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Mauna Loa Solar Observatory Observer's Log  
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Sun Sep 12 16:39:44 GMT 1999

Year: 99 Doy: 255

Observer: koon

Sun Sep 12 16:40:15 GMT 1999 CHIP Startup--Initializing new tape

Sun Sep 12 16:43:29 GMT 1999 MKIV Start Patrol

WEATHER COMMENT: Sun Sep 12 16:43:32 GMT 1999

Clear sky, hazy below, wind=5 mph from the SW, temp=48 F.

16:43:43 GMT 1999 CHIP CHIP Start Patrol

Sun Sep 12 17:01:52 GMT 1999 CHIP Bias

Sun Sep 12 17:02:53 GMT 1999 CHIP End Bias

Sun Sep 12 17:03:03 GMT 1999 CHIP Water

Sun Sep 12 17:03:43 GMT 1999 CHIP End Water

Sun Sep 12 18:01:50 GMT 1999 CHIP Bias

Sun Sep 12 18:02:30 GMT 1999 PICS Flat

Sun Sep 12 18:02:43 GMT 1999 CHIP End Bias

Sun Sep 12 18:02:53 GMT 1999 CHIP Water

Sun Sep 12 18:03:37 GMT 1999 CHIP End Water

Sun Sep 12 18:05:03 GMT 1999 PICS End Flat

Sun Sep 12 18:14:10 GMT 1999 MKIV Start Cal

Sun Sep 12 18:35:58 GMT 1999 MKIV Start Patrol

Sun Sep 12 19:00:28 GMT 1999 PICS polarization\_calibration

Sun Sep 12 19:00:55 GMT 1999 CHIP Bias

Sun Sep 12 19:01:53 GMT 1999 CHIP End Bias

Sun Sep 12 19:02:12 GMT 1999 CHIP Water

Sun Sep 12 19:02:52 GMT 1999 CHIP End Water

\*\*MKIV PROBLEM\*\*: Sun Sep 12 19:20:44 GMT 1999

The screen readout of Sky Trx. is varying between about 280 and about 345 again, like last Thursday. It has been doing this every time I looked at it today. It is a very regular pattern something like:

346.00, 346.00, 345.00, 280.00, over and over again, each read takes 1 second, so the whole repeating sequence takes 4 seconds. Every four seconds there is an unreasonably low reading around 280.00

Sun Sep 12 20:00:47 GMT 1999 CHIP Gain

Sun Sep 12 20:05:23 GMT 1999 CHIP End Gain

Sun Sep 12 20:05:33 GMT 1999 CHIP Bias

Sun Sep 12 20:06:22 GMT 1999 CHIP End Bias

Sun Sep 12 20:06:36 GMT 1999 CHIP Water

Sun Sep 12 20:07:15 GMT 1999 CHIP End Water

COMMENT: Sun Sep 12 20:43:50 GMT 1999

Extended the dome slot.

Sun Sep 12 21:01:50 GMT 1999 CHIP Bias

\*\*MKIV PROBLEM\*\*: Sun Sep 12 21:02:36 GMT 1999

I'm adjusting the Sky Trx telescope gain. Three revs out on screw gives screen readouts bouncing between 1023 and about 540, with 540 being display every 4 seconds and 1023 the rest of the time. I'm hoping that I can reduce or eliminate the strange rampdown that appears in the signal voltage at a 60 Hz frequency by adjusting the signal gain. 60 Hz noise could be induced on the signal lines from almost any of the AC equipment we use since normal utility power is 60 Hz.

\*\*MKIV PROBLEM\*\*: Sun Sep 12 21:05:41 GMT 1999

Now I'm at 2 revs CCW from start point and the range is 513 to 1023.

\*\*MKIV PROBLEM\*\*: Sun Sep 12 21:08:12 GMT 1999

Now at 1.5 rev CCW from startpoint and range is 463 to 838.

\*\*MKIV PROBLEM\*\*: Sun Sep 12 21:15:00 GMT 1999

Now at 0.5 rev CCW from start and range is 333 to 434.

\*\*MKIV PROBLEM\*\*: Sun Sep 12 21:17:08 GMT 1999

Now back at start point and range is back to 284 to 346.

\*\*MKIV PROBLEM\*\*: Sun Sep 12 21:22:46 GMT 1999

I tried up to 2 revs CW from starting point without any change in the readout or Sky Trx voltage ranges. No hard stop, but no adjustment change either.

\*\*MKIV PROBLEM\*\*: Sun Sep 12 21:53:34 GMT 1999

I put the gain pot back to the starting point. David called and I told him that the pattern Eric saw was related to 60 Hz noise probably,

it has a period of about 17 msec. Also, earlier today, after I noticed that, I checked the noise when the dome was closed, it had a peak-peak amplitude of about 250 mV and looked more like 60 Hz noise induced on cables from normal 60 Hz power lines, when the dome was opened the bottom peak of the noise dropped way down, causing the ramp down that Eric found. It's like the 60 Hz noise is causing something to go below a threshold and then the Sky Trx signal plummets until the noise peaks again. That's why I tried changing the gain, I thought an increase or decrease might help avoid a cutoff threshold, I was only able to adjust the signal upward and there was still a 60 Hz ramp down in the signal. This should be a flat analog DC signal but it is pulsed due to the rampdown that appears to be caused by some 60 Hz signal. I mentioned that the voltage reading is steady and asked if that was given at a high enough time resolution to be used for the pB correction. They only use one read per scan (I think) and a possible maximum of only 2 Hz, so this averaged voltage reading can be used for now to give a much more precise correction.

