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Mauna Loa Solar Observatory Observer's Log  
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Fri Apr 4 16:46:50 GMT 2003  
Year: 03 Doy: 094  
Observer: yasukawa  
WEATHER COMMENT: Fri Apr 4 16:47:10 GMT 2003  
Cool, clear, light south breeze.  
Fri Apr 4 16:53:50 GMT 2003 CHIP Start Patrol  
Fri Apr 4 16:54:06 GMT 2003 PICS Start Patrol  
MKIV COMMENT: Fri Apr 4 16:56:14 GMT 2003  
Preset 01 stepper.  
Fri Apr 4 17:01:02 GMT 2003 MKIV Start Patrol  
\*\*MKIV PROBLEM\*\*: Fri Apr 4 17:04:58 GMT 2003  
Barrel scan stopped at 41 degrees for around 10-15 seconds, akamai message that occurs when scan pau appeared, except indicating only 1 record, then scan continued without displaying any image data on monitor. Scan continued to end of scan point (185) and turned around. Image data is being written to display on CW scan. Akamai message displayed when scan reached 41 degrees follows:

fixOffset 1430.4 1416.3 7190.1 7009.5  
Configuring mechanisms : look for 'done' ... done  
t\_scan 1 records done

\*\*MKIV PROBLEM\*\*: Fri Apr 4 17:09:37 GMT 2003  
Note on message above.... First two lines occur at start of scan, third line occurred when scan stopped at 41-degrees. Next "fixoffset...." line occurs when scan restarts at end-of-scan point.  
\*\*MKIV PROBLEM\*\*: Fri Apr 4 17:11:28 GMT 2003  
Scan paused again at around 320 degrees in CW direction, same symptoms... short 10-15 second pause, and then continued with no data written to monitor display, same akamai message except 0 records.  
\*\*MKIV PROBLEM\*\*: Fri Apr 4 17:15:44 GMT 2003  
problem continues on next CCW scan, both OCP barrel angle display and KCC monitor Barrel Angle display do not display obviously erroneous numbers, modulator pulses look normal, both frequency and amplitude.  
PSPT COMMENT: Fri Apr 4 17:20:29 GMT 2003  
Started observations.  
\*\*MKIV PROBLEM\*\*: Fri Apr 4 17:21:15 GMT 2003  
Problem continues on next CW scan. akamai messages since startup follows:

connected  
fixOffset 1430.4 1416.3 7190.1 7009.5  
Configuring mechanisms : look for 'done' ... done  
t\_scan 1 records done  
fixOffset -60.5 -29.8 8620.1 8425.5  
Configuring mechanisms : look for 'done' ... done  
t\_scan 0 records done  
fixOffset -4.9 -2.3 8559.1 8395.5  
Configuring mechanisms : look for 'done' ... done  
t\_drive barrel glitch  
t\_drive barrel glitch  
t\_scan 0 records done  
fixOffset 4.0 4.2 8554.1 8392.5  
Configuring mechanisms : look for 'done' ... done  
t\_drive barrel glitch  
t\_drive barrel glitch  
t\_scan 0 records done  
fixOffset 13.1 7.8 8558.1 8396.5  
Configuring mechanisms : look for 'done' ... done  
t\_drive barrel glitch

Resetting KCC by cycling main power (switch above akamai rack) so we can get on with daily mk4 observations.  
COMMENT: Fri Apr 4 17:24:43 GMT 2003

Reset guider after power cycled.

Fri Apr 4 17:28:23 GMT 2003 MKIV Start Patrol

\*\*MKIV PROBLEM\*\*: Fri Apr 4 17:32:08 GMT 2003

Barrel scan problem continues, stopping at 42 degrees on CCW scan, then continuing without displaying data and displaying same type of messages on akamai window. This problem is occurring somewhere where the barrel angle where the stall/false end-of-scan is recognized and appears to be repeatable. This time, the barrel did not restart a turn in CW direction, Barrel CW buttons indicate 30 rather than Stop or 240 on KCC control panel. Resetting akamai with lower power switch (akamai only).

