NIRC2 GOTTCHAS – Grant Tolleth 4/3/2003 10:34:00 AM
KEND 004

These are the "Tribal things I've picked up and wanted to document. They really don't belong in an ICD. They might end up on a web page in addition to KEND

Telescope balance
NIRC2 caused up to go to a new Optical baffles configuration. Removing weight from the Transfer module will move the current more positive. Meaning top heavy.

CCR control
Power cycling of the CCR speed control sets it to the default state. Something to do with the DGH not recovering from a power fail and returning to the NIRC2 setup. How to correct is TBD. The DGH may be able to be set up to reset to the NIRC2 state.

Lakeshore 340
This has a special setup. It is password protected. May be downloaded automatically, but Keith did not want this feature. See ICD for the setup info

Dewar
Dewar is very ESD sensitive. Always use personal grounds and cover exposed connector pins. Covers are located in the Instrument lab on the NIRC2 spares shelf.

AO Terminal server
AO terminal setup is odd for Lake Shore 218S. Setup and howto is documented in the ICD.

AO vault equipment power

1) NIRC2 AO heater power supply is on generator power. The switch on the left of the unit as you face it should remain on at all times. It is tie wrapped. If it is tripped or power is interrupted then the NIRC motors lose their brains and need to be homed – See Al Honey
2) The rest of rack is on a Pulizzi

location	term serv	port	pulizzi port
K2 ANC/NIRC2	aotserv1	3011	3 = NIRC2 Lakeshore ctlrs; NIRC2 serial converters; NIRC2 terminal server.

3) To cycle power:
    a. Login to Waikoko
    b. Open up a window.
    c. Telnet to aotserv1 3011
    d. Type in "@@@"
    e. Expect a response of IPC @@@
    f. Type in <F3> to turn off NIRC2
    g. Type in <N3> to turn back on
    h. Cntl] to quit to telnet
    i. Type quit to leave telnet
    j. Verify io and motor daemons are running by typing <ct>
    k. Type start motors to restart the daemons
    l. Log off Waikoko

    Refer to http://www.keck.hawaii.edu:8080/kroot/doc/ksd/ number 174 for more details

Cycling the UCLA rack power

This can be done by going to circuit breaker panel "NCP2" and cycling cir 16 ("Clean" power). Dirty power is on panel "NP2" cir 18

Servicing fixtures

They were handed over to Bill Mason. Some will remain on site some went into storage. They are as follows and they are located TBD

Testing the AO terminal server communications link

1) Want to see if the NIRC2 motors work?
    a. Login to Waikoko as NIRC2ENG using the usual password
    b. Open up a window.
    c. Type <showmot>

    Will return something like:

    1 CAMRAW = 260605 counts
    2 GRSRAW = 264098 counts
    3 SHRRAW = 0 counts
    4 FWIRAW = 108111 counts
    5 FWORAW = 191445 counts
    6 PMSRAW = 197000 counts
    7 PMRRAW = 14133 counts
    8 SLSRAW = 508723 counts
    9 SLMRAW = 359875 counts
    10 PSIRAW = -1007 counts
    11 PSORAW = -1006 counts

    d. The counts may be different but the number of responses should be 11.

2) Want to see it the Lake Shores are alive?
    a. Login to Waikoko as NIRC2ENG using the usual password
    b. Open up a window.
    c. Type, <ad 5 “REV?”>. Lake shore 340 should return something like 102097,01.01.09,000000,032,041497,01.01.07,0000,000000,00.00.00
    d. Type <ad 6 “datetime?”> Lakeshore 218S should return the universal (Zulu) date and time. Zulu is 10 hrs ahead of us.

Testing the CCR terminal server communications link

1) Login to Waikoko as NIRC2ENG using the usual password
2) Type <ad 2 “RS”>. A number will be returned. This number means **TBD.**

Monitor of the temperatures

1) Login to Waikoko as NIRC2ENG using the usual password
2) Open up a window.
3) Type <showtemps>. Result is several temp location names are returned with associated temperatures.

