digital tuning Rtek7™ ECU Upgrade for S5 Turbo II

WARNING!

DIGITAL TUNING, INC. TAKES NO RESPONSIBILITY FOR DAMAGE TO ECU OR CAR DUE TO IMPROPER INSTALLATION OR MISUSE OF PRODUCT.

IT IS YOUR RESPONSIBILITY TO MAKE SURE THAT YOU ENGINE IS GETTING ENOUGH FUEL. THE RTEK7 UPGRADE CANNOT HANDLE ALL ENGINE SETUPS. ENGINE VITALS MUST BE MONITORED TO ASSURE PROPER OPERATION!

INSTALLATION OF THE RTEK7 ECU UPGRADE MUST BE DONE BY A QUALIFIED ELECTRONICS TECHNICIAN!!

IT IS VERY EASY TO DESTROY YOUR ECU IF YOU ARE NOT FAMILIAR WITH DE-SOLDERING OR DO NOT HAVE THE PROPER EQUIPMENT.

INSTALL CHIP AT YOUR OWN RISK!

THIS PRODUCT REMOVES THE FACTORY "FUEL CUT".
THIS ALLOWS YOUR ENGINE TO RUN BEYOND THE FACTORY BOOST SPECIFICATIONS. IT IS YOUR RESPONSIBILITY TO MAKE SURE YOUR ENGINE IS GETTING ENOUGH FUEL FOR THE BOOST YOU ARE RUNNING.

FOR OFF ROAD USE ONLY

The following pages contain instructions on how to install the Rtek7 ECU upgrade in your ECU. Please completely review them carefully to familiarize yourself with the procedure and to be sure you have the proper tools before starting the upgrade.

Removing and Installing EPROMs in an N370 ECU

Tools needed:
10mm socket, either deep or with a short extension
Phillips screwdriver
Soldering iron for electronics – 15-30w or so with a fine tip
De-soldering tool or solder braid

Prep:
Disconnect the negative lead of the battery.

Procedure:
The ECU is located in the passenger side footwell under the carpeting. To get at it, you'll need to remove the passenger side door sill and the kick plate. Pull back the carpet and you'll see the cover plate over the ECU.

The cover plate is held in place with two 10mm nuts at the top and two 10mm bolts at the bottom. Remove all four of these and remove the cover plate. Slide it out carefully as it has sharp edges that can scratch your interior.

This is what you're looking for now – the ECU. There may be another silver box on the left of it, this is the ABS controller – leave it in place.

Remove the three harnesses connected to the ECU. They have locking tabs on them, just push down on the top and pull the connector out. The ECU is held in with 4 10mm nuts, one at each corner. Remove them and then remove the ECU.