Fri Apr 4 17:43:57 GMT 2003 MKIV Start Patrol

\*\*MKIV PROBLEM\*\*: Fri Apr 4 17:45:18 GMT 2003

After boot, Barrel ran from where it started to end-of scan point, and then ran CW to start of scan point at 175. Patrol did not start when I selected it, checked VCP and found CW barrel scan stuck on 30. Selected Stop but that did not cause program to continue with start of patrol in the CCW direction.

Cycling main power again so I can get past all of these problems and start Patrol.

COMMENT: Fri Apr 4 17:49:36 GMT 2003

Reset spar guider again.

Fri Apr 4 17:54:16 GMT 2003 MKIV Start Patrol

\*\*MKIV PROBLEM\*\*: Fri Apr 4 17:58:21 GMT 2003

mid-scan stall at 42 degrees continues. Reset KCC with reset button on akamai CPU card.

Fri Apr 4 18:03:08 GMT 2003 MKIV Start Patrol

Fri Apr 4 18:03:01 GMT 2003 CHIP LSD

Fri Apr 4 18:03:32 GMT 2003 PICS Flat

Fri Apr 4 18:04:48 GMT 2003 CHIP End LSD

Fri Apr 4 18:04:57 GMT 2003 CHIP BiasLSD

Fri Apr 4 18:05:50 GMT 2003 CHIP End BiasLSD

Fri Apr 4 18:06:00 GMT 2003 PICS End Flat

Fri Apr 4 18:06:02 GMT 2003 CHIP Bias

Fri Apr 4 18:07:00 GMT 2003 CHIP End Bias

\*\*MKIV PROBLEM\*\*: Fri Apr 4 18:06:55 GMT 2003

barrel problem unchanged. Letting scans go on for a while while I check some documents to regroup a bit.

\*\*MKIV PROBLEM\*\*: Fri Apr 4 18:39:09 GMT 2003

Setup a look at modulator signal at transformation board, meanwhile, barrel stalled after 2 rotations. Cycling main power.

Fri Apr 4 18:45:00 GMT 2003 MKIV Start Patrol

COMMENT: Fri Apr 4 18:45:08 GMT 2003

Moved ADR sensor so that I can concentrate on barrel problem.

\*\*MKIV PROBLEM\*\*: Fri Apr 4 18:47:00 GMT 2003

Got past the 40-45 degree stall point this time, nominal scanning continuing to turnaround point, data being written to display.

\*\*MKIV PROBLEM\*\*: Fri Apr 4 18:49:52 GMT 2003

Barrel scanning past 320 degree stall point in the CW direction now.

Data writing to display normally.

MKIV COMMENT: Fri Apr 4 18:51:00 GMT 2003

Centered O1.

mk4 appears to be scanning normally again.

\*\*MKIV PROBLEM\*\*: Fri Apr 4 18:53:05 GMT 2003

What got things going? ..... cycling main power, although not every time today.

What did not work? ..... cycling akamai power and pressing akamai CPU reset.

Fri Apr 4 18:57:10 GMT 2003 MKIV End Patrol

Fri Apr 4 18:57:26 GMT 2003 MKIV Start Cal

Fri Apr 4 19:16:09 GMT 2003 MKIV End Cal

Fri Apr 4 19:16:22 GMT 2003 MKIV Start Patrol

MKIV COMMENT: Fri Apr 4 19:49:44 GMT 2003

Centered O1.

Fri Apr 4 19:49:59 GMT 2003 CHIP End Patrol

Fri Apr 4 19:50:13 GMT 2003 PICS End Patrol

COMMENT: Fri Apr 4 19:51:14 GMT 2003

Stopping to reconfigure dome shutter.

Fri Apr 4 19:52:59 GMT 2003 MKIV End Patrol

Fri Apr 4 19:58:02 GMT 2003 MKIV Start Patrol  
Fri Apr 4 19:58:20 GMT 2003 CHIP Start Patrol  
Fri Apr 4 19:58:32 GMT 2003 PICS Start Patrol  
\*\*PSPT PROBLEM\*\*: Fri Apr 4 20:06:37 GMT 2003

Uniblitz shutter s/n 984 was returned from Vincent Associates yesterday. Shutter innards were replaced with new innards and it was given a new serial number: 4161. Cost for repair was quoted at \$620.00.

Actual charge was \$653.00.

I tested the shutter. It operated OK. Placed in spares inventory.

