

ARCS PROCEDURE	CIMEL MOTION TROUBLESHOOTING	PRO(CIMEL)-005.000
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CIMEL Motion Troubleshooting

I. Purpose:

This document describes how to troubleshoot problems associated with the tracking function of CIMEL. Scenarios assuming motor problems are discussed.

II. Cautions and Hazards:

None.

III. Requirements:

None.

IV. Procedure:

A. Determining if the zenith motor is not operating:

1. In Manual mode, observe the robot when you do a Gosun. Can you hear the zenith motor whirring after the robot orients itself azimuthally? Does the robot try to raise the sensor head in the zenith direction, but the sensor head sort of flops about aimlessly?
 - a) If the zenith motor is running smoothly and perhaps the sensor head flops a bit in the zenith direction, then you probably have a loose zenith nut. Follow the steps below.
 - ⇒ Tighten the nut after leveling the sensor head bracket. The zenith nut/bolt is that nut/bolt right under the level bubble on the robot.
 - ⇒ Level the sensor head bracket as described in *Replacing the CIMEL Sensor Head and Control Unit — PRO(CIMEL)-003*.
 - ⇒ Tighten the nut with a socket and an Allen wrench. If this was the problem, then it should track in both directions now.
 - ⇒ Re-aim the instrument.
 - b) If the procedures above do not resolve the problem, or if the zenith motor does not appear to be operating, then test the integrity of the zenith wire as outlined in the next section.

B. Testing the integrity of the zenith wire:

1. Swap the azimuth wire with the zenith wire at the CIMEL controller pushpin. In other words, swap the azimuth and zenith wires where the

ARCS PROCEDURE Author: R. Nelson	CIMEL MOTION TROUBLESHOOTING	PRO(CIMEL)-005.000 6 March 2002 Page 2 of 2
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"telephone connectors" enter the white CIMEL control box. Just pop the zenith telephone connector into the azimuth jack and vice versa.

2. Wait for the sp to fire up and see if the robot now moves in the azimuth or zenith direction. To perform this task manually:
 - a) Set the sp in Manual mode.
 - b) Do a Park.
 - c) Do a Gosun.
3. If the azimuth motor works, but the zenith motor does not, the zenith male wiring or the zenith motor itself is likely the problem. Follow the steps below:
 - a) Make sure the zenith male and female wires are clean and corrosion free.
 - b) Replace one the zenith wire's male connector with a new one.
 - c) Reconnect the wires and see if the motor works.
 - d) Repeat steps b) and c) for all four wires; It is possible that one or more of the four zenith motor wires is not making a solid connection.
 - e) If the zenith motor still does not run after replacing the male zenith connector, then the motor itself may need to be replaced.
4. If the zenith motor works, but the azimuth motor does not, the zenith female wiring or the CIMEL pushpin is likely the problem. Follow the steps below:
 - a) Make sure the zenith female is clean and corrosion-free.
 - b) Reseat the CIMEL pushpin on top of the white CIMEL control box a few times.
5. If all the above procedures fail, it is strongly recommended to replace the robot as a whole.

V. References:

1. Multi-Channel Scanning Sun and Sky Photometer/Radiometer — MAN(CIMEL)-001.
2. Replacing the CIMEL Sensor Head and Control Unit — PRO(CIMEL)-003.

VI. Attachments:

None.