2.4m MkIII Installation Procedure
Last Updated: 04/17/07 Steven Magee

Prerequisites

This procedure is used when installing the MKIII instrument to the 2.4m telescope Multiple Instrument System (MIS). Instrument rotator needs to face North and telescope needs to be at zenith.

Equipment Needed

- Canned air.
- Allen wrenches.
- Adjustable wrench.

Hardware Installation

Bring in the MKIII to the telescope from its storage location.

Remove the cover and dust off the optics.

Using two people, lift the MKIII onto the hydraulic cart.
Make sure that the focus adjuster is facing North when mounting the MKIII to the telescope.

Put sleeves on the mounting bolts.

Bolt the instrument to the telescope.

Push the slit viewing optics in for the guider camera.

Push the MKIII slit in to the first detent.
If the shutter control box is not mounted, get it from the base of Modspec where it is normally stored. Plug the MKIII shutter cable in to the shutter control box.

Mount the shutter control box to the top of the west side MIS guider section and plug in. The switch on the front panel should be in the N.O. Position.

Attach the CCD power supply to the telescope if not already mounted. Plug it in, but leave it switched off.

Get the tilt plate from the storage area.

Dust off the bottom optics on the MKIII
Mount the tilt plate onto the MKIII with the micrometer facing NE. Leave the bolts out on the North side where the CCD controller mounts.

Mount the CCD controller onto the tilt plate on the North side. Attach the power cable and the shutter cable to the shutter control box.

Remove three out of the four CCD mountings on the tilt plate. Loosen the fourth so that the CCD can slide under it.

Remove the CCD cover and dust off the window.

Mount the CCD to the tilt plate. All CCDS mount with the cables facing West except for Charlotte which faces North. Attach the small cable first and then the large cable.
Balance the telescope.
Vertical 1700
Horizontal 700

If the correct guider lens is installed then bypass the guider steps. If not, then remove the guider access plate and power off the guider at the Fairchild power supply.

Slacken off the guider clamps.

Slide the guider camera assembly out and change the lens to the 85mm. Set focus to halfway between infinity and 10m, set the aperture to wide open at f1.8.

Install the guider assembly and align to the marks. Tighten the clamps and install the cover plate.
In the control room update the observer board with the new configuration.

In the computer room, check that the correct set of optical fibers are connected to the CCDCOM electronics box.

Change the guider cabling over if needed. Video out from the camera selection box connects to the DTI video in. Video out from the DTI connects to the video monitor.

In the computer room, connect the guider “PC Guider” cable to the TCS guider cable.

**Software Installation**

- On the guider keyboard:
  - Type “ctrl+alt+del” on the guider keyboard to reboot the computer.
  - Type “cd guider” followed by “pcguider”
  - Turn on DTI and guider camera selector.
- Log into hiltner.
- From the background menu, select “Telescope control – XTCS”.
- From the background menu, select “Telescope control – XMIS”.
- On both the XTCS and XMIS displays click on initialize.
- In the XMIS display, click on “Preset – Slit”.
- In the XMIS display, click on “in” on Retrocam.
- From the background menu, select “Data acquisition – ccdcom”.
- In the ccdcom window that pops up, type “ccdcom”.
- In the ccdcom window, type “dfwilbur” to download the detector software to the wilbur
detector. If another detector is used, type “df<detector name>” to download the correct software.

- In the ccdcom window, type “ut init” to initialize the CCD detector board.
- Click on the IRAF icon to bring up IRAF.
- Click on the DS9 icon to bring up DS9.
- Both of the above can also be brought up from the background menu on the Data Acquisition menu.
- In an xterm, type “telconfig” and follow the prompts.
- In an xterm, type “ccdconfig” and follow the prompts.
- In an xterm, type “misfilter” and follow the prompts.
- In the ccdcom window, type “?” will list all commands.
- In the ccdcom window, type “sf” to set up the CCD and follow the prompts.
- In the ccdcom window, type “sh op” and “sh cl” to test the shutter.
- Click on the lamps in the MIS gui and this will bring up the comparison lamp gui. Turn on the neon lamp.
- In the ccdcom window, type “comp” for comparison lamps.
- In the ccdcom window, type “et 0.5” to set up for a 0.5 second exposure.
- In the ccdcom window, type “status” for the CCD set up information.
- In the ccdcom window, type “go” to take the exposure.
- In IRAF, change to the current image directory and type “disp<filename>” to see the image.
- If the spectrum is not aligned with the CCD, rotate the detector a little and repeat the exposure. The slit should be aligned within 0.5 pixel along its length.
- Once aligned, tighten up the CCD mounts.
- With the DTI in “direct” mode, raise the voltage control slowly on the camera selector box to check that the guider is light sensitive and to see the slit.
- Rotate the guider until the slit is aligned along its length with the video pixel row.
- Put the guider probe to slit.
- Check that the slit viewing optics are in.
- Put the camera selector to guider.
- Set the camera selector voltage gain to about 1 volt.
- Focus using the guider focus hand paddle (to the left of the guide monitor).
- Keep the DVI integration time below 0.5 second where possible.
- When in focus some scratches may be visible on the slit plate.
- Turn off the flat lamp and put Retrocam to out.
- Turn on TCS power.
- Turn on drives.
- Check telescope balance by watching the telescope currents while moving the telescope.
- Turn off drives.
- Turn off TCS power.
- Turn guider off.