

The basic assembly is simple and you can probably get the robot assembled etc with no problems. Most of the cables only fit in one place or are labeled clearly. We have installations photos on the web too at:

<http://aeronet.gsfc.nasa.gov:8080/Operational/pictures/photos>

For the most part, once you have the robot assembled, orient it so the zenith motor casing is pointing roughly East (the metal claw to which the sensor head is attached, then points to the West). This is just a rough starting point. The set-up details below should aid you.

A labeled photo defining the Cimel component terms is below. **(FIGURE 1)**.

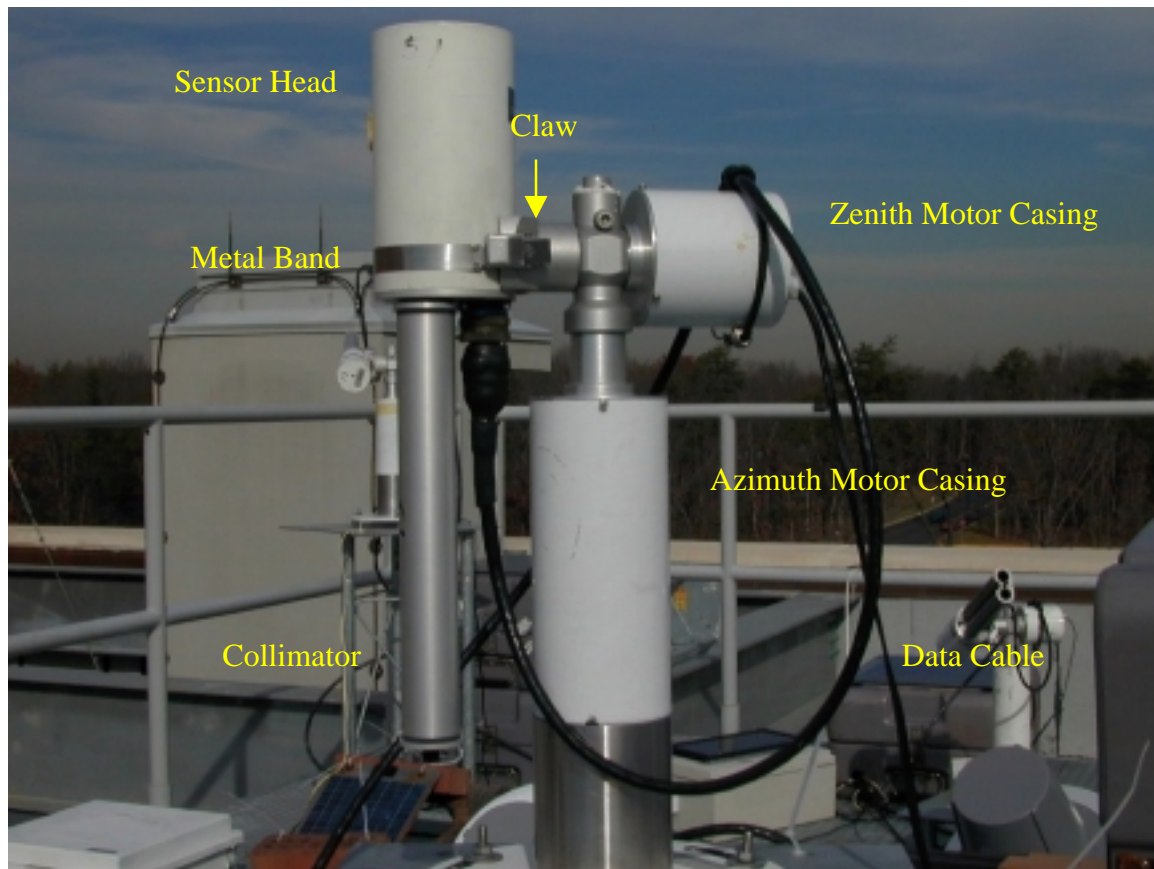


Figure 1: Cimel sunphotometer with sensor head and data cable attached

***** SET_UP *****

The round connector end of the data cable should be attached to the the sensor head, and the flat connector should be plugged into the white Cimel control box. Strap the sensor head to the robot metal claw using the silver metal band. Make sure that the face of the sensor head is flush with the edge of the metal claw (**FIGURE 2**).

