**GEMINI II Field guide:** A summary of Losmandy videos and information from GEMINI URL..... Brad D Wallis

last revised 5/26/2016

**CWD**

Video shows how to put mount in CWD position

Use level to make DEC axis vertical
Use level to make saddle base horizontal

**INITIAL SETUP**

Video shows how to put in basic parameters for GEMINI to function

Start with Mount in **CWD** position

**QUICKSTART**

**MOUNT**

**LONGITUDE** **ENT** **LATITUDE** **ENT** **TIME ZONE** **ENT**

**NEXT**

**DATE** **ENT** **TIME** **ENT**

**SET**

**NEXT**

How to enter LAT/LON ...... My LAT/LON is

-119° 00' 36" +34° 48' 38.52"

**GEMINI wants** -119:00:36 34:48:38

to get lat lon in **DD:mm:ss** **DDD:mm:ss** you can use

http://www.latlong.net/
MOUNT STARTUP MENU

QUICK START      set lat/lon  time etcs
COLD START       first time or when mount is moved or CAL is bad

WARM RESTART     for situation in observatory where mount is stable

NIGHT OF VIEWING

Video shows how to start up GEMINI for a night of “viewing”

COLD START
MODELLING
pick star  (press EAST or WEST until you get a star you want to use )
GOTO
center with HC
MODEL
ALIGN
BACK   REPEAT FROM GOTO for more stars

or  GOTO and  PICK OBJECT
MODELING

Video shows how to build up GEMINI’s model for accurate pointing

MENU
FUNCTIONS
MODELING
star in west
GOTO
center
MODEL
ALIGN ➔ ➔ IF YOU DO NOT HIT ALIGN … THIS STAR WILL NOT BE ADDED TO THE MODEL ***
BACK
GOTO..... repeat
3 in WEST .... 1 in EAST minimum

NOTES on MODELING:
A model using 3-5 stars allows GEMINI to determine Polar Alignment errors
A Model using 5-9 stars allows analysis of mount non perpendicularity
A Model using 10+ stars on each side of the meridian allows instrumental flexure analysis
REFRACTION corrections are calculated for the model that has been built
Refraction correction can be turned off when using driver programs that take refraction into account

PARKING THE MOUNT

Video shows how to PARK / UNPARK the mount

GOTO
PARK
at CWD POSITION
and it turns itself off after PARK
for RESTART
TURN ON GEMINI

GOTO
PARK
UNPARK

TRACK FUNCTION
Video shows how to use the TRACK function for tracking comets/craters/etc.

MENU
TRACK
COMET/ USER DEFINED
center on object you want to track
TRAIN
wait up to 45 min
re-center
COMET
SET

SETTING SAFETY LIMITS
Video shows how to set safety limits / how to override preset safety limits

*** If you want to image objects as they go past the MERIDIAN by more than ~1 hr
*** You are going to want to change the GEMINI’s MERIDIAN LIMITS...

WARNING: When you override the preset MERIDIAN limits you need to pay attention
to avoid running the scope into the pier
SLEW to PRESET SAFETY LIMIT
GEMINI will beep when you approach LIMIT
GEMINI will beep LOUDLY when you hit the LIMIT

Change to CENTER speed and move past the LIMIT

Then go to MOVE speed and move the mount to the new LIMIT that you want

**MENU**
**MOUNT**
**LIMIT**
**SET LIMIT HERE**

***SAFETY LIMITS can also be set by doing **MENU → MOUNT → LIMITS**
And then inputting the new desired SAFETY LIMITS for travel beyond the Meridian

ALIGN or SYNCHRONIZE

Video shows how to improve mount pointing model and how to make a correction to the model if the mount is bumped...

First, Improving pointing MODEL

**MENU**
**ALIGN**
**BRIGHT STAR**
select star
center
**MENU**
**ALIGN**
**ALIGNMENT** repeat

IF MOUNT IS BUMPED / DISTURBED

“push” mount to get star back near center
CENTER the star using the hand controller

**MENU**
**ALIGN**
**SYNCHRONIZE**
POLAR ALIGN CORRECTION

Video shows how to use the POLAR ALIGN ASSIST Function of the GEMINI

**NOTE:** PAA is said to get polar alignment to within about a degree of the pole. In statements on the GEMINI website, PAC or a Polar scope will get your alignment much closer than a degree and drift alignment will provide even better alignment.

```
MENU
FUNCTION
MODELLING
WEST
GOTO
  Center star
MODEL
ALIGN
BACK
GOTO
Center Star
MODEL
ALIGN
BACK
GOTO
Center Star
MODEL
ALIGN
BACK
GOTO
Center Star
MODEL
PAC
Center star using AZ/EL
DONE
```
HC MENU SELECTION allows you to flip RA/DEC HC directions

