BAVARIAN AUTOSPORT

Performance Computer Chip Installation Instructions

SAFETY WARNING: Be sure the ignition switch is in the **OFF** position before removing or attaching any electrical connectors.

IMPORTANT NOTES: If these instructions do not appear to match your engine control unit (ECU), **STOP** . . . .and call Bavarian Autosport before continuing. The installation of a Bavarian Autosport Performance Chip in your BMW will require the use of 92-RMS (or higher) octane unleaded gasoline. Serious engine damage could occur if the engine is run under heavy load or high RPM with use of fuel with a lower octane rating.

325i/is/ic/ix
87 thru 88

M5
91 thru 93

750i/il
88 thru 90

850i
thru 90

Part Numbers:

BAV.M20.400

BAV.S38.200

BAV.M70.100S

BAV.M70.100S

PROCEDURE:

1. Control Unit Removal:

325i/is/ic/ix

a) Open the glovebox and remove the pins which secure the limiting straps to the side of the glovebox and let it hang open freely.

b) Remove the fasteners securing the plastic glovebox roof panel. Pull down the panel and let it rest on the glovebox.

c) Remove the 10mm bolts or phillips head screws which secure the ECU. Gently let the ECU drop downward. Remove the wiring harness from the ECU and pull the ECU from the car.

M5, 750i/il

a) Open the engine hood, note the black plastic cover located at the rear of the engine bay on the passenger side (between the strut tower and the firewall). Loosen the four phillips head screws that secure the plastic cover (they do not remove from the cover) pull the cover up and set it aside.

b) There will be 2 or 3 control units under the cover. The engine ECU is the one that is closest to the firewall. Lift the metal clasp on the wiring harness connector and disconnect the harness from the ECU.

c) **Early Cars:** Remove the black plastic wire protector from the ECU mounting tab by pulling upward. Remove the 10mm nuts securing the ECU to the chassis. Pull the ECU out.
Later Cars: The ECU is secured to the chassis by two metal clips, one on each side of the ECU. Using a pair of pliers or screwdriver, remove the clips by pulling or prying up on each clip.

d) Pull ECU directly upward and remove it from the car.

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CAUTION: *The Bavarian Autosport Performance Chip and your BMW's ECU are sensitive to static electricity and can be damaged by the natural charge that builds up on your body and clothing. Prior to opening the ECU or handling the Performance Chip, you should discharge any static buildup by touching a metal cold water faucet or metal desk or workbench, be sure to touch a bare metal area.*

2. *(See figure - 1)* Turn the ECU over so that the Bosch label is facing downward. Use a screwdriver to pry up the metal tabs around the perimeter of the box. Pry the tabs until they are straight up and remove the cover from the base. Lay the cover aside. Remove the white plastic cover sheet.

Locking tabs on ECU cover

Figure 1

Locking Tabs

(Bottom View of ECU)
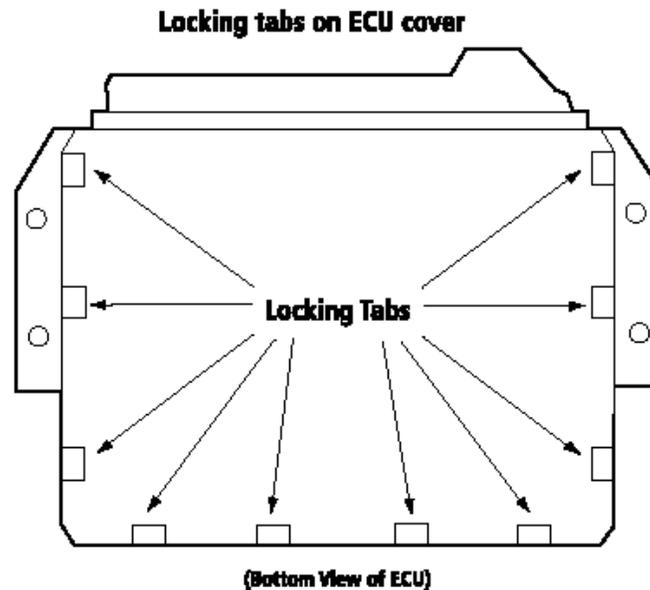
3. *(See figure - 2)* Place the ECU on the workbench with the base down on the bench. Notice the two pedestal standoffs, between the upper and lower boards, at the end opposite the multi-pin connector socket. Hold the ECU down in the area of the base mounting tabs and, using your thumbs, push up on the upper PC board where the pedestals attach to the board. The pedestal standoffs should unsnap and separate. Be careful not to push up on the corners of the PC board as this could break the board!
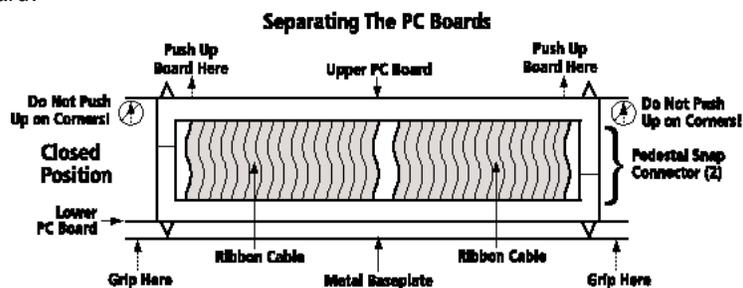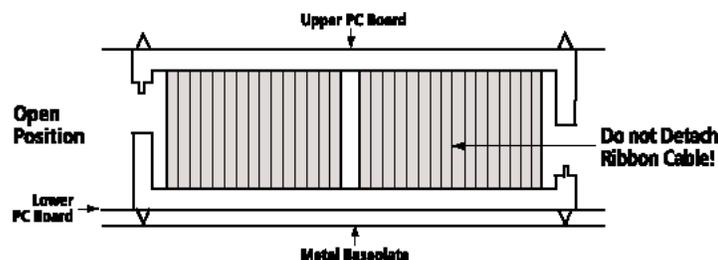
Separating The PC Boards

