911CHIPS Performance Chip Installation Instructions (U.S. spec 930/25 & 21)

The following are instructions for the installation of the performance software chip for the Motronic ML3.1 control unit in the U.S. specification Porsche 911 3.2L (84-89). For best performance, please read and follow all directions detailed below.

If you have any questions, feel free to contact 911Chips at support@911chips.com or call (323) 819-0722.

Before beginning, you will need the following items:

- Your Porsche performance chip
- A 10 mm deep socket (about 2" long), socket wrench
- Small flathead screwdriver
- 91 U.S. (95 RON) or higher octane gasoline, or 93 U.S. (98 RON) octane if ordered as such

REMOVING THE DME CONTROL UNIT FROM VEHICLE:

The Motronic DME control unit is a silver metal box approximately 6"x5"x2" located under the driver's seat. It has the word 'MOTRONIC' either on a decal on top of the box or stamped on the metal cover. Slide the driver's seat all the way back, and also upward for electric seats. You do not need to remove the seat. Remove the floor matt that covers the control unit. Using a 2" long 10mm deep socket and socket wrench, remove the four 10mm nuts and washers that fasten the control unit to the floor. The wiring bundle is held in place with a heavy steel strap that is also held down by a 10mm washer and nut. Lift the unit up and off the studs.

DISCONNECT WIRING PLUG:

Holding the Motronic box in one hand, pull back on the steel-retaining tab that holds the electrical connector. Disconnect the box from the wiring plug by rotating the box out so that it pivots away from the retaining tab. When reinstalling, remember that the plastic hook at the end of the connector is installed first.

OPENING THE CONTROL UNIT:

At your workbench, using a small screwdriver, straighten the ten metal tabs on the bottom of the box; remove the cover along with the white plastic insulating sheet and set them aside. At the front of the board is the wiring harness connector block, and at the rear is a wire ribbon cable. The boards are held together by two plastic male/female posts at each end of the wire ribbon cable, which unsnap. (Fig. 1) The best way to separate these posts is to place a small flathead screwdriver in the slit on the female post as shown

by the screwdriver tip in Fig. 1 and twist while gently pulling the boards apart. You may have to use some force to separate the two plastic posts, and it is best to pull on the bracket between the plastic posts. Do not pull at the corners of the circuit board or you could flex and break it! **USE CARE SO AS NOT TO PULL THE BOARDS TOO FAR APART RIPPING THE RIBBON CABLE.** Lifting the rear end of the board, slide the front end of it out of the wiring connector block. Your board may be glued to the connector block. If so, use care and gently pry the glue away from the connector block and wiggle the board out to release it. **Do not use any knives, razors, or sharp objects here or you could damage the circuit board traces!**

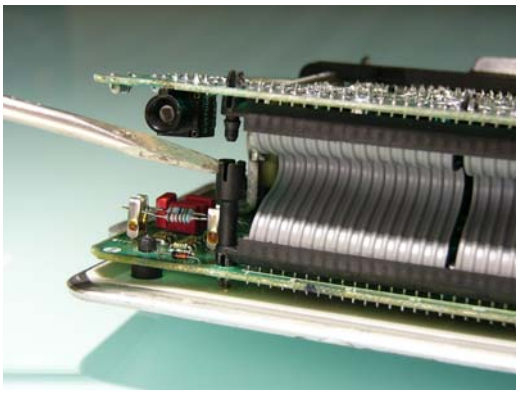


FIG.1

FIG. 2

Gently flip open the boards like a book and locate the socketed chip on the board that you just flipped over. (FIG. 2) It will be raised off the board a little more than the other chips, and if your car has the stock factory chip currently installed, it will have a silver foil sticker on it with a sequence of numbers reading something like 1267355xxx.

CHIP REMOVAL AND INSTALLATION:

If your car is an early 84 model, your chip may be soldered in place, in which case, your chip will have to be desoldered from the board, and a 24 pin chip socket put in its place for easy chip installation and removal. These DMEs are designated with Porsche p/n 911.618.111.01 on top of the box. You may send the DME to us to have the socket and chip installed for a minimal charge. The stock factory chip will have a silver grey label with black numbers on it, generally beginning with "1267355.".

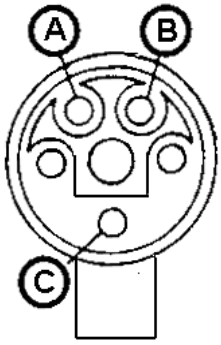
Before removing the chip, observe its orientation by locating the small notch at the end of the chip. Your performance chip must be installed with its notch facing in the same direction as the original one was. To remove the chip, slide a small screwdriver under the chip and carefully pry upwards, alternating ends frequently to avoid bending or damaging the pins. **(CAUTION: MAKE SURE YOU ARE NOT PRYING UP ON THE CHIP SOCKET WHICH IS SOLDERED TO THE CIRCUIT BOARD)** As you handle the chip, try to handle it by the black body, and not the metal pins. Place the chip you just removed on the metal cover to protect it from possible static damage.