TITAN AZ/EL ADJUSTMENT

TURNING EL KNOB CW LOWERS POLAR AXIS AXIS
TURNING AZ KNOB CW PUSHES THE MOUNT’s AZ

MOUNT BALANCE (from Gemini-2 web site)

MENU
MOUNT
BALANCE

Hand Controller will show X (RA) and Y (Dec)
Motor power use

See http://www.gemini-2.com/hc-English/En-balance.php for full explanations

If Y LINES are long then mount is out of balance in DEC
If X LINES are long then mount is out of balance in RA

CONNECT TO GEMINI WEB SITE INTERFACE (from Gemini-2 web site)

FIRST GET GEMINI IP ADDRESS
MENU
MOUNT
NETWORK
⇒ GEMINI UNIT’s IP ADDRESS
Then in browser on PC http://IP_ADDRESS

Username is admin w/ no password
Barnard Objects  ...

There is no Barnard Catalog in the various catalogues on the GEMINI 2

Here is a short listing of the LDN identifiers for a number of popular
Barnard Objects

<table>
<thead>
<tr>
<th>Barnard</th>
<th>Object Description</th>
<th>LDN</th>
<th>IC</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>Horsehead Neb</td>
<td>1630</td>
<td>IC</td>
</tr>
<tr>
<td>68</td>
<td>super dark nebula below Snake</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>72</td>
<td>Snake Neb</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>frilly neb above snake neb</td>
<td>112</td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>Parrot head Neb</td>
<td>1771</td>
<td></td>
</tr>
<tr>
<td>142</td>
<td>Aquilla Dk Neb (part of E Nebula)</td>
<td>688</td>
<td></td>
</tr>
<tr>
<td>143</td>
<td>Aquilla Dk Neb (part of E Nebula)</td>
<td>694</td>
<td></td>
</tr>
</tbody>
</table>

RA/DEC of Barnard Objects  J2000

<table>
<thead>
<tr>
<th>Barnard</th>
<th>Object Description</th>
<th>RA/DEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>Horsehead Neb</td>
<td>17:22:38 -23:50:12</td>
</tr>
<tr>
<td>68</td>
<td>super dark nebula below Snake</td>
<td>17:22:38 -23:50:12</td>
</tr>
<tr>
<td>72</td>
<td>Snake Neb</td>
<td>17:23:50 -23:41:51</td>
</tr>
<tr>
<td>75</td>
<td>frilly neb above snake neb</td>
<td>17:25:20 -22:00:00</td>
</tr>
<tr>
<td>87</td>
<td>Parrot head Neb</td>
<td>18:04:10 -32:32:25</td>
</tr>
<tr>
<td>142</td>
<td>Aquilla Dk Neb (part of E Nebula)</td>
<td>19:39:41 +10:31:00</td>
</tr>
<tr>
<td>143</td>
<td>Aquilla Dk Neb (part of E Nebula)</td>
<td>19:41:25 +11:00:00</td>
</tr>
</tbody>
</table>
CONNECTING to GEMINI using ETHERNET cable with PC to add new or modified catalogues

Using an ethernet cable between Gemini and your computer:

1. establish a fixed IP to your computer (eg 192.168.0.1)
   - Control Panel / Network Connections / network connection properties / TCP IP
2. use your web browser by connecting to the address 192.168.0.111
3. in the new window: username = admin and validated without password
4. Gemini homepage appears
   - click on "SD Card" then "HCFirmware"
5. select the new catalog (click on Browse, select .guc file) and press Submit
6. on the hand controller, go to Menu, HC, and press Download
   - a scrollbar appears ... the new catalog is load

Now you can use it

CREATING A NEW CATALOG FOR THE GEMINI 2

New catalog data is entered into a text file in the format:
   name, Right Ascension, Declination, information (separator comma is important)

The Right Ascension is in the form 00:00:00 (6 digits separated by ":") and Declination as +00:00:00 (sign (+ or -) 6 digits required separated by ":")
A maximum of 20 characters for the name and 50 for information (this can vary slightly depending on the characters used)
Save the file in text format and then rename the file with the extension ".GUC"