Remove the four phillips screws on the top cover of the ECU (the cover with the numbers on it) and pull the cover off.
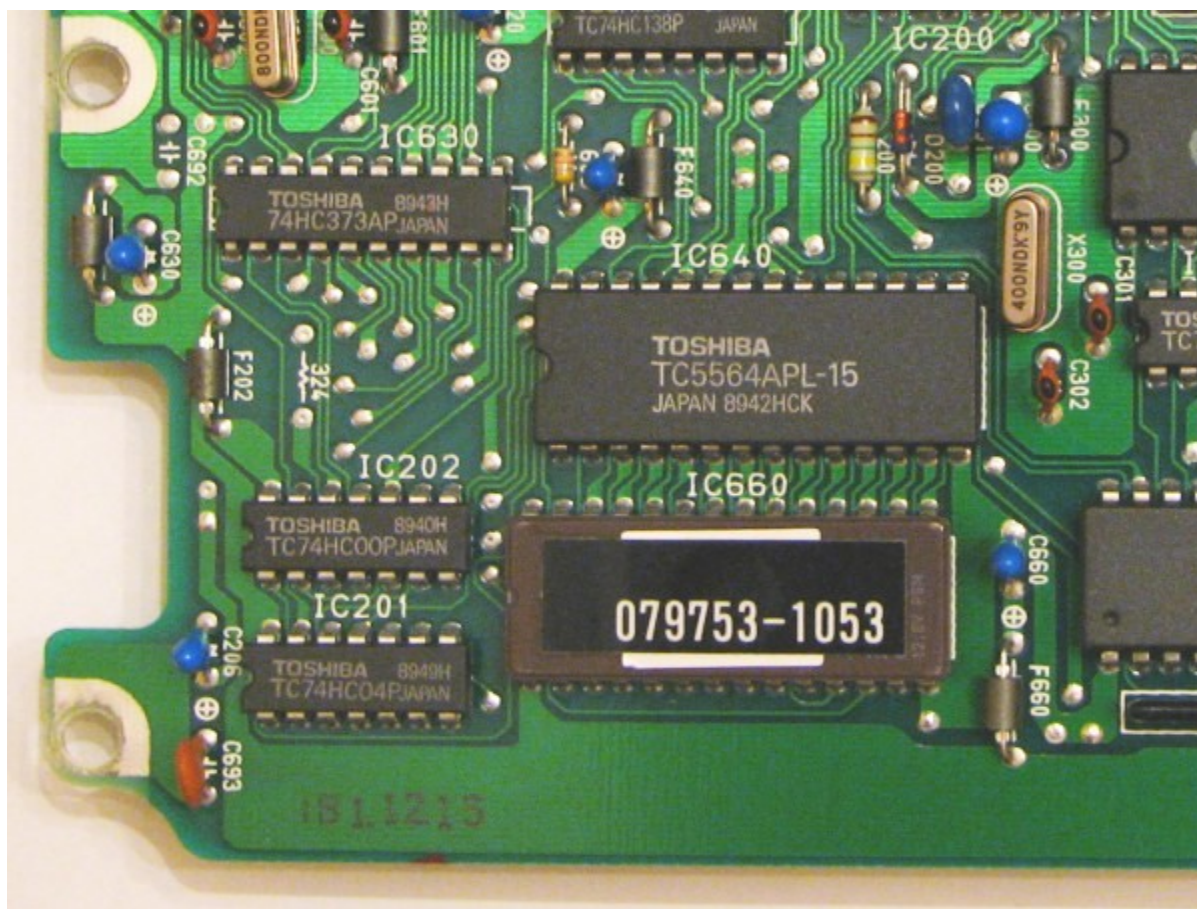
You should now be looking at this:

This is the backside of the digital board and where we'll be making our changes. Remove the 6 phillips screws around the edge and gently fold out the board.
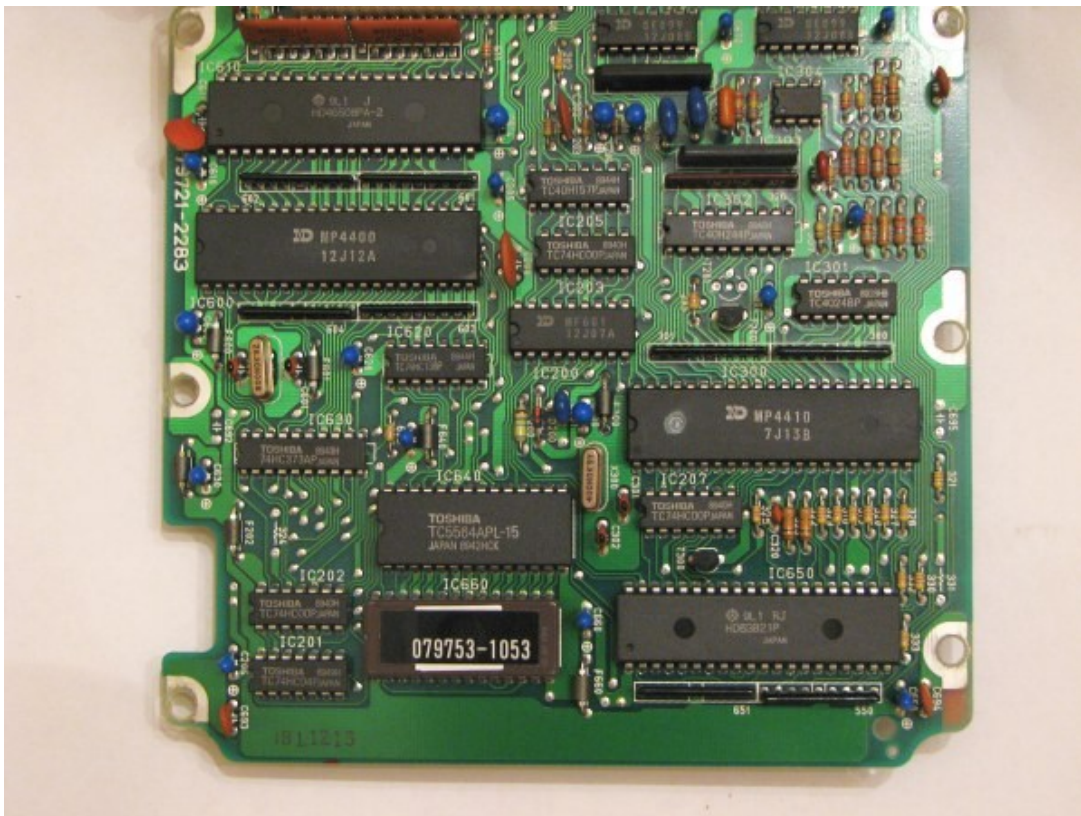
We need to remove IC660 (the chip with the stick on label at the bottom left of the above picture, closeup pic below). The board will also be silk screened with IC660.