Motor movement commands

1) To home motors after power cycle
    a. mm SLSINIT = 1 /*initializes motor 8 slit motot */
    b. mm SLSHOME = 1 /* homes motor 8 */
    c. mm SLSRAW = 10000 /* moves the motor – only works when motor homed*/
2) Other stuff
    a. Cheating the slsraw – tm 8 h = 1 sets variable h to be homed so slsraw will work
    b. Raw commands
        i. Tm motor# command to tell them what to do for example
            1. tm 8 d=1000 /* set abs position
            2. tm 8 g=2 /* invoke abs pos move
            3. tm 8 RUN /* make the move
            4. am 8 Rg /* g should be 0 at the end of the move
            5. am 8 RBm /* negative limit s/b 1 if active
            6. am 8 RBp /* positive limit s/b 1 if active
            7. tm 8 AMPS= value /* torque normally 80
            8. tm 8 f=value /* speed =normally 150000

3) This is supposed to be on the web
    a. http://www.keck.hawaii.edu:8080/realpublic/inst/nirc2/motor_commands.html
4) To replace a motor you need the cables in the NIRC2 cable box.
    a. Go to eelab directory and install the applications found in NIRC2 directory. These are Anamatics provided communications application for their motors. It can also be found on their werbsite There are 6 separate files to move to floppy or use the big one if you are on the WEB.
    b. Connect the RS/232 cable and download a program. Connect the RS485 cable and verify communication. These programs can be found at TBD or use the one in Appendix A. Swaping the memory from the dead motor to the spare will work if the memory is not the problem.
    c. To verify move type
        i. g=1
        ii. RUN
        iii. g=2
        iv. d = some number i.e 10000
        v. RUN
    d. Motors have hot swapable memories but Al Honey swears he's had troubles so don't' do that.
    e. Log on to Waikoko usual password. cd to motor_config and all the stuff is there. For the different motors. Keep in mind you may have to clear the memory i.e fill it with END if a smaller application is written after a larger one.

Appendix A

```
RS4
BAUD9600
ECHO_OFF
IF g==2 GOSUB2 ENDIF
IF g==32 GOSUB6 ENDIF
IF g==4 GOSUB3 ENDIF
IF g==16 GOSUB5 ENDIF
IF g==1 GOSUB1 ENDIF
IF g==8 GOSUB4 ENDIF
IF g==64 GOSUB7 ENDIF
END

C1
  KA=0 KD=5368 KG=0 KGOFF KI=537 KL=2684 KP=1342 KS=1 KV=0 F=1
a=1
  c=2048 A=500 f=32212 V=f AMPS=50 e=500 E=0 b=-200 h=0 i=0 UAO
UA=1 g=0 RETURN
END

C2 UAO UA=0 WAIT=1000 E=e V=f MP P=d+b G TWAIT
  V=f/10 P=d G TWAIT
  WAIT=c UA=1 WAIT=1000 E=0 V=f g=0
RETURN
END

C3 h=0 E=e UAO UA=0 WAIT=1000 V=32000
  IF Bm D=2000 MP G TWAIT ENDIF
  V=-32000 MV G TWAIT
  V=32000 j=I MP P=@P+2100 G TWAIT
  P=I-20 V=3200 G TWAIT WAIT=c
  E=50 P=I+20 V=320 G TWAIT WAIT=c
  UA=1 WAIT=1000 E=0 j=@P-I O=j+i V=f h=1 g=0
RETURN
END

C4 P=d G g=0 RETURN
END

C5 UAO UA=0 WAIT=1000 E=e V=f g=0 RETURN
END

C6 UAO UA=1 WAIT=1000 E=0 g=0 RETURN
END

C7 h=0 UAO UA=0 WAIT=1000 E=50 V=320 D=100 MP G TWAIT
  D=-100 G TWAIT
  WAIT=4096 UA=1 WAIT=1000 E=0
  j=@P-I O=j+i d=j+i V=f h=1 g=0
```

```
RETURN
END

PRINT("version 1.5")
```