>     vfdlscan                               4-AUG-93 21:36:59
931021_205245    >>                 vfdlscan                  21-OCT-93 22:23:08
931021_205245    >>                 vfdlscan                  21-OCT-93 22:25:11
931021_205245    >>                 vfdlscan                  21-OCT-93 22:28:00
931021_205245    >>                 vfdlscan                  21-OCT-93 22:31:33
931021_205245    >>                 vfdlscan                  21-OCT-93 22:33:44
931021_205245    >>                 vfdlscan                  21-OCT-93 22:36:54
931021_205245    >>                 vfdlscan                  21-OCT-93 22:39:58
931021_205245    >>                     vfdlscan              21-OCT-93 22:49:55
931021_205245    >>                     vfdlscan              21-OCT-93 22:57:05
931021_230906    >>                                 vfdlscan  22-OCT-93 00:06:56
931021_230906    >>                                 vfdlscan  22-OCT-93 00:20:02
931028_195052    >> vfdlscan                                  28-OCT-93 20:26:01
931104_195727    >> vfdlscan                                   4-NOV-93 22:55:05
931104_195727    >> vfdlscan                                   4-NOV-93 23:10:42
931104_195727    >> vfdlscan                                   4-NOV-93 23:13:05
931104_195727    >> vfdlscan                                   4-NOV-93 23:18:15
931104_195727    >> vfdlscan                                   4-NOV-93 23:20:20
931104_195727    >> vfdlscan                                   4-NOV-93 23:32:14
931104_195727    >> vfdlscan                                   4-NOV-93 23:33:55
931104_195727    >> vfdlscan                                   4-NOV-93 23:35:59
931104_195727    >>     vfdlscan                               4-NOV-93 23:41:28
931104_195727    >>     vfdlscan                               4-NOV-93 23:43:17
931105_195912    >> vfdlscan                                   5-NOV-93 19:59:22
931105_203049    >> vfdlscan                                   5-NOV-93 20:31:03
931106_043318    >>         vfdlscan                           6-NOV-93 07:23:49
931130_094918    >> vfdlscan                                  30-NOV-93 11:54:03
931130_094918    >> vfdlscan                                  30-NOV-93 12:00:15
940224_182543    >>     vfdlscan                              24-FEB-94 22:45:57
940224_182543    >>     vfdlscan                              24-FEB-94 22:51:26
940224_182543    >> vfdlscan                                  24-FEB-94 22:57:25
940224_182543    >> vfdlscan                                  24-FEB-94 23:20:03
XXXXXX_XXXXXX    >>         vfdlscan                          16-MAR-94 02:20:04
XXXXXX_XXXXXX    >>         vfdlscan                          16-MAR-94 02:24:34
XXXXXX_XXXXXX    >>         vfdlscan                          16-MAR-94 02:29:37
XXXXXX_XXXXXX    >>         vfdlscan                          16-MAR-94 02:32:35
940408_213442                   vfdlscan                       8-APR-94 21:44:17
940408_221234                   vfdlscan                       8-APR-94 22:22:06
940409_023735           vfdlscan                               9-APR-94 02:47:06
940409_023735               vfdlscan                           9-APR-94 02:48:51
940409_215413                   vfdlscan                       9-APR-94 22:12:19
940409_215413                       vfdlscan                   9-APR-94 22:14:11
940410_142922           vfdlscan                              10-APR-94 14:46:57
940410_142922           vfdlscan                              10-APR-94 14:48:46
940410_145207           vfdlscan                              10-APR-94 15:09:42
940410_145207           vfdlscan                              10-APR-94 15:11:31
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940410_153430          vfdlscan                              10-APR-94 16:02:49
940410_153430          vfdlscan                              10-APR-94 16:04:41
940410_172906                      vfdlscan                  10-APR-94 17:57:34
940410_172906          vfdlscan                              10-APR-94 17:59:24
940410_194930          vfdlscan                              10-APR-94 20:23:26
940410_194930          vfdlscan                              10-APR-94 20:25:18
940410_204949          vfdlscan                              10-APR-94 21:21:10
940410_204949          vfdlscan                              10-APR-94 21:23:02
940410_231043          vfdlscan                              10-APR-94 23:41:12
940410_231043          vfdlscan                              10-APR-94 23:43:04
940411_010818          vfdlscan                              11-APR-94 01:40:51
940411_010818              vfdlscan                          11-APR-94 01:42:43

------------------------------ Searching for mtmtune ------------------------------
931105_232820 <  >> mtmtune                                   5-NOV-93 23:27:54
931105_234456 <  >> mtmtune                                   5-NOV-93 23:44:23
931105_235455 <  >> mtmtune                                   5-NOV-93 23:54:21
931106_000448 <  >> mtmtune                                   6-NOV-93 00:04:18
931106_000448    >> mtmtune                                   6-NOV-93 00:14:29
931106_004551    >>         mtmtune                           6-NOV-93 00:45:28
931106_005437 <  >>         mtmtune                           6-NOV-93 00:53:53
931106_013612 <  >>         mtmtune                           6-NOV-93 01:35:43
931106_014445 <  >>         mtmtune                           6-NOV-93 01:44:11
931106_015624 <  >>     mtmtune                               6-NOV-93 01:54:23
931106_020449 <  >>     mtmtune                               6-NOV-93 02:04:18
931106_021515 <  >>     mtmtune                               6-NOV-93 02:14:42
931106_022629 <  >>     mtmtune                               6-NOV-93 02:25:39
931106_023402 <  >>     mtmtune                               6-NOV-93 02:33:31
931106_024713 <  >>     mtmtune                               6-NOV-93 02:46:31
931106_030239 <  >>     mtmtune                               6-NOV-93 03:02:09
931106_033611 <  >>     mtmtune                               6-NOV-93 03:35:36
931106_034618 <  >>     mtmtune                               6-NOV-93 03:45:35
931106_035446 <  >>     mtmtune                               6-NOV-93 03:54:11
931106_041603 <  >> mtmtune                                   6-NOV-93 04:15:36
931106_042520 <  >> mtmtune                                   6-NOV-93 04:24:51
931106_043318 <  >> mtmtune                                   6-NOV-93 04:32:50
931126_210209 <  >>         mtmtune                          26-NOV-93 21:01:34
931126_230423 <  >> mtmtune                                  26-NOV-93 23:03:52
931126_231551 <  >> mtmtune                                  26-NOV-93 23:15:23
931126_232631 <  >> mtmtune                                  26-NOV-93 23:23:48
931126_233710 <  >> mtmtune                                  26-NOV-93 23:36:34
931126_234525 <  >> mtmtune                                  26-NOV-93 23:43:53
931126_235528 <  >> mtmtune                                  26-NOV-93 23:52:03
931127_000834 <  >> mtmtune                                  27-NOV-93 00:07:57
931127_001658 <  >> mtmtune                                  27-NOV-93 00:15:31
931127_003129    >> mtmtune                                  27-NOV-93 00:30:54
931127_004016 <  >> mtmtune                                  27-NOV-93 00:37:53
931127_004909 <  >> mtmtune                                  27-NOV-93 00:47:17
931127_005846 <  >> mtmtune                                  27-NOV-93 00:55:51
931127_010818 <  >> mtmtune                                  27-NOV-93 01:05:29
931127_011818 <  >> mtmtune                                  27-NOV-93 01:16:36
931127_012814 <  >> mtmtune                                  27-NOV-93 01:27:40
931127_013805    >> mtmtune                                  28-NOV-93 01:37:34
931127_031747    >>     mtmtune                              27-NOV-93 03:15:26
931127_032724 <  >>     mtmtune                              27-NOV-93 03:25:07
931127_035144 <  >>     mtmtune                              27-NOV-93 03:49:09
931127_040155 <  >>     mtmtune                              27-NOV-93 04:00:04
931127_040155    >>     mtmtune                              27-NOV-93 04:08:07
931127_042725 <  >> mtmtune                                  27-NOV-93 04:23:13
931130_173229 <  >> mtmtune                                  30-NOV-93 17:30:52
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931130_173229    >> mtmtune                                  30-NOV-93 17:34:37
931130_173658    >> mtmtune                                  30-NOV-93 17:36:15
931130_174943 <  >> mtmtune                                  30-NOV-93 17:47:39
931130_180212 <  >> mtmtune                                  30-NOV-93 18:01:39
931130_181423    >> mtmtune                                  30-NOV-93 18:12:36
931130_181423    >> mtmtune                                  30-NOV-93 18:21:14
931130_182353    >> mtmtune                                  30-NOV-93 18:24:01
931130_183856 <  >> mtmtune                                  30-NOV-93 18:38:23
931130_185106 <  >> mtmtune                                  30-NOV-93 18:50:41
931130_190308 <  >> mtmtune                                  30-NOV-93 19:02:06
931130_190908 <  >> mtmtune                                  30-NOV-93 19:08:40
931130_192229 <  >> mtmtune                                  30-NOV-93 19:21:47
931130_193403 <  >> mtmtune                                  30-NOV-93 19:33:21
931130_194548 <  >> mtmtune                                  30-NOV-93 19:45:06
931130_195705 <  >> mtmtune                                  30-NOV-93 19:56:18
931130_201256 <  >> mtmtune                                  30-NOV-93 20:12:17
931130_202811 <  >> mtmtune                                  30-NOV-93 20:27:30
931130_203918 <  >> mtmtune                                  30-NOV-93 20:38:35
931130_205003 <  >> mtmtune                                  30-NOV-93 20:49:29
931130_210035 <  >> mtmtune                                  30-NOV-93 21:00:03
931130_211400 <  >> mtmtune                                  30-NOV-93 21:13:27
931130_212832 <  >> mtmtune                                  30-NOV-93 21:27:51
931130_214300 <  >> mtmtune                                  30-NOV-93 21:42:15
931130_220201 <  >> mtmtune                                  30-NOV-93 22:01:05
940408_202122 <  >>     mtmtune                               8-APR-94 20:20:42
940408_204844    >>     mtmtune                               8-APR-94 20:47:44

------------------------------ Searching for maplaser ------------------------------
931106_073424    >>         maplaser                          6-NOV-93 07:33:54
931106_101607 <  >> maplaser                                  6-NOV-93 10:14:35
931130_094918    >> maplaser                                 30-NOV-93 15:49:43

------------------------------ Searching for mapgrad ------------------------------
931130_070421    >>     mapgrad                              30-NOV-93 07:03:33
931130_070421    >>     mapgrad                              30-NOV-93 09:19:29
931130_094050    >>     mapgrad                              30-NOV-93 09:39:50
931130_094918    >>     mapgrad                              30-NOV-93 09:48:34
940408_012439    >>             mapgrad                       8-APR-94 01:23:47
940408_021453 <  >>             mapgrad                       8-APR-94 02:13:36
940408_021453    >> mapgrad                                   8-APR-94 05:41:34

------------------------------ Searching for mdiprot ------------------------------
930901_074636 <  >>     mdiprot                               1-SEP-93 07:46:43
931001_221920    >> mdiprot                                   1-OCT-93 22:18:43
931008_030542 <  >>     mdiprot                               8-OCT-93 03:05:06
931008_030542    >>     mdiprot                               8-OCT-93 03:06:02
931223_190425 <  >> mdiprot                                  23-DEC-93 19:02:14
940120_134308 <  >> mdiprot                                  20-JAN-94 13:41:31
940401_180345 <  >>     mdiprot                               1-APR-94 18:01:29
940426_060248 <  >> mdiprot                                  26-APR-94 06:01:36
940505_090234    >> mdiprot                                   5-MAY-94 10:04:11
940505_104648    >>     mdiprot                               5-MAY-94 10:45:45

------------------------------ Searching for mdimrot ------------------------------
930901_080639 <  >>     mdimrot                               1-SEP-93 08:06:43
931001_212119    >> mdimrot                                   1-OCT-93 21:20:56
931008_152008    >>     mdimrot                               8-OCT-93 15:19:39
931223_180435 <  >> mdimrot                                  23-DEC-93 18:03:28
940120_141706 <  >> mdimrot                                  20-JAN-94 14:16:00
940401_183733    >> mdimrot                                   1-APR-94 19:40:56
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940401_194654    >> mdimrot                                 1-APR-94 19:45:39
940426_050146 <  >>             mdimrot                    26-APR-94 05:00:33
940505_090234    >>     mdimrot                             5-MAY-94 09:00:27

------------------------------ Searching for mdipdist ------------------------------
930901_070349    >>     mdipdist                            1-SEP-93 07:04:11
930901_071017 <  >>     mdipdist                            1-SEP-93 07:10:29
930901_072035 <  >>     mdipdist                            1-SEP-93 07:21:37
931001_224409    >> mdipdist                                1-OCT-93 22:43:48
931008_022351 <  >>     mdipdist                            8-OCT-93 02:23:29
931223_193352 <  >> mdipdist                               23-DEC-93 19:32:37
940401_171701    >>     mdipdist                            1-APR-94 17:15:51
940426_061816 <  >> mdipdist                               26-APR-94 06:17:34
940504_110947    >> mdipdist                                4-MAY-94 11:08:33
```

G Chronological Listing of When Control Files were Run (CAL_LOG output)

You can search the file shown below for certain control files by using the alias **calgrep**. An example is:

% **calgrep mdipict**

To list all **mdipict** datasets. If you wanted to search for all **mdilaser** that were run in Apr-94, you would type:

% **calgrep mdilaser | grep APR-94**

CAL_LOG.PRO Ver 2.2
Program Run: 1-Jun-1994 15:19:22.00 on sxt2

Ser	Telemetry	#Img	Date	Time	Duration (min)	Control File Info	On Disk? Tlm	FITS	Tape #	File	CCD	Oven
opt347		206	1-JAN-90	00:00:00 ?	0.	vbigtune	No	No	40	1	??	??
opt348		68	1-JAN-90	00:00:00 ?	0.	vdetune	No	No	40	1	??	??
opt013		3	1-JAN-92	00:00:00 ?	0.	cracks	No	No	-1	-1	??	??
opt017		36	10-NOV-92	19:09:00	46.	fdfocus	No	No	9	5	??	??
opt018		11	10-NOV-92	20:01:00	26.	hrfocus	No	No	5	1	??	??
opt022		4	13-NOV-92	21:36:00	3.	calpos	No	No	6	1	??	??
opt024		4	14-NOV-92	01:17:00	3.	calpos	No	No	6	2	??	??
opt028		45	17-NOV-92	02:06:00	36.	exposerence	No	No	9	2	??	??
opt029		36	17-NOV-92	02:52:00	23.	exposercale	No	No	9	1	??	??
opt036		1	17-NOV-92	16:15:00	0.	dpmtest	No	No	7	1	??	??
opt030		42	17-NOV-92	22:41:00	26.	magdopfd	No	No	9	3	??	??
opt034		16	18-NOV-92	19:57:00	18.	sunlimbhr	No	No	11	3	??	??
opt035		14	18-NOV-92	21:05:00	7.	nilinetune	No	No	11	4	??	??
opt030a		14	19-NOV-92	21:09:00	8.	nilinetune	No	No	9	3	??	??
opt031		14	19-NOV-92	21:22:00	8.	nilinetune	No	No	11	1	??	??
opt037		3	19-NOV-92	21:43:00	1.	irleak	No	No	7	2	??	??
opt040		21	20-NOV-92	02:21:00	11.	nomove	No	No	11	5	??	??
opt042		41	20-NOV-92	14:47:00	18.	sunmagdop	No	No	1	2	??	??
opt041		3	20-NOV-92	22:26:00	1.	sunir	No	No	7	3	??	??
opt043		44	20-NOV-92	23:29:00	18.	sunmagdop	No	No	13	1	??	??
opt044		7	20-NOV-92	23:57:00	3.	sunir	No	No	7	4	??	??
opt045		11	25-NOV-92	00:39:00	5.	covernair	No	No	7	5	??	??
opt046		11	25-NOV-92	00:50:00	5.	covered	No	No	7	6	??	??
opt047		10	25-NOV-92	01:13:00	10.	polcheck	No	No	5	2	??	??
opt048		1695	25-NOV-92	12:45:00	0.	magdopser	No	No	2	1	??	??
opt049		302	29-NOV-92	01:17:00	148.	m1rotser	No	No	9	4	??	??
opt050		305	30-NOV-92	18:29:00	151.	m2rotser	No	No	10	1	??	??
opt051		4	1-DEC-92	23:58:00	17.	windows	No	No	5	3	??	??
opt053		1164	4-DEC-92	12:14:00	213.	sundopser	No	No	1	1	??	??
opt052		19	4-DEC-92	19:38:00	9.	sundopser	No	No	11	6	??	??
opt054		9	7-DEC-92	23:06:00	****	lamponoff	No	No	5	4	??	??
opt059		14	9-DEC-92	00:14:00	13.	lasdop	No	No	5	5	??	??
opt060		206	10-DEC-92	00:52:00	100.	protser	No	No	1	3	??	??

opt062	203	10-DEC-92	20:04:00	102.	tunerotser	No	No	11	2	??	??
opt063	843	12-DEC-92	10:26:00	223.	sunobsser	No	No	3	1	??	??
opt065	45	12-DEC-92	23:26:00	13.	sunmagtdt	No	No	5	6	??	??
opt066	129	12-DEC-92	23:49:00	35.	suncaltdt	No	No	8	1	??	??
opt067	867	13-DEC-92	18:51:00	230.	sunmixser	No	No	14	1	??	??
opt068	106	14-DEC-92	19:53:00	32.	lamscan	No	No	1	4	??	??
opt069	56	14-DEC-92	20:41:00	26.	sunmix	No	No	1	5	??	??
opt070	399	14-DEC-92	21:31:00	105.	sunmixser	No	No	13	2	??	??
opt071	724	15-DEC-92	17:05:00	192.	sunmixser	No	No	13	3	??	??
opt072	74	15-DEC-92	20:38:00	23.	lamscan	No	No	12	1	??	??
opt073	48	15-DEC-92	21:05:00	13.	sundop2	No	No	12	2	??	??
opt074	60	15-DEC-92	21:19:00	17.	sundop3	No	No	12	3	??	??
opt075	30	15-DEC-92	21:37:00	8.	sundop	No	No	12	4	??	??
opt076	83	15-DEC-92	22:04:00	28.	sunmix	No	No	12	5	??	??
opt077	45	15-DEC-92	22:37:00	21.	suncalblock	No	No	12	6	??	??
opt080	41	16-DEC-92	17:39:00	62.	sundop	No	No	12	7	??	??
opt081	202	16-DEC-92	18:43:00	83.	sundop	No	No	12	8	??	??
opt084	72	16-DEC-92	23:31:00	51.	darks	No	No	12	9	??	??
opt085	60	17-DEC-92	02:46:00	17.	darks	No	No	12	10	??	??
opt062a	1	23-DEC-92	02:26:00	0.	tdtrotser	No	No	11	2	??	??
opt088	41	1-JAN-93	00:00:00 ?	0.	firstiss	No	No	15	1	??	??
opt089	34	1-JAN-93	00:00:00 ?	0.	protseriss	No	No	15	1	??	??
opt090	177	1-JAN-93	00:00:00 ?	0.	protseriss	No	No	15	1	??	??
opt091	25	1-JAN-93	00:00:00 ?	0.	apr15tst	No	No	15	1	??	??
opt092	10	1-JAN-93	00:00:00 ?	0.	apr15tst	No	No	15	1	??	??
opt100	8	1-JAN-93	00:00:00 ?	0.	lscanobs	No	No	15	1	??	??
opt101	13	1-JAN-93	00:00:00 ?	0.	lscanobs	No	No	15	1	??	??
opt102	7	1-JAN-93	00:00:00 ?	0.	sundop	No	No	15	1	??	??
opt103	7	1-JAN-93	00:00:00 ?	0.	sundopcal	No	No	15	1	??	??
opt104	3	1-JAN-93	00:00:00 ?	0.	pfmwindowcal	No	No	15	1	??	??
opt105	13	1-JAN-93	00:00:00 ?	0.	lscancal	No	No	16	1	??	??
opt106	6	1-JAN-93	00:00:00 ?	0.	caldop	No	No	16	1	??	??
opt107	6	1-JAN-93	00:00:00 ?	0.	sundop	No	No	16	1	??	??
opt108	6	1-JAN-93	00:00:00 ?	0.	sundop	No	No	16	1	??	??
opt109	6	1-JAN-93	00:00:00 ?	0.	caldop	No	No	16	1	??	??
opt110	11	1-JAN-93	00:00:00 ?	0.	sunmag	No	No	16	1	??	??
opt111	13	1-JAN-93	00:00:00 ?	0.	sunmag	No	No	16	1	??	??
opt112	14	1-JAN-93	00:00:00 ?	0.	fdfocser	No	No	16	1	??	??
opt113	12	1-JAN-93	00:00:00 ?	0.	hrfocser	No	No	16	1	??	??
opt114	6	1-JAN-93	00:00:00 ?	0.	fdwldop	No	No	16	1	??	??
opt115	6	1-JAN-93	00:00:00 ?	0.	fdwlcaldop	No	No	16	1	??	??
opt116	12	1-JAN-93	00:00:00 ?	0.	fdfocser	No	No	15	1	??	??
opt117	12	1-JAN-93	00:00:00 ?	0.	hrfocser	No	No	15	1	??	??
opt118	12	1-JAN-93	00:00:00 ?	0.	hrfocser	No	No	15	1	??	??
opt119	12	1-JAN-93	00:00:00 ?	0.	fdfocser	No	No	15	1	??	??
opt120	10	1-JAN-93	00:00:00 ?	0.	calexpser	No	No	15	1	??	??
opt121	7	1-JAN-93	00:00:00 ?	0.	sundopiss	No	No	16	1	??	??
opt122	9	1-JAN-93	00:00:00 ?	0.	sunmagiss	No	No	16	1	??	??
opt123	12	1-JAN-93	00:00:00 ?	0.	sunmagiss	No	No	16	1	??	??
opt124	20	1-JAN-93	00:00:00 ?	0.	suncalgrad	No	No	16	1	??	??
opt125	7	1-JAN-93	00:00:00 ?	0.	isspolser	No	No	16	1	??	??
opt126	14	1-JAN-93	00:00:00 ?	0.	isspolser	No	No	16	1	??	??
opt130	71	1-JAN-93	00:00:00 ?	0.	halfwave	No	No	15	1	??	??
opt131	30	1-JAN-93	00:00:00 ?	0.	pretty	No	No	16	1	??	??
opt132	29	1-JAN-93	00:00:00 ?	0.	pretty	No	No	16	1	??	??
opt133	33	1-JAN-93	00:00:00 ?	0.	pretty	No	No	16	1	??	??
opt134	25	1-JAN-93	00:00:00 ?	0.	halfwave	No	No	16	1	??	??
opt135	84	1-JAN-93	00:00:00 ?	0.	fddetune	No	No	16	1	??	??
opt137	114	1-JAN-93	00:00:00 ?	0.	sunmixser	No	No	15	1	??	??
opt138	113	1-JAN-93	00:00:00 ?	0.	sunmixser	No	No	15	1	??	??