Figure 2

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NOTE: *The next two steps involve the final separation of the upper board and are difficult to explain in writing. Please take your time and refer between this explanation and "figure - 3" in order to understand the procedure. It helps to clamp the ECU, by its base, in a vise or other holding fixture or have a helper to hold the ECU while you perform these steps.*

7. *(See figure - 3)* Look into the multi-pin harness connector socket at the end of the ECU. Notice the verticle snap tabs at the left and right ends of the socket. While exerting upward pressure at the rear of the upper board, which will angle the board up at the rear, use a small screwdriver to release the left and right tabs by inserting it and rotating between the tab and the connector housing. The upward pull on the board should keep the tabs from re-engaging.

8. Notice that the upper row of contact pins in the connector socket are attached to the upper board and move separately from the rest of the connector socket as the board is pulled up. Pull up on the rear of the upper board and look carefully to locate the gap between the plastic along the top of the row of pins, attached to the upper board, and the connector housing. There is a row of snaps along the top of the upper board, in the gap which you are exposing as you pull up on the board.

   You must insert a screwdriver into the gap and rotate it to release the snaps as you pull up and back on the board (be careful not to pry on the connector pins). A fair amount of upward force, on the board, is required in order for the snaps to release. It is best to start at one end of the connector and work toward the other as the board releases.