**\*\*MKIV PROBLEM\*\***: Sun Sep 12 22:12:05 GMT 1999

At David's request I have put a .3 ND filter over the Sky Trx. telescope to see if the signal goes down linearly. It should be in the 140 to 175 range but it is showing about 139 to 141, no big variations, no 4 second period. The o-scope shows very little or no ramp-down and the Sky Trx voltage shown on the screen is about 1.36 volts, and the Datel readout is about 560 (it was about 1380 before). So the signal doesn't vary linearly with light input. Regarding the decrease in the 60 Hz rampdown problem, this is what I was trying to do with the gain but it was already as low as possible, so decreasing the signal does cutout the rampdown problem.

WEATHER COMMENT: Sun Sep 12 22:25:48 GMT 1999

Unfortunately orographic clouds moved in shortly after I put the ND filter in place. But they come and go.

**\*\*PICS PROBLEM\*\***: Sun Sep 12 22:33:46 GMT 1999

The dome was blocking the sun earlier for this instrument, I moved it just before the clouds started coming in. Not sure how long, preoccupied with MkIV tests.

52 GMT 1999 CHIP CHIP End Patrol

WEATHER COMMENT: Sun Sep 12 22:35:09 GMT 1999

Clouds are very thick and staying overhead, closing down.

MKIV COMMENT: Sun Sep 12 22:35:37 GMT 1999

Removed the 0.3 ND, will try to get another scan before shutting down, but clouds are lurking around.

ending tape

**\*\*MKIV PROBLEM\*\***: Sun Sep 12 22:38:20 GMT 1999

So the more the Sky Trx telescope signal is increased, the more the 60 Hz rampdown seems to affect the signal, but why? For now David is going to use an averaged voltage reading as the basis for the pB correction.

**\*\*PSPT PROBLEM\*\***: Sun Sep 12 22:56:47 GMT 1999

Clouds prevented regular shutdown, I tried "Obs" and it did go a little further by giving the menu but when I selected "exit" it still tried to startup in the clouds. I used "pspt\_shutdown" from the IDL prompt to shutdown, that works but doesn't transfer data.

Sun Sep 12 23:08:28 GMT 1999 MKIV End Patrol

COMMENT: Sun Sep 12 23:20:59 GMT 1999

TAPES:

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MKIV: 99255

CHIP: C00919

PICS: P01543

LOWL: L00627 in drive #0

Sun Sep 12 23:21:52 GMT 1999

MkIII

16_43.rawmk3	18_00.rawmk3	19_28.rawmk3	20_45.rawmk3	22_02.rawmk3
16_46.rawmk3	18_03.rawmk3	19_31.rawmk3	20_48.rawmk3	22_05.rawmk3
16_50.rawmk3	18_07.rawmk3	19_35.rawmk3	20_52.rawmk3	22_09.rawmk3

16_53.rawmk3	18_10.rawmk3	19_38.rawmk3	20_55.rawmk3	22_12.rawmk3
16_57.rawmk3	18_17.rawmk3	19_42.rawmk3	20_59.rawmk3	22_16.rawmk3
17_00.rawmk3	18_25.rawmk3	19_45.rawmk3	21_03.rawmk3	22_19.rawmk3
17_04.rawmk3	18_32.rawmk3	19_49.rawmk3	21_06.rawmk3	22_23.rawmk3
17_07.rawmk3	18_36.rawmk3	19_52.rawmk3	21_09.rawmk3	22_26.rawmk3
17_11.rawmk3	18_39.rawmk3	19_56.rawmk3	21_13.rawmk3	22_30.rawmk3
17_14.rawmk3	18_43.rawmk3	19_59.rawmk3	21_16.rawmk3	22_33.rawmk3
17_18.rawmk3	18_46.rawmk3	20_03.rawmk3	21_20.rawmk3	22_37.rawmk3
17_21.rawmk3	18_50.rawmk3	20_07.rawmk3	21_23.rawmk3	22_40.rawmk3
17_25.rawmk3	18_53.rawmk3	20_10.rawmk3	21_27.rawmk3	22_44.rawmk3
17_28.rawmk3	18_57.rawmk3	20_14.rawmk3	21_30.rawmk3	22_47.rawmk3
17_32.rawmk3	19_00.rawmk3	20_17.rawmk3	21_34.rawmk3	22_51.rawmk3
17_35.rawmk3	19_03.rawmk3	20_21.rawmk3	21_37.rawmk3	22_54.rawmk3
17_39.rawmk3	19_07.rawmk3	20_24.rawmk3	21_41.rawmk3	22_58.rawmk3
17_42.rawmk3	19_10.rawmk3	20_27.rawmk3	21_44.rawmk3	23_01.rawmk3
17_46.rawmk3	19_14.rawmk3	20_31.rawmk3	21_48.rawmk3	23_05.rawmk3
17_49.rawmk3	19_17.rawmk3	20_34.rawmk3	21_51.rawmk3	c18_14.rawmk3
17_53.rawmk3	19_21.rawmk3	20_38.rawmk3	21_55.rawmk3	c18_21.rawmk3
17_56.rawmk3	19_24.rawmk3	20_41.rawmk3	21_58.rawmk3	c18_28.rawmk3