opt139	104	1-JAN-93	00:00:00 ?	0.	sunmixser	No	No	16	1	??	??
opt140	113	1-JAN-93	00:00:00 ?	0.	sunmixser	No	No	16	1	??	??
opt141	6	1-JAN-93	00:00:00 ?	0.	newlscan	No	No	16	1	??	??
opt142	33	1-JAN-93	00:00:00 ?	0.	newlscan	No	No	16	1	??	??
opt143	91	1-JAN-93	00:00:00 ?	0.	sunmixsum	No	No	16	1	??	??
opt144	51	1-JAN-93	00:00:00 ?	0.	sunmixsum	No	No	16	1	??	??
opt145	127	1-JAN-93	00:00:00 ?	0.	sunmixsumdt	No	No	17	1	??	??
opt146	129	1-JAN-93	00:00:00 ?	0.	newmixsum	No	No	17	1	??	??
opt147	122	1-JAN-93	00:00:00 ?	0.	newlscan	No	No	17	1	??	??
opt148	251	1-JAN-93	00:00:00 ?	0.	cycle	No	No	17	1	??	??
opt149	122	1-JAN-93	00:00:00 ?	0.	newlscan	No	No	17	1	??	??
opt152	50	1-JAN-93	00:00:00 ?	0.	newlscan	No	No	17	1	??	??
opt151	54	1-JAN-93	00:00:00 ?	0.	newdetune	No	No	17	1	??	??
opt150	81	1-JAN-93	00:00:00 ?	0.	newlscan	No	No	17	1	??	??
opt153	62	1-JAN-93	00:00:00 ?	0.	detune	No	No	17	1	??	??
opt154	70	1-JAN-93	00:00:00 ?	0.	openbox	No	No	17	1	??	??
opt155	6	1-JAN-93	00:00:00 ?	0.	openbox	No	No	17	1	??	??
opt156	34	1-JAN-93	00:00:00 ?	0.	detune	No	No	17	1	??	??
opt086	234	3-FEB-93	23:23:00	116.	m2rotser	No	No	8	2	??	??
opt087	189	4-FEB-93	18:50:00	154.	m1rotser	No	No	8	3	??	??
opt171	76	1-MAY-93	00:00:00 ?	0.	hrmag	No	No	17	1	??	??
opt169	95	1-MAY-93	00:00:00 ?	0.	detune	No	No	17	1	??	??
opt168	17	1-MAY-93	00:00:00 ?	0.	hrdop	No	No	17	1	??	??
opt170	165	1-MAY-93	00:00:00 ?	0.	mixsum	No	No	18	1	??	??
opt161	33	8-MAY-93	00:00:00 ?	0.	detune	No	No	17	1	??	??
opt163	34	8-MAY-93	00:00:00 ?	0.	detune	No	No	17	1	??	??
opt162	5	8-MAY-93	00:00:00 ?	0.	detune	No	No	17	1	??	??
opt164	8	8-MAY-93	00:00:00 ?	0.	newlscan	No	No	17	1	??	??
opt166	120	8-MAY-93	00:00:00 ?	0.	mixsum	No	No	17	1	??	??
opt167	236	8-MAY-93	00:00:00 ?	0.	mixsum	No	No	18	1	??	??
opt160	21	8-MAY-93	00:00:00 ?	0.	detune	No	No	17	1	??	??
opt165	76	8-MAY-93	00:00:00 ?	0.	newlscan	No	No	17	1	??	??
opt159	240	8-MAY-93	00:00:00 ?	0.	mixsum	No	No	17	1	??	??
opt158	30	8-MAY-93	00:00:00 ?	0.	detune	No	No	17	1	??	??
opt157	20	8-MAY-93	00:00:00 ?	0.	fdlscan	No	No	17	1	??	??
opt157a	47	8-MAY-93	00:00:00 ?	0.	newlscan	No	No	17	1	??	??
opt172	4	11-MAY-93	14:01:00	1.	detune	No	No	18	1	??	??
opt173	4	11-MAY-93	14:03:00	2.	detune	No	No	18	1	??	??
opt174	22	11-MAY-93	19:34:00	10.	sptfdfoc	No	No	18	1	??	??
opt175	37	11-MAY-93	20:19:00	14.	sptfdfoc	No	No	18	1	??	??
opt176	39	11-MAY-93	20:34:00	19.	spthrfoc	No	No	18	1	??	??
opt177	24	11-MAY-93	21:06:00	4.	sptfdlsn	No	No	18	1	??	??
opt178	26	11-MAY-93	21:11:00	0.	spthrlsn	No	No	18	1	??	??
opt179	30	11-MAY-93	21:34:00	18.	sptccdlt	No	No	18	1	??	??
opt180	26	11-MAY-93	23:13:00	7.	sptlsn	No	No	18	1	??	??
opt181	20	11-MAY-93	23:21:00	4.	spthrlsn	No	No	18	1	??	??
opt182	24	11-MAY-93	23:26:00	4.	spthrlsn	No	No	18	1	??	??
opt183	9	11-MAY-93	23:55:00	4.	fdfoc	No	No	18	1	??	??
opt185	11	12-MAY-93	00:00:00 ?	0.	fdfoc	No	No	18	1	??	??
opt186	9	12-MAY-93	00:00:00 ?	0.	hrfoc	No	No	18	1	??	??
opt184	11	12-MAY-93	00:00:00	7.	hrfoc	No	No	18	1	??	??
opt187	36	12-MAY-93	17:43:00	13.	sptfdfoc	No	No	18	1	??	??
opt188	36	12-MAY-93	17:57:00	18.	spthrfoc	No	No	18	1	??	??
opt189	24	12-MAY-93	18:48:00	4.	sptfdlsn	No	No	18	1	??	??
opt190	26	12-MAY-93	18:54:00	7.	spthrlsn	No	No	18	1	??	??
opt191	9	12-MAY-93	20:13:00	3.	hrfoc	No	No	18	1	??	??
opt192	12	12-MAY-93	20:17:00	8.	fdfoc	No	No	18	1	??	??
opt193	13	12-MAY-93	20:50:00	5.	sptprot	No	No	18	1	??	??
opt194	26	12-MAY-93	21:01:00	10.	sptprot	No	No	18	1	??	??
opt195	41	12-MAY-93	21:33:00	16.	sptmtmrot	No	No	18	1	??	??

opt196	11	12-MAY-93	22:17:00	12.	issoffset	No	No	18	1	??	??
opt197	11	12-MAY-93	23:29:00	4.	laserlscan	No	No	20	1	??	??
opt197a	28	13-MAY-93	00:07:00	13.	laserscan	No	No	20	1	??	??
opt198	39	13-MAY-93	00:22:00	19.	ldetune	No	No	20	1	??	??
opt199	12	13-MAY-93	22:22:00	2.	laserscan	No	No	20	1	??	??
opt200	12	13-MAY-93	22:26:00	2.	laserhrscan	No	No	20	1	??	??
opt201	42	13-MAY-93	22:39:00	9.	ldetune	No	No	20	1	??	??
opt202	20	13-MAY-93	23:19:00	5.	fdsundop	No	No	20	1	??	??
opt203	14	13-MAY-93	23:25:00	3.	sunlscan	No	No	20	1	??	??
opt204	12	13-MAY-93	23:40:00	6.	fdsunmag	No	No	20	1	??	??
opt205	16	14-MAY-93	15:56:00	3.	seq1_	No	No	20	1	??	??
opt206	67	14-MAY-93	20:50:00	13.	laserscan	No	No	20	1	??	??
opt207	77	14-MAY-93	21:12:00	19.	detune	No	No	20	1	??	??
opt208	26	14-MAY-93	21:32:00	6.	sunlscan	No	No	20	1	??	??
opt209	26	14-MAY-93	22:23:00	17.	wlscan	No	No	20	1	??	??
opt210	52	18-MAY-93	19:09:00	11.	sptfdlsn	No	No	18	1	??	??
opt211	21	18-MAY-93	19:25:00	9.	sptfoc	No	No	18	1	??	??
opt212	42	19-MAY-93	20:37:00	0.	sptfoc	No	No	18	1	??	??
opt213	31	19-MAY-93	21:10:00	20.	sptccdlt	No	No	20	1	??	??
opt214	13	20-MAY-93	01:06:00	3.	laslscan	No	No	20	1	??	??
opt215	127	20-MAY-93	14:36:00	55.	detune	No	No	20	1	??	??
opt217	43	20-MAY-93	17:54:00	133.	vacldetune	No	No	18	1	??	??
opt218	40	20-MAY-93	20:53:00	13.	vacldetune	No	No	18	1	??	??
opt220	33	20-MAY-93	21:00:00 ?	0.	sunvacdetune	No	No	18	1	??	??
opt221	14	20-MAY-93	21:00:00 ?	0.	sunvaclscan	No	No	18	1	??	??
opt219	44	20-MAY-93	21:07:00	17.	vacldetune	No	No	18	1	??	??
opt222	21	20-MAY-93	21:24:00	78.	vacsundop	No	No	18	1	??	??
opt216	43	20-MAY-93	22:29:00	0.	vacldetune	No	No	20	1	??	??
opt223	27	21-MAY-93	00:32:00	112.	sundop	No	No	23	1	??	??
opt224	77	21-MAY-93	14:24:00	14.	vmixser	No	No	23	1	??	??
opt225	88	21-MAY-93	14:39:00	20.	vmixser	No	No	23	1	??	??
opt226	30	21-MAY-93	15:04:00	5.	vdetune	No	No	19	1	??	??
opt227	45	21-MAY-93	15:11:00	18.	vfdlscan	No	No	19	1	??	??
opt228	32	21-MAY-93	15:30:00	6.	vdetune	No	No	19	1	??	??
opt229	42	21-MAY-93	16:48:00	7.	vldetune	No	No	19	1	??	??
opt230	42	21-MAY-93	16:58:00	8.	vldetune	No	No	19	1	??	??
opt231	42	21-MAY-93	17:13:00	8.	vldetune	No	No	19	1	??	??
opt232	37	21-MAY-93	17:58:00	10.	vldetune	No	No	19	1	??	??
opt233	67	21-MAY-93	20:19:00	84.	issonoff	No	No	19	1	??	??
opt234	42	21-MAY-93	23:12:00	16.	protseriss	No	No	23	1	??	??
opt235	37	21-MAY-93	23:55:00	10.	vdetune	No	No	19	1	??	??
opt236	67	22-MAY-93	00:10:00	21.	vmixser	No	No	23	1	??	??
opt237	40	22-MAY-93	14:19:00	14.	vldetune	No	No	20	1	??	??
opt238	33	22-MAY-93	15:00:00	6.	vdetune	No	No	20	1	??	??
opt239	86	22-MAY-93	15:17:00	23.	vmixser	No	No	20	1	??	??
opt240	186	22-MAY-93	15:49:00	32.	vdopser	No	No	20	1	??	??
opt241	45	22-MAY-93	17:01:00	20.	vldetune	No	No	20	1	??	??
opt242	47	22-MAY-93	17:44:00	8.	vldetune	No	No	20	1	??	??
opt243	43	22-MAY-93	18:06:00	13.	vldetune	No	No	20	1	??	??
opt244	42	22-MAY-93	18:51:00	7.	vldetune	No	No	109	4	??	??
opt245	42	22-MAY-93	20:03:00	8.	vldetune	No	No	109	4	??	??
opt246	196	22-MAY-93	22:01:00	64.	vdetune	No	No	20	1	??	??
opt247	44	25-MAY-93	04:43:00	11.	vldetune	No	No	109	4	??	??
opt248	43	25-MAY-93	04:55:00	9.	vldetune	No	No	109	4	??	??
opt249	43	25-MAY-93	05:33:00	14.	vldetune	No	No	109	4	??	??
opt250	43	25-MAY-93	06:06:00	8.	vldetune	No	No	109	4	??	??
opt251	43	25-MAY-93	07:10:00	9.	vldetune	No	No	109	4	??	??
opt252	43	25-MAY-93	08:26:00	9.	vldetune	No	No	109	4	??	??
opt253	43	25-MAY-93	09:10:00	10.	vldetune	No	No	109	4	??	??
opt254	32	25-MAY-93	12:27:00	7.	vldetune	No	No	109	4	??	??

opt255	41	25-MAY-93	12:38:00	21.	vldetune	No	No	109	4	??	??
opt256	42	25-MAY-93	13:03:00	11.	vldetune	No	No	109	4	??	??
opt257	44	25-MAY-93	13:25:00	10.	vldetune	No	No	109	4	??	??
opt258	42	25-MAY-93	14:03:00	8.	vldetune	No	No	109	4	??	??
opt259	42	25-MAY-93	14:13:00	8.	vldetune	No	No	109	4	??	??
opt260	42	25-MAY-93	14:28:00	8.	vldetune	No	No	109	4	??	??
opt261	42	25-MAY-93	14:41:00	8.	vldetune	No	No	109	4	??	??
opt262	42	25-MAY-93	15:02:00	9.	vldetune	No	No	109	4	??	??
opt263	42	25-MAY-93	15:26:00	9.	vldetune	No	No	109	4	??	??
opt264	42	25-MAY-93	16:26:00	8.	vldetune	No	No	109	4	??	??
opt265	42	25-MAY-93	16:37:00	8.	vldetune	No	No	109	4	??	??
opt266	43	25-MAY-93	17:39:00	9.	vldetune	No	No	109	4	??	??
opt267	42	25-MAY-93	18:04:00	8.	vldetune	No	No	109	4	??	??
opt268	43	25-MAY-93	19:14:00	10.	vldetune	No	No	109	4	??	??
opt269	42	25-MAY-93	21:24:00	8.	vldetune	No	No	109	4	??	??
opt270	42	25-MAY-93	22:52:00	8.	vldetune	No	No	109	4	??	??
opt271	44	26-MAY-93	00:17:00	8.	vldetune	No	No	109	4	??	??
opt272	57	26-MAY-93	13:05:00	0.	vldetune	No	No	109	4	??	??
opt273	46	26-MAY-93	14:37:00	9.	vldetune	No	No	20	1	??	??
opt274	20	26-MAY-93	17:42:00	10.	sptfoc	No	No	20	1	??	??
opt275	26	26-MAY-93	18:01:00	15.	sptlscan	No	No	20	1	??	??
opt276	12	26-MAY-93	22:25:00	18.	align	No	No	20	1	??	??
opt277	79	27-MAY-93	17:53:00	83.	djaiqt	No	No	20	1	??	??
opt278	42	28-MAY-93	00:42:00	17.	m1rotser	No	No	20	1	??	??
opt279	31	28-MAY-93	01:08:00	13.	m2rotser	No	No	20	1	??	??
opt280	29	29-MAY-93	13:26:00	9.	cdpser	No	No	21	1	??	??
opt281	208	29-MAY-93	13:38:00	36.	vdopser	No	No	21	1	??	??
opt282	29	29-MAY-93	14:23:00	11.	cdopser	No	No	21	1	??	??
opt283	1128	29-MAY-93	14:37:00	225.	vdopser	No	No	21	1	??	??
opt284	752	29-MAY-93	18:31:00	145.	vdopser	No	No	21	1	??	??
opt285	10	2-JUN-93	01:03:00	3.	grandhunt	No	No	21	1	??	??
opt286	11	2-JUN-93	01:23:00	8.	roger	No	No	21	1	??	??
opt287	30	2-JUN-93	15:04:00	6.	cdopser	No	No	21	1	??	??
opt288	74	2-JUN-93	15:12:00	15.	vdopser	No	No	21	1	??	??
opt289	13	2-JUN-93	17:28:00	24.	isstest	No	No	21	1	??	??
opt290	82	2-JUN-93	22:14:00	32.	sptfoc	No	No	21	1	??	??
opt291	50	2-JUN-93	22:48:00	20.	sptprot	No	No	21	1	??	??
opt292	83	2-JUN-93	23:10:00	40.	sptmrot	No	No	21	1	??	??
opt293	26	3-JUN-93	00:01:00	6.	sptfdlscan	No	No	21	1	??	??
opt294	32	3-JUN-93	00:32:00	25.	sunisstest	No	No	21	1	??	??
opt295	25	3-JUN-93	20:36:00	8.	wlscan	No	No	22	1	??	??
opt296	26	3-JUN-93	20:54:00	11.	sunlscan	No	No	22	1	??	??
opt297	32	3-JUN-93	21:48:00	119.	holemove	No	No	22	1	??	??
opt298	33	4-JUN-93	20:04:00	39.	polhunt	No	No	22	1	??	??
opt299	43	5-JUN-93	00:06:00	9.	vldetune	No	No	22	1	??	??
opt300	10	5-JUN-93	00:48:00	11.	michtest	No	No	22	1	??	??
opt301	26	7-JUN-93	19:40:00	15.	lfringe	No	No	22	1	??	??
opt302	19	7-JUN-93	21:56:00	31.	qwave	No	No	22	1	??	??
opt303	52	7-JUN-93	23:45:00	****	qwave	No	No	22	1	??	??
opt304	28	8-JUN-93	21:33:00	44.	finger	No	No	22	1	??	??
opt305	10	8-JUN-93	23:54:00	40.	bdsbs	No	No	22	1	??	??
opt306	51	9-JUN-93	02:50:00	17.	pawlscan	No	No	23	1	??	??
opt307	12	9-JUN-93	17:51:00	9.	beforecamera	No	No	23	1	??	??
opt309	119	9-JUN-93	22:05:00	165.	diode_scan	No	No	22	1	??	??
opt308	12	9-JUN-93	30:31:00	0.	aftercamera	No	No	23	1	??	??
opt310	36	10-JUN-93	17:24:00	29.	ccd_sat_test	No	No	23	1	??	??
opt311	16	10-JUN-93	18:01:00	23.	window_off	No	No	22	1	??	??
opt312	7	10-JUN-93	18:46:00	2.	window_stim	No	No	22	1	??	??
opt313	31	11-JUN-93	02:46:00	77.	bs1_bbx	No	No	23	1	??	??
opt314	27	18-JUN-93	00:00:00 ?	0.	oven_move	No	No	23	1	??	??

opt315		11	21-JUN-93	23:39:00		0.	bs2_bbx		No	No	23	1	??	??
opt316		100	22-JUN-93	17:34:00		359.	bs2_bbx		No	No	23	1	??	??
opt317		38	25-JUN-93	01:48:00		14.	two_bit		No	No	23	1	??	??
opt318		13	25-JUN-93	03:12:00		8.	sunblock		No	No	23	1	??	??
opt319		58	26-JUN-93	00:55:00		30.	twobits		No	No	23	1	??	??
opt320		44	26-JUN-93	02:41:00		12.	vldetune		No	No	23	1	??	??
cat000	930629_171246	5	29-JUN-93	17:17:00		1.			Yes	No	115	2	??	??
cat001	930629_204340	3	29-JUN-93	20:44:00		0.			Yes	No	109	2	??	??
cat004	930702_222529	1	2-JUL-93	22:25:29	?	0.		swldseq1	Yes	No	-1	-1	??	??
cat005	930702_230529	1	2-JUL-93	23:05:29	?	0.		swldseq1	Yes	No	-1	-1	??	??
cat011	930703_184101	15	3-JUL-93	18:42:00		7.		tp	Yes	No	115	2	??	??
cat012	930703_190236	189	3-JUL-93	19:04:00		49.		swldseq2	Yes	No	115	2	??	??
cat013	930703_204142	820	3-JUL-93	20:49:00		163.			Yes	No	115	2	??	??
opt321		41	3-JUL-93	21:14:00		12.	vdetune		No	No	24	1	??	??
opt322		27	3-JUL-93	21:28:00		5.	fdlscan		No	No	24	1	??	??
opt323		30	4-JUL-93	15:02:00		5.	vdetune		No	No	25	1	??	??
opt324		26	4-JUL-93	15:11:00		9.	fdlscan		No	No	25	1	??	??
cat014	930704_153134	90	4-JUL-93	15:32:00		18.			Yes	No	115	3	??	??
cat015	930704_163051	3	4-JUL-93	16:32:00		0.			Yes	No	115	3	??	??
cat016	930704_163310	39	4-JUL-93	16:34:00		7.			Yes	No	115	3	??	40.7
cat018	930704_184933	81	4-JUL-93	18:51:00		16.			Yes	No	115	3	??	??
opt325		105	4-JUL-93	20:14:00		20.	sun		No	No	25	1	??	??
opt326		945	4-JUL-93	20:58:00		204.	sun		No	No	25	1	??	??
opt327		68	5-JUL-93	01:13:00		19.	sun		No	No	25	1	??	??
opt328		323	5-JUL-93	01:39:00		70.	sun		No	No	25	1	??	??
opt329		57	5-JUL-93	03:00:00		11.	sun		No	No	25	1	??	??
cat019	930705_142958	3376	5-JUL-93	14:31:00		686.			Yes	No	109	9	??	??
opt330		3491	5-JUL-93	15:31:00		700.	sun		No	No	26	1	??	??
opt331		8	6-JUL-93	03:16:00		2.	ccd		No	No	27	1	??	??
opt333		2256	6-JUL-93	17:55:00		456.	sun		No	No	27	1	??	??
opt334		330	7-JUL-93	01:34:00		64.	sun		No	No	27	1	??	??
opt336		274	9-JUL-93	23:31:00		86.	focus		No	No	28	1	??	??
cat023	930710_155702	3103	10-JUL-93	15:58:00		607.		pdown	No	No	109	3	??	??
opt337		2979	10-JUL-93	15:59:00		606.	caldop		No	No	29	1	??	??
opt338		6148	11-JUL-93	18:47:00		****	darks		No	No	41	1	??	??
cat024	930711_184559	3355	11-JUL-93	18:47:00		671.			Yes	No	115	1	??	??
opt339		36	14-JUL-93	14:19:00		17.	fdfocser		No	No	39	1	56.0	32.9
opt340		205	14-JUL-93	14:41:00		40.	vbigtune		No	No	39	1	56.0	32.9
opt341		244	14-JUL-93	16:12:00		51.	depseq		No	No	39	1	??	30.7
cat025	930714_161132	240	14-JUL-93	16:13:00		51.		vbigtune	No	No	115	2	??	30.7
opt342		302	15-JUL-93	00:08:00		64.	vbigtune		No	No	39	1	??	33.2
opt343		661	15-JUL-93	14:03:00		50.	vmagser		No	No	39	1	??	40.7
opt344		144	15-JUL-93	15:05:00		28.	vmagser		No	No	39	1	??	40.7
opt345		372	16-JUL-93	01:01:00		26.	vdopmix		No	No	39	1	??	35.1
opt346		565	16-JUL-93	01:44:00		38.	vdopmix		No	No	39	1	??	35.0
opt351		22	19-JUL-93	22:32:00		6.	fdfocser		No	No	40	1	??	??
opt352		20	19-JUL-93	23:00:00		4.	fdfocser		No	No	40	1	??	??
opt353		24	19-JUL-93	23:56:00		7.	fdfocser		No	No	40	1	??	??
opt354		24	20-JUL-93	00:23:00		10.	fdfocser		No	No	40	1	??	??
opt355		24	20-JUL-93	22:48:00		102.	finger		No	No	43	1	??	??