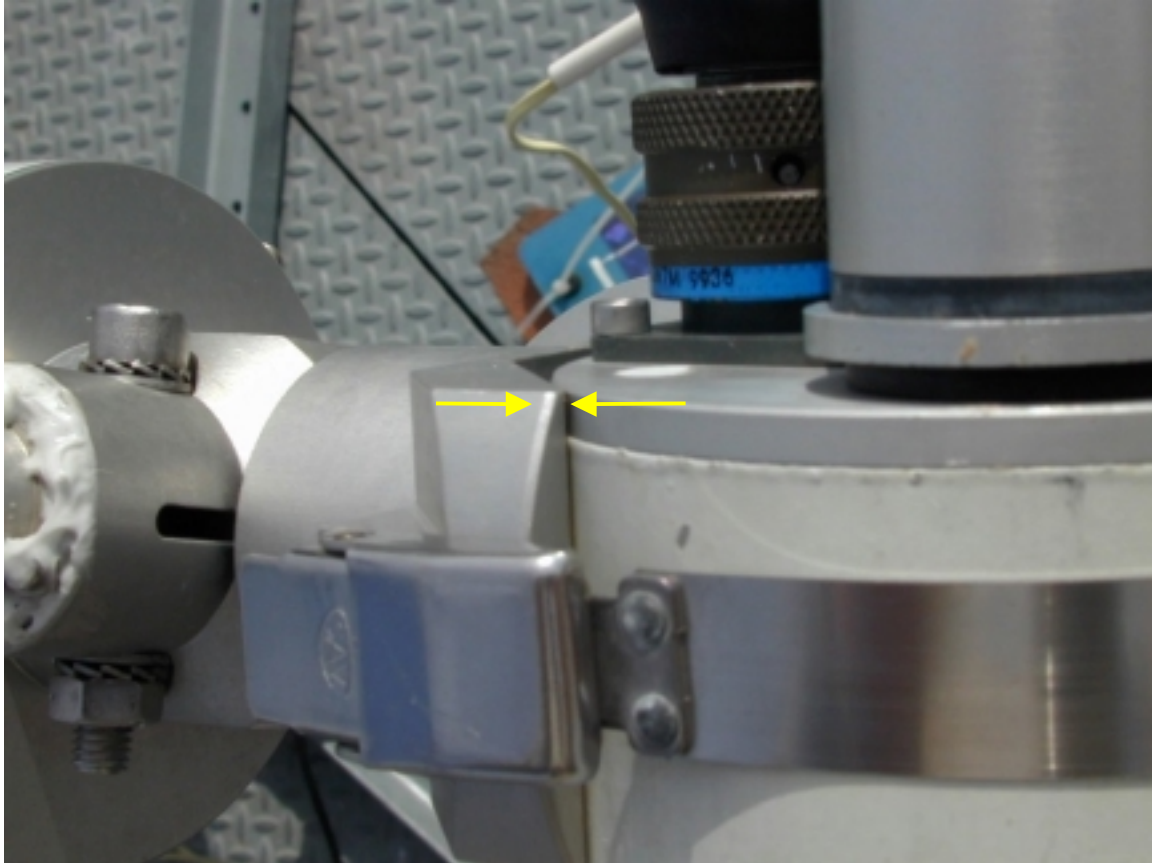


Figure 2 : Attached sensor head edge should be flush with the robot claw edge

Also, ensure that the long axis of the collimator cross-section is perpendicular to the axis of the zenith motor casing and claw. **(FIGURE 3)**

