

Instructions for Replacing the firmware EPROM in the RC3000.

Software and Hardware in the RC3000 is subject to constant improvements and modifications to specific customer requirements. It is often possible to install new operational features in a fielded RC3000 without shipping it back to the factory. Occasionally in these cases, it will be necessary to replace the firmware, stored in an EPROM device on the digital board with a new EPROM containing an updated program.

Often, firmware modifications are keyed to individual serial numbered RC3000 controllers and their specific hardware configuration. Be sure that you are replacing the firmware in the correct controller!

Below are the steps required to safely replace the operating software of an RC3000 controller.

It is expected that this work will be carried out by a qualified electronics technician who is familiar with the RC3000 hardware and RC3000 operating firmware.

The tools that are required for an EPROM replacement are: a #2 Phillips-Head Screwdriver, a 28-pin DIP chip-puller, and a static-free workstation.

- 1) Turn on antenna controller. Enter the Configuration Mode, Expert-Access-Permission group. Verify that the controller is in Super-User Mode (level #2). (see Section 3.3.1.1.1 of the RC3000 Manual)
- 2) Enter into each group of the Configuration Mode and record on paper, the value of each item. The configuration item worksheet of appendix 2 of the manual will be useful for this purpose. It is likely that you will need to re-enter this data after the EPROM change if upgrading the software to include use of GPS & FG Compass, PC remote control, or inclined orbit tracking. This action is meant as an insurance measure. (see Section 3.3 of the RC3000 manual)
- 3) Turn off the RC3000 Antenna Controller at the front panel switch.
- 4) Remove the controller from the rack and disconnect all cables, make sure that the cables are properly marked for re-attachment.
- 5) Move the controller to a static-free workstation.
- 6) Remove the 11 lid screws (8 on top and 3 on back panel) with a #2 phillips screwdriver. Remove the lid by sliding back about 1 cm and then lifting off.
- 7) Locate the system EPROM, U1 on the Digital Board. See the accompanying diagram, 3Kdig1bpcb.pdf. U1 lies in the lower right corner of the picture near

the board name (3KDIG1B) and the copyright statement. This lies on the right-hand-side of the chassis near the front panel when the board is installed in the RC3000 chassis.

- 8) Remove the original EPROM using an approved DIP chip pulling tool.
- 9) Install the new EPROM. Note the position of pin 1 is near the reference designator "U1" on the silkscreen. Normally, the device will have a "scallop" in the body on the pin 1 end. Verify that all pins are in their respective sockets. A common fault is for a pin to fold under the DIP device while it is being inserted.
- 10) Install a line cord into the AC power inlet of the RC3000 while it is still on the test bench. Verify that the RC3000 Startup banner is displayed upon power up. This indicates that the software is working. Power the unit down and remove the line cord.
- 11) Re-install the lid. Reverse of Step 6, above.
- 12) Re-install the RC3000 controller into the vehicle. reverse of Step 3 and 4 above.
- 13) If a System Reset is required (only in the case of a major memory map change, or upgrading software to include use of GPS & FG Compass, PC remote control, or inclined orbit tracking) Perform the RESET DEFAULTS function now. See Section 3.3.1.3.1 of the RC3000 manual.
- 14) Verify the integrity of the Configuration items logged in Step 2. above. If any items are incorrect or corrupted, re-enter the data.
- 15) Contact the technical support line with any questions.