opt356		21	21-JUL-93	15:00:00		19.	darks		No	No	43	1	??	40.7
opt357		58	28-JUL-93	02:10:00		10.	fdfocrot		No	No	45	1	??	25.6
opt358		58	28-JUL-93	02:21:00		9.	hrfocrot		No	No	52	1	??	25.6
opt359		64	28-JUL-93	02:36:00		11.	pawrot		No	No	52	1	??	25.6
opt360		64	28-JUL-93	02:47:00		11.	pawrot		No	No	45	1	??	25.6
opt361		248	28-JUL-93	03:28:00		44.	mtmrot		No	No	-1	-1	??	25.6
cat026	930729_200816	100	29-JUL-93	20:10:00		19.		shutest	Yes	No	115	1	26.7	25.6
opt407		370	31-JUL-93	00:00:00	?	0.	qwavesnholes		No	No	81	1	-11.4	35.0
opt362		104	31-JUL-93	14:03:00		10.	lasdetune		No	No	43	1	-48.6	35.2
cat027	930731_144820	345	31-JUL-93	14:50:00		86.		vbigtune	Yes	No	115	4	-48.6	35.2

opt363		435	31-JUL-93	15:00:00		73.	suncal		No	Yes	43	1	-48.6	35.2
opt364		106	31-JUL-93	16:28:00		11.	lasdetune		No	Yes	43	1	-48.6	35.2
opt365		432	31-JUL-93	16:45:00		72.	suncal		No	Yes	109	4	-48.6	35.2
cat028	930731_164519	1	31-JUL-93	16:45:19	?	0.		vbigtune	Yes	No	-1	-1	-48.6	35.2
opt366		106	31-JUL-93	18:12:00		11.	lasdetune		No	No	43	1	-48.6	35.1
opt367		432	31-JUL-93	18:32:00		74.	suncal		No	No	43	1	-48.6	35.2
cat029	930731_183233	340	31-JUL-93	18:32:00		76.		vbigtune	Yes	No	115	4	-48.6	35.2
opt368		106	31-JUL-93	19:55:00		10.	lasdetune		No	No	45	1	-48.6	35.2
opt369		144	31-JUL-93	20:18:00		7.	suncal		No	No	45	1	-48.6	35.2
opt370		20	31-JUL-93	20:29:00		1.	suncal		No	No	45	1	-48.6	35.1
opt371		33	31-JUL-93	20:38:00		3.	suncal		No	No	45	1	-48.6	35.1
opt372		430	31-JUL-93	20:44:00		73.	suncal		No	No	45	1	-45.7	35.1
cat032	930731_203902	335	31-JUL-93	20:54:00		66.		calmodev	Yes	No	115	3	-45.7	35.2
opt373		140	31-JUL-93	22:12:00		31.	lasdetune		No	No	46	1	-45.7	35.2
opt374		432	31-JUL-93	22:51:00		72.	suncal		No	No	43	1	-45.7	35.1
cat033	930731_225227	340	31-JUL-93	22:54:00		73.			Yes	No	115	4	-48.6	35.0
opt408		590	1-AUG-93	00:00:00	?	0.	waveplate		No	No	81	1	-48.6	35.2
opt409		103	1-AUG-93	00:00:00	?	0.	bigtune		No	No	81	1	-48.6	35.2
opt375		133	1-AUG-93	00:36:00		25.	lasdetune		No	No	46	1	-48.6	35.2
opt376		106	1-AUG-93	01:18:00		10.	lasdetune		No	No	46	1	-48.6	35.2
opt377		318	1-AUG-93	01:33:00		49.	suncal		No	No	45	1	-48.6	35.1
cat034	930801_013337	220	1-AUG-93	01:35:00		50.		calmodev	Yes	No	115	4	-48.6	35.2
opt378		101	1-AUG-93	13:04:00		32.	darks		No	No	46	1	-48.6	35.2
opt379		3	1-AUG-93	13:40:00		1.	darks		No	No	43	1	-48.6	35.2
opt380		22	1-AUG-93	14:16:00		6.	mag		No	No	43	1	-45.7	35.2
opt381		20	1-AUG-93	14:26:00		2.	mag		No	No	43	1	-48.6	35.2
opt382		8	1-AUG-93	14:33:00		1.	dop		No	No	43	1	-48.6	35.2
opt383		3193	1-AUG-93	14:45:00		637.	dop		No	No	45	1	-45.7	35.2
cat036	930801_144602	1790	1-AUG-93	14:48:00		357.		obsmodev	Yes	No	115	3	-48.6	35.2
opt384		104	2-AUG-93	01:29:00		38.	mag		No	No	43	1	-45.7	35.1
opt385		122	2-AUG-93	02:17:00		40.	door		No	No	45	1	-48.6	35.1
cat037	930802_021910	200	2-AUG-93	02:21:00		39.		pdown	Yes	No	115	1	-48.6	35.2
opt386		14	2-AUG-93	14:40:00		4.	hrfocser		No	No	43	1	-51.4	35.3
opt387		18	2-AUG-93	15:11:00		3.	ltc		No	No	46	1	-51.4	35.3
opt400		9	4-AUG-93	00:00:00	?	0.	sorensondark		No	No	80	1	??	40.7
opt388		103	4-AUG-93	01:46:00		9.	lasdetune		No	No	46	1	-45.7	35.2
opt389		103	4-AUG-93	05:27:00		8.	lasdetune		No	No	46	1	-48.6	35.2
opt390		103	4-AUG-93	05:44:00		8.	lasdetune		No	No	46	1	-45.7	35.2
opt391		103	4-AUG-93	06:09:00		7.	lasdetune		No	No	46	1	-48.6	35.2
opt392		103	4-AUG-93	06:19:00		8.	lasdetune		No	No	46	1	-45.7	35.2
opt393		103	4-AUG-93	06:30:00		9.	lasdetune		No	No	46	1	-51.4	35.2
opt394		103	4-AUG-93	13:42:00		10.	lasdetune		No	No	46	1	-51.4	35.3
opt395		29	4-AUG-93	20:01:00		9.	sunfdfoc		No	No	46	1	-45.7	33.4
opt396		39	4-AUG-93	20:15:00		10.	sunhrfoc		No	No	46	1	-48.6	35.2
opt397		19	4-AUG-93	20:30:00		4.	sunfdfoc		No	No	46	1	-45.7	35.5
opt398		25	4-AUG-93	20:38:00		4.	fdlscan		No	No	46	1	-45.7	35.4
opt399		25	4-AUG-93	21:32:00		3.	fdlscan		No	No	46	1	-48.6	35.4
opt401		19	4-AUG-93	23:04:00		5.	fdfocser		No	No	46	1	-45.7	35.3
opt402		6	6-AUG-93	21:31:00		3.	icehunt		No	No	47	1	??	??
opt403		4	6-AUG-93	21:58:00		1.	issdarks		No	No	47	1	23.3	30.8
opt404		19	6-AUG-93	22:36:00		5.	hrfocser		No	No	47	1	23.3	31.6
opt405		11	6-AUG-93	23:05:00		2.	hrfocser		No	No	47	1	23.3	32.0
opt406		26	7-AUG-93	00:49:00		27.	issperf		No	No	47	1	23.3	33.0
opt410		65	18-AUG-93	14:45:00		314.	turnon		No	No	49	1	??	??
opt411		4	18-AUG-93	20:10:00		98.	ice		No	No	50	1	-45.7	25.6
opt412		78	18-AUG-93	23:27:00		137.	focus		No	No	50	1	??	25.6
opt413		26	19-AUG-93	02:19:00		261.	ice		No	No	49	1	??	??
opt414		7	19-AUG-93	14:03:00		6.	ice		No	No	51	1	-51.4	25.9
opt415		9	19-AUG-93	15:55:00		6.	ice		No	No	49	1	-48.6	31.7
opt416		184	19-AUG-93	19:34:00		151.	focus		No	No	51	1	-48.6	26.7

opt417		20	19-AUG-93	23:00:00	4.	focus		No	No	52	1	-48.6	25.6
opt418		29	19-AUG-93	23:33:00	25.	ice		No	No	50	1	-48.6	25.6
opt419		3	20-AUG-93	01:36:00	2.	ice		No	No	49	1	-45.7	25.6
opt420		50	20-AUG-93	06:09:00	28.	foc		No	No	81	1	-14.3	25.6
opt421		10	20-AUG-93	23:21:00	4.	southwall		No	No	49	1	??	??
opt422		77	20-AUG-93	23:30:00	14.	bigtune		No	No	49	1	??	??
opt423		207	21-AUG-93	01:04:00	29.	bigtune		No	No	49	1	??	??
opt424		128	21-AUG-93	20:30:00	38.	waveplate		No	No	50	1	??	??
opt425		409	21-AUG-93	21:24:00	83.	waveplate		No	No	50	1	??	??
opt426		34	23-SEP-93	18:29:00	19.	sunhrfoc		No	No	52	1	??	??
opt427		5	23-SEP-93	18:59:00	1.	bs1test		No	No	52	1	??	??
opt428		5	23-SEP-93	19:55:00	3.	bs1test		No	No	52	1	??	??
opt429		5	23-SEP-93	20:11:00	1.	bs1test		No	No	52	1	??	??
opt430		10	23-SEP-93	20:21:00	5.	bs1test		No	No	52	1	??	??
opt431		6	23-SEP-93	20:33:00	3.	bs1test		No	No	52	1	??	??
opt432		5	23-SEP-93	20:48:00	2.	bs1test		No	No	52	1	??	??
opt433		5	23-SEP-93	20:59:00	2.	bs1test		No	No	52	1	??	??
opt434		5	23-SEP-93	21:15:00	2.	bs1test		No	No	52	1	??	??
opt435		19	24-SEP-93	15:17:00	4.	stimfoc		No	No	80	1	??	??
opt436		82	24-SEP-93	16:06:00	21.	sunhrfoc		No	No	52	1	??	??
opt437		40	24-SEP-93	16:42:00	23.	sunholes		No	No	80	1	??	??
oct500	xxxxxx_xxxxxx	49	1-OCT-93	00:00:00 ?	0.	diodes		No	No	75	1	??	??
oct503	xxxxxx_xxxxxx	40	1-OCT-93	00:00:00 ?	0.	magneto		No	Yes	74	1	??	??
oct502	xxxxxx_xxxxxx	121	1-OCT-93	00:00:00 ?	0.	magneto		No	Yes	74	1	??	??
cat038	931001_152636	6	1-OCT-93	15:27:00	9.		lcmcom	No	Yes	82	1	23.3	25.6
cat039	931001_164601	34	1-OCT-93	16:47:00	6.		lsqcom	No	No	83	1	23.3	27.6
cat040	931001_194438	7	1-OCT-93	19:45:00	12.		mdipict	No	No	84	1	23.3	25.6
cat041	931001_200012	48	1-OCT-93	20:00:00	13.		mdiltc	No	No	85	1	23.3	25.6
cat042	931001_202439	74	1-OCT-93	20:25:00	15.		mdifocus	No	No	84	1	23.3	25.6
cat043	931001_204141	4	1-OCT-93	20:44:00	2.		mdiiss	No	No	83	1	23.3	25.6
cat044	931001_205218	27	1-OCT-93	20:53:00	24.		mdiiss	No	No	83	1	23.3	25.6
cat045	931001_212119	301	1-OCT-93	21:22:00	55.		mdimrot	No	No	96	1	26.7	25.6
cat046	931001_221920	122	1-OCT-93	22:20:00	22.		mdiprot	No	No	84	1	23.3	25.6
cat047	931001_224409	21	1-OCT-93	22:44:00	42.		mdipdist	No	No	84	1	23.3	25.6
cat048	931001_234506	100	1-OCT-93	23:46:00	48.		mdidust	No	No	85	1	26.7	25.6
opt438		41	2-OCT-93	19:32:00	11.	sundop		No	No	-1	-1	??	??
cat049	931002_211056	101	2-OCT-93	21:11:00	21.		mdidtune	No	No	86	1	23.3	25.6
cat050	931002_214453	100	2-OCT-93	21:45:00	32.		mdidust	No	No	86	1	23.3	25.6
cat051	931007_223139	6	7-OCT-93	22:32:00	9.		lcmcom	No	No	85	1	26.7	25.6
cat052	931007_234103	35	7-OCT-93	23:42:00	6.		lsqcom	No	No	86	1	26.7	26.9
cat053	931008_010431	7	8-OCT-93	01:05:00	11.		mdipict	No	No	86	1	26.7	25.6
cat054	931008_011902	48	8-OCT-93	01:19:00	13.		mdiltc	No	No	85	1	23.3	25.6
cat055	931008_013816	73	8-OCT-93	01:39:00	12.		mdifocus	No	No	82	1	23.3	25.6
cat056	931008_015736	27	8-OCT-93	01:58:00	21.		mdiiss	No	No	84	1	23.3	25.6
cat057	931008_022351	21	8-OCT-93	02:24:00	38.		mdipdist	No	No	87	1	23.3	25.6
cat058	931008_030637	122	8-OCT-93	03:07:00	26.		mdioff	No	No	86	1	23.3	25.6
cat059	931008_152008	301	8-OCT-93	15:20:00	56.		shutest	No	No	84	1	26.7	25.6
cat060	931008_201704	100	8-OCT-93	20:22:00	32.		mdidust	Yes	No	84	1	23.3	25.6
cat061	931008_211021	101	8-OCT-93	21:11:00	17.		mdidtune	No	No	82	1	26.7	25.6
cat062	931012_185700	6	12-OCT-93	18:57:00	9.		lcmcom	No	No	84	1	23.3	25.6
cat063	931012_210906	29	12-OCT-93	21:10:00	6.		lsqcom	No	No	84	1	30.0	28.9
cat064	931013_174524	1	13-OCT-93	17:45:24 ?	0.			No	No	-1	-1	??	25.6
cat065	931013_181655	1	13-OCT-93	18:17:00	0.			No	No	84	1	??	25.6
cat066	931013_182509	1	13-OCT-93	18:25:00	0.			No	No	84	1	??	25.6
cat067	931013_183603	1	13-OCT-93	18:36:00	0.		daveoff	No	No	84	1	??	25.6
cat068	931013_185517	1	13-OCT-93	18:56:00	0.			No	No	84	1	??	25.6
cat069	931013_194318	1	13-OCT-93	19:44:00	0.		mdiofred	No	No	84	1	??	25.6
cat070	931014_214929	1	14-OCT-93	21:50:00	0.			No	No	84	1	??	25.6
cat071	931014_215820	1	14-OCT-93	21:59:00	0.		daveoff	No	No	84	1	??	25.6
cat072	931014_221648	1	14-OCT-93	22:17:00	0.			No	No	84	1	??	25.6

cat073	931014_222505	1	14-OCT-93	22:25:00	0.		mdiofred	No	No	84	1	??	25.6
cat074	931018_205132	51	18-OCT-93	20:52:00	9.			No	No	84	1	40.0	38.6
cat075	931018_210208	8	18-OCT-93	21:02:00	14.		mdipict	No	No	84	1	44.0	38.5
cat076	931019_212049	1	19-OCT-93	21:21:00	0.		bigtune	No	No	84	1	30.0	35.6
oct501	931019_215619	101	19-OCT-93	21:56:00	17.	xxx	mdidtune	No	No	73	1	30.0	36.1
oct504	931020_214216	101	20-OCT-93	21:42:00	17.	xxx	mdidtune	No	No	74	1	-11.4	35.2
cat077	931021_205245	183	21-OCT-93	21:00:00	36.		mdidtune	No	No	96	2	-17.1	35.9
oct505	931021_230906	104	21-OCT-93	23:09:00	16.	xxx	mdidtune	No	No	76	1	-14.3	35.9
oct506	931022_002305	104	22-OCT-93	00:23:00	16.	xxx	mdidtune	No	No	77	1	-8.6	34.7
oct507	931022_015725	104	22-OCT-93	01:57:00	16.	xxx	mdidtune	No	No	76	1	-8.6	36.0
cat078	931022_161640	90	22-OCT-93	16:19:00	18.		obsmode	No	No	96	3	-14.3	33.9
oct508	931022_163919	2190	22-OCT-93	16:41:00	442.	sun		No	No	73	1	-14.3	35.8
oct509	931023_000744	105	23-OCT-93	00:08:00	16.	sun	mdidtune	No	No	74	1	-14.3	36.1
oct510	931023_013033	104	23-OCT-93	01:31:00	15.	xxx	mdidtune	No	No	73	1	-17.1	35.4
oct511	931023_141805	232	23-OCT-93	14:20:00	46.	darks	lfdopen	No	No	89	1	-14.3	35.0
oct512	931023_153723	1666	23-OCT-93	15:39:00	333.	satcal	obsmode	No	No	73	1	-14.3	33.6
oct513	931024_153756	2645	24-OCT-93	15:38:00	529.	sun	closelog	No	Yes	76	1	-17.1	35.0
oct514	931025_205717	16	25-OCT-93	20:57:17 ?	0.	compress	openlog	Yes	Yes	-1	-1	-14.3	35.4
cat079	931025_212304	1	25-OCT-93	21:23:04 ?	0.		closelog	No	No	-1	-1	56.0	32.9
oct515	931025_231427	388	25-OCT-93	23:15:00	61.	xxx	supersun	No	No	77	1	-14.3	34.8
oct516	xxxxxx_xxxxxx	203	26-OCT-93	18:05:00	22.	drift		No	Yes	74	1	-14.3	36.2
oct518	931026_184901	1	26-OCT-93	18:51:00	0.	xxx	calmodev	Yes	No	-1	-1	-14.3	35.0
oct517	xxxxxx_xxxxxx	58	26-OCT-93	19:12:00	61.	scatter		No	No	75	1	-14.3	35.0
oct519	xxxxxx_xxxxxx	328	26-OCT-93	20:40:00	26.	supertune		No	Yes	90	1	-14.3	35.0
oct520	xxxxxx_xxxxxx	102	26-OCT-93	23:40:00	7.	fringes		No	No	78	1	-14.3	35.0
oct521	xxxxxx_xxxxxx	104	27-OCT-93	00:06:00	35.	fringes		No	No	90	1	-14.3	35.2
oct522	xxxxxx_xxxxxx	444	27-OCT-93	17:04:00	35.	newmix		No	No	79	1	-23.3	35.3
oct523	xxxxxx_xxxxxx	104	27-OCT-93	17:52:00	33.	fringes		No	No	75	1	-20.0	35.7
oct524	xxxxxx_xxxxxx	104	27-OCT-93	18:32:00	33.	fringes		No	No	75	1	-23.3	33.1
oct524a	931027_195942	20	27-OCT-93	20:00:00	5.	xxx		No	No	79	1	-20.0	35.3
oct524b	931027_201301	10	27-OCT-93	20:13:00	3.	xxx	lltsetup	No	No	79	1	-20.0	34.8
oct524c	931027_202241	9	27-OCT-93	20:23:00	2.	xxx	lltsetup	No	No	74	1	-23.3	34.9
oct524d	931027_202633	15	27-OCT-93	20:27:00	4.	xxx	lltsetup	No	No	79	1	-20.0	35.0
oct524e	931027_203119	5	27-OCT-93	20:32:00	0.	xxx		No	No	74	1	-20.0	35.0
oct524f	931027_203724	10	27-OCT-93	20:38:00	2.	xxx	bigtune	No	No	74	1	-23.3	34.9
oct525	xxxxxx_xxxxxx	454	27-OCT-93	21:39:00	43.	newmxr		No	No	79	1	-20.0	35.4
oct526	931027_233428	104	27-OCT-93	23:35:00	15.	xxx	mdidtune	No	No	75	1	-20.0	34.5
oct526a	931028_002639	104	28-OCT-93	00:27:00	16.	xxx	mdidtune	No	No	77	1	-20.0	35.7
oct527	931028_155016	104	28-OCT-93	15:50:00	16.	xxx	mdidtune	No	No	75	1	-20.0	35.2
oct528	931028_183039	102	28-OCT-93	18:31:00	16.	xxx	mdidtune	No	No	77	1	-23.3	34.8
oct528a	931028_190116	90	28-OCT-93	19:01:00	19.	xxx	mdidtune	No	No	75	1	-17.1	35.0
oct529	931028_195052	104	28-OCT-93	19:51:00	16.	xxx	mdidtune	No	No	77	1	-20.0	34.3
oct530	xxxxxx_xxxxxx	8	28-OCT-93	20:45:00	1.	lasdust		No	No	79	1	-20.0	35.2
oct531	931028_212849	104	28-OCT-93	21:29:00	16.	xxx	mdidtune	No	No	78	1	-20.0	35.3
oct532	xxxxxx_xxxxxx	8	28-OCT-93	21:58:00	2.	lasdust		No	No	79	1	??	??
oct533	931028_223530	104	28-OCT-93	22:36:00	15.	xxx	mdidtune	No	No	75	1	-20.0	35.9
oct534	xxxxxx_xxxxxx	8	28-OCT-93	23:27:00	0.	lasdust		No	No	76	1	-20.0	35.0
oct535	931028_234149	104	28-OCT-93	23:42:00	16.	xxx	mdidtune	No	No	77	1	-20.0	35.6
oct536	xxxxxx_xxxxxx	9	29-OCT-93	00:08:00	39.	lasdust		No	No	76	1	-20.0	34.0
oct537	931029_014038	104	29-OCT-93	01:41:00	16.	xxx	mdidtune	No	No	78	1	??	??
oct538	xxxxxx_xxxxxx	8	29-OCT-93	02:02:00	1.	lasdust		No	No	75	1	-20.0	35.4
oct539	931029_021639	104	29-OCT-93	02:17:00	17.	xxx	mdidtune	No	No	75	1	-23.3	34.7
oct540	xxxxxx_xxxxxx	8	29-OCT-93	02:38:00	1.	lasdust		No	No	76	1	-23.3	35.6
oct541	931029_024958	104	29-OCT-93	02:50:00	16.	xxx	mdidtune	No	No	77	1	??	??
oct542	xxxxxx_xxxxxx	8	29-OCT-93	03:19:00	1.	lasdust		No	No	75	1	-23.3	34.0
oct543	931029_034842	104	29-OCT-93	03:49:00	16.	xxx	mdidtune	No	No	78	1	-23.3	34.0
oct544	xxxxxx_xxxxxx	8	29-OCT-93	04:06:00	1.	lasdust		No	No	76	1	-20.0	35.6
oct545	931029_041446	104	29-OCT-93	04:15:00	19.	xxx	mdidtune	No	No	75	1	-23.3	35.2
oct546	xxxxxx_xxxxxx	8	29-OCT-93	04:36:00	0.	lasdust		No	No	75	1	-23.3	34.5
oct547	xxxxxx_xxxxxx	283	29-OCT-93	04:36:00	39.	supertune		No	No	75	1	-23.3	34.5

oct548	xxxxxx_xxxxxx	658	29-OCT-93	15:56:00		55.	newmixv		No	No	79	1	-23.3	35.8
oct549	931029_173353	104	29-OCT-93	17:34:00		16.	mdidtune	mdidtune	No	No	77	1	-26.7	35.7
oct550	xxxxxx_xxxxxx	625	29-OCT-93	18:02:00		50.	newmixv		No	No	75	1	-23.3	35.0
oct551	931029_191854	104	29-OCT-93	19:19:00		16.	mdidtune	mdidtune	No	No	78	1	-23.3	34.7
oct552	xxxxxx_xxxxxx	141	29-OCT-93	20:19:00		26.	vmagmix		No	Yes	76	1	-23.3	33.2
cat080	931029_203324	32	29-OCT-93	20:34:00		3.		bigtune	No	No	96	3	-20.0	35.5
oct553	xxxxxx_xxxxxx	650	29-OCT-93	20:54:00		52.	newmixv		No	No	78	1	-20.0	35.1
cat081	931029_224151	7	29-OCT-93	22:42:00		1.		mdidtune	No	No	96	2	-23.3	35.3
oct554	931029_225806	104	29-OCT-93	22:58:00		16.	xxx	mdidtune	No	No	75	1	-20.0	35.2
oct555	xxxxxx_xxxxxx	247	29-OCT-93	23:18:00		52.	newmixv		No	No	77	1	-23.3	35.2
oct561	xxxxxx_xxxxxx	41	30-OCT-93	00:00:00	?	0.	vmagmix		No	Yes	95	2	-23.3	35.0
oct562	xxxxxx_xxxxxx	122	30-OCT-93	00:00:00	?	0.	vmagmix		No	Yes	95	1	-23.3	35.0
oct558	xxxxxx_xxxxxx	89	30-OCT-93	00:00:00	?	0.	caldopser		No	No	95	1	-23.3	35.0
oct559	xxxxxx_xxxxxx	118	30-OCT-93	00:00:00	?	0.	ldopser		No	No	95	1	-23.3	35.0
oct556	xxxxxx_xxxxxx	250	30-OCT-93	02:02:00		32.	supertune		No	No	76	1	-20.0	36.1
oct557	xxxxxx_xxxxxx	328	30-OCT-93	02:39:00		25.	supertune		No	Yes	78	1	-20.0	34.7
cat082	931030_175712	90	30-OCT-93	17:58:00		18.		obsmodev	No	No	96	2	-33.3	34.8
oct560	931030_190831	145	30-OCT-93	19:08:31	?	0.	caldopser	vmagmix	Yes	Yes	-1	-1	??	40.7
cat083	931030_221644	1	30-OCT-93	22:16:44	?	0.		rundepsq	No	No	96	4	-33.3	34.9
oct564	931030_222634	185	30-OCT-93	22:27:00		35.	dopser	sleep	No	No	95	4	-33.3	34.4
oct570	xxxxxx_xxxxxx	228	1-NOV-93	00:00:00	?	0.	sundust		No	No	93	1	-33.3	34.8
oct569a	xxxxxx_xxxxxx	200	1-NOV-93	00:00:00	?	0.	boiloff		No	No	-1	-1	-33.3	34.8
oct565	xxxxxx_xxxxxx	187	1-NOV-93	21:46:00		101.	sundust		No	No	78	1	-36.7	37.1
cat084	931102_144232	4	2-NOV-93	14:43:00		18.			No	No	96	4	??	??
oct566	931102_163611	2300	2-NOV-93	16:37:00		461.	xxx	openlog	No	No	90	1	??	??