Once you've located the chip, flip the board over and desolder it from the board. Take your time.

Here's a few links to pages with info/pics on soldering/desoldering techniques:
http://www.epemag.wimborne.co.uk/solderpix.htm
http://www.aaroncake.net/electronics/desolder.htm

Key point is take your time.

Solder in the socket into the IC660 location. Pay careful attention to the orientation of the chip, the notch must be on the left like the other chips on the board. If you put it in backwards it will blow up and it won't even be spectacular.
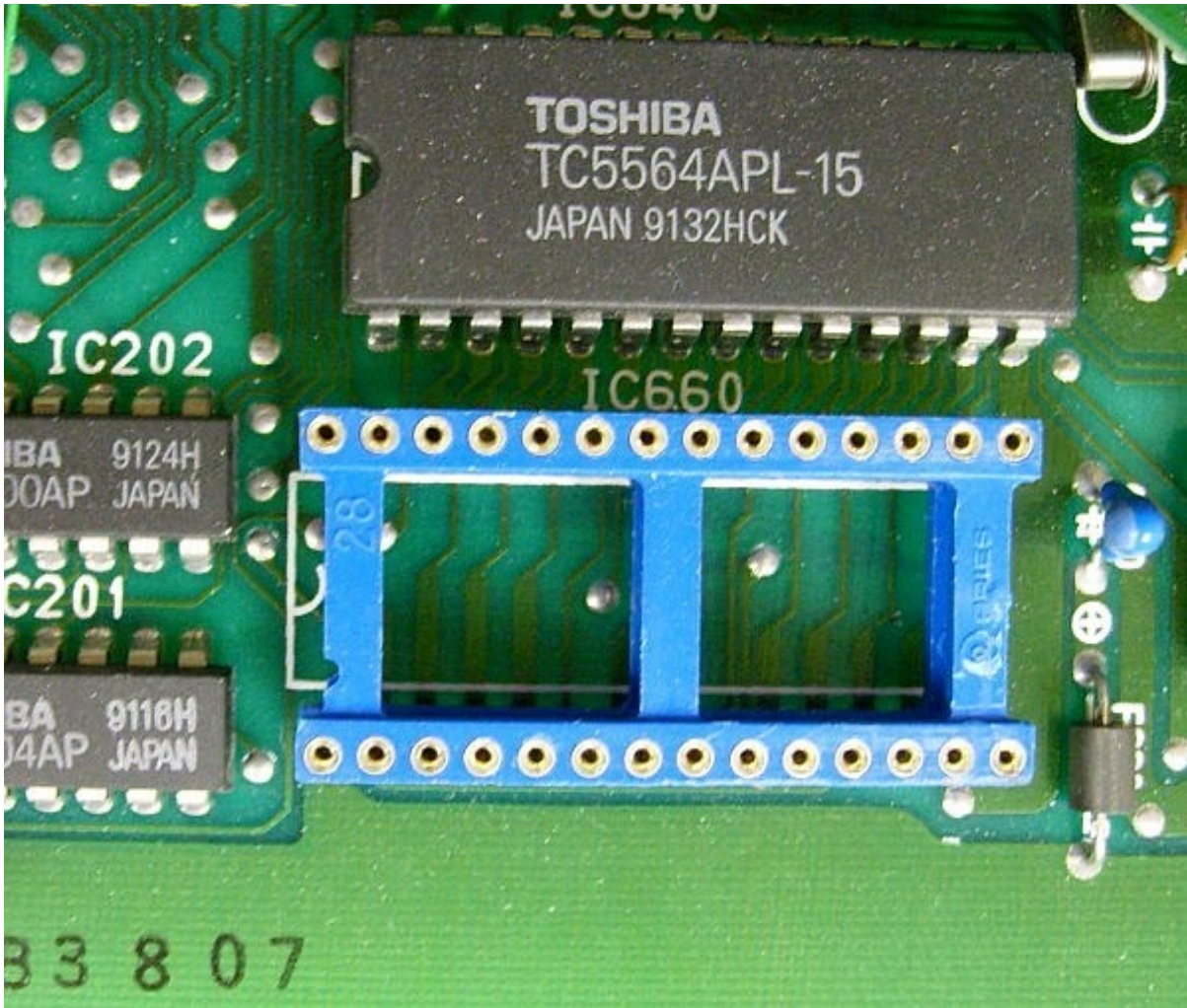
Check your work and fold the board back in. The rest is just the reverse of above
Don't forget to re-connect the negative lead of the battery.

