Appendix A1 - Restoring Non-Volatile Memory

This appendix outlines a procedure that allows the user to restore the contents of non-volatile memory. A number of events can make this necessary, including:

i.   changing the battery which powers the non-volatile memory and allowing the center tab of the battery holder to touch the base of the battery holder,

ii.   performing maintenance on the controller,

iii. swapping one controller out for another, or

iv. upgrading to a newer version of the software which uses a memory map different from the original memory map.

Here is the procedure ...

1.   In manual mode, jog the antenna to the Azim CW and Elev up limit. Record the position count value for each axis just before the limit is reached. (If position display in degrees is enabled, disable that feature before starting this procedure.)

2.   Go to CONFIG mode and record the value of each CONFIG mode item.

3.   Using AUTO mode, position the antenna on each of the geostationary satellites stored in non-volatile memory. Record the azimuth and elevation positions and the longitude value of each geostationary satellite. Use the H and V keys to position the polarization control device (if one is present in the system). Record the H and V positions for each satellite. (If polarization position display in degrees is enabled, disable that feature.)

4.   Move the antenna to the position just before the Azim CCW and down limits are reached. This should correspond to a position count value of 30 for both the azimuth and elevation axis.

5.   Turn the unit off, unplug the unit from the AC power, and perform whatever maintenance is required. If the EPROM is replaced, be sure to insert the chip into the socket properly. The notch on the end of the chip should line up with the notch of the outline silk-screened onto the printed circuit board under the EPROM socket. When the maintenance has been performed, power the unit up. If the non-volatile memory has been corrupted, the unit will either go to LIMITS mode or will flash an error message on the bottom line of the display. If this occurs, the following steps of this procedure will have to be performed to restore the non-volatile memory.

6.   Go to LIMITS mode. WITHOUT MOVING THE ANTENNA set the Elev down and Azim CCW limits. AFTER THE AZIM CCW AND DOWN LIMITS HAVE BEEN SET, jog the antenna to the positions for the Azim CW and up limit recorded in step 1. Set the AZIM CW and up limits. After the AZIM CW and up limits have been set, exit LIMITS mode by hitting the MODE KEY.

7.   Go to CONFIG mode and key in the data recorded in step 2 above. Each entry must be terminated with the ENTER key. After the data has been entered scroll through the CONFIG mode items (using the SCROLL keys) and make sure that the data has been entered correctly.

8.   In this step, the positions of the geostationary satellites are stored in non-volatile memory. Go to SETUP mode. Position the antenna on each of the satellites that were recorded in step 3 above. The satellites should be found at the locations that were recorded in step 3 above. Select the satellite name, enter the satellite longitude, and move the polarization control device to the H and V positions in response to the appropriate SETUP mode prompts.

Appendix A2 - Recovering From Unexpected Memory Upsets

The key to restoring the non-volatile memory is getting the azimuth and elevation limits and position counts right. The position counts are initialized to 30 when the azimuth CCW and elevation down limits are set. If the antenna can be unambiguously placed at the azimuth CCW and elevation down limits, non-volatile memory can be restored quite easily. It is probably a good idea to use a punch or a waterproof pen to mark the antenna and mount assembly so that the azimuth CCW and elevation down limit positions can be identified. In addition, it may be useful to identify and mark other places on the mount where slippage could occur. This would allow the mount to be restored to its original configuration.

If the contents of non-volatile memory are recorded as outlined in steps 1-4 above, recovery from an unexpected memory upset can be readily accomplished. If the memory is corrupted, the antenna can be moved (in LIMITS mode) to the Azim CCW and down limit with the aid of an assistant stationed at the antenna. Next, steps 7-9 can be used to restore the contents of non-volatile memory.

Note that the procedure for restoring non-volatile memory only works if the count characteristics (counts per inch for linear actuators) of the actuators are not changed. If the actuator count characteristics are changed, the count values that correspond to the azimuth CW and elevation up limit will change, as will the positions of all of the satellites.