cat085	931103_005403	3	3-NOV-93	00:56:00		7.			No	No	96	4	??	??
cat086	931103_011224	2	3-NOV-93	01:14:00		2.			No	No	96	4	??	??
cat087	931103_012818	1	3-NOV-93	01:32:00		0.			No	No	96	4	??	??
cat088	931103_013705	6	3-NOV-93	01:38:00		10.		mdiltc	No	No	96	4	??	??
oct567	xxxxxx_xxxxxx	30	3-NOV-93	02:41:00		10.	ltc		No	No	93	1	??	??
oct568	xxxxxx_xxxxxx	21	3-NOV-93	03:20:00		2.	ltc		No	No	95	5	??	??
oct569	931103_155221	2460	3-NOV-93	15:51:00		491.	dopmixv	openlog	No	No	95	6	??	??
cat089	931104_155245	2	4-NOV-93	15:57:00		0.		obsmode	No	No	96	4	??	??
cat090	931104_171445	2	4-NOV-93	17:17:00		0.			No	No	96	4	??	??
cat091	931104_172850	2	4-NOV-93	17:31:00		2.		errdump	No	No	96	4	??	??
cat092	931104_174502	4	4-NOV-93	17:45:00		8.			No	No	96	4	??	??
cat093	931104_181657	2	4-NOV-93	18:20:00		0.		calmode	No	No	-1	-1	??	??
cat094	931104_195727	8	4-NOV-93	19:57:00		14.		vfdlscan	No	No	107	4	??	??
oct571	xxxxxx_xxxxxx	12	4-NOV-93	22:53:00		2.	sunlscan		No	No	93	1	??	??
oct572	931104_234942	104	4-NOV-93	23:50:00		16.	dyedtune	mdidtune	No	No	93	1	??	??
oct573	931105_002930	104	5-NOV-93	00:30:00		16.	dyedtune	mdidtune	No	No	93	1	??	??
oct574	xxxxxx_xxxxxx	100	5-NOV-93	01:09:00		7.	dyestable		No	No	93	1	??	??
oct575	931105_022023	24	5-NOV-93	02:20:00		4.	xxx		No	No	93	1	??	??
oct576	931105_022943	24	5-NOV-93	02:30:00		3.	xxx		No	No	93	1	??	??
oct577	931105_023819	24	5-NOV-93	02:38:00		4.	xxx		No	No	93	1	??	??
oct578	931105_024723	24	5-NOV-93	02:47:00		4.	xxx		No	No	93	1	??	??
oct579	931105_025443	24	5-NOV-93	02:55:00		3.	xxx		No	No	93	1	??	??
oct580	931105_031013	24	5-NOV-93	03:10:00		4.	xxx		No	No	93	1	??	??
oct581	931105_031848	24	5-NOV-93	03:19:00		4.	xxx		No	No	93	1	??	??
oct582	931105_033054	24	5-NOV-93	03:31:00		4.	xxx		No	No	93	1	??	??
oct583	931105_033938	24	5-NOV-93	03:40:00		3.	xxx		No	No	93	1	??	??
oct584	931105_040742	24	5-NOV-93	04:08:00		3.	xxx		No	No	93	1	??	??
oct585	931105_041540	24	5-NOV-93	04:16:00		3.	xxx		No	No	93	1	??	??
oct586	931105_042326	24	5-NOV-93	04:23:00		4.	xxx		No	No	93	1	??	??
oct587	931105_045923	1000	5-NOV-93	05:00:00		174.	xxx	wakeup	No	No	93	1	??	??
cat095	931105_164442	2	5-NOV-93	16:45:00		2.		obsmode	No	No	107	4	??	??
cat096	931105_170855	2	5-NOV-93	17:09:00		2.			No	No	107	4	??	??
cat097	931105_174036	2	5-NOV-93	17:41:00		0.		errdump	No	No	115	4	??	??
cat098	931105_175852	2	5-NOV-93	17:59:00		0.			No	No	115	4	??	??
cat099	931105_181831	2	5-NOV-93	18:19:00		0.			No	No	115	4	??	??

cat100	931105_182100	2	5-NOV-93	18:21:00	0.		mdidtune	No	No	115	4	??	??
oct588	931105_194016	104	5-NOV-93	19:40:00	16.	xxx	mdidtune	No	No	93	1	??	??
oct589	931105_195912	11	5-NOV-93	20:00:00	2.	xxx	vfdlscan	No	No	93	1	??	??
oct590	931105_201216	104	5-NOV-93	20:12:00	16.	xxx	mdidtune	No	No	93	1	??	??
oct591	931105_203049	11	5-NOV-93	20:32:00	2.	xxx	vfdlscan	No	No	93	1	??	??
cat101	931105_205546	2	5-NOV-93	20:56:00	2.			No	No	107	4	??	??
cat102	931105_210122	4	5-NOV-93	21:01:00	6.		ipdynmac	No	No	107	4	??	??
cat103	931105_214744	2	5-NOV-93	21:48:00	2.		lmchson	No	No	107	4	??	??
oct592	931105_232820	29	5-NOV-93	23:28:00	5.	xxx	mtmtune	No	No	93	1	??	??
oct593	931105_234456	29	5-NOV-93	23:45:00	5.	xxx	mtmtune	No	No	93	1	??	??
oct594	931105_235455	29	5-NOV-93	23:55:00	5.	xxx	mtmtune	No	No	93	1	??	??
oct595	931106_000448	29	6-NOV-93	00:05:00	4.	xxx	mtmtune	No	No	93	1	??	??
oct596	931106_004551	29	6-NOV-93	00:46:00	4.	xxx	mtmtune	No	No	95	7	??	??
oct597	931106_005437	29	6-NOV-93	00:55:00	4.	xxx	mtmtune	No	No	93	1	??	??
oct598	931106_013612	29	6-NOV-93	01:36:00	5.	xxx	mtmtune	No	No	94	1	??	??
oct599	931106_014445	29	6-NOV-93	01:45:00	6.	xxx	mtmtune	No	No	94	1	??	??
oct600	931106_015624	1	6-NOV-93	01:56:00	0.	xxx	mtmtune	No	No	94	1	??	??
oct601	931106_020449	29	6-NOV-93	02:05:00	4.	xxx	mtmtune	No	No	94	1	??	??
oct602	931106_021515	29	6-NOV-93	02:15:00	6.	xxx	mtmtune	No	No	94	1	??	??
oct603	931106_022629	29	6-NOV-93	02:27:00	4.	xxx	mtmtune	No	No	94	1	??	??
oct604	931106_023402	29	6-NOV-93	02:34:00	5.	xxx	mtmtune	No	No	94	1	??	??
oct605	931106_024713	29	6-NOV-93	02:47:00	5.	xxx	mtmtune	No	No	94	1	??	??
oct606	931106_030239	29	6-NOV-93	03:03:00	4.	xxx	mtmtune	No	No	94	1	??	??
oct607	931106_033611	29	6-NOV-93	03:36:00	5.	xxx	mtmtune	No	No	94	1	??	??
oct608	931106_034618	29	6-NOV-93	03:46:00	5.	xxx	mtmtune	No	No	94	1	??	??
oct609	931106_035446	29	6-NOV-93	03:55:00	4.	xxx	mtmtune	No	No	94	1	??	??
oct610	931106_041603	29	6-NOV-93	04:16:00	5.	xxx	mtmtune	No	No	94	1	??	??
oct611	931106_042520	29	6-NOV-93	04:25:00	5.	xxx	mtmtune	No	No	94	1	??	??
oct612	931106_043318	29	6-NOV-93	04:33:00	5.	xxx	vfdlscan	No	No	94	1	??	??
oct613	931106_073424	964	6-NOV-93	07:35:00	152.	xxx	bigtune	No	No	94	1	??	??
oct614	931106_101607	963	6-NOV-93	10:16:00	150.	xxx	bigtune	No	No	94	1	??	??
oct615	xxxxxx_xxxxxx	9	7-NOV-93	00:41:00	1.	absimg		No	No	95	7	-17.1	35.9
oct616	xxxxxx_xxxxxx	81	7-NOV-93	01:03:00	11.	pdist		No	No	95	7	-17.1	34.3
oct617	xxxxxx_xxxxxx	210	7-NOV-93	01:53:00	76.	distgrid		No	No	93	1	-14.3	34.7
cat104	931120_175953	6	20-NOV-93	18:00:00	9.		lcmcom	No	No	107	4	26.7	25.6
cat105	931120_184514	31	20-NOV-93	18:46:00	6.		lsqcom	No	No	107	4	26.7	27.3
cat106	931120_202146	5	20-NOV-93	20:22:00	9.		lcmcom	No	No	107	3	26.7	27.7
cat107	931120_210453	32	20-NOV-93	21:06:00	5.		lsqcom	No	No	107	3	30.0	29.1
cat108	931121_180055	6	21-NOV-93	18:01:00	9.		lcmcom	No	No	107	4	20.0	25.6
cat109	931121_192739	30	21-NOV-93	19:29:00	5.		lsqcom	No	No	107	4	23.3	31.3
cat110	931121_200140	46	21-NOV-93	20:02:00	16.		mdifocus	No	No	107	3	23.3	29.7
cat111	931121_201948	10	21-NOV-93	20:20:00	2.		mdioff	No	No	107	3	26.7	29.3
cat112	931122_215549	6	22-NOV-93	21:56:00	9.		lcmcom	No	No	107	4	48.0	40.2
cat113	931122_230301	34	22-NOV-93	23:04:00	6.		lsqcom	No	No	107	3	48.0	40.3
cat114	931122_235018	48	22-NOV-93	23:50:00	10.		mdiltc	No	No	107	4	44.0	40.1
cat115	931123_001958	73	23-NOV-93	00:21:00	13.		mdifocus	No	No	107	4	44.0	40.1
cat116	931123_004238	7	23-NOV-93	00:43:00	11.		brbpict	No	No	107	3	48.0	40.1
cat117	931123_055608	6	23-NOV-93	05:57:00	8.		lcmcom	No	No	107	3	-8.6	37.9
cat118	931123_070030	33	23-NOV-93	07:01:00	6.		lsqcom	No	No	107	4	-2.9	37.8
cat119	931123_083619	7	23-NOV-93	08:36:00	14.		brbpict	No	No	107	4	-8.6	35.2
cat120	931123_085214	48	23-NOV-93	08:52:00	13.		mdiltc	No	No	107	4	-8.6	34.8
cat121	931123_100920	73	23-NOV-93	10:10:00	12.			No	No	107	3	-8.6	33.5
cat122	931123_102437	4	23-NOV-93	10:25:00	2.		lltsetup	No	No	107	4	-5.7	33.4
cat123	931123_103215	27	23-NOV-93	10:33:00	22.		mdicom	No	No	107	4	-8.6	33.2
cat124	931123_214817	6	23-NOV-93	21:49:00	8.		lcmcom	No	No	107	3	-26.7	25.6
cat125	931123_225411	27	23-NOV-93	22:55:00	5.		lsqcom	No	No	107	4	-23.3	25.6
cat126	931123_230951	7	23-NOV-93	23:10:00	12.		brbpict	No	No	107	4	-20.0	25.6
cat127	931123_232756	32	23-NOV-93	23:28:00	6.		mdiltc	No	No	107	4	-23.3	25.6
cat128	931123_233841	73	23-NOV-93	23:39:00	13.		brbfocus	No	No	107	4	-23.3	25.6
cat129	931124_044913	6	24-NOV-93	04:50:00	8.		lcmcom	No	No	107	3	-23.3	25.8

cat130	931124_072950	27	24-NOV-93	07:30:00	24.		No	No	107	4	-20.0	35.6
cat131	931124_075730	43	24-NOV-93	07:58:00	7.		No	No	107	3	-20.0	35.6
cat132	931124_081016	73	24-NOV-93	08:11:00	12.	brbfocus	No	No	107	4	-20.0	35.7
cat133	931124_082454	14	24-NOV-93	08:25:00	2.	mdiltc	No	No	107	3	-20.0	35.6
cat134	931124_083139	13	24-NOV-93	08:32:00	2.	mdiltc	No	No	107	4	-20.0	35.6
cat135	931124_083549	1	24-NOV-93	08:36:00	0.	mdiltc	No	No	107	3	-20.0	35.5
cat136	931124_083856	46	24-NOV-93	08:39:00	8.	mdiltc	No	No	107	4	-20.0	35.6
cat137	931124_084903	7	24-NOV-93	08:49:00	12.	ipcom	No	No	107	3	-20.0	35.6
cat138	931124_223018	1	24-NOV-93	22:30:18 ?	0.	ipdynmac	No	No	-1	-1	-11.4	35.3
cat139	931125_230840	1	25-NOV-93	23:09:00	0.	obsmodev	No	No	107	3	-5.7	33.2
nov618a	931125_231103	9	25-NOV-93	23:11:00	19.	fdhrprot	No	No	107	9	-5.7	33.2
nov618b	931126_071012	10	26-NOV-93	07:10:00	19.	fdprot	No	No	107	9	8.0	33.5
nov618c	931126_074541	10	26-NOV-93	07:46:00	19.	fdhrprot	No	No	107	10	-8.6	33.2
nov618d	931126_081339	10	26-NOV-93	08:14:00	20.	fdhrprot	No	No	107	9	-11.4	33.2
nov618e	931126_084410	10	26-NOV-93	08:44:00	18.	fdhrprot	No	No	107	10	-11.4	33.2
nov618f	931126_091104	10	26-NOV-93	09:11:00	17.	fdhrprot	No	No	107	9	-14.3	33.2
nov619	931126_095713	396	26-NOV-93	09:58:00	122.	obsmodev	No	No	107	10	-14.3	33.2
nov620	931126_200554	104	26-NOV-93	20:06:00	18.	mdidtune	No	No	107	9	-14.3	33.2
nov621	931126_223814	29	26-NOV-93	22:38:00	5.		No	No	107	9	-11.4	33.2
nov622	931126_225405	29	26-NOV-93	22:54:00	5.		No	No	107	9	-14.3	33.1
nov623	931126_230423	29	26-NOV-93	23:04:00	6.	mtmtune	No	No	107	9	-14.3	33.2
nov624	931126_231551	30	26-NOV-93	23:16:00	6.	mtmtune	No	No	107	9	-14.3	33.2
nov625	931126_232631	29	26-NOV-93	23:27:00	5.	mtmtune	No	No	107	9	-14.3	33.1
nov626	931126_233710	29	26-NOV-93	23:37:00	5.	mtmtune	No	No	107	9	-14.3	33.2
nov627	931126_234525	29	26-NOV-93	23:46:00	5.	mtmtune	No	No	107	10	-14.3	33.2
nov628	931126_235528	29	26-NOV-93	23:56:00	5.	mtmtune	No	No	107	9	-14.3	33.2
nov629	931127_000834	29	27-NOV-93	00:09:00	5.	mtmtune	No	No	107	10	-14.3	33.2
nov630	931127_001658	29	27-NOV-93	00:17:00	5.	mtmtune	No	No	107	9	-14.3	33.1
nov631	931127_003129	29	27-NOV-93	00:32:00	5.	mtmtune	No	No	107	9	-14.3	33.1
nov632	931127_004016	29	27-NOV-93	00:40:00	5.	mtmtune	No	No	107	9	-14.3	33.1
nov633	931127_004909	29	27-NOV-93	00:49:00	5.	mtmtune	No	No	107	9	-14.3	33.2
nov634	931127_005846	29	27-NOV-93	00:59:00	5.	mtmtune	No	No	107	9	-14.3	33.1
nov635	931127_010818	29	27-NOV-93	01:08:00	5.	mtmtune	No	No	107	9	-14.3	33.1
nov636	931127_011818	29	27-NOV-93	01:18:00	5.	mtmtune	No	No	107	9	-14.3	33.1
nov637	931127_012814	8	27-NOV-93	01:28:00	2.	mtmtune	No	No	116	5	-14.3	33.2
nov638	931127_031747	29	27-NOV-93	03:18:00	5.	mtmtune	No	No	107	9	-14.3	33.1
nov639	931127_032724	29	27-NOV-93	03:27:00	6.	mtmtune	No	No	107	9	-14.3	33.1
nov640	931127_035144	29	27-NOV-93	03:52:00	5.	mtmtune	No	No	107	9	-14.3	33.1
nov641	931127_040155	29	27-NOV-93	04:02:00	5.	mtmtune	No	No	107	9	-14.3	33.1
nov642	931127_041431	29	27-NOV-93	04:15:00	5.		No	No	107	10	-14.3	33.2
nov643	931127_042725	29	27-NOV-93	04:28:00	5.	mtmtune	No	No	107	9	-14.3	33.1
nov644a	931128_014411	52	28-NOV-93	01:44:00	39.	obsmodev	No	No	107	10	-14.3	40.1
nov644b	931128_045909	61	28-NOV-93	04:59:00	32.	obsmodev	No	No	107	9	-17.1	40.1
nov645	931128_062210	100	28-NOV-93	06:22:00	87.	legscntr	No	No	107	11	-14.3	40.1
nov646	931128_080748	104	28-NOV-93	08:08:00	53.	leghyst	No	No	107	10	-14.3	40.1
nov647	931129_010728	30	29-NOV-93	01:08:00	14.	obsmodev	No	No	107	9	-11.4	40.1
nov648	931129_012618	32	29-NOV-93	01:26:00	16.	isshyst	No	No	107	9	-11.4	40.1
nov649	931129_015525	94	29-NOV-93	01:56:00	47.	isshyst	No	No	107	9	-11.4	40.1
nov650	931129_024915	27	29-NOV-93	02:52:00	19.	mdiiss	No	Yes	107	11	-14.3	40.1
nov651	931129_032516	22	29-NOV-93	03:26:00	13.	mdiiss	No	Yes	107	10	-14.3	40.1
nov652	931129_041502	27	29-NOV-93	04:15:00	18.	mdiiss	No	Yes	107	11	-14.3	40.1
nov653	931129_044855	27	29-NOV-93	04:49:00	17.	mdiiss	No	Yes	107	10	-14.3	40.1
nov654	931129_051101	27	29-NOV-93	05:12:00	16.	mdiiss	No	Yes	107	11	-14.3	40.1
nov655	931129_061106	27	29-NOV-93	06:11:00	17.	mdiiss	No	No	116	5	-14.3	40.0
nov656	931129_073924	29	29-NOV-93	07:39:00	6.		No	No	107	10	-14.3	40.1
nov657	931129_080328	29	29-NOV-93	08:04:00	5.		No	No	107	9	-14.3	40.1
nov658	931129_081446	29	29-NOV-93	08:15:00	5.		No	No	107	11	-14.3	40.1
nov659	931129_082350	29	29-NOV-93	08:24:00	5.		No	No	107	10	-14.3	40.1
nov660	931129_083342	29	29-NOV-93	08:34:00	5.		No	No	107	9	-14.3	40.1
nov661	931129_084437	29	29-NOV-93	08:45:00	5.		No	No	107	11	-14.3	40.0

nov662	931129_085417	29	29-NOV-93	08:54:00	5.		No	No	107	10	-14.3	40.1
nov663	931129_090730	29	29-NOV-93	09:08:00	5.		No	No	107	9	-14.3	40.1
nov664	931129_092044	29	29-NOV-93	09:21:00	5.		No	No	107	11	-14.3	40.1
nov665	931129_093056	29	29-NOV-93	09:31:00	5.		No	No	107	10	-14.3	40.1
nov666	931129_094248	29	29-NOV-93	09:43:00	5.		No	No	107	9	-14.3	40.1
nov667	931129_095303	29	29-NOV-93	09:53:00	5.		No	No	107	11	-14.3	40.1
nov668	931129_100542	29	29-NOV-93	10:06:00	5.		No	No	107	10	-14.3	40.1
nov669	931129_101604	29	29-NOV-93	10:16:00	5.		No	No	107	9	-14.3	40.1
nov670	931129_103018	29	29-NOV-93	10:30:00	5.		No	No	107	11	-14.3	40.1
nov671	931129_103954	29	29-NOV-93	10:40:00	5.		No	No	107	10	-14.3	40.1
nov672	931129_105309	29	29-NOV-93	10:53:00	5.		No	No	107	9	-14.3	40.1
nov673	931129_110224	29	29-NOV-93	11:02:00	6.		No	No	107	11	-14.3	40.1
nov674	931129_111340	29	29-NOV-93	11:14:00	5.		No	No	107	10	-14.3	40.1
nov675	931129_112337	29	29-NOV-93	11:24:00	5.		No	No	107	9	-14.3	40.1
nov676	931129_113649	29	29-NOV-93	11:37:00	5.		No	No	107	11	-14.3	40.1
nov677	931129_121424	62	29-NOV-93	12:15:00	28.		No	No	107	10	-14.3	40.1
nov678	931129_124511	243	29-NOV-93	12:46:00	60.		No	No	107	9	-14.3	40.1
nov679	931129_140205	37	29-NOV-93	14:03:00	8.		No	No	107	11	-14.3	40.1
nov680	931129_143330	243	29-NOV-93	14:34:00	53.	openlog	No	No	107	10	-14.3	40.1
cat140	931129_202205	4	29-NOV-93	20:22:00	5.		No	No	107	4	-14.3	35.1
cat141	931129_203723	2	29-NOV-93	20:38:00	2.		No	No	107	4	-17.1	35.2
cat142	931129_212531	1	29-NOV-93	21:30:00	0.	ipseqtst	No	No	107	3	-14.3	35.1
cat143	931129_213607	11	29-NOV-93	21:41:00	21.	ipseqtst	No	No	107	3	-14.3	35.2
cat144	931129_225853	2	29-NOV-93	23:01:00	2.	closelog	No	No	107	4	-14.3	35.2
nov681	931130_000601	57	30-NOV-93	00:06:00	28.	pztgrid	No	No	107	11	-14.3	35.2
nov682	931130_003605	125	30-NOV-93	00:36:00	63.	pzthyst	No	No	107	11	-14.3	35.2
nov683a	931130_021014	20	30-NOV-93	02:10:00	38.		No	No	107	11	-14.3	35.2
nov683b	931130_025307	10	30-NOV-93	02:53:00	21.	obsmodev	No	No	107	9	-14.3	34.4
nov684	931130_035815	33	30-NOV-93	03:58:00	16.	pztmax	No	No	107	10	-14.3	35.2
nov685	931130_070421	242	30-NOV-93	07:05:00	130.	mapgrad	No	No	107	10	-14.3	35.2
nov686	931130_094918	243	30-NOV-93	09:50:00	95.	vfdlscan	No	No	107	9	-14.3	35.2
nov687	931130_155254	245	30-NOV-93	15:53:00	79.		No	No	107	11	-8.6	35.2
cat145	931130_173229	6	30-NOV-93	17:33:00	1.	mtmtune	No	No	107	4	-14.3	35.3
nov688	931130_173658	29	30-NOV-93	17:37:00	5.	mtmtune	No	No	107	10	-14.3	35.2
nov689	931130_174943	9	30-NOV-93	17:50:00	1.	mtmtune	No	No	107	10	-14.3	35.2
cat146	931130_181423	8	30-NOV-93	18:14:00	5.	mtmtune	No	No	107	4	-14.3	35.2
cat147	931130_182423	29	30-NOV-93	18:24:00	6.		No	No	107	4	-14.3	35.2
nov691	931130_183856	29	30-NOV-93	18:39:00	5.	mtmtune	No	No	107	10	-14.3	35.2
nov692	931130_185106	29	30-NOV-93	18:51:00	5.	mtmtune	No	No	107	9	-14.3	35.2
cat148	931130_190908	29	30-NOV-93	19:09:00	5.	mtmtune	No	No	107	4	-14.3	35.0
nov693	931130_190908	29	30-NOV-93	19:09:00	5.	mtmtune	No	No	107	10	-14.3	35.0
nov694	931130_192229	29	30-NOV-93	19:23:00	5.	mtmtune	No	No	107	9	-14.3	35.2
nov695	931130_193403	29	30-NOV-93	19:34:00	5.	mtmtune	No	No	107	10	-14.3	35.1
nov696	931130_194548	29	30-NOV-93	19:46:00	5.	mtmtune	No	No	107	9	-14.3	35.2
nov697	931130_195705	29	30-NOV-93	19:57:00	5.	mtmtune	No	No	107	10	-14.3	35.3
nov698	931130_201256	29	30-NOV-93	20:13:00	5.	mtmtune	No	No	107	9	-14.3	35.2
nov699	931130_202811	29	30-NOV-93	20:28:00	5.	mtmtune	No	No	107	10	-14.3	35.2
nov700	931130_203918	29	30-NOV-93	20:39:00	5.	mtmtune	No	No	107	9	-14.3	35.2
nov701	931130_205003	29	30-NOV-93	20:50:00	5.	mtmtune	No	No	107	10	-14.3	35.1
nov702	931130_210035	29	30-NOV-93	21:01:00	5.	mtmtune	No	No	107	11	-14.3	35.3
nov703	931130_211400	29	30-NOV-93	21:14:00	5.	mtmtune	No	No	107	9	-14.3	35.2
nov704	931130_212832	29	30-NOV-93	21:29:00	5.	mtmtune	No	No	107	10	-14.3	35.2
nov705	931130_214300	29	30-NOV-93	21:43:00	5.	mtmtune	No	No	107	11	-14.3	35.2
nov706	931130_220201	29	30-NOV-93	22:02:00	5.	mtmtune	No	No	107	9	-14.3	35.2
nov707	931130_222455	11	30-NOV-93	22:28:00	19.	ipseqtst	No	No	107	10	-14.3	35.2
cat149	931201_181306	3	1-DEC-93	18:14:00	0.	iptbltst	Yes	No	115	4	23.3	25.6
nov708	931201_211929	14	1-DEC-93	21:21:00	23.	iptbltst	No	No	107	11	23.3	25.6
cat150	931201_221344	1	1-DEC-93	22:14:00	0.	mdidtune	No	No	109	8	26.7	25.6
nov709	931201_221559	104	1-DEC-93	22:16:00	18.	bigtune	No	No	107	9	23.3	25.6
nov710	931202_190458	103	2-DEC-93	19:05:00	19.	mdidtune	No	No	107	9	23.3	25.6

cat151	931203_004511	12	3-DEC-93	00:48:00	26.	ipseqtst	No	No	109	6	26.7	25.6
nov711	931203_192121	4	3-DEC-93	19:25:00	6.	obsmode	No	No	116	1	26.7	25.6
nov712	931203_201023	42	3-DEC-93	20:12:00	8.	fddair	No	No	107	13	26.7	25.6
nov713	931204_165529	16	4-DEC-93	16:56:00	43.	ipmemtst	No	No	116	9	23.3	25.6
cat152	931205_221408	6	5-DEC-93	22:15:00	8.	lcmcom	No	Yes	109	9	23.3	25.6
cat153	931214_004957	6	14-DEC-93	00:50:00	9.	lcmcom	No	Yes	109	9	23.3	25.6
cat154	931215_024536	7	15-DEC-93	02:46:00	12.	brbpict	No	No	109	8	26.7	25.6
cat155	931215_152905	1	15-DEC-93	15:29:05 ?	0.	ipvelmac	No	No	-1	-1	26.7	25.6
cat156	931215_163228	11	15-DEC-93	16:38:00	21.	ipseqtst	No	No	109	8	26.7	25.6
cat157	931217_022821	5	17-DEC-93	02:31:00	17.	mdioff	No	No	109	9	??	25.6
cat158	931217_222334	6	17-DEC-93	22:24:00	9.	lcmcom	No	No	109	5	26.7	25.9
cat159	931217_230607	33	17-DEC-93	23:07:00	6.	ipcom	Yes	No	109	9	26.7	27.9
cat160	931217_233315	1	17-DEC-93	23:33:15 ?	0.	lfdopen	No	No	-1	-1	26.7	27.0
cat161	931218_010148	48	18-DEC-93	01:02:00	13.	mdiltc	No	Yes	109	5	26.7	26.3
cat162	931218_011846	7	18-DEC-93	01:19:00	12.	mdipict	No	No	109	5	26.7	26.2
cat163	931218_013527	73	18-DEC-93	01:36:00	13.	mdifocus	No	No	115	5	30.0	26.2
cat164	931218_203257	6	18-DEC-93	20:33:00	9.	mdicom	No	No	109	9	23.3	25.7
cat165	931218_211911	30	18-DEC-93	21:21:00	5.	ipcom	No	No	107	6	26.7	31.8
cat166	931218_214831	7	18-DEC-93	21:49:00	11.	mdipict	No	No	107	6	26.7	34.2
cat167	931218_220431	48	18-DEC-93	22:05:00	12.	mdiltc	No	Yes	107	7	26.7	35.2
cat168	931218_221904	73	18-DEC-93	22:20:00	15.	mdifocus	No	No	115	5	26.7	35.2
cat169	931219_174652	6	19-DEC-93	17:47:00	9.	lcmcom	No	No	107	7	-2.9	37.6
cat170	931219_190432	31	19-DEC-93	19:06:00	6.	ipcom	No	No	109	9	-2.9	38.1
cat171	931219_192526	6	19-DEC-93	19:26:00	39.	tvipcom	No	No	109	2	-2.9	38.1
cat172	931220_064308	7	20-DEC-93	06:43:00	12.	mdipict	No	No	107	5	-17.1	27.3
cat173	931220_065852	48	20-DEC-93	06:59:00	13.	mdiltc	No	Yes	107	5	-17.1	28.5
cat174	931220_071334	73	20-DEC-93	07:14:00	14.	mdifocus	No	No	107	5	-17.1	29.2
cat175	931220_074608	6	20-DEC-93	07:47:00	8.	lcmcom	No	No	107	5	-20.0	30.9
cat176	931220_084656	2	20-DEC-93	08:50:00	2.	lsqcom	No	No	107	5	-20.0	32.6
cat177	931220_090106	4	20-DEC-93	09:05:00	12.	mdicom	No	No	107	5	-17.1	31.1
cat178	931220_210852	6	20-DEC-93	21:09:00	9.	lcmcom	No	No	107	5	-11.4	35.2
cat179	931220_215334	36	20-DEC-93	21:55:00	6.	ipcom	No	No	107	5	-8.6	35.8
cat180	931220_223624	73	20-DEC-93	22:37:00	16.	mdifocus	No	No	107	5	-8.6	36.4
cat181	931220_231205	14	20-DEC-93	23:12:00	28.	calmode	No	No	109	6	-8.6	36.7
cat182	931220_235934	5	21-DEC-93	00:00:00	7.	closelog	No	No	107	5	-14.3	37.1
cat183	931221_075531	6	21-DEC-93	07:56:00	9.	lcmcom	No	No	107	5	-42.9	35.8
cat184	931221_082209	27	21-DEC-93	08:24:00	5.	ipcom	No	No	107	5	-45.7	35.7
cat185	931221_084934	14	21-DEC-93	08:50:00	27.	mdioff	No	No	109	5	-48.6	35.7
cat186	931221_182624	6	21-DEC-93	18:27:00	9.	lcmcom	No	No	107	5	??	??