Going back to stock
If you want to go back to stock, remove the new chip from the socket and re-install the stock chip.

digital tuning Rtek7™ ECU Upgrade for S5 Turbo II v1.5

Instructions

Thank you for purchasing the digital tuning Rtek7 ECU upgrade. Below you will find a detailed description of what the ECU upgrade does and how to use it.

The Rtek7 ECU Upgrade v1.5 for S5 Turbo II cars has four main features:
1: Eliminates Fuel Cut (built in "FCD")
2: Eliminates the Accelerated Warm-up System
3: Lowers the RPM at which the secondary injectors come on to 3600 RPM
4: Retards timing ~1 degree per PSI above 9 PSI

Built in Fuel Cut Defenser (FCD):
The stock ECU will cut fuel to the rear rotor when boost hits the fuel cut threshold of about 8.6 psi. Although this was put into the stock ECU as a protection mechanism, it's a quite harsh mechanism and not required for mild improvements in boost.

The Rtek7 goes right to the source by removing the code responsible for Fuel Cut from the ECU altogether. This has the additional benefits over external FCDs in that it doesn't alter the boost signal to the in-dash gauge, there are no wires to splice, and no additional box to clutter the engine bay.

RUNNING TOO MUCH BOOST WITHOUT ENOUGH FUEL CAN DESTROY AN ENGINE. EVEN THOUGH THE FCD IS BUILT INTO THE ECU, IT IS THE CUSTOMER'S RESPONSIBILITY TO ADDRESS FUEL REQUIREMENTS SEPARATELY.

AWS:
When you first start your RX7, the ECU will rev the engine to approximately 3000 RPM's - this is the Accelerated Warm-up System (AWS) in action. The purpose of the AWS is to warm up the precat. Of course, one of the worst things you can do to a cold engine is high revs. This mod removes the AWS code from the ECU allowing your car to idle normally when cold.

Lower secondary injectoion point to 3600:
Normally the secondary injectors start adding fuel at 3800 RPM. The problem is that the secondary injectors will not come on below this rpm regardless of the boost being run. This can lead to cars running lean below 3800rpm even if they have larger injectors, fuel pump etc. Lowering the RPM at which the secondary injectors come on allows them to add fuel before the primary injectors start to max out.

Timing retard above 9psi:
The stock ECU has no additional timing control for above around 9-10psi. This mod extends the timing control to give a little more safety for those running 9+ psi. Timing is pulled about one degree per PSI.

Please join the discussion forum at www.digitaltuning.com/forum

If you have any questions regarding the installation or use of your Rtek7 ECU upgrade, please email us at support@digitaltuning.com