

## 200" LFC Test and Checkout (Rev 02-22-08)

It is assumed that LFC is mounted and cabled properly at prime focus, and that the LFC computer (oasis) is cabled and running properly in the computer room.

**Completed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Observer's name:** \_\_\_\_\_

### Data Room:

- [ ] 1. Move a Palomar workstation (currently *planetx* is used; *vulcan* is the backup) to the observer's table, and make sure it is plugged into the network.
- [ ] 2. Power up the computer and login as user at the login prompt. Once you are logged in start the linux window manager by typing:  
  
[user@planetx ~]\$ **startx**
- [ ] 3. When windows is done loading start the LFC guider by double clicking the *start\_lfcguide* icon located at the top of the desktop. The guider should momentarily appear in a VNC window. You may have to “anchor” the guider program by clicking the mouse somewhere in the VNC window if the guider doesn’t appear.
- [ ] 4. Start the lfcguide monitor program by double clicking the *monitor\_lfcguide* icon located at the top of the desktop. This program monitors the lfcguide VNC window. You should see “vncviewer is still kicking...” scrolling by in this new window. If the lfcguider VNC window disappears, this program restarts the VNC automatically. To quit lfcguide, type ^c in the this *guiderwatch.pl* window before quitting the lfcguider.
- [ ] 5. Start a Konsole window by double clicking the *Konsole* icon. Log into oasis by typing:

[user@planetx ~]\$ **ssh oasis -l lfc**

[ ] 6. If you need to edit the filter names file, do it now by typing:

```
oasis% textedit /usr/ccd/config/filters.def
```

You should see 4 lines of text, each with the filter number followed by the filter name. Edit the name only, then remember to save the file.

[ ] 7. There are 4 data disks mounted to oasis; /scr1, /scr3, /scr4, and /scr5 (DO NOT use /scr6 which is the home directory). You need to determine the amount of available disk space for each of these disks by typing:

```
oasis% df -k
```

The output from this command should look like this:

Filesystem	kbytes	used	avail	capacity	Mounted on
/proc	0	0	0	0%	/proc
/dev/dsk/c0t0d0s0	936646	848513	31935	97%	/
fd	0	0	0	0%	/dev/fd
/dev/dsk/c2t6d0s2	8620970	844	8447707	1%	/scr1
/dev/dsk/c2t5d0s2	8620970	5849979	2598572	70%	/scr2
/dev/dsk/c2t4d0s2	8620970	6353453	2095098	76%	/scr3
/dev/dsk/c2t3d0s2	8620970	5899368	2549183	70%	/scr4
/dev/dsk/c2t2d0s2	8620970	4033186	4415365	48%	/scr5
/dev/dsk/c2t1d0s2	8620970	6802041	1646510	81%	/scr6
swap	975392	528	974864	1%	/tmp

You need a disk that has at least 6 to 7 Gigabytes of available disk space. In the above example, /scr1 has 8447707 (8 Gigabytes) of available space, so this is the one you would want to use.

If none of the 4 scratch disks has enough space available, you need to remove old data files from one of them. Change your directory to the scratch disk you want to clear, look around for the large LFC image files (you may need to "cd" to further subdirectories), and then remove these files with the "rm" command.

[ ] 8. Change your current working directory to the empty scratch directory that you determined from above by typing (using /scr1 as an example):

```
oasis% cd /scr1/lfc
```

[ ] 9. Make a new directory using the current date (or observer's name) by typing:

```
oasis% mkdir Jan01
```

[ ] 10. Change your current working directory to this new directory by typing:

```
oasis% cd Jan01
```

[ ] 11. Start the LFC program by typing:

```
oasis% mcdcom
```

```
ccd.001> mosaic lfc2bin
```

```
ccd.001> utility stat
```

The **voltage** output (first column) from this utility command should look like this:

*(if the voltages are zero or some other obviously bad value, do a **cold boot**)*