cat187	931221_191940	30	21-DEC-93	19:21:00	6.	ipcom	No	No	107	5	-33.3	36.1
cat188	931221_194038	14	21-DEC-93	19:41:00	28.	mdipict	No	No	109	7	-30.0	36.2
cat189	931221_203349	1	21-DEC-93	20:34:00	0.	llton	No	No	107	5	-30.0	36.4
cat190	931221_210002	7	21-DEC-93	21:00:00	12.	mdipict	No	No	107	5	-30.0	36.4
cat191	931222_030252	1	22-DEC-93	03:02:52 ?	0.	mdicom	No	No	-1	-1	??	25.6
cat192	931222_032258	6	22-DEC-93	03:23:00	9.	lcmcom	No	No	107	5	-48.6	35.8
cat193	931222_042245	1	22-DEC-93	04:22:45 ?	0.	lsqcom	No	No	-1	-1	-51.4	35.7
cat194	931222_052755	1225	22-DEC-93	05:28:00	245.	mdicom	No	No	107	8	-51.4	31.8
cat195	931222_103549	6	22-DEC-93	10:36:00	9.	lcmcom	No	No	107	5	-33.3	34.9
cat196	931222_105703	5	22-DEC-93	10:59:00	5.	ipcom	No	No	115	5	-33.3	35.0
cat197	931222_111407	14	22-DEC-93	11:14:00	25.	closelog	No	No	109	5	??	??
cat198	931222_163837	7	22-DEC-93	16:39:00	11.	mdipict	No	No	115	5	-54.3	35.5
cat199	931222_173317	6	22-DEC-93	17:34:00	8.	mdicom	No	No	107	5	-60.0	35.7
cat200	931222_182058	3	22-DEC-93	18:23:00	3.	ipcom	No	No	107	5	-60.0	35.7
cat201	931222_184012	14	22-DEC-93	18:41:00	26.	lfdopen	No	No	109	2	-60.0	36.2
cat202	931222_202513	73	22-DEC-93	20:26:00	13.	mdifocus	No	No	107	5	-65.7	36.4
cat203	931222_204349	2	22-DEC-93	20:45:00	3.	lcalmode	No	No	115	5	-71.4	35.8
cat204	931222_221349	3	22-DEC-93	22:15:00	0.	iptbltst	Yes	No	109	5	-82.9	35.8
cat205	931222_224109	2	22-DEC-93	22:49:00	2.	ipseqtst	No	No	109	9	??	25.6
cat206	931223_004152	27	23-DEC-93	00:42:00	19.	mdiiss	No	No	109	5	-88.6	35.6
cat207	931223_010434	73	23-DEC-93	01:05:00	14.	mdifocus	No	No	107	5	-88.6	35.6

cat208	931223_012013	7	23-DEC-93	01:20:00	12.	mdipict	No	No	109	9	-80.0	35.5
cat209	931223_013528	48	23-DEC-93	01:36:00	12.	mdiltc	No	Yes	107	5	-85.7	35.6
cat210	931223_053833	73	23-DEC-93	05:40:00	14.	mdifocus	No	No	109	9	-74.3	35.3
cat211	931223_055631	7	23-DEC-93	05:57:00	11.	mdipict	No	No	107	5	-74.3	35.2
cat212	931223_061445	48	23-DEC-93	06:15:00	13.	mdiltc	No	Yes	109	9	-74.3	35.2
cat213	931223_074514	27	23-DEC-93	07:45:00	18.	mdiiss	No	No	107	5	-71.4	35.2
cat214	931223_092008	6	23-DEC-93	09:21:00	11.	closelog	No	No	115	5	-74.3	35.1
cat215	931223_111900	6	23-DEC-93	11:19:00	12.	mdicom	No	No	107	5	-80.0	35.2
cat216	931223_134655	6	23-DEC-93	13:47:00	9.	lcmcom	No	Yes	107	3	-85.7	35.4
cat217	931223_145437	37	23-DEC-93	14:58:00	6.	ipcom	No	No	109	5	-85.7	34.4
cat218	931223_152145	14	23-DEC-93	15:22:00	30.	lobsmode	No	No	109	5	-85.7	35.3
cat219	931223_163917	7	23-DEC-93	16:39:00	12.	mdipict	No	No	109	5	-85.7	35.4
cat220	931223_165515	48	23-DEC-93	16:55:00	13.	mdiltc	No	Yes	107	3	-85.7	35.4
cat221	931223_170953	73	23-DEC-93	17:11:00	13.	mdifocus	No	No	109	9	-85.7	35.4
cat222	931223_174402	73	23-DEC-93	17:45:00	14.	mdifocus	No	No	107	5	-85.7	35.4
cat223	931223_180435	301	23-DEC-93	18:05:00	53.	mdimrot	No	No	107	3	-85.7	35.4
cat224	931223_190425	122	23-DEC-93	19:05:00	25.	mdiprot	No	No	109	9	-85.7	35.3
cat225	931223_193352	21	23-DEC-93	19:34:00	38.	mdiiss	No	No	107	5	-85.7	35.5
cat226	931223_222528	1	23-DEC-93	22:25:28 ?	0.	mdircsca	No	No	-1	-1	-85.7	35.3
cat227	931223_225040	3	23-DEC-93	22:51:00	0.		No	No	109	6	-85.7	35.3
cat228	931223_235525	2	23-DEC-93	23:55:00	6.	liptlm2	No	No	109	8	-85.7	33.1
nov714	931227_195520	10	27-DEC-93	19:56:00	18.	lltsetup	No	No	107	10	-17.1	35.2
nov715	931227_213353	98	27-DEC-93	21:34:00	194.	maphrfov	No	No	116	1	-17.1	35.3
nov716	931228_012649	10	28-DEC-93	01:27:00	2.		No	No	107	13	-14.3	35.3
nov717	931228_015435	10	28-DEC-93	01:55:00	1.	hrfocser	No	No	107	13	-17.1	35.2
nov718	931228_015834	10	28-DEC-93	01:59:00	1.	hrfocser	No	No	107	12	-14.3	35.2
cat229	931228_020234	10	28-DEC-93	02:03:00	1.	hrfocser	No	No	109	9	-14.3	35.3
nov719	931228_032318	202	28-DEC-93	03:23:00	412.	closelog	No	No	107	13	-14.3	35.3
nov720	931228_163045	19	28-DEC-93	16:31:00	35.	mdiltcs1	No	No	107	12	-14.3	35.2
nov721	931228_172003	15	28-DEC-93	17:20:00	29.	mdiltcs2	No	No	107	10	-14.3	35.2
nov723	931228_195938	48	28-DEC-93	20:00:00	95.	mdiltcs4	No	No	107	11	-14.3	35.2
nov724	931228_221532	48	28-DEC-93	22:16:00	95.	mdiltcs1	No	No	107	9	-14.3	35.2
nov725	931228_235936	48	29-DEC-93	00:00:00	95.	mdiltcs2	No	No	107	12	-14.3	35.2
nov726	931229_024235	52	29-DEC-93	02:43:00	99.		No	No	107	10	-14.3	35.2
nov727a	931229_070623	64	29-DEC-93	07:06:00	39.	mdilaser	Yes	No	107	14	-14.3	35.2
nov727b	931229_075956	65	29-DEC-93	08:00:00	32.	obsmodev	No	No	107	14	-14.3	35.3
nov728	931229_084005	328	29-DEC-93	08:40:00	56.	suprtune	No	No	107	14	-14.3	35.2
nov729	931229_095517	206	29-DEC-93	09:55:00	84.	closelog	No	No	107	11	-14.3	35.2
nov730	931229_112150	36	29-DEC-93	11:22:00	68.	pztff	No	No	107	9	-14.3	35.2
nov731	931229_123316	36	29-DEC-93	12:33:00	70.		No	No	107	12	-14.3	35.2
nov732	931229_134517	48	29-DEC-93	13:45:00	96.	mdiltcs2	No	No	107	14	-14.3	35.2
cat230	931229_225715	11	29-DEC-93	22:58:00	21.	ipseqtst	No	No	115	2	??	25.6
cat231	931230_002209	1	30-DEC-93	00:22:09 ?	0.	iptmtst	No	No	-1	-1	12.0	35.2
cat232	940104_190945	7	4-JAN-94	19:10:00	11.	fdfocser	No	No	109	5	26.7	25.6
cat233	940104_192544	9	4-JAN-94	19:26:00	16.	fdfocser	No	No	115	4	26.7	25.6
cat234	940104_194606	9	4-JAN-94	19:46:00	17.	hrfocser	No	No	115	4	26.7	25.6
cat235	940104_211609	5	4-JAN-94	21:17:00	9.	hrfocser	No	No	109	8	26.7	25.6
cat236	940104_212753	19	4-JAN-94	21:28:00	11.	fdfocser	No	No	115	4	26.7	25.6
cat237	940104_215812	9	4-JAN-94	21:58:00	2.	fdfocser	No	No	109	5	26.7	25.6
cat238	940104_220112	20	4-JAN-94	22:01:00	7.	fdfocser	No	No	109	5	26.7	25.6
cat239	940104_222402	20	4-JAN-94	22:24:00	6.	fdfocser	No	No	109	8	26.7	25.6
cat240	940104_234101	3	4-JAN-94	23:41:00	1.	fdfocser	No	No	109	5	26.7	25.6
cat241	940104_234326	20	4-JAN-94	23:44:00	7.	fdfocser	No	No	109	8	26.7	25.6
cat242	940104_235604	20	4-JAN-94	23:56:00	6.	fdfocser	No	No	109	5	26.7	25.6
cat243	940105_000329	21	5-JAN-94	00:04:00	6.	fdfocser	No	No	115	2	26.7	25.6
cat244	940105_001032	20	5-JAN-94	00:11:00	6.	fdfocser	No	No	109	8	26.7	25.6
cat245	940105_001755	21	5-JAN-94	00:18:00	9.	fdfocser	No	No	109	5	26.7	25.6
cat246	940105_015305	20	5-JAN-94	01:53:00	6.	fdfocser	No	No	115	2	26.7	25.6
cat247	940106_232957	73	6-JAN-94	23:30:00	12.	mdifocus	No	No	109	8	23.3	25.6
cat248	940110_192724	3	10-JAN-94	19:28:00	6.	iptmtst	No	No	109	5	26.7	25.6

cat249	940110_195133	3	10-JAN-94	19:53:00	3.	iptmtst	No	No	109	6	26.7	25.6
cat250	940111_012617	584	11-JAN-94	01:26:00	73.	mdioff	Yes	No	-1	-1	20.0	25.6
cat251	940111_035400	6	11-JAN-94	03:55:00	8.	lcmcom	No	No	109	5	26.7	25.7
cat252	940111_043557	32	11-JAN-94	04:37:00	6.	lsqcom	No	No	109	7	26.7	27.5
cat253	940111_151731	18	11-JAN-94	15:18:00	36.	ipmemtst	No	No	109	5	23.3	25.6
cat254	940111_185730	12	11-JAN-94	18:58:00	23.	iptbltst	No	No	109	2	26.7	25.6
cat255	940111_202554	5	11-JAN-94	20:29:00	8.	mdioff	Yes	No	115	2	26.7	25.6
cat256	940112_145145	6	12-JAN-94	14:52:00	9.	lcmcom	No	No	109	5	23.3	25.6
cat257	940112_154832	35	12-JAN-94	15:50:00	6.	ipcom	Yes	No	109	2	26.7	27.7
cat258	940112_161848	21	12-JAN-94	16:19:00	59.	closelog	Yes	No	109	7	26.7	26.7
cat259	940112_224104	7	12-JAN-94	22:41:00	12.	mdipict	No	No	109	5	26.7	25.6
cat260	940112_230148	48	12-JAN-94	23:02:00	13.	mdiltc	Yes	No	109	9	26.7	25.6
cat261	940112_233031	73	12-JAN-94	23:31:00	14.	mdifocus	No	No	109	8	26.7	25.6
cat262	940113_011157	245	13-JAN-94	01:12:00	63.	mdilaser	Yes	No	115	2	26.7	25.6
cat263	940113_073052	27	13-JAN-94	07:31:00	23.	mdiiss	No	No	109	5	23.3	25.6
cat264	940113_172735	27	13-JAN-94	17:28:00	31.	mdiiss	No	No	109	9	23.3	25.6
cat265	940113_181243	27	13-JAN-94	18:14:00	23.	mdiiss	Yes	No	109	5	26.7	25.6
cat266	940120_115542	7	20-JAN-94	11:56:00	12.	mdipict	No	No	109	8	16.0	25.6
cat267	940120_121041	7	20-JAN-94	12:11:00	12.	mdipict	Yes	No	109	9	20.0	25.6
cat268	940120_131844	73	20-JAN-94	13:20:00	19.	mdifocus	No	No	109	6	20.0	25.6
cat269	940120_134308	82	20-JAN-94	13:43:00	28.	mdiprot	Yes	No	109	5	20.0	25.6
cat270	940120_141706	201	20-JAN-94	14:17:00	57.	ipcom	No	No	109	5	20.0	25.6
cat271	940120_153426	21	20-JAN-94	15:35:00	52.	mdioff	No	No	109	5	20.0	25.6
cat272	940120_180210	12	20-JAN-94	18:03:00	13.	mdiiss	Yes	No	109	5	20.0	25.6
cat273	940121_093056	27	21-JAN-94	09:32:00	28.	mdiiss	Yes	No	109	5	20.0	25.6
cat274	940121_150107	245	21-JAN-94	15:01:00	65.		Yes	No	109	6	20.0	25.6
cat275	940121_161142	245	21-JAN-94	16:12:00	55.	closelog	Yes	No	109	5	23.3	25.6
cat276	940215_185257	6	15-FEB-94	18:53:00	9.	lcmcom	Yes	No	109	2	23.3	25.6
cat277	940215_210515	1	15-FEB-94	21:05:15 ?	0.	ipcom	Yes	No	-1	-1	26.7	27.0
cat278	940215_212633	21	15-FEB-94	21:27:00	55.	ldmccom	No	No	109	9	26.7	26.2
cat279	940218_020247	3	18-FEB-94	02:03:00	4.	ice	Yes	No	109	5	-65.7	25.6
cat280	940218_023104	3	18-FEB-94	02:31:00	4.	obsmode	Yes	No	109	2	-65.7	25.6
cat281	940218_160854	3	18-FEB-94	16:09:00	4.	ice	Yes	No	109	5	-71.4	25.6
cat282	940218_161705	3	18-FEB-94	16:17:00	4.	ice	No	No	109	2	-68.6	25.6
cat283	940218_180531	3	18-FEB-94	18:06:00	3.	calmode	Yes	No	115	4	-68.6	25.6
cat284	940218_221804	3	18-FEB-94	22:18:00	4.	obsmode	No	No	109	5	-65.7	25.6
cat285	940219_025607	73	19-FEB-94	02:56:00	13.	mdifocus	No	No	109	5	-65.7	25.6
cat286	940219_032649	3	19-FEB-94	03:27:00	4.	ice	No	No	109	2	-65.7	25.6
cat287	940219_155830	3	19-FEB-94	15:59:00	4.	calmode	No	No	109	5	-71.4	25.6
cat288	940219_160956	3	19-FEB-94	16:10:00	4.	ice	No	No	115	4	-74.3	25.6
cat289	940219_215106	3	19-FEB-94	21:51:00	4.	calmode	No	No	109	5	-71.4	25.6
cat290	940219_215846	3	19-FEB-94	21:59:00	4.	ice	No	No	109	2	-71.4	25.6
cat291	940220_070232	3	20-FEB-94	07:03:00	4.	ice	No	No	109	5	??	40.7
cat292	940220_071248	48	20-FEB-94	07:13:00	13.	mdiltc	No	No	115	4	-71.4	25.6
cat293	940220_153003	3	20-FEB-94	15:30:00	4.	calmode	No	No	109	5	??	40.7
cat294	940220_154207	3	20-FEB-94	15:42:00	4.	ice	No	No	109	5	??	40.7
cat295	940220_234953	3	20-FEB-94	23:50:00	4.	calmode	No	No	109	2	??	40.7
cat296	940220_235817	3	20-FEB-94	23:59:00	3.	ice	Yes	No	109	5	??	40.7
cat297	940221_070028	3	21-FEB-94	07:01:00	3.	ice	No	No	109	9	??	40.7
cat298	940221_160347	3	21-FEB-94	16:04:00	4.	ice	Yes	No	109	6	??	40.7
cat299	940221_234759	3	21-FEB-94	23:48:00	4.	ice	No	No	109	5	-65.7	25.6
cat300	940222_150142	3	22-FEB-94	15:02:00	4.	ice	Yes	No	109	5	??	40.7
cat301	940222_190140	2	22-FEB-94	19:03:00	0.	lltcal	No	No	115	4	??	40.7
nov735a	940222_190446	58	22-FEB-94	19:06:00	57.	lltcal	Yes	No	116	2	??	40.7
cat303	940222_201609	12	22-FEB-94	20:19:00	9.	lltcal	Yes	No	109	2	-65.7	25.6
nov735b	940222_203749	22	22-FEB-94	20:38:00	17.	lltcal	Yes	No	116	9	-65.7	25.6
cat305	940223_012551	3	23-FEB-94	01:26:00	4.	closelog	Yes	No	109	9	??	??