   As the snaps release, pull the board back and out of the connector housing. Flip the upper board over, using the ribbon cable as a hinge, and lay it on the workbench so that both boards are face-up (whew!).
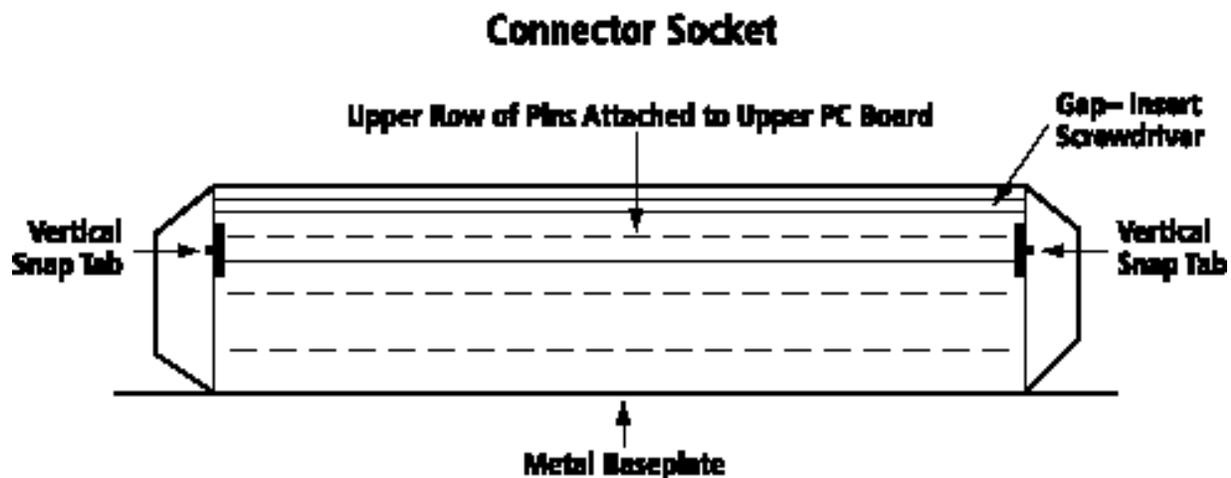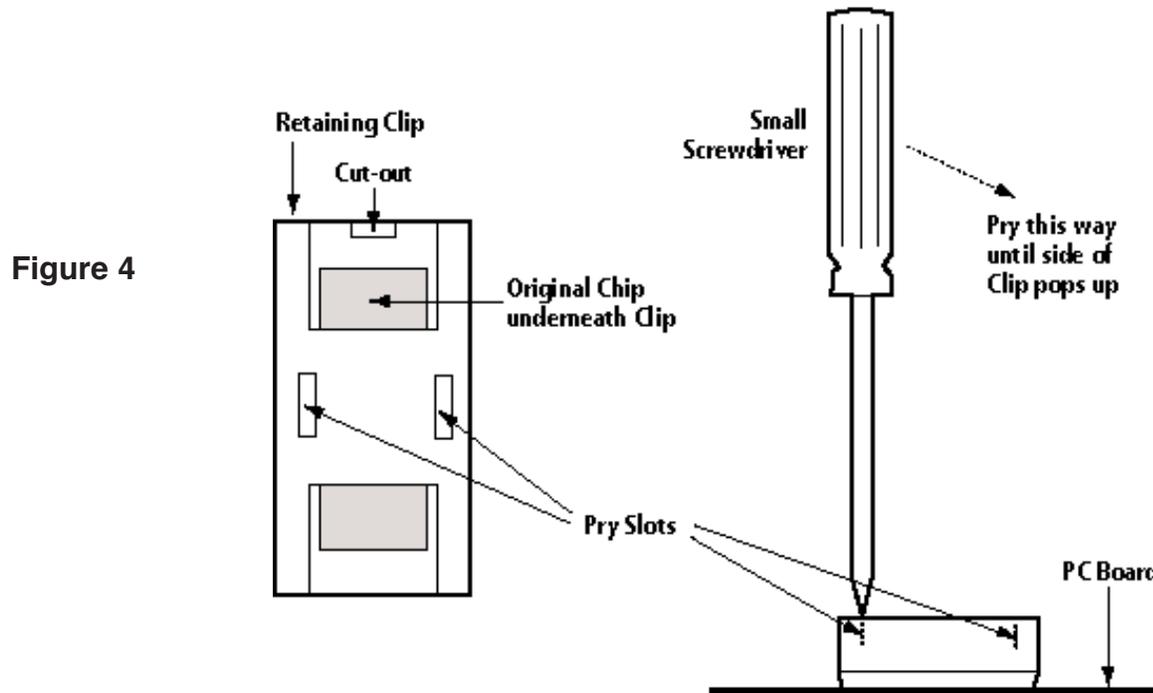

Figure 3

9. Locate the one chip that is mounted in a socket on the upper PC board. This chip will be elevated above the other chips on the board and should have a plastic "H" retaining clip over it.