Install the performance chip by again noting the orientation of the small notch on the end of the chip, and installing it in the same direction of the original chip. There is also a small notch on the chip socket illustrating the correct orientation. If the chip is installed backwards, damage to the control unit could result. Install one row of pins in the socket, and push gently on the other side of the chip until the other row of pins lines up with the socket. Press down and full secure the chip, double-checking that all pins are properly seated. Slide the top board back into the connector block, line up the two boards, and then press down on the top board until the two plastic posts snap together. Replace the cover along with its white plastic insulating sheet, and reinstall the control unit.

POST INSTALLATION AND IDLE SPEED ADJUSTMENT:

Store your factory chip in a safe place using the black antistatic container your chip came in. Basic idle and fuel mixtures are pretuned. Unless you are specifically supplied with a European spec performance chip, your chip is designed to work with all emissions equipment in place. If you have any difficulty, or your car will not start, check over all work making sure that the chip is correctly installed and the harness connector is fully secure. If you experience and difficulties during this installation or afterwards, please contact support@911chips.com or call (323) 819-0722.

If you have an 84-86 Carrera, or if you have an '87 Carrera and the original chip is #1267355236, your new chip is updated to late 87-89 idle specifications and you may have to adjust your base idle speed or your car's idle could hunt on startup. This is because in mid '87, Porsche revised the programmed idle specifications from 800 to 880 rpm, and advanced the idle ignition timing by 6 degrees. To reduce the base idle speed if necessary to 880 rpm, adjust the idle speed screw on the throttle body (FIG. 5) by one to three turns clockwise. It may be covered with a yellow plastic cap, which will need to be removed. '84s use a flathead screwdriver, for '85s on use a 7mm socket. For a more exact adjustment, bridge B and C in the rubber test socket on the left side of the engine compartment (located behind the black removable cover FIG. 3 and 4) with a piece of wire, and adjust the idle speed to 880 rpm at normal running temperature. Properly adjusted, there should be no difference in idle speed with the jumper or without. Remove jumper when finished.



Use a piece of wire to bridge test port B and C

FIG. 3

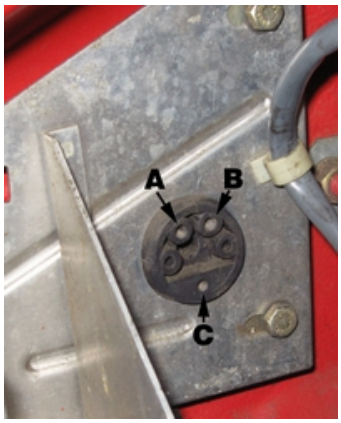


FIG.4

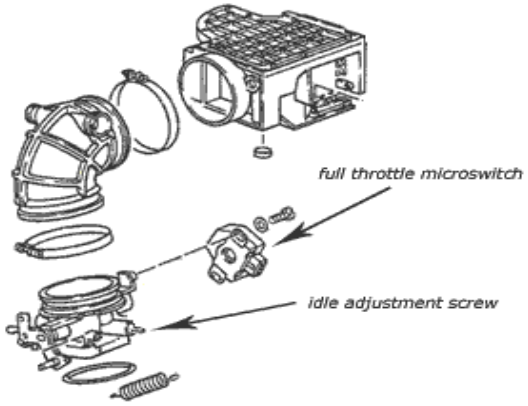


FIG. 5

FIG. 6

DISCONNECT PIN 10 WIRES: (California and Japan spec. cars)

On the wiring harness to the DME unit there are ***two independent brown jumper wires*** which you can usually see taped alongside the harness only a few inches away from the end of the harness connector. At the end of each of these two wires is a white plastic insulated male and female connector respectively. (FIG. 6) These may be connected, usually on cars originally delivered to California to make the car more emissions compliant. 49 state cars should already have these disconnected and are usually taped over along the harness with black electrical tape. ***If they aren't already disconnected from each other, please do so now.*** Leaving these connected with your performance chip can cause light amounts of undesirable engine knock. For emissions testing, connect them temporarily for additional passing margin. If your car is a European/ROW spec Carrera, please disregard these instructions.

CHECK FOR WIDE OPEN THROTTLE

As many as ***a third*** of all 911s do not realize their full performance potential because the throttle does not open completely, ***costing at least 20 HP. To inspect this, you will have someone fully depress your accelerator pedal while checking to make sure the butterfly at the throttle body opens completely.*** Just checking the throttle by yourself at the engine will not tell you if your linkages are worn. If incomplete opening is noticed, adjustment will usually have to be made at the throttle linkage under your car on the left side of the transmission. Adjust and shorten the linkage to make up for the excess slack.

After checking and adjusting your throttle linkage if necessary, ***also check that the full throttle microswitch properly activates***. The microswitch should engage closed when the throttle butterfly is at greater than ¾ of full open. This tells the DME to switch to the full throttle fuel and ignition maps for maximum power. The switch is the 2"x2"x½" black module on the right side of the throttle body. (FIG. 5) Using a multimeter or continuity tester, disconnect the plug and test that the upper two pins (of three) of the switch make contact when your throttle is at the last ¼ of full open. If adjustment is necessary, you can use a blunt screwdriver and hammer to tap on one side of the metal mounting tab or the other to rotate the switch to the appropriate angle.