cat306	940223_015615	3	23-FEB-94	01:57:00	3.	ice	Yes	No	109	2	??	??
cat307	940223_021025	3	23-FEB-94	02:11:00	3.	ice	Yes	No	109	6	??	40.7
cat308	940223_151923	3	23-FEB-94	15:20:00	3.	ice	Yes	No	109	5	??	40.7

cat309	940223_201113	3	23-FEB-94	20:11:00	4.	ice	Yes	No	109	5	-62.9	28.5
nov735c	940224_005004	59	24-FEB-94	00:51:00	45.	lltcal	Yes	No	116	7	-62.9	36.7
nov735d	940224_014138	52	24-FEB-94	01:43:00	38.	closelog	Yes	No	116	10	-62.9	35.2
cat312	940224_022501	3	24-FEB-94	02:25:00	4.	lltoff	Yes	No	109	9	-62.9	35.3
cat313	940224_160638	3	24-FEB-94	16:07:00	4.	ice	Yes	No	109	2	-68.6	35.2
cat314	940224_161413	3	24-FEB-94	16:14:00	4.	ice	Yes	No	109	6	-65.7	35.3
cat315	940224_162658	48	24-FEB-94	16:27:00	13.	mdiltc	Yes	No	109	5	-65.7	35.2
nov735e	940224_182543	60	24-FEB-94	18:26:00	46.	vfdlscan	Yes	No	116	8	-65.7	35.3
cat317	940225_022745	3	25-FEB-94	02:28:00	4.	obsmodev	No	No	109	5	-60.0	35.2
cat318	940225_161235	3	25-FEB-94	16:13:00	3.	ice	No	No	109	9	-65.7	35.5
cat319	940226_004937	3	26-FEB-94	00:50:00	3.	ice	No	No	109	2	-60.0	35.2
cat320	940226_150554	3	26-FEB-94	15:06:00	4.	ice	Yes	No	115	4	-65.7	35.3
cat321	940226_151309	3	26-FEB-94	15:13:00	4.	ice	Yes	No	109	6	-65.7	35.2
cat322	940226_151943	3	26-FEB-94	15:20:00	4.	ice	Yes	No	109	5	-65.7	35.2
cat323	940227_034259	3	27-FEB-94	03:43:00	4.	ice	Yes	No	109	5	-65.7	35.2
cat324	940227_143117	3	27-FEB-94	14:31:00	4.	ice	Yes	No	109	5	-65.7	35.2
cat325	940227_143909	3	27-FEB-94	14:39:00	4.	ice	Yes	No	109	9	-65.7	35.1
cat326	940227_145237	48	27-FEB-94	14:53:00	12.	mdiltc	Yes	No	109	2	-65.7	35.2
cat327	940228_055509	3	28-FEB-94	05:55:00	4.	ice	No	No	115	4	-65.7	35.3
cat328	940228_060250	3	28-FEB-94	06:03:00	4.	ice	No	No	109	6	-65.7	35.3
cat329	940228_151100	3	28-FEB-94	15:11:00	4.	ice	No	No	109	5	-62.9	35.0
cat330	940228_212319	2	28-FEB-94	21:24:00	1.		No	No	109	5	8.0	35.0
cat331	940228_213019	2	28-FEB-94	21:31:00	1.		Yes	No	109	5	8.0	35.0
cat332	940228_214304	2	28-FEB-94	21:43:00	2.		No	No	109	9	8.0	35.0
cat333	940228_220408	3	28-FEB-94	22:05:00	0.	iptbltst	Yes	No	115	4	12.0	35.0
cat334	940301_035022	3	1-MAR-94	03:51:00	3.		Yes	No	109	2	-60.0	35.0
cat335	940301_142036	3	1-MAR-94	14:21:00	4.		No	No	109	5	-62.9	35.4
cat336	940302_004342	3	2-MAR-94	00:44:00	4.	ice	Yes	No	115	4	-60.0	35.2
cat337	940302_143456	3	2-MAR-94	14:35:00	4.	ipmemtst	Yes	No	109	6	-65.7	35.2
cat338	940302_164144	2	2-MAR-94	16:42:00	2.		No	No	109	7	-60.0	35.2
cat339	940302_171309	4	2-MAR-94	17:14:00	0.	nwtbltst	Yes	No	109	5	-60.0	35.1
cat340	940303_003621	3	3-MAR-94	00:37:00	3.	ipmemtst	No	No	109	5	-62.9	34.1
cat341	940303_041552	3	3-MAR-94	04:16:00	1.	sleep	Yes	No	109	7	-60.0	35.1
cat342	940303_145012	3	3-MAR-94	14:50:00	4.	iptbltst	Yes	No	109	7	-62.9	35.3
cat343	940303_160110	9	3-MAR-94	16:05:00	3.	nwtbltst	Yes	No	109	7	0.0	34.3
cat344	940304_210400	4	4-MAR-94	21:05:00	0.	nwtbltst	No	No	109	2	23.3	33.5
cat345	940304_222132	48	4-MAR-94	22:22:00	13.	mdiltc	No	No	109	2	23.3	35.1
cat346	940304_223746	7	4-MAR-94	22:38:00	12.	mdipict	Yes	No	109	5	23.3	35.2
cat347	940304_225422	3	4-MAR-94	22:55:00	3.	ice	No	No	109	6	23.3	35.2
cat348	940304_233629	16	4-MAR-94	23:37:00	11.	iptbltst	No	No	109	7	23.3	35.0
cat349	940305_004602	4	5-MAR-94	00:47:00	0.	nwtbltst	Yes	No	109	5	26.7	35.0
cat350	940305_005046	5	5-MAR-94	00:51:00	3.		Yes	No	109	5	26.7	35.0
cat351	940305_005426	5	5-MAR-94	00:54:00	9.	lobsmode	Yes	No	109	5	26.7	35.0
cat352	940305_010802	3	5-MAR-94	01:08:00	4.	ice	No	No	109	7	26.7	35.2
cat353	940305_021427	5	5-MAR-94	02:15:00	7.	ice	Yes	No	109	5	-5.7	35.2
cat354	940305_023056	5	5-MAR-94	02:31:00	8.	ice	No	No	109	2	-17.1	34.9
cat355	940305_025054	5	5-MAR-94	02:51:00	8.	ice	Yes	No	109	6	-30.0	35.2
cat356	940305_030844	5	5-MAR-94	03:09:00	7.	ice	No	No	109	7	-40.0	35.0
cat357	940305_032836	5	5-MAR-94	03:29:00	7.	ice	Yes	No	109	5	-48.6	35.6
cat358	940305_035540	5	5-MAR-94	03:56:00	7.	ice	No	No	109	5	-57.1	35.2
cat359	940305_044052	5	5-MAR-94	04:41:00	8.	ice	Yes	No	109	5	-62.9	35.0
cat360	940305_080636	5	5-MAR-94	08:07:00	7.	ice	Yes	No	109	2	-62.9	35.3
cat361	940305_081947	73	5-MAR-94	08:21:00	13.	mdifocus	No	No	109	6	-62.9	35.2
cat362	940305_174506	5	5-MAR-94	17:45:00	8.	iptbltst	Yes	No	115	4	-65.7	35.2
cat363	940305_181445	6	5-MAR-94	18:16:00	4.	nwtbltst	Yes	No	109	7	-65.7	35.2
cat364	940305_182619	3	5-MAR-94	18:27:00	2.		Yes	No	109	5	-62.9	35.3
cat365	940305_183501	7	5-MAR-94	18:35:00	15.	lobsmode	No	No	109	9	-65.7	35.3
cat366	940305_191026	3	5-MAR-94	19:11:00	2.	closelog	Yes	No	109	7	-62.9	35.1
cat367	940305_200817	5	5-MAR-94	20:08:00	8.	closelog	Yes	No	109	5	-62.9	35.2
cat368	940305_202112	48	5-MAR-94	20:21:00	14.	mdiltc	Yes	No	109	5	-62.9	35.2

cat369	940306_033557	5	6-MAR-94	03:36:00	8.	ice	Yes	No	109	5	-65.7	35.5
cat370	940306_040224	3	6-MAR-94	04:03:00	3.		No	No	109	2	-65.7	35.2
cat371	940306_041358	3	6-MAR-94	04:14:00	3.	crop1	Yes	No	109	7	-65.7	35.2
cat372	940306_042432	3	6-MAR-94	04:25:00	3.	errdump	Yes	No	109	6	-65.7	35.2
cat373	940306_163420	5	6-MAR-94	16:35:00	7.	ice	No	No	115	4	-65.7	35.2
cat374	940307_040448	5	7-MAR-94	04:05:00	7.	ice	Yes	No	109	2	-65.7	35.1
cat375	940307_162906	1	7-MAR-94	16:29:00	0.	ldcrpdmp	Yes	No	109	7	-62.9	35.3
cat376	940307_164649	3	7-MAR-94	16:47:00	4.	closelog	No	No	109	7	-62.9	35.3
cat377	940307_170019	5	7-MAR-94	17:00:00	8.	ice	Yes	No	109	6	-62.9	35.2
cat378	940307_205914	1	7-MAR-94	20:59:00	0.	ldcrpdmp	Yes	No	109	5	-62.9	35.2
cat379	940307_211717	2	7-MAR-94	21:18:00	2.	crop1	No	No	109	5	-62.9	35.1
cat380	940307_214852	2	7-MAR-94	21:49:00	2.		Yes	No	109	5	-62.9	35.2
cat381	940307_220050	2	7-MAR-94	22:02:00	2.		Yes	No	109	9	-60.0	35.2
cat382	940307_220949	2	7-MAR-94	22:11:00	2.	dpstart	Yes	No	109	7	-60.0	35.2
cat383	940308_020544	12	8-MAR-94	02:06:00	7.	lltcal1	No	No	109	5	-60.0	35.0
cat384	940308_021438	26	8-MAR-94	02:15:00	14.	lltoff	Yes	No	109	5	-60.0	35.0
cat385	940308_024939	5	8-MAR-94	02:50:00	7.	ice	Yes	No	109	5	-60.0	35.0
nov736a	940308_153620	5	8-MAR-94	15:37:00	7.	ice	No	No	116	12	-65.7	35.1
nov736b	940308_174522	104	8-MAR-94	17:46:00	62.	lltsetup	Yes	No	116	6	-62.9	35.1
cat386	940309_020737	3	9-MAR-94	02:08:00	14.	ldcrpdmp	No	No	109	5	-60.0	35.2
cat387	940309_022837	3	9-MAR-94	02:29:00	2.	ipmemtst	No	No	115	4	-60.0	35.1
cat388	940309_144135	1	9-MAR-94	14:42:00	0.		No	No	109	9	-65.7	35.2
cat389	940309_144714	2	9-MAR-94	14:48:00	1.	crop1	No	No	109	9	-62.9	35.2
cat390	940309_153344	3	9-MAR-94	15:34:00	2.	lfdopen	No	No	109	7	-65.7	35.3
cat391	940309_211426	1	9-MAR-94	21:15:00	0.	ldcrpdmp	No	No	109	5	-62.9	35.0
cat392	940309_212153	1	9-MAR-94	21:22:00	0.		No	No	109	5	-60.0	35.2
cat393	940309_212819	3	9-MAR-94	21:29:00	2.		No	No	109	5	-62.9	35.2
cat394	940309_214441	2	9-MAR-94	21:45:00	2.		No	No	109	2	-60.0	35.1
cat395	940309_215120	2	9-MAR-94	21:52:00	1.	llton	No	No	109	6	-60.0	35.0
cat396	940309_235527	5	9-MAR-94	23:56:00	7.	ice	No	No	109	5	-60.0	35.0
cat397	940311_002501	5	11-MAR-94	00:25:00	8.	ice	No	No	115	3	-65.7	34.6
cat398	940311_003808	12	11-MAR-94	00:38:00	3.	rbihunt	No	No	109	5	-65.7	35.2
cat399	940311_004114	12	11-MAR-94	00:42:00	2.		No	No	109	9	-65.7	35.2
cat400	940311_004445	12	11-MAR-94	00:45:00	3.		No	No	109	5	-62.9	35.2
cat401	940311_004824	12	11-MAR-94	00:49:00	3.		No	No	109	9	-62.9	35.2
cat402	940311_005218	12	11-MAR-94	00:53:00	4.		No	No	109	5	-62.9	35.3
cat403	940311_005645	12	11-MAR-94	00:57:00	5.		No	No	109	9	-62.9	35.2
cat404	940311_010216	12	11-MAR-94	01:03:00	7.		No	No	115	5	-62.9	35.4
cat405	940311_010956	12	11-MAR-94	01:10:00	12.	sleep	No	No	109	8	-62.9	35.2
nov733a	940311_160912	1	11-MAR-94	16:09:12 ?	0.	rbihunt	Yes	No	-1	-1	-65.7	35.2
nov733b	940311_161057	12	11-MAR-94	16:11:00	2.		No	No	116	2	-65.7	35.3
nov733c	940311_161309	12	11-MAR-94	16:14:00	1.		No	No	116	9	-68.6	35.3
nov733d	940311_161529	12	11-MAR-94	16:16:00	2.		No	No	116	10	-65.7	35.2
nov733e	940311_161804	12	11-MAR-94	16:18:00	3.		Yes	No	116	2	-65.7	35.2
nov733f	940311_162112	12	11-MAR-94	16:22:00	3.		No	No	116	9	-65.7	35.3
nov733g	940311_162525	12	11-MAR-94	16:26:00	6.		No	No	116	10	-62.9	35.1
nov733h	940311_163143	12	11-MAR-94	16:32:00	10.		Yes	No	116	2	-65.7	35.3
cat406	940311_164524	5	11-MAR-94	16:46:00	7.	ice	Yes	No	115	4	-65.7	35.3
nov734a	940311_194156	1	11-MAR-94	19:41:56 ?	0.	closelog	Yes	No	116	9	-62.9	35.2
nov734b	940311_194336	12	11-MAR-94	19:44:00	2.		No	No	116	9	-62.9	35.2
nov734c	940311_194543	12	11-MAR-94	19:46:00	2.		No	No	116	7	-62.9	35.2
nov734d	940311_194757	12	11-MAR-94	19:48:00	2.		No	No	116	10	-62.9	35.2
nov734e	940311_195027	12	11-MAR-94	19:51:00	2.		No	No	116	2	-62.9	35.1
nov734f	940311_195330	12	11-MAR-94	19:54:00	3.		No	No	116	9	-62.9	35.2
nov734g	940311_195737	12	11-MAR-94	19:58:00	6.		Yes	No	116	7	-62.9	35.2
nov734h	940311_200352	12	11-MAR-94	20:04:00	10.	iptbltst	Yes	No	116	10	-62.9	35.1
cat407	940311_213455	1	11-MAR-94	21:36:00	0.	ldlmbdmp	No	No	115	2	-62.9	35.0
cat408	940311_220645	11	11-MAR-94	22:07:00	17.	lobsmode	No	No	115	2	-62.9	34.9
cat409	940311_230237	2	11-MAR-94	23:03:00	0.		No	No	109	5	-60.0	35.0
cat410	940311_231528	2	11-MAR-94	23:16:00	0.		No	No	109	5	-62.9	35.2

cat411	940311_232118	5	11-MAR-94	23:21:00		8.		No	No	109	9	-60.0	34.9
cat412	940311_233916	4	11-MAR-94	23:39:00		2.	lasdtun2	No	No	115	5	-62.9	35.2
nov737	940312_025326	212	12-MAR-94	02:54:00		48.	calmlasr	Yes	No	116	9	-57.1	35.0
nov738a	940312_035601	13	12-MAR-94	03:56:00		2.	calmlasr	Yes	No	116	2	-57.1	34.9
nov738	940312_041421	13	12-MAR-94	03:56:00		2.	lyotscan	No	No	116	2	-57.1	34.9
nov739	940312_052339	212	12-MAR-94	05:24:00		58.	obsmlasr	Yes	No	116	10	-57.1	35.0
nov740a	940312_145619	1	12-MAR-94	14:56:19	?	0.	rbihunt	Yes	No	116	10	-62.9	35.3
nov740b	940312_145804	12	12-MAR-94	14:58:00		2.		Yes	No	116	10	-62.9	35.3
nov740c	940312_150016	12	12-MAR-94	15:01:00		1.		Yes	No	116	6	-62.9	35.2
nov740d	940312_150237	12	12-MAR-94	15:03:00		2.		Yes	No	116	3	-62.9	35.2
nov740e	940312_150512	12	12-MAR-94	15:06:00		2.		No	No	116	9	-62.9	35.3
nov740f	940312_150819	12	12-MAR-94	15:09:00		3.		Yes	No	116	8	-62.9	35.2
nov740g	940312_151231	12	12-MAR-94	15:13:00		6.		No	No	116	4	-65.7	35.2
nov740h	940312_151853	12	12-MAR-94	15:19:00		10.		Yes	No	116	4	-62.9	35.2
cat413	940312_153119	5	12-MAR-94	15:32:00		7.	ice	No	No	109	5	-62.9	35.1
cat414	940312_161816	3	12-MAR-94	16:19:00		3.	iptbltst	Yes	No	109	8	-62.9	35.1
cat415	940312_162558	3	12-MAR-94	16:26:00		2.	limb2	Yes	No	115	5	-62.9	35.2
cat416	940312_165104	2	12-MAR-94	16:51:00		2.	limb2	No	No	109	6	-62.9	35.2
cat417	940312_165822	7	12-MAR-94	16:59:00		5.	sleep	Yes	No	115	3	-62.9	35.3
nov741a	940313_150536	1	13-MAR-94	15:05:36	?	0.	rbihunt	Yes	No	116	10	-51.4	35.3
nov741b	940313_150719	12	13-MAR-94	15:08:00		1.		No	No	116	10	-51.4	35.3
nov741c	940313_150932	12	13-MAR-94	15:10:00		2.		Yes	No	116	6	-51.4	35.3
nov741d	940313_151152	12	13-MAR-94	15:12:00		2.		Yes	No	116	3	-54.3	35.2
nov741e	940313_151429	12	13-MAR-94	15:15:00		2.		Yes	No	116	9	-54.3	35.3
nov741f	940313_151738	12	13-MAR-94	15:18:00		4.		No	No	116	8	-51.4	35.2
nov741g	940313_152148	12	13-MAR-94	15:22:00		6.		Yes	No	116	4	-51.4	35.2
nov741h	940313_152808	12	13-MAR-94	15:28:00		11.		No	No	116	4	-51.4	35.2
cat418	940313_154101	5	13-MAR-94	15:42:00		7.	ice	Yes	No	109	8	-51.4	35.3
cat419	940313_155528	1	13-MAR-94	15:56:00		0.	mdiltc	Yes	No	115	5	-51.4	35.2
nov743a	940314_042336	0	13-MAR-94	15:58:00		0.	closelog	Yes	No	0	0	-51.4	35.1
nov742	940313_155733	48	13-MAR-94	15:58:00		12.	closelog	Yes	No	116	1	-51.4	35.1
nov743b	940314_042520	12	14-MAR-94	04:26:00		1.		Yes	No	116	2	-36.7	35.1
nov743c	940314_042732	12	14-MAR-94	04:28:00		2.		Yes	No	116	10	-36.7	35.2
nov743d	940314_042951	12	14-MAR-94	04:30:00		2.		Yes	No	116	6	-40.0	35.2
nov743e	940314_043226	12	14-MAR-94	04:33:00		2.		Yes	No	116	1	-36.7	35.2
nov743f	940314_043533	12	14-MAR-94	04:36:00		4.		Yes	No	116	3	-36.7	35.0
nov743g	940314_043945	12	14-MAR-94	04:40:00		6.		Yes	No	116	9	-36.7	35.1
nov743h	940314_044606	12	14-MAR-94	04:46:00		11.		Yes	No	116	8	-40.0	35.2
nov744	940314_050027	5	14-MAR-94	05:01:00		7.	ice	Yes	No	116	3	-40.0	35.3
nov745a	940314_144255	1	14-MAR-94	14:42:55	?	0.		Yes	No	116	4	-20.0	35.2
nov745b	940314_144439	12	14-MAR-94	14:45:00		2.		Yes	No	116	4	-20.0	35.2
nov745c	940314_144651	12	14-MAR-94	14:47:00		2.		No	No	116	4	-20.0	35.2
nov745d	940314_144910	12	14-MAR-94	14:50:00		2.		Yes	No	116	2	-20.0	35.2
nov745e	940314_145144	12	14-MAR-94	14:52:00		3.		Yes	No	116	10	-20.0	35.2
nov745f	940314_145451	12	14-MAR-94	14:55:00		4.		Yes	No	116	6	-20.0	35.2
nov745g	940314_145903	12	14-MAR-94	14:59:00		6.		No	No	116	1	-20.0	35.3
nov745h	940314_150524	12	14-MAR-94	15:06:00		10.		No	No	116	3	-20.0	35.1
cat420	940314_153806	1	14-MAR-94	15:38:00		8.	ice	Yes	No	115	5	-20.0	35.0
nov746	940314_155356	48	14-MAR-94	15:54:00		14.	mdiltc	Yes	No	116	9	-17.1	35.1
cat421	940314_195747	5	14-MAR-94	19:58:00		2.	lmtm2com	Yes	No	109	6	-17.1	35.0
cat422	940314_215403	1	14-MAR-94	21:54:00		0.	sleep	Yes	No	109	7	-5.7	35.0
nov747a	940315_140136	1	15-MAR-94	14:01:36	?	0.	rbihunt	Yes	No	116	9	-5.7	35.1
nov747b	940315_140320	12	15-MAR-94	14:04:00		1.		No	No	116	9	-5.7	35.0
nov747c	940315_140531	12	15-MAR-94	14:06:00		2.		No	No	116	8	-5.7	35.2
nov747d	940315_140751	12	15-MAR-94	14:08:00		2.		No	No	116	4	-5.7	35.0
nov747e	940315_141027	12	15-MAR-94	14:11:00		2.		No	No	116	4	-5.7	35.0
nov747f	940315_141334	12	15-MAR-94	14:14:00		4.		No	No	116	2	-5.7	35.0
nov747g	940315_141747	12	15-MAR-94	14:18:00		6.		No	No	116	10	-5.7	35.0
nov747h	940315_142407	12	15-MAR-94	14:24:00		11.	sleep	No	No	116	6	-5.7	35.1
nov748	940315_210948	7	15-MAR-94	21:10:00		12.	mdipict	No	No	116	8	-2.9	35.0

nov749	940315_212548	48	15-MAR-94	21:26:00		13.	mdiltc	No	No	116	4	-2.9	35.0
cat423	940315_224633	6	15-MAR-94	22:47:00		6.		No	No	109	7	-5.7	35.0
cat424	940315_225859	2	15-MAR-94	22:59:00		1.	lcalmode	No	No	115	4	-2.9	35.0
cat425	940316_024130	20	16-MAR-94	02:42:00		3.	lasdtune	No	No	115	4	??	??
cat426	940316_025102	20	16-MAR-94	02:51:00		3.	calmlasr	No	No	109	6	??	??