\*\*\*\* EVENT COMMENT \*\*\*\*: Fri Apr 4 20:27:42 GMT 2003

Much activity on disk in SW all morning. No coronal activity detected.

WEATHER COMMENT: Fri Apr 4 20:45:14 GMT 2003

Scattered orographic clouds hovering around station.

MKIV COMMENT: Fri Apr 4 20:53:51 GMT 2003

Centered O1.

WEATHER COMMENT: Fri Apr 4 21:35:09 GMT 2003

In broken orographic clouds.

Fri Apr 4 21:42:32 GMT 2003 CHIP End Patrol

Fri Apr 4 21:42:44 GMT 2003 PICS End Patrol

COMMENT: Fri Apr 4 21:42:46 GMT 2003

Stopping observations. Orographic clouds now quite thick. I may close the domes to be safe against sudden precipitation.

Fri Apr 4 21:44:05 GMT 2003 MKIV End Patrol

WEATHER COMMENT: Fri Apr 4 22:45:51 GMT 2003

In solid cloud cover now.

MKIV COMMENT: Fri Apr 4 23:24:25 GMT 2003

Testing Barrel rotation in clouds. Akamai power cycled to check out effect on transformation board and mechanism control rack power. It does not affect power. Starting barrel to see if cycling that power had any effect on rotation. Also watching Barrel Drive Status LEDs.

Fri Apr 4 23:27:01 GMT 2003 MKIV Start Patrol

Fri Apr 4 23:48:46 GMT 2003 MKIV Start Patrol

Fri Apr 4 23:55:02 GMT 2003 MKIV End Patrol

Sat Apr 5 00:08:05 GMT 2003 MKIV Start Patrol

Sat Apr 5 00:14:14 GMT 2003 MKIV End Patrol

Sat Apr 5 00:30:09 GMT 2003 MKIV Start Patrol

Sat Apr 5 00:30:26 GMT 2003 CHIP Start Patrol

Sat Apr 5 00:30:37 GMT 2003 PICS Start Patrol

WEATHER COMMENT: Sat Apr 5 00:30:21 GMT 2003

Clouds are receding. Opened domes and restarting observations.

WEATHER COMMENT: Sat Apr 5 00:38:04 GMT 2003

Back in broken orographic clouds.

Sat Apr 5 01:08:17 GMT 2003 CHIP End Patrol

Sat Apr 5 01:08:23 GMT 2003 PICS End Patrol

WEATHER COMMENT: Sat Apr 5 01:09:51 GMT 2003

In heavy clouds again, closing domes as a precaution.

Sat Apr 5 01:11:40 GMT 2003 MKIV End Patrol

\*\*MKIV PROBLEM\*\*: Sat Apr 5 00:59:57 GMT 2003

Thoughts on barrel problem:

\* Barrel stall angles appear to be repeatable. This would eliminate stepper motor, which rotates multiple times per barrel rotation, all of the driver cards, which only send pulses to the motor, and the modulator system, which doesn't know where the barrel is and has been producing steady 1/rot and 64/rot pulses to the output of the transformation board.

\* Akamai power (lower switch) only affects akamai.

\* KCC (main) power affects spar power, akamai, KCC status and driver rack, KCC monitor and transformation board.

\* Synchro data splits between the transformation board/akamai system and the OCP barrel angle display system at the Vernitron synchro-to-digital module. 15-bit binary data goes thru the transformation board via four DS26C31J chips and on to the VMIC 1160 card in akamai.

\* Repeatability of the stall angles would indicate the problem to be in some part of the system that knows (or thinks it knows) where the barrel is. This would point to the Synchro, Transformation Board, Akamai, and the Patrol program.

\* Barrel angles displayed on the OCP display and on the KCC/akamai monitor do not change or display erroneous angles before, during and after the stalls. This exonerates the Synchro system, at least up to the point where the KCC monitor retrieves angle data.

\* Is the binary value for 41 degrees and 184 degrees or 318-320 (or their negative value equivalent displayed on the KCC monitor) and 175 degrees (184 and 175 are the turnaround points for CCW and CW scans respectively) somehow similar so that if a bit or a group of bits could cause an error? e.g. a 4-bit group determined by one DS26C31J IC gone bad??

\* The funnies:

An error on the transformation board should cause the KCC monitor barrel angle to display the wrong data.