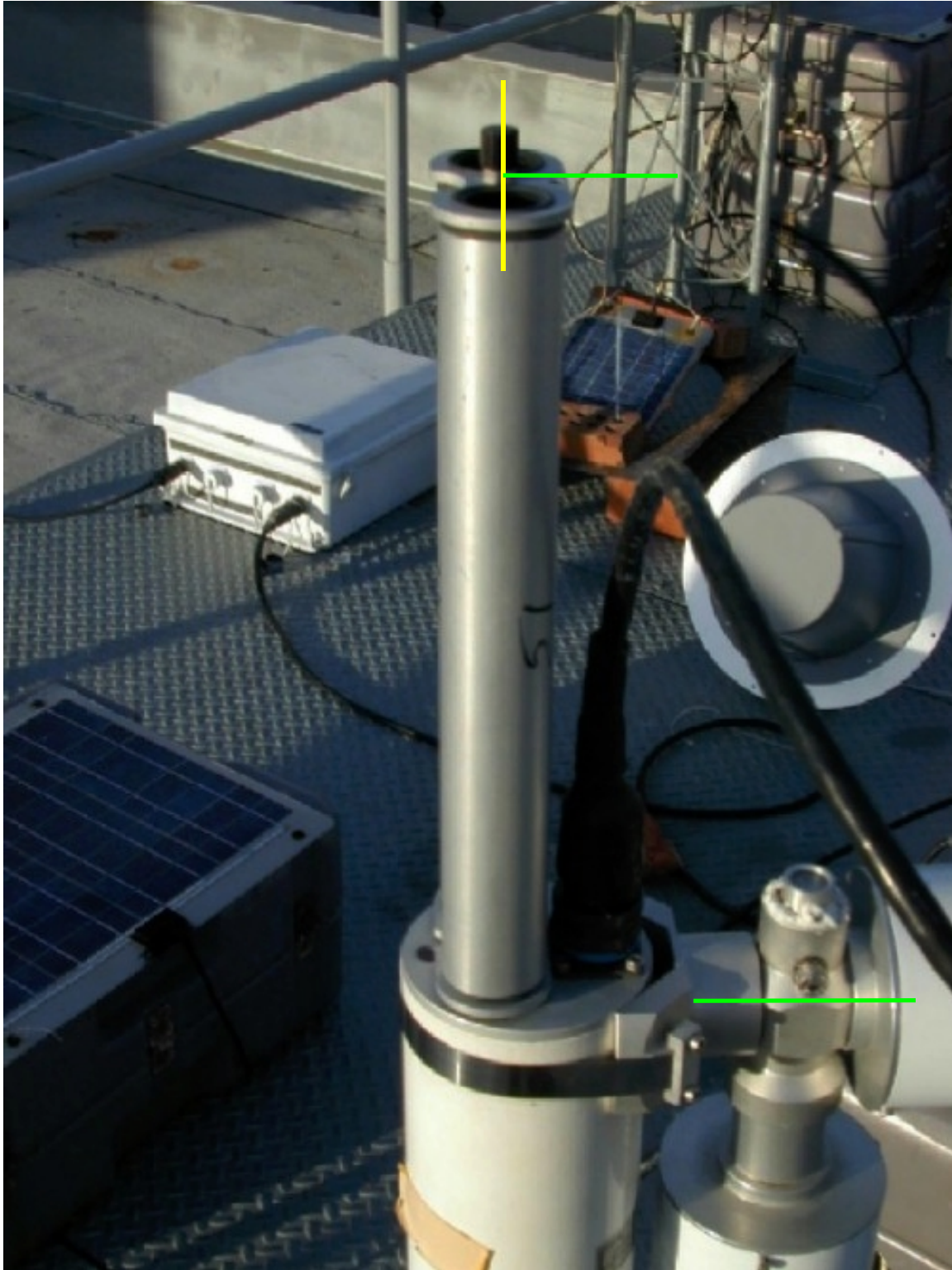


Figure 3: The long axis of the collimator cross-section (yellow) should be exactly perpendicular to the robot's zenith motor axis (green)

Verify the Cimel control box TIME and DATE are correct, i.e., that it agrees with the Vitel clock. If the Time or Date are wrong, the Cimel will NOT find the sun on a GOSUN command.