nov750a	940316_041320	21	16-MAR-94	04:13:00		4.	obsmlasr	No	No	116	9	-20.0	35.0
nov750b	940316_041906	21	16-MAR-94	04:19:00		3.		No	No	116	5	-17.1	35.0
nov750c	940316_042529	21	16-MAR-94	04:26:00		3.		No	No	116	6	-20.0	34.7
nov750d	940316_043154	21	16-MAR-94	04:32:00		3.		No	No	116	3	-20.0	35.0
nov750e	940316_043822	21	16-MAR-94	04:38:00		4.	calmlasr	No	No	116	8	-20.0	35.0
nov751a	940316_045128	22	16-MAR-94	04:52:00		3.	lyotscan	No	No	116	1	-20.0	35.0
nov751b	940316_045732	22	16-MAR-94	04:58:00		3.		No	No	116	10	-20.0	34.8
nov751c	940316_050426	22	16-MAR-94	05:05:00		3.		No	No	116	9	-20.0	35.0
nov751d	940316_051119	22	16-MAR-94	05:12:00		3.		No	No	116	4	-20.0	35.0
nov751e	940316_051812	22	16-MAR-94	05:18:00		4.		No	No	116	4	-20.0	35.0
nov755	940317_215816	6	17-MAR-94	21:58:00		2.	grad	Yes	No	116	10	??	25.6
nov756	940317_220244	6	17-MAR-94	22:03:00		1.	obsmode	Yes	No	116	10	??	25.6
nov757	940318_214229	6	18-MAR-94	21:43:00		1.	obsmode	No	No	116	10	??	25.6
nov758	940318_215143	6	18-MAR-94	21:52:00		1.	grad	Yes	No	116	2	??	25.6
nov759	940318_215500	6	18-MAR-94	21:55:00		1.		Yes	No	116	10	??	25.6
nov764	940323_004101	6	23-MAR-94	00:41:00		1.	obsmode	Yes	No	116	2	??	25.6
nov765	940323_005048	6	23-MAR-94	00:51:00		1.	openlog	Yes	No	116	9	??	25.6
nov766	940329_050729	245	29-MAR-94	05:08:00		63.	closelog	Yes	No	116	1	??	25.6
cat436	940330_181138	5	30-MAR-94	18:12:00		2.		Yes	Yes	-1	-1	26.7	25.6
cat440	940331_011035	1	31-MAR-94	01:10:35	?	0.		Yes	No	-1	-1	23.3	25.6
apr800	940401_025941	65	1-APR-94	03:00:00		137.		Yes	Yes	-1	-1	23.3	25.6
apr801	940401_061358	56	1-APR-94	06:14:00		125.	mdioff	Yes	Yes	-1	-1	26.7	25.6
apr802	940401_142048	48	1-APR-94	14:21:00		13.	mdiltc	Yes	Yes	-1	-1	23.3	25.6
apr803	940401_143902	7	1-APR-94	14:39:00		12.	mdipict	Yes	Yes	-1	-1	23.3	25.6
apr804	940401_171701	21	1-APR-94	17:17:00		39.	mdipdist	Yes	Yes	-1	-1	26.7	25.6
apr805	940401_180345	61	1-APR-94	18:04:00		12.	mdiprot	Yes	Yes	-1	-1	26.7	25.6
apr806	940401_183733	61	1-APR-94	18:38:00		25.	mdiiss	Yes	Yes	-1	-1	26.7	25.6
apr807	940401_194654	61	1-APR-94	19:47:00		53.	mdimrot	Yes	Yes	-1	-1	26.7	25.6
apr808	940401_230257	2	1-APR-94	23:03:00		3.	lfdopen	Yes	Yes	-1	-1	23.3	25.6
apr809	940402_033500	245	2-APR-94	03:35:00		63.	mdilaser	Yes	Yes	-1	-1	23.3	25.6
apr810	940402_045113	73	2-APR-94	04:52:00		16.	mdifocus	Yes	Yes	-1	-1	23.3	25.6
apr811	940402_191303	6	2-APR-94	19:14:00		8.	lcmcom	Yes	Yes	-1	-1	20.0	25.9
apr812	940402_202654	31	2-APR-94	20:28:00		6.	lsqcom	Yes	Yes	-1	-1	23.3	28.8
apr814	940402_213421	14	2-APR-94	21:34:00		3.	mapfdfov	Yes	Yes	-1	-1	30.0	28.7
apr813	940402_213420	1	2-APR-94	21:34:20	?	0.		Yes	No	-1	-1	30.0	28.7
apr815	940402_215656	56	2-APR-94	21:57:00		120.	mdioff	Yes	Yes	-1	-1	23.3	29.8
apr816	940404_202008	2	4-APR-94	20:20:00		2.		Yes	Yes	-1	-1	23.3	25.6
apr817	940404_203401	1	4-APR-94	20:34:01	?	0.	dpc84	Yes	No	-1	-1	23.3	25.6
apr818	940404_205345	1	4-APR-94	20:53:45	?	0.		Yes	No	-1	-1	23.3	25.6
apr819	940404_205622	1	4-APR-94	20:56:22	?	0.	lfdclose	Yes	No	-1	-1	23.3	25.6
apr820	940404_205857	1	4-APR-94	20:58:57	?	0.	dpc82	Yes	No	-1	-1	23.3	25.6
apr821	940404_210847	1	4-APR-94	21:08:47	?	0.	mdioff	Yes	No	-1	-1	23.3	25.6
apr822	940405_225452	0	5-APR-94	22:54:52		0.		Yes	No	0	0	23.3	25.6
apr823	940405_225802	0	5-APR-94	22:58:02		0.	mdioff	Yes	No	0	0	20.0	25.6
apr824	940406_003403	0	6-APR-94	00:34:03		0.	lfdopen	Yes	No	0	0	23.3	25.6
apr825	940406_004420	0	6-APR-94	00:44:20		0.	sw1x1s	Yes	No	0	0	23.3	25.6
apr826	940406_010943	0	6-APR-94	01:09:43		0.	mdifocus	Yes	No	0	0	23.3	25.6
apr827	940406_012550	0	6-APR-94	01:25:50		0.	mdifocus	Yes	No	0	0	23.3	25.6
apr828	940406_023226	0	6-APR-94	02:32:26		0.	lcmcom	Yes	No	0	0	23.3	25.6
apr829	940406_031203	0	6-APR-94	03:12:03		0.	lsqcom	Yes	No	0	0	26.7	27.0
apr830	940406_140020	0	6-APR-94	14:00:20		0.	mdiltc	Yes	No	0	0	23.3	25.6
apr831	940406_141503	0	6-APR-94	14:15:03		0.	mdipict	Yes	No	0	0	23.3	25.6
apr832	940406_154133	0	6-APR-94	15:41:33		0.	imgburst	Yes	No	0	0	23.3	25.6
apr833	940406_160422	0	6-APR-94	16:04:22		0.	set_nk	Yes	No	0	0	23.3	25.6
apr834	940406_181137	0	6-APR-94	18:11:37		0.		Yes	No	0	0	23.3	25.6

apr835	940406_181524	0	6-APR-94	18:15:24	0.			Yes	No	0	0	23.3	25.6
apr836	940406_184839	0	6-APR-94	18:48:39	0.			Yes	No	0	0	23.3	25.6
apr837	940406_185418	0	6-APR-94	18:54:18	0.		mdilaser	Yes	No	0	0	23.3	25.6
apr838	940407_000702	0	7-APR-94	00:07:02	0.		mdifocus	Yes	No	0	0	23.3	30.0
apr839	940407_013442	0	7-APR-94	01:34:42	0.		ldsosld	Yes	No	0	0	??	25.6
apr840	940407_014019	0	7-APR-94	01:40:19	0.			Yes	No	0	0	??	26.8
apr841	940407_061445	0	7-APR-94	06:14:45	0.		tsthrfov	Yes	No	0	0	26.7	35.2
apr850	940407_151311	73	7-APR-94	15:14:00	13.		mdifocus	Yes	Yes	-1	-1	-11.4	35.0
apr852	940407_154635	28	7-APR-94	15:47:00	49.			Yes	No	-1	-1	-11.4	35.2
apr853	940407_170218	0	7-APR-94	17:02:18	0.	bigpdist	bigpdist	Yes	No	0	0	-14.3	35.0
apr854	940407_184651	0	7-APR-94	18:46:51	0.	bigpdist: di	bigpdist	Yes	No	0	0	-14.3	35.1
apr855	940408_012439	0	8-APR-94	01:24:39	0.	mapgrad: Ray	mapgrad	Yes	No	0	0	-57.1	35.2
apr856	940408_021453	0	8-APR-94	02:14:53	0.	mapgrad: rad	mapgrad	Yes	No	0	0	-60.0	35.1
apr857	940408_063328	0	8-APR-94	06:33:28	0.	mdiltcs1	mdiltcs1	Yes	No	0	0	-57.1	35.2
apr858	940408_072850	0	8-APR-94	07:28:50	0.	mdiltcs1	mdiltcs1	Yes	No	0	0	-60.0	35.2
apr859	940408_083541	0	8-APR-94	08:35:41	0.	mdiltcs2	mdiltcs2	Yes	No	0	0	-60.0	35.2
apr860	940408_094207	0	8-APR-94	09:42:07	0.	mdiltcs4	mdiltcs4	Yes	No	0	0	-60.0	35.2
apr861	940408_105052	0	8-APR-94	10:50:52	0.	legff (marke	legff	Yes	No	0	0	-62.9	35.2
apr862	940408_112834	0	8-APR-94	11:28:34	0.	legff	legff	Yes	No	0	0	-60.0	35.1
apr863	940408_125346	0	8-APR-94	12:53:46	0.	pztff, cal m	pztff	Yes	No	0	0	-60.0	35.3
apr864	940408_134413	0	8-APR-94	13:44:13	0.	pztff, cal		No	No	0	0	-60.0	35.3
apr865	940408_162705	0	8-APR-94	16:27:05	0.	maphrfov	maphrfov	Yes	No	0	0	-60.0	35.2
apr866	940408_183154	0	8-APR-94	18:31:54	0.	mapfdfov	mapfdfov	Yes	No	0	0	-60.0	35.2
apr867	940408_204844	0	8-APR-94	20:48:44	0.	mtmtune: tes	mtmtune	Yes	No	0	0	-60.0	35.0
apr868	940408_221234	0	8-APR-94	22:12:34	0.	sunclasr: so	vfdlscan	Yes	No	0	0	-60.0	35.2
apr869	940408_222903	0	8-APR-94	22:29:03	0.	lyotscan, li	lyotscan	Yes	No	0	0	-60.0	35.2
apr870	940408_223506	0	8-APR-94	22:35:06	0.	lyotscan, li		Yes	No	0	0	-60.0	35.2
apr871	940408_224150	0	8-APR-94	22:41:50	0.	lyotscan, li		Yes	No	0	0	-60.0	35.2
apr872	940408_224831	0	8-APR-94	22:48:31	0.	lyotscan, li		Yes	No	0	0	-60.0	35.2
apr873	940408_225515	0	8-APR-94	22:55:15	0.	lyotscan, li		Yes	No	0	0	-60.0	35.3
apr874	940409_000359	0	9-APR-94	00:03:59	0.	lyotscan, bl	lyotscan	Yes	No	0	0	-45.7	35.3
apr875	940409_001002	0	9-APR-94	00:10:02	0.	lyotscan, bl		Yes	No	0	0	-45.7	35.1
apr876	940409_001645	0	9-APR-94	00:16:45	0.	lyotscan, bl		Yes	No	0	0	-42.9	35.3
apr877	940409_002323	0	9-APR-94	00:23:23	0.	lyotscan, bl		Yes	No	0	0	-42.9	35.2
apr878	940409_003005	0	9-APR-94	00:30:05	0.	lyotscan, bl	calmlasr	Yes	No	0	0	-42.9	35.3
apr879	940409_023735	0	9-APR-94	02:37:35	0.	sunclasr, di	vfdlscan	Yes	No	0	0	-57.1	35.2
apr880	940409_025529	0	9-APR-94	02:55:29	0.	lyotscan, li	lyotscan	Yes	No	0	0	-57.1	35.2
apr881	940409_030130	0	9-APR-94	03:01:30	0.	lyotscn, pos		Yes	No	0	0	-57.1	35.0
apr882	940409_030808	0	9-APR-94	03:08:08	0.	lyotscan, po		Yes	No	0	0	-60.0	35.2
apr883	940409_031446	0	9-APR-94	03:14:46	0.	lyotscan, po		Yes	No	0	0	-60.0	35.1
apr884	940409_032125	0	9-APR-94	03:21:25	0.	lyotscan, po	fdprot	Yes	No	0	0	-60.0	35.1
apr885	940409_040550	0	9-APR-94	04:05:50	0.	dark, fdprot	calmlasr	Yes	No	0	0	-60.0	35.2
apr886	940409_041006	0	9-APR-94	04:10:06	0.	lyotscan, la	lyotscan	Yes	No	0	0	-60.0	34.9
apr887	940409_041609	0	9-APR-94	04:16:09	0.	lyotscan, re		Yes	No	0	0	-60.0	35.3
apr888	940409_042257	0	9-APR-94	04:22:57	0.	lyotscan, re		Yes	No	0	0	-60.0	35.3
apr889	940409_042936	0	9-APR-94	04:29:36	0.	lyotscan, re		Yes	No	0	0	-60.0	35.2
apr890	940409_043619	0	9-APR-94	04:36:19	0.	lyotscan, th	calmlasr	Yes	No	0	0	-60.0	35.2
apr896	940409_050245	0	9-APR-94	05:02:45	0.	dark, fdprot	calmlasr	Yes	No	0	0	-60.0	35.3
apr891	940409_050707	0	9-APR-94	05:07:07	0.	lyotscan, re	lyotscan	Yes	No	0	0	-62.9	35.2
apr892	940409_051308	0	9-APR-94	05:13:08	0.	lyotscan, re		Yes	No	0	0	-60.0	35.3
apr893	940409_051951	0	9-APR-94	05:19:51	0.	lyotscan, re		Yes	No	0	0	-60.0	35.2
apr894	940409_052634	0	9-APR-94	05:26:34	0.	lyotscan, re		Yes	No	0	0	-60.0	35.0
apr895	940409_053314	0	9-APR-94	05:33:14	0.	lyotscan, re	calmlasr	Yes	No	0	0	-60.0	35.2
apr897	940409_055703	0	9-APR-94	05:57:03	0.	dark, fdprot	calmlasr	Yes	No	0	0	-60.0	35.2
apr898	940409_060135	0	9-APR-94	06:01:35	0.	lyotscan, re	lyotscan	Yes	No	0	0	-60.0	35.3
apr899	940409_060736	0	9-APR-94	06:07:36	0.	lyotscan, re		Yes	No	0	0	-60.0	35.1
apr900	940409_061421	0	9-APR-94	06:14:21	0.	lyotscan, re		Yes	No	0	0	-60.0	35.3
apr901	940409_062109	0	9-APR-94	06:21:09	0.	lyotscan, re		Yes	No	0	0	-60.0	35.2
apr902	940409_062746	0	9-APR-94	06:27:46	0.	lyotscan, re	sleep	Yes	No	0	0	-60.0	35.2
apr903	940409_162955	0	9-APR-94	16:29:55	0.	lsltune, lyo	lsltune	Yes	No	0	0	-65.7	35.3

apr904	940409_164227	0	9-APR-94	16:42:27	0.	lsltune, red	lsltune	Yes	No	0	0	-62.9	35.4
apr905	940409_165719	0	9-APR-94	16:57:19	0.	lsltune, red	lsltune	Yes	No	0	0	-62.9	35.3
apr906	940409_171247	0	9-APR-94	17:12:47	0.	lsltune, red	lsltune	Yes	No	0	0	-62.9	35.3
apr907	940409_180731	0	9-APR-94	18:07:31	0.	lsltune, blu	lsltune	Yes	No	0	0	-62.9	35.2
apr908	940409_182056	0	9-APR-94	18:20:56	0.	lsltune, blu	lsltune	Yes	No	0	0	-62.9	35.2
apr909	940409_183439	0	9-APR-94	18:34:39	0.	lsltune, blu	lsltune	Yes	No	0	0	-62.9	35.3
apr910	940409_215413	0	9-APR-94	21:54:13	0.	suncals: Dop	vfdlscan	Yes	No	0	0	-60.0	35.3
apr911	940409_221733	0	9-APR-94	22:17:33	0.	bigtune: old	bigtune	Yes	No	0	0	-60.0	35.1
apr912	940409_223834	0	9-APR-94	22:38:34	0.	sundrift: dr	sundrift	Yes	No	0	0	-57.1	35.2
apr913	940409_233130	0	9-APR-94	23:31:30	0.	sunmagc: 102	obsmsunv	Yes	No	0	0	-60.0	35.2
apr914	940410_005300	0	10-APR-94	00:53:00	0.	sundust: dus	obsmsunv	Yes	No	0	0	-60.0	35.1
apr914a	940410_025745	0	10-APR-94	02:57:45	0.	unknown		Yes	No	0	0	-60.0	35.0
apr915	940410_140323	0	10-APR-94	14:03:23	0.	mdipict_ice	mdipict	Yes	No	0	0	-65.7	35.2
apr916	940410_142922	0	10-APR-94	14:29:22	0.	suncals	vfdlscan	Yes	No	0	0	-68.6	35.1
apr917	940410_145207	0	10-APR-94	14:52:07	0.	suncals	vfdlscan	Yes	No	0	0	-65.7	35.2
apr918	940410_153430	0	10-APR-94	15:34:30	0.	suncals: Dop	vfdlscan	Yes	No	0	0	-65.7	35.2
apr919	940410_161313	0	10-APR-94	16:13:13	0.	sunff: conti	dpc84	Yes	No	0	0	-65.7	35.3
apr920	940410_164347	0	10-APR-94	16:43:47	0.	sunff: conti	sunff	Yes	No	0	0	-62.9	35.2
apr921	940410_172906	0	10-APR-94	17:29:06	0.	suncals:mult	vfdlscan	Yes	No	0	0	-62.9	35.1
apr922	940410_180747	0	10-APR-94	18:07:47	0.	sunmagc: FD		Yes	No	0	0	-62.9	35.5
apr923	940410_182213	0	10-APR-94	18:22:13	0.	sunmagc: HR		Yes	No	0	0	-62.9	35.3
apr924	940410_183254	0	10-APR-94	18:32:54	0.	sunmagc: cal		Yes	No	0	0	-62.9	35.3
apr925	940410_184448	0	10-APR-94	18:44:48	0.	sunmagc: big		Yes	No	0	0	-62.9	35.2
apr926	940410_185600	0	10-APR-94	18:56:00	0.	sunmagc: big		Yes	No	0	0	-62.9	35.2
apr927	940410_190643	0	10-APR-94	19:06:43	0.	sunmagc: vfd		Yes	No	0	0	-62.9	35.2
apr928	940410_194930	0	10-APR-94	19:49:30	0.	suncals	vfdlscan	Yes	No	0	0	-62.9	35.1
apr929	940410_203946	0	10-APR-94	20:39:46	0.	sunmisc	sunmisc	Yes	No	0	0	-62.9	35.0
apr930	940410_204949	0	10-APR-94	20:49:49	0.	suncals	vfdlscan	Yes	No	0	0	-62.9	35.1
apr931	940410_212750	0	10-APR-94	21:27:50	0.	bigfdmag		Yes	No	0	0	-62.9	35.0
apr932	940410_213926	0	10-APR-94	21:39:26	0.	bighrmag		Yes	No	0	0	-62.9	34.9
apr933	940410_215014	0	10-APR-94	21:50:14	0.	vfdmag+vhrma		Yes	No	0	0	-62.9	35.0
apr934	940410_215806	0	10-APR-94	21:58:06	0.	sunff, 1024^	sunff	Yes	No	0	0	-62.9	35.0
apr935	940410_231043	0	10-APR-94	23:10:43	0.	suncals	vfdlscan	Yes	No	0	0	-62.9	35.3
apr936	940410_234821	0	10-APR-94	23:48:21	0.	fringes	fringes	Yes	No	0	0	-62.9	35.2
apr937	940411_010818	0	11-APR-94	01:08:18	0.	suncals	vfdlscan	Yes	No	0	0	-62.9	35.3
apr938	940411_014643	0	11-APR-94	01:46:43	0.	suncals, abo	suncals	Yes	No	0	0	-62.9	35.2
apr939	940411_021952	0	11-APR-94	02:19:52	0.	ccdheat: noi	closelog	Yes	No	0	0	-62.9	35.2
apr939a	940411_142101	0	11-APR-94	14:21:01	0.	unknown	rundepsq	Yes	No	0	0	-65.7	35.3
apr939b	940411_143218	0	11-APR-94	14:32:18	0.	unknown	rundepsq	Yes	No	0	0	-65.7	35.3
apr940	940411_150425	0	11-APR-94	15:04:25	0.	ldop		Yes	No	0	0	-65.7	35.2
apr941	940411_162620	0	11-APR-94	16:26:20	0.	ldop941	llton	Yes	No	0	0	-62.9	35.3
apr941a	940411_172420	0	11-APR-94	17:24:20	0.	unknown		Yes	No	0	0	-65.7	35.2
apr942	940411_175446	0	11-APR-94	17:54:46	0.	sunmagc cont		Yes	No	0	0	-62.9	35.3
apr942a	940411_180531	0	11-APR-94	18:05:31	0.	unknown		Yes	No	0	0	-62.9	35.4
apr943	940411_182654	0	11-APR-94	18:26:54	0.	sunmagc bett	dpc84	Yes	No	0	0	-62.9	35.3
apr944	940411_184856	0	11-APR-94	18:48:56	0.	sunmagc FD w		Yes	No	0	0	-62.9	35.2
apr945	940411_190129	0	11-APR-94	19:01:29	0.	sunmagc HR		Yes	No	0	0	-62.9	35.2
apr945a	940411_191213	0	11-APR-94	19:12:13	0.	sunmagc 4x4	sunmagc	Yes	No	0	0	-62.9	35.0
apr945b	940411_193313	0	11-APR-94	19:33:13	0.	unknown	dpc84	Yes	No	0	0	-62.9	35.1
apr946	940411_201246	0	11-APR-94	20:12:46	0.	sunmagc FD h		Yes	No	0	0	-62.9	35.3
apr947	940411_203008	0	11-APR-94	20:30:08	0.	sunmagc HR h		Yes	No	0	0	-62.9	35.6
apr948	940411_204121	0	11-APR-94	20:41:21	0.	sunmagc 4x4	ipcom	Yes	No	0	0	-62.9	35.2
apr949	940411_223537	0	11-APR-94	22:35:37	0.	ip commissio	ipdynmac	Yes	No	0	0	-62.9	35.1
apr950	940411_234155	0	11-APR-94	23:41:55	0.	sundust: ape	sundust	Yes	No	0	0	-60.0	35.0
apr951	940412_012151	0	12-APR-94	01:21:51	0.	rundepsq, in	obsmsunv	Yes	No	0	0	-60.0	35.2
apr951a	940412_132049	0	12-APR-94	13:20:49	0.	unknown	0010_05	Yes	No	0	0	-65.7	35.3
apr951b	940412_144232	0	12-APR-94	14:42:32	0.	unknown	rundepsq	Yes	No	0	0	-65.7	35.1
apr952	940412_152042	0	12-APR-94	15:20:42	0.	solar dopple	calmodev	Yes	No	0	0	-65.7	35.2
apr953	940412_155609	0	12-APR-94	15:56:09	0.	calmode dopp		No	No	0	0	-65.7	35.1
apr953a	940412_155823	0	12-APR-94	15:58:23	0.	unknown	calmodev	Yes	No	0	0	-62.9	35.3

apr953b	940412_163913	0	12-APR-94	16:39:13	0.	unknown	calmodev	Yes	No	0	0	-62.9	35.4
apr954	940412_170906	0	12-APR-94	17:09:06	0.	lasdtune	mdilaser	Yes	No	0	0	-62.9	35.2
apr955	940412_172802	0	12-APR-94	17:28:02	0.	mdilaser, ra		Yes	No	0	0	-62.9	35.2
apr956	940412_183825	0	12-APR-94	18:38:25	0.	mdilaser, ra	mdilaser	Yes	No	0	0	-62.9	35.3
apr957	940412_193641	0	12-APR-94	19:36:41	0.	lyotscan, be	lyotscan	No	No	0	0	-65.7	35.1
apr958	940412_194244	0	12-APR-94	19:42:44	0.	lyotscan		No	No	0	0	-65.7	35.1
apr959	940412_194924	0	12-APR-94	19:49:24	0.	lyotscan		No	No	0	0	-65.7	35.2
apr960	940412_195604	0	12-APR-94	19:56:04	0.	lyotscan		No	No	0	0	-65.7	35.2
apr961	940412_200245	0	12-APR-94	20:02:45	0.	lyotscan		No	No	0	0	-65.7	35.3
apr962	940412_201045	0	12-APR-94	20:10:45	0.	lyotscan		No	No	0	0	-65.7	35.3
apr963	940412_201647	0	12-APR-94	20:16:47	0.	lyotscan		No	No	0	0	-65.7	35.2
apr964	940412_202327	0	12-APR-94	20:23:27	0.	lyotscan		No	No	0	0	-68.6	35.2
apr965	940412_203007	0	12-APR-94	20:30:07	0.	lyotscan		No	No	0	0	-68.6	35.0
apr966	940412_203646	0	12-APR-94	20:36:46	0.	lyotscan		No	No	0	0	-65.7	34.6