Resetting or cycling power to akamai should resolve errors there.

Resetting main power did not fix problem the first time today.

\*\*\* What am I missing here???

WEATHER COMMENT: Sat Apr 5 01:46:42 GMT 2003

Clouds receding again, restarting observations.

Sat Apr 5 01:47:13 GMT 2003 MKIV Start Patrol

Sat Apr 5 01:47:30 GMT 2003 CHIP Start Patrol

Sat Apr 5 01:47:41 GMT 2003 PICS Start Patrol

\*\*MKIV PROBLEM\*\*: Sat Apr 5 01:54:28 GMT 2003

More thoughts:

\* One possibility is the akamai reset or power cycling does not always fix the problem, especially early in the day--problem usually occurs at startup. It may take some time, warm-up (hard to believe due to the length of time it sometimes takes) to go away. It may take a couple or several tries at resets to fix the problem??

MKIV COMMENT: Sat Apr 5 01:59:14 GMT 2003

Centered O1.

\*\*\*\* EVENT COMMENT \*\*\*\*: Sat Apr 5 02:13:06 GMT 2003

There was a small flare at PA 260 between 0030 and 0100 UT.

\*\*\*\* EVENT COMMENT \*\*\*\*: Sat Apr 5 02:15:43 GMT 2003

possible fast CME flashed at that same PA in 0150 UT coronal image.

Sat Apr 5 02:32:51 GMT 2003 CHIP End Patrol

Sat Apr 5 02:33:33 GMT 2003 PICS End Patrol

Sat Apr 5 02:34:35 GMT 2003 MKIV End Patrol

Sat Apr 5 02:38:40 GMT 2003

MkIV

00_08.rawmk4	02_01.rawmk4	18_51.rawmk4	20_12.rawmk4	21_14.rawmk4
00_11.rawmk4	02_04.rawmk4	18_53.rawmk4	20_15.rawmk4	21_17.rawmk4
00_30.rawmk4	02_07.rawmk4	19_00.rawmk4	20_18.rawmk4	21_20.rawmk4
00_33.rawmk4	02_10.rawmk4	19_06.rawmk4	20_21.rawmk4	21_23.rawmk4
00_36.rawmk4	02_13.rawmk4	19_12.rawmk4	20_24.rawmk4	21_26.rawmk4
00_39.rawmk4	02_16.rawmk4	19_16.rawmk4	20_27.rawmk4	21_29.rawmk4
00_41.rawmk4	02_19.rawmk4	19_19.rawmk4	20_30.rawmk4	21_32.rawmk4
00_44.rawmk4	02_22.rawmk4	19_22.rawmk4	20_33.rawmk4	21_35.rawmk4
00_47.rawmk4	02_25.rawmk4	19_25.rawmk4	20_36.rawmk4	21_37.rawmk4
00_50.rawmk4	02_28.rawmk4	19_31.rawmk4	20_39.rawmk4	21_40.rawmk4
00_53.rawmk4	02_31.rawmk4	19_34.rawmk4	20_42.rawmk4	23_27.rawmk4
00_57.rawmk4	17_01.rawmk4	19_37.rawmk4	20_45.rawmk4	23_30.rawmk4
00_58.rawmk4	17_04.rawmk4	19_40.rawmk4	20_47.rawmk4	23_33.rawmk4
01_02.rawmk4	17_09.rawmk4	19_43.rawmk4	20_50.rawmk4	23_48.rawmk4
01_05.rawmk4	17_15.rawmk4	19_46.rawmk4	20_53.rawmk4	23_51.rawmk4
01_08.rawmk4	17_28.rawmk4	19_49.rawmk4	20_56.rawmk4	c18_57.rawmk4
01_47.rawmk4	17_54.rawmk4	19_58.rawmk4	20_59.rawmk4	c19_03.rawmk4
01_50.rawmk4	18_03.rawmk4	20_00.rawmk4	21_02.rawmk4	c19_09.rawmk4
01_53.rawmk4	18_06.rawmk4	20_03.rawmk4	21_05.rawmk4	
01_56.rawmk4	18_45.rawmk4	20_06.rawmk4	21_08.rawmk4	
01_59.rawmk4	18_48.rawmk4	20_09.rawmk4	21_11.rawmk4	