10. *(See figure - 4)* To remove the "H" clip, insert a small screwdriver into the small slot on one of the sides of the clip. Pry the end of the screwdriver away from the chip to release the side of the clip. Repeat for the other side of the clip, and remove it.
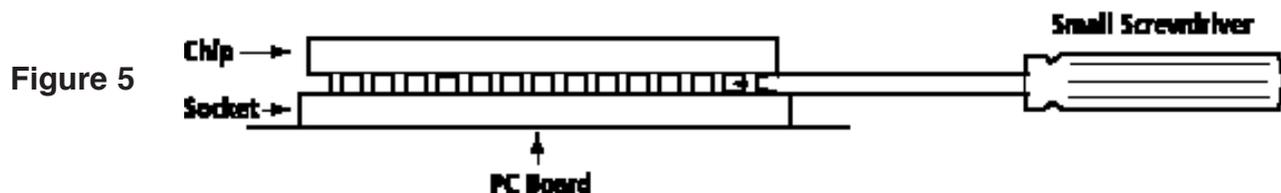
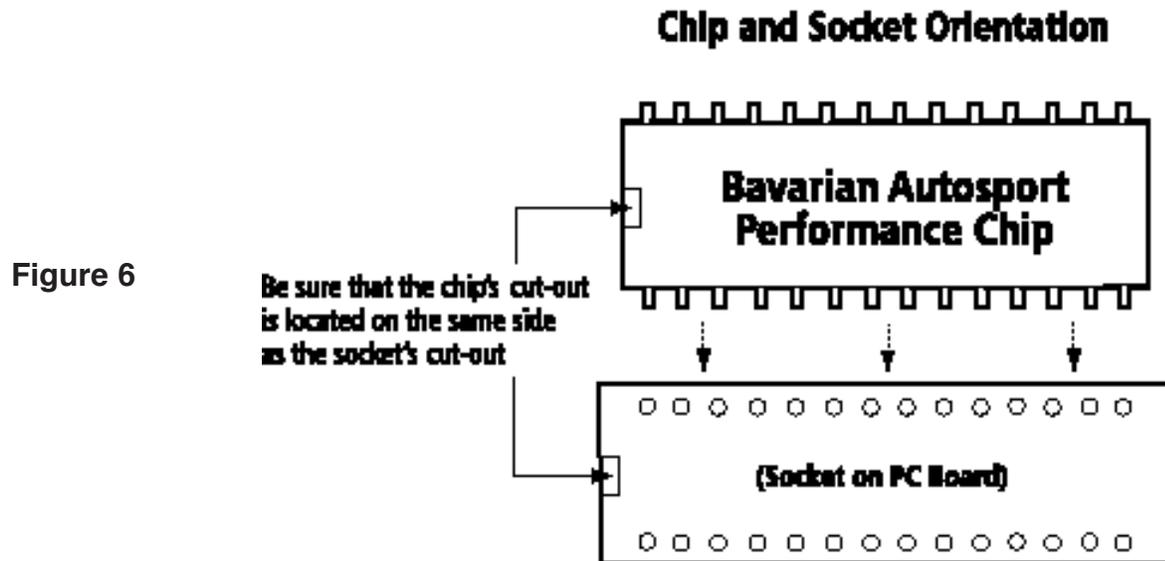## Removing "H" Shaped Retaining Clip

Figure 4

11. *(See figure - 5)* Observe that the chip has a small cut-out on one end and that the socket has a corresponding cutout. The new Performance Chip must be installed in this same position*. Remove the chip from the socket by gently inserting a small screwdriver under the chip from one end (be sure you insert between the chip and the socket, not under the socket!) and carefully rock the screwdriver from side to side then lift up. Work from both ends of the chip to lift it evenly from the socket. In removing the chip from the socket hold the chip at the ends, not over the pins. Set the chip on the metal ECU cover to protect it from damage due to static electricity.

*CAUTION: In rare instances, the referencing slot on the original chip will not be at the same end as the referencing slot in the socket. In these cases, the new performance chip should be installed with the referencing slot in the same position as the original chip.

Prying Chip from Socket

Figure 5

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12. *(See figure - 6)* Remove the Performance Chip from the antistatic box, holding the chip by the ends. Observe the small cutout on one end of the chip. This cut-out corresponds to the cut-out in the one end of the socket (the chip must be installed with the cut-outs lined up). Notice that the two rows of pins are slightly wider than the two rows of contacts in the socket (the number of pins on the chip should match the number of contacts on the socket). Gently press the outer side of each row of pins against the benchtop in order to bring the rows closer together until the chip will fit properly into the socket. Carefully insert the chip into the socket taking care to line the pins up with the socket contacts. Apply even pressure on both ends of the chip and push it into the socket until it is fully seated (support the underside of the PC board with your other hand while pushing on the chip). Use the box from the Performance Chip to store your original chip.

Chip and Socket Orientation

Figure 6

Be sure that the chip's cut-out is located on the same side as the socket's cut-out

Bavarian Autosport Performance Chip

(Socket on PC Board)

13. Reinstall the "H" retaining clip by snapping it over the Performance Chip and socket until both sides "click" and are seated.

14. Reinstall the upper PC board by folding it back over and inserting the connector pin end into the connector socket. Be sure to fully seat the upper snaps and the left and right snap tabs. Gently push the board down over the rear support pedestals being sure that they snap securely.

16. Lay the white plastic cover sheet over the PC board and reinstall the ECU cover and gently bend the locking tabs back down against the base (if any of the tabs break off, don't worry about it, just be sure the broken tab does not go inside the ECU.).

17. Reinstall the ECU in the car.

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