

# ASTRO-PHYSICS

## INSTALLING NEW ROM CHIP INTO GTO CONTROL BOX – MODEL GTOCP2

### Static

Microchips can be damaged by static discharge. Avoid handling the chip while walking on carpet or rug. Work on a wood table and use the anti-static bag that the chip came in as a backing for the circuit board.

### Removing the Circuit Board from the Box

Remove the Servo Drive Control Box from the carrying bag for the 600E and 400 mounts and from the dovetail of the 900 and 1200 mounts (please refer to your mount's instruction manual if further instruction is needed). Using a 5/64 hex key wrench, remove all (5) 2-56 socket head cap screws that retain the white painted cover. If you try to remove the chip at this point, you may damage the carrier because the side of the box is in the way and will not allow you to position the extraction tool properly. We advise that you take a few extra minutes to remove the remainder of the screws as described below.

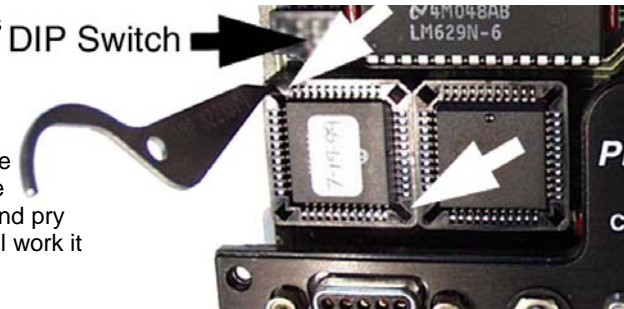
Using a 10" extra long Phillips screw driver with a number 1-point or a 6" Phillips hex drive power bit, remove the 4-40 Philips machine screws that retain the 4 heat sinks at the back of the board. To remove the screw on the far right, you may need to gently move the toroid inductor (metal coil) to one side. The connection to the box is flexible, so movement is allowed. If your unit has cap screws similar to those on the cover, you will need a 3/32 long arm hex key of the ball driver type. There may also be 2 screws holding the board to the bottom of the box. Remove these also.

Finish the removal process by unscrewing the (4) 2-56 cap head screws retaining the name plate and removing the board.



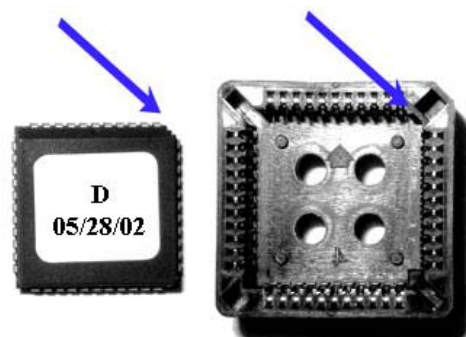
### Removing the Old Chip

The chip that needs to be changed is to the far left of the Astro-Physics logo. **It is held on the board by a plastic chip carrier that can be easily damaged if improperly handled.** The chip is removed with the tool provided. Insert the thinner end of the tool into one of the two slots in the chip carrier as indicated in the diagram. **DO NOT** use the outer corner of the carrier as a support to apply leverage since it will crack the carrier. Carefully pry one edge of the chip up a bit. Do not try to remove the chip entirely from one side. Now, insert the tool into the other slot and pry that side up a bit also. By going back and forth a few times, the chip will work it self free and can be removed.



### Inserting the New Chip

You will note that the microchip and chip carrier each have a flat spot built in one corner. These 2 flats must be aligned before the chip is pressed into the carrier. Failure to align these marks will cause permanent damage to the carrier and circuit. Press the chip in evenly until it is firmly seated. Excessive pressure will bend the circuit board and put all kinds of stress on the traces and small component parts.



### Changing the DIP Switch

Locate the quad DIP switch adjacent to the chip you just replaced. If upgrading from an "A", "B" or un-lettered chip, you will need to change the #2 switch so that the switch pin is close to the numeral "2". If upgrading from a "C" or "D" chip, the switch should have already been changed. (We suggest you verify this.) Using the tip of the extraction tool, gently move the switch in the number 2 slot towards the printed number 2. After the DIP switch has been changed, insert the board back into the box and reattach all of the screws. Please save the extraction tool for future upgrades.