Verify that the ROBOT itself is level. Do not use the bubble level on top of the ROBOT. Place a different bubble level on top of the flat ledge of the central robot tubular body (below the sensor head motor) This should be level in both the N/S and E/W axes. **(FIGURE 4)**

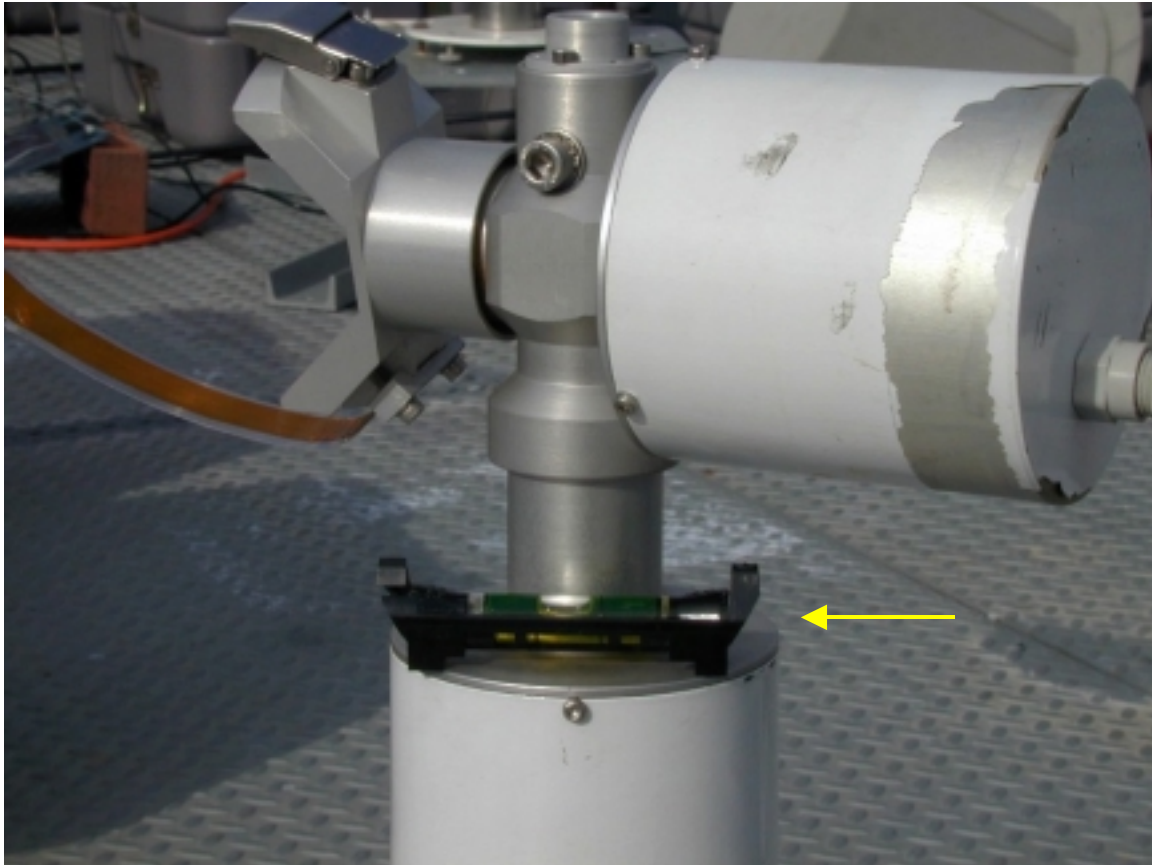


Figure 4: Leveling robot (Do not use top bubble level).

Put the Cimel in manual mode (This is described in accompanying documentation)

In Manual mode, the main screen looks like this:

PW MAN SCN VIEW

Do a Park procedure (Also described in the document)

When PARK is complete it should result in a parked position where the sensor head collimator is pointing down, perpendicular to the ground. Place the bubble level on the top of the metal claw arm (**FIGURE 5**) and verify that this is level.