apr967	940412_204344	0	12-APR-94	20:43:44	0.	lyotscan		No	No	0	0	-65.7	34.1
apr968	940412_204945	0	12-APR-94	20:49:45	0.	lyotscan		Yes	No	0	0	-65.7	33.9
apr969	940412_205625	0	12-APR-94	20:56:25	0.	lyotscan		No	No	0	0	-65.7	33.5
apr970	940412_210307	0	12-APR-94	21:03:07	0.	lyotscan		Yes	No	0	0	-68.6	33.2
apr971	940412_210949	0	12-APR-94	21:09:49	0.	lyotscan		Yes	No	0	0	-65.7	32.9
apr972	940412_211658	0	12-APR-94	21:16:58	0.	lyotscan		No	No	0	0	-65.7	32.5
apr973	940412_212300	0	12-APR-94	21:23:00	0.	lyotscan		Yes	No	0	0	-65.7	32.4
apr974	940412_212940	0	12-APR-94	21:29:40	0.	lyotscan		Yes	No	0	0	-65.7	32.2
apr975	940412_213620	0	12-APR-94	21:36:20	0.	lyotscan		No	No	0	0	-65.7	32.0
apr976	940412_214301	0	12-APR-94	21:43:01	0.	lyotscan		Yes	No	0	0	-65.7	31.7
apr977	940412_215011	0	12-APR-94	21:50:11	0.	lyotscan		Yes	No	0	0	-65.7	31.5
apr978	940412_215613	0	12-APR-94	21:56:13	0.	lyotscan		No	No	0	0	-65.7	31.3
apr979	940412_220254	0	12-APR-94	22:02:54	0.	lyotscan		Yes	No	0	0	-65.7	31.3
apr980	940412_220935	0	12-APR-94	22:09:35	0.	lyotscan		Yes	No	0	0	-65.7	31.0
apr981	940412_221614	0	12-APR-94	22:16:14	0.	lyotscan		No	No	0	0	-65.7	30.8
apr982	940412_222325	0	12-APR-94	22:23:25	0.	lyotscan		Yes	No	0	0	-65.7	30.6
apr983	940412_222926	0	12-APR-94	22:29:26	0.	lyotscan		Yes	No	0	0	-65.7	30.5
apr984	940412_223605	0	12-APR-94	22:36:05	0.	lyotscan		No	No	0	0	-65.7	30.3
apr985	940412_224244	0	12-APR-94	22:42:44	0.	lyotscan		Yes	No	0	0	-65.7	30.1
apr986	940412_224923	0	12-APR-94	22:49:23	0.	lyotscan		Yes	No	0	0	-65.7	30.1
apr987	940412_225623	0	12-APR-94	22:56:23	0.	lyotscan		No	No	0	0	-65.7	29.7
apr988	940412_230225	0	12-APR-94	23:02:25	0.	lyotscan		Yes	No	0	0	-65.7	29.5
apr989	940412_230905	0	12-APR-94	23:09:05	0.	lyotscan		Yes	No	0	0	-65.7	29.5
apr990	940412_231548	0	12-APR-94	23:15:48	0.	lyotscan		No	No	0	0	-65.7	29.3
apr991	940412_232229	0	12-APR-94	23:22:29	0.	lyotscan		Yes	No	0	0	-65.7	29.1
apr992	940412_232937	0	12-APR-94	23:29:37	0.	lyotscan		Yes	No	0	0	-62.9	29.1
apr993	940412_233932	0	12-APR-94	23:39:32	0.	lyotscan		No	No	0	0	-65.7	28.8
apr994	940412_234613	0	12-APR-94	23:46:13	0.	lyotscan		Yes	No	0	0	-62.9	28.7
apr995	940412_235252	0	12-APR-94	23:52:52	0.	lyotscan		No	No	0	0	-62.9	28.6
apr996	940412_235932	0	12-APR-94	23:59:32	0.	lyotscan		Yes	No	0	0	-62.9	28.4
apr997	940413_000635	0	13-APR-94	00:06:35	0.	lyotscan		Yes	No	0	0	-62.9	28.3
apr998	940413_001237	0	13-APR-94	00:12:37	0.	lyotscan		No	No	0	0	-62.9	28.1
apr999	940413_001917	0	13-APR-94	00:19:17	0.	lyotscan		Yes	No	0	0	-65.7	28.1
apr1000	940413_002556	0	13-APR-94	00:25:56	0.	lyotscan		Yes	No	0	0	-65.7	27.9
apr1001	940413_003237	0	13-APR-94	00:32:37	0.	lyotscan		No	No	0	0	-65.7	27.8
apr1002	940413_003948	0	13-APR-94	00:39:48	0.	lyotscan		Yes	No	0	0	-65.7	27.7
apr1003	940413_004552	0	13-APR-94	00:45:52	0.	lyotscan		Yes	No	0	0	-62.9	27.4
apr1004	940413_005234	0	13-APR-94	00:52:34	0.	lyotscan		No	No	0	0	-62.9	27.5
apr1005	940413_005914	0	13-APR-94	00:59:14	0.	lyotscan		Yes	No	0	0	-65.7	27.4
apr1006	940413_010556	0	13-APR-94	01:05:56	0.	lyotscan		Yes	No	0	0	-62.9	27.2
apr1007	940413_011801	0	13-APR-94	01:18:01	0.	lyotscan		No	No	0	0	-65.7	27.0
apr1008	940413_012403	0	13-APR-94	01:24:03	0.	lyotscan		Yes	No	0	0	-62.9	26.9
apr1009	940413_013044	0	13-APR-94	01:30:44	0.	lyotscan		No	No	0	0	-62.9	26.8
apr1010	940413_013726	0	13-APR-94	01:37:26	0.	lyotscan		Yes	No	0	0	-62.9	26.8
apr1011	940413_014409	0	13-APR-94	01:44:09	0.	lyotscan		No	No	0	0	-65.7	26.6
apr1012	940413_015115	0	13-APR-94	01:51:15	0.	lyotscan		Yes	No	0	0	-65.7	26.6

apr1013	940413_015720	0	13-APR-94	01:57:20	0.	lyotscan		Yes	No	0	0	-65.7	26.4
apr1014	940413_020403	0	13-APR-94	02:04:03	0.	lyotscan		No	No	0	0	-62.9	26.2
apr1015	940413_021045	0	13-APR-94	02:10:45	0.	lyotscan		Yes	No	0	0	-62.9	26.3
apr1016	940413_021726	0	13-APR-94	02:17:26	0.	lyotscan		Yes	No	0	0	-62.9	26.2
apr1017	940413_022428	0	13-APR-94	02:24:28	0.	lyotscan		No	No	0	0	-62.9	26.0
apr1018	940413_023125	0	13-APR-94	02:31:25	0.	lyotscan		Yes	No	0	0	-62.9	25.8
apr1019	940413_023804	0	13-APR-94	02:38:04	0.	lyotscan		Yes	No	0	0	-62.9	25.8
apr1020	940413_024741	0	13-APR-94	02:47:41	0.	lyotscan		Yes	No	0	0	-65.7	25.7
apr1021	940413_025421	0	13-APR-94	02:54:21	0.	lyotscan		No	No	0	0	-62.9	25.6
apr1022	940413_030126	0	13-APR-94	03:01:26	0.	lyotscan		Yes	No	0	0	-62.9	25.6
apr1023	940413_030728	0	13-APR-94	03:07:28	0.	lyotscan		No	No	0	0	-65.7	25.6
apr1024	940413_031409	0	13-APR-94	03:14:09	0.	lyotscan		Yes	No	0	0	-62.9	25.6
apr1025	940413_032049	0	13-APR-94	03:20:49	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1026	940413_032731	0	13-APR-94	03:27:31	0.	lyotscan		No	No	0	0	-65.7	25.6
apr1027	940413_033440	0	13-APR-94	03:34:40	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1028	940413_034042	0	13-APR-94	03:40:42	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1029	940413_034722	0	13-APR-94	03:47:22	0.	lyotscan		No	No	0	0	-65.7	25.6
apr1030	940413_035403	0	13-APR-94	03:54:03	0.	lyotscan		Yes	No	0	0	-62.9	25.6
apr1031	940413_040042	0	13-APR-94	04:00:42	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1032	940413_040754	0	13-APR-94	04:07:54	0.	lyotscan		No	No	0	0	-62.9	25.6
apr1033	940413_041356	0	13-APR-94	04:13:56	0.	lyotscan		Yes	No	0	0	-62.9	25.6
apr1034	940413_042037	0	13-APR-94	04:20:37	0.	lyotscan		Yes	No	0	0	-62.9	25.6
apr1035	940413_042715	0	13-APR-94	04:27:15	0.	lyotscan		No	No	0	0	-62.9	25.6
apr1036	940413_043354	0	13-APR-94	04:33:54	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1037	940413_044052	0	13-APR-94	04:40:52	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1038	940413_044655	0	13-APR-94	04:46:55	0.	lyotscan		No	No	0	0	-65.7	25.6
apr1039	940413_045336	0	13-APR-94	04:53:36	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1040	940413_050015	0	13-APR-94	05:00:15	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1041	940413_050656	0	13-APR-94	05:06:56	0.	lyotscan		No	No	0	0	-65.7	25.6
apr1042	940413_051406	0	13-APR-94	05:14:06	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1043	940413_052009	0	13-APR-94	05:20:09	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1044	940413_052649	0	13-APR-94	05:26:49	0.	lyotscan		No	No	0	0	-65.7	25.6
apr1045	940413_053327	0	13-APR-94	05:33:27	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1046	940413_054008	0	13-APR-94	05:40:08	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1047	940413_054719	0	13-APR-94	05:47:19	0.	lyotscan		No	No	0	0	-65.7	25.6
apr1048	940413_055320	0	13-APR-94	05:53:20	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1049	940413_060000	0	13-APR-94	06:00:00	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1050	940413_060639	0	13-APR-94	06:06:39	0.	lyotscan		No	No	0	0	-65.7	25.6
apr1051	940413_061319	0	13-APR-94	06:13:19	0.	lyotscan		Yes	No	0	0	-62.9	25.6
apr1052	940413_062032	0	13-APR-94	06:20:32	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1053	940413_062634	0	13-APR-94	06:26:34	0.	lyotscan		No	No	0	0	-65.7	25.6
apr1054	940413_063316	0	13-APR-94	06:33:16	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1055	940413_063954	0	13-APR-94	06:39:54	0.	lyotscan		Yes	No	0	0	-65.7	25.6
apr1056	940413_064634	0	13-APR-94	06:46:34	0.	lyotscan	obsmodev	No	No	0	0	-65.7	25.6
apr1057	940414_030507	0	14-APR-94	03:05:07	0.	unknown		Yes	No	0	0	??	26.8
apr1058	940415_212331	0	15-APR-94	21:23:31	0.	unknown	ldsosld	Yes	No	0	0	??	25.6
apr1059	940416_003810	0	16-APR-94	00:38:10	0.	unknown	closelog	No	No	0	0	??	25.6
apr1060	940416_005624	0	16-APR-94	00:56:24	0.	unknown		No	No	0	0	??	40.7
apr1061	940416_200104	0	16-APR-94	20:01:04	0.	unknown	ldmctap	No	No	0	0	23.3	25.6
apr1062	940416_213358	0	16-APR-94	21:33:58	0.	unknown	lobsmode	No	No	0	0	23.3	25.6
apr1063	940417_021220	0	17-APR-94	02:12:20	0.	unknown	lcmcom	No	No	0	0	23.3	25.8
apr1064	940417_030620	0	17-APR-94	03:06:20	0.	unknown	ipcom	No	No	0	0	23.3	27.3
apr1065	940417_033526	0	17-APR-94	03:35:26	0.	ipcom	mdihoc	No	No	0	0	23.3	26.4
apr1066	940417_070211	0	17-APR-94	07:02:11	0.	unknown		No	No	0	0	??	25.6
apr1066a	940419_015536	0	19-APR-94	01:55:36	0.	sfft		Yes	No	0	0	23.3	25.6
apr1066b	940419_184956	0	19-APR-94	18:49:56	0.	unknown		Yes	No	0	0	23.3	25.6
apr1066c	940419_191048	0	19-APR-94	19:10:48	0.	unknown		Yes	No	0	0	23.3	25.7
apr1066d	940419_191700	0	19-APR-94	19:17:00	0.	unknown		Yes	No	0	0	23.3	25.7
apr1066e	940419_192358	0	19-APR-94	19:23:58	0.	unknown	closelog	Yes	No	0	0	23.3	25.9
apr1066f	940419_212453	0	19-APR-94	21:24:53	0.	unknown	lcmcom	Yes	No	0	0	20.0	26.5

apr1066g	940419_221546	0	19-APR-94	22:15:46	0.	unknown	lsqcom	Yes	No	0	0	23.3	28.2
apr1066h	940419_231652	0	19-APR-94	23:16:52	0.	unknown		Yes	No	0	0	23.3	26.2
apr1066i	940419_234346	0	19-APR-94	23:43:46	0.	unknown	closelog	Yes	No	0	0	23.3	25.8
apr1066j	940420_004906	0	20-APR-94	00:49:06	0.	unknown		Yes	No	0	0	??	25.6
apr1066k	940420_013337	0	20-APR-94	01:33:37	0.	unknown	iptbltst	Yes	No	0	0	23.3	25.6
apr1066l	940420_185642	0	20-APR-94	18:56:42	0.	unknown	lcmcom	Yes	No	0	0	20.0	25.6
apr1066m	940420_193742	0	20-APR-94	19:37:42	0.	unknown	lsqcom	Yes	No	0	0	23.3	26.8
apr1066n	940420_215142	0	20-APR-94	21:51:42	0.	unknown		Yes	No	0	0	??	26.8
apr1066o	940421_180426	0	21-APR-94	18:04:26	0.	unknown	openlog	Yes	No	0	0	23.3	34.2
apr1066p	940421_182421	0	21-APR-94	18:24:21	0.	unknown	tbltst22	Yes	No	0	0	23.3	35.2
apr1066q	940421_222841	0	21-APR-94	22:28:41	0.	unknown	ldcrpdmp	Yes	No	0	0	16.0	35.0
apr1067	940422_003739	0	22-APR-94	00:37:39	0.	ldopser05 OB	mdicom	Yes	No	0	0	0.0	35.1
apr1067a	940422_024117	0	22-APR-94	02:41:17	0.	unknown	lcmcom	Yes	No	0	0	-2.9	34.8
apr1067b	940422_033011	0	22-APR-94	03:30:11	0.	unknown	ipcom	Yes	No	0	0	4.0	34.8
apr1067c	940422_035054	0	22-APR-94	03:50:54	0.	unknown	iptbltst	Yes	No	0	0	0.0	35.2
apr1067d	940422_060828	0	22-APR-94	06:08:28	0.	unknown		Yes	No	0	0	??	25.6
apr1068	940422_150100	0	22-APR-94	15:01:00	0.	rundepsq	closelog	Yes	No	0	0	-11.4	35.3
apr1069	940422_170509	0	22-APR-94	17:05:09	0.	rundepsq	rundepsq	Yes	No	0	0	-11.4	35.2
apr1070	940422_172414	0	22-APR-94	17:24:14	0.	rundepsq		Yes	No	0	0	-11.4	35.2
apr1070a	940422_182514	0	22-APR-94	18:25:14	0.	unknown		Yes	No	0	0	-11.4	35.2
apr1070b	940422_185612	0	22-APR-94	18:56:12	0.	unknown		Yes	No	0	0	-11.4	35.2
apr1070c	940422_195952	0	22-APR-94	19:59:52	0.	unknown	mdifocus	Yes	No	0	0	-11.4	35.1
apr1070d	940422_200839	0	22-APR-94	20:08:39	0.	unknown	mdifocus	Yes	No	0	0	-11.4	35.2
apr1070e	940422_202556	0	22-APR-94	20:25:56	0.	unknown	mdiltc	Yes	No	0	0	-11.4	35.2
apr1070f	940422_203742	0	22-APR-94	20:37:42	0.	unknown	mdipict	Yes	No	0	0	-11.4	35.2
apr1071	940422_222720	0	22-APR-94	22:27:20	0.	rundepsq	closelog	Yes	No	0	0	-11.4	35.0
apr1072	940422_230000	0	22-APR-94	23:00:00	0.	sundopc, bi-	sundopc	Yes	No	0	0	-11.4	35.2
apr1072a	940422_235802	0	22-APR-94	23:58:02	0.	sunmagc		Yes	No	0	0	-11.4	35.2
apr1073	940423_000953	0	23-APR-94	00:09:53	0.	sunmagc, 1x1		Yes	No	0	0	-11.4	35.2
apr1073a	940423_002048	0	23-APR-94	00:20:48	0.	unknwon	rundepsq	Yes	No	0	0	-11.4	35.2
apr1074	940423_002948	0	23-APR-94	00:29:48	0.	rundepsq, ld	lsqcom	Yes	No	0	0	-11.4	35.2
apr1075	940423_021755	0	23-APR-94	02:17:55	0.	mdipict (cos	mdipict	Yes	No	0	0	-17.1	35.2
apr1076	940423_023654	0	23-APR-94	02:36:54	0.	mdiltc, (CCD	mdiltc	Yes	No	0	0	-20.0	35.2
apr1077	940423_025845	0	23-APR-94	02:58:45	0.	ccdheat, CCD	ccdheat	Yes	No	0	0	-20.0	35.2
apr1078	940423_032027	0	23-APR-94	03:20:27	0.	Dark Doppler		Yes	No	0	0	-20.0	35.2
apr1078a	940423_043634	0	23-APR-94	04:36:34	0.	unknown	mdipict	Yes	No	0	0	-23.3	35.2
apr1079	940423_045403	0	23-APR-94	04:54:03	0.	dark noise m	closelog	Yes	No	0	0	-23.3	35.2
apr1080	940423_052704	0	23-APR-94	05:27:04	0.	legff (flats	legff	Yes	No	0	0	-23.3	35.2
apr1081	940423_065147	0	23-APR-94	06:51:47	0.	legff (flats	sleep	Yes	No	0	0	-23.3	35.2
apr1081a	940423_223815	0	23-APR-94	22:38:15	0.	unknown	iptbltst	Yes	No	0	0	20.0	35.1
apr1081b	940424_001530	0	24-APR-94	00:15:30	0.	unknown	ldcrpdmp	Yes	No	0	0	23.3	35.1
apr1082	940424_062607	0	24-APR-94	06:26:07	0.	lyotscan; la	calmlasr	Yes	No	0	0	-5.7	35.2
apr1083	940424_063208	0	24-APR-94	06:32:08	0.	lyotscan, 12		Yes	No	0	0	-8.6	35.2
apr1084	940424_063857	0	24-APR-94	06:38:57	0.	lyotscan, 3		Yes	No	0	0	-11.4	35.2
apr1085	940424_064544	0	24-APR-94	06:45:44	0.	6 o'clock		Yes	No	0	0	-11.4	35.2
apr1086	940424_065233	0	24-APR-94	06:52:33	0.	lyotscan, 9		Yes	No	0	0	-14.3	35.2
apr1087	940424_070204	0	24-APR-94	07:02:04	0.	lyotscan 1/2		Yes	No	0	0	-14.3	35.1
apr1088	940424_070710	0	24-APR-94	07:07:10	0.	lyotscan 1/2		Yes	No	0	0	-14.3	35.2
apr1089	940424_071237	0	24-APR-94	07:12:37	0.	lyotscan 1/2		Yes	No	0	0	-17.1	35.2
apr1090	940424_071802	0	24-APR-94	07:18:02	0.	lyotscan 1/2		Yes	No	0	0	-17.1	35.2
apr1091	940424_072328	0	24-APR-94	07:23:28	0.	lyotscan 1/2	obsmodev	Yes	No	0	0	-17.1	35.2
apr1092	940424_190751	0	24-APR-94	19:07:51	0.	CCD Cold		Yes	No	0	0	-54.3	25.6
apr1093	940424_193854	0	24-APR-94	19:38:54	0.	CCD Cold2	mdiltc	Yes	No	0	0	-60.0	25.6
apr1093a	940424_202445	0	24-APR-94	20:24:45	0.	unknown	mdiltc	Yes	No	0	0	-68.6	25.6
apr1094	940424_203144	0	24-APR-94	20:31:44	0.	mdiltc	mdiltc	Yes	No	0	0	-74.3	25.6
apr1095	940424_204659	0	24-APR-94	20:46:59	0.	mdipict	mdipict	Yes	No	0	0	-77.1	25.6
apr1096	940424_211728	0	24-APR-94	21:17:28	0.	ccdwarmup	lhopon	Yes	No	0	0	-30.0	25.6
apr1097	940425_054033	0	25-APR-94	05:40:33	0.	lyotscan, OV		Yes	No	0	0	-20.0	25.6
apr1098	940425_054637	0	25-APR-94	05:46:37	0.	lyotscan, 12		Yes	No	0	0	-20.0	25.6
apr1099	940425_055325	0	25-APR-94	05:53:25	0.	lyotscan, 3		Yes	No	0	0	-20.0	25.6

apr1100	940425_060011	0	25-APR-94	06:00:11	0.	lyotscan, 6		Yes	No	0	0	-23.3	25.6
apr1101	940425_060657	0	25-APR-94	06:06:57	0.	lyotscan, 9		Yes	No	0	0	-23.3	25.6
apr1102	940425_061438	0	25-APR-94	06:14:38	0.	lyotscan 1/2		Yes	No	0	0	-23.3	25.6
apr1103	940425_061943	0	25-APR-94	06:19:43	0.	lyotscan 1/2		Yes	No	0	0	-23.3	25.6
apr1104	940425_062511	0	25-APR-94	06:25:11	0.	lyotscan 1/2		Yes	No	0	0	-23.3	25.6
apr1105	940425_063037	0	25-APR-94	06:30:37	0.	lyotscan 1/2		Yes	No	0	0	-20.0	25.6
apr1106	940425_063604	0	25-APR-94	06:36:04	0.	lyotscan 1/2		Yes	No	0	0	-23.3	25.6
apr1107	940425_064553	0	25-APR-94	06:45:53	0.	Darks, (soft	obsmlasr	Yes	No	0	0	-23.3	25.6
apr1108	940425_065349	0	25-APR-94	06:53:49	0.	Darks, (hard	lfdclose	Yes	No	0	0	-23.3	25.6
apr1109	940425_164209	0	25-APR-94	16:42:09	0.	unknown	lcmcom	Yes	No	0	0	20.0	25.6
apr1110	940425_173206	0	25-APR-94	17:32:06	0.	unknown	lsqcom	Yes	No	0	0	30.0	25.6
apr1111	940425_192438	0	25-APR-94	19:24:38	0.	unknown	mdilaser	Yes	No	0	0	23.3	25.6
apr1112	940425_213204	0	25-APR-94	21:32:04	0.	unknown	mdiiss	Yes	No	0	0	26.7	25.6
apr1113	940426_035538	0	26-APR-94	03:55:38	0.	unknown	mdipict	Yes	No	0	0	23.3	25.6
apr1114	940426_041407	0	26-APR-94	04:14:07	0.	unknown	mdiltc	Yes	No	0	0	23.3	25.6
apr1115	940426_043043	0	26-APR-94	04:30:43	0.	unknown	mdifocus	Yes	No	0	0	23.3	25.6
apr1116	940426_044621	0	26-APR-94	04:46:21	0.	unknown	mdipict	Yes	No	0	0	23.3	25.6
apr1117	940426_050146	0	26-APR-94	05:01:46	0.	unknown	mdimrot	Yes	No	0	0	23.3	25.6
apr1118	940426_060248	0	26-APR-94	06:02:48	0.	unknown	mdiprot	Yes	No	0	0	23.3	25.6
apr1119	940426_061816	0	26-APR-94	06:18:16	0.	unknown	lsqcom	Yes	No	0	0	23.3	25.6

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