Utility board status:

```
+40 V at +34.4          CCD temp at -391.6  
+15 V at +16.0          CCD set temp at -391.6  
-15 V at -15.7    Electronics temp at +22.0  
+5 V at +5.1          # access errors    43
```

```
ccd.001> shutter startup
```

```
ccd.001> shutter home
```

```
ccd.001> filter home
```

```
ccd.001> util stat (to verify voltages are still ok)
```

```
ccd.001> filter (verify that the filters match the green sheet)
```

ccd.001> **iraf** (this toggles mcocom to write fits files in IRAF format)

ccd.001.fits> (is now the prompt)

**If anything during step 11 goes wrong, try a cold boot (see below).**

[ ] 12. Take a test image with LFC. Start by taking a bias exposure by typing:

ccd.001.fits> **bias 0 bias**

ccd.001.fits> **go 2** (this takes 2 images, the first is junk)

[ ] 13. Start the iraf display session in the right hand monitor by double clicking the *LFC\_iraf* icon. An xgterm and a ds9 window should appear. In the xgterm move into the current working directory by typing (as in this example):

cl> **cd /lfc/scr1/lfc/Jan01** (“/lfc” is the path to oasis)

[ ] 14. When the 2 bias images are done, you should see the files in this directory. Display the second bias image by typing in the iraf cl window:

cl> **display ccd.002.0** (look at the others too: ccd.002.1, ccd.002.2...)

[ ] 15. Turn on the intercom to prime focus. Take another image to test the shutter by typing (in the LFC program window):

ccd.003.fits> **obj 5 test**

ccd.003.fits> **go**

After a brief pause to wipe the chips, you should hear the shutters open and close.

[ ] 16. Display this image in iraf as you did above by typing in the iraf cl window:

cl> **display ccd.003.0**

You should see an increase in the counts. Depending on the filter and the dome lighting, you might see a pattern of dots over the chips; this is normal.

- [ ] 17. Make sure the guider is working (you should see the guider CCD bias output in the guider window with counts ~ -200) :

ccd.001.fits> **rg** (may have to be entered more than once)

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**Misc:**

- [ ] 1. Make sure that the secondary mirror is up.  
[ ] 2. Set the telescope focus to 30 mm.  
[ ] 3. Test the flat field lamps.  
[ ] 4. Check that remote power cycle box is connected properly.  
[ ] 5. Balance the telescope.
- 

**WARM BOOT**

A warm boot is simply a re-start of the LFC program. Most LFC problems are usually fixed with a warm boot. If your problem persists, try a cold boot.

ccd.002> **quit**

oasis% **mcocom**

ccd.001> **mosaic lfc2bin**

ccd.001> **util stat**

ccd.001> **shutter startup**

ccd.001> **shutter home**

**COLD BOOT**

ccd.001> **quit**

On the silver remote power cycling box located next to *vulcan*, hold the switch down for about 20 seconds to reset the utility board power at prime focus. Once done, type the following:

```
oasis% mcdcom
```

```
ccd.001> mosaic lfc2bin
```

```
ccd.001> clear
```

```
ccd.001> util init
```

```
ccd.001> shutter startup
```

```
ccd.001> shutter home
```

```
ccd.001> util stat
```

```
ccd.001> filter home
```

```
ccd.001> iraf
```

If your problem persists, start the cold boot over. Do as many times as necessary to get you back in service.

### **LFC SHUTDOWN**

To quit LFC operations, type **quit** at LFC program prompt. Logout of the *oasis* window by typing **exit**. Close the guider program by typing ^c in the monitor\_lfcguide window.

### **LFC REBOOT**

TO reboot the LFC computer (*oasis*), follow the LFC shutdown procedure from above. Go downstairs to the *oasis* computer and hit the **SUSPEND** key (top right of keyboard). Choose the Shutdown option and wait for the power to go off. Then power the computer back on.