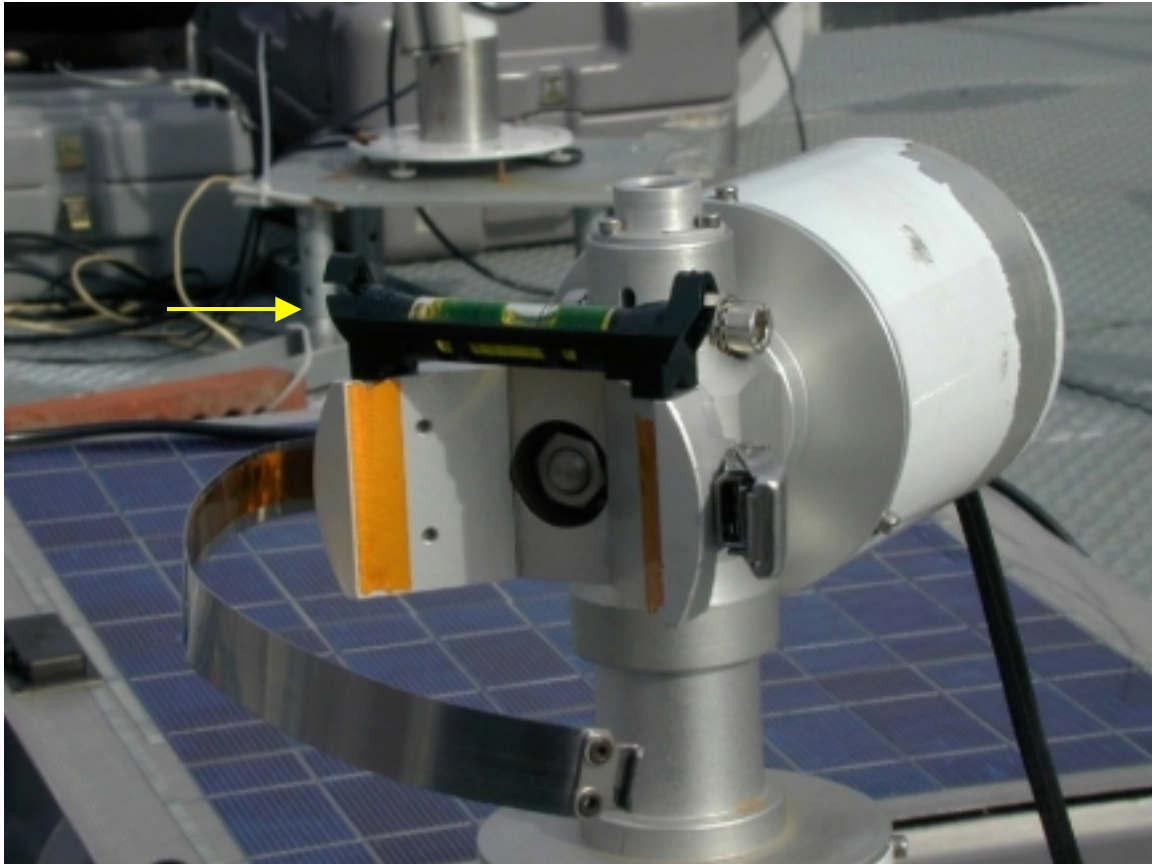


Figure 5: Leveling robot claw (sensor head attachment point)

If not, loosen the zenith bolt's hex nut (below the permanent bubble level on the top of the robot) **(FIGURE 6)** and level it by rotating the zenith motor casing with your hand.



Figure 6: Zenith bolt used to adjust sensor head leveling

Re-tighten the zenith nut tightly. **(FIGURE 7)** Important: Perform another PARK procedure or two and make sure it is in fact level.



Figure 7: Adjusting zenith bolt

Using the right 2 buttons, change the display to read GOSUN. Select GO to initiate. The sensor head should point to the sun. **(FIGURE 8)**



Figure 8: Cimel performing a GOSUN procedure

The hole at the top of the collimator should allow the sunlight to illuminate the marker spot at the base of the collimator. **(FIGURE 9)** When the bright spot is on the mark, the instrument is aligned. If it is off to the left or right, rotate the robot base to align it. After you rotate the robot, you will need to verify that the robot is still level as before.



Figure 9: Sun spot from collimator centered on white alignment disk

PARK the instrument. Perform another GOSUN to check that the alignment is still good. If not, ensure that the robot is level, and that the sensor head is level when manually parked. One note: when you level the sensor head and do a GOSUN, repeat this process a few times to be sure of the alignment. The first GOSUN after leveling is often not correct because moving the sensor head while leveling can temporarily mess up the robot's zeroing point. Re-PARKing and doing a second GOSUN will be more accurate. If the alignment seems accurate, and consistent on repetition, you can continue.

Press PW then increment to 4, and place the instrument in AUTO mode (Putting the Sunphotometer in manual is also in the other documentation)

The main AUTO mode display should read:

PW AUTORUN VIEW