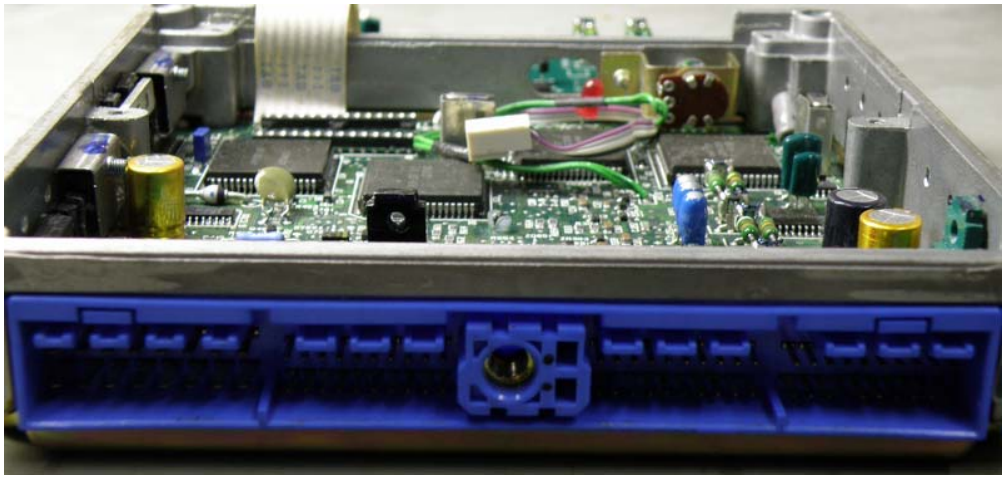
Nistune Z32 ECU Modifications for R33 RB25DET Skyline Installation

Revision 3 - 03 Feb 10



Thanks to Eric at DTA Motorsports and Skyline Stu for their help.

The Z32 ECU is a functional and cost effective way to tune the R33 Skyline when fitted with a NIStune board. The Z32 ECU will actually run the RB25 without modification (if Z32 AFM is used). But there are signals which differ. So to get the most from this method we've provided some basic instructions detailing the changes.

These are the steps to perform if modifying the Z32 ECU for a direct R33 plug-in. This saves re-wiring the R33 harness - which means the std ECU can easily be re-fitted if required. The same outcome may be realised by modifying the wiring harness if you'd rather not mod the ECU.

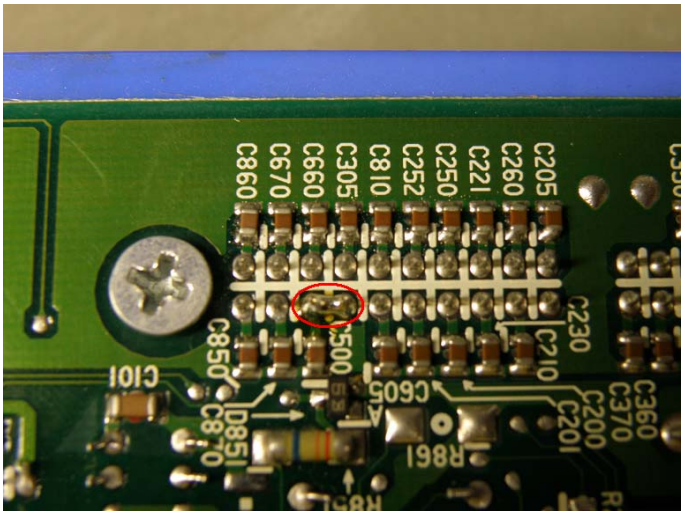
NIStune have provided a base image which consists of the Z32 base with R33 maps/tables merged. The file is called **Z32_transplanted_R33maps_merged.ENT.** This should provide a good starting point for tuning.

Note: that VCT is supported but TPS switch does not exist on the RB25 ECU and Z32 uses default ("limp") values to determine TPS idle indication. We recommend Z32 1990-1992 model (8 bit) ECUs for this modification.

Note: Instructions provided involve modifications to the ECU circuit board. Do not attempt this unless you are proficient in this type of work. No responsibility taken for incorrect information provided. Double check your work and continuity check all modifications on the ECU connector before using in the vehicle!

1) Knock Sensor inputs – pin 23/24

RB25 uses twin knock sensors. Z32 uses one. As a result only one knock sensor will be active if Z32 ECU is left stock. RB25 knock sensor wires 23 (cylinder 1-3) and 24 (cylinder 4-6) are fed to single knock sensor input (pin 23) on the Z32 ECU. Benefits are that knock sensing from both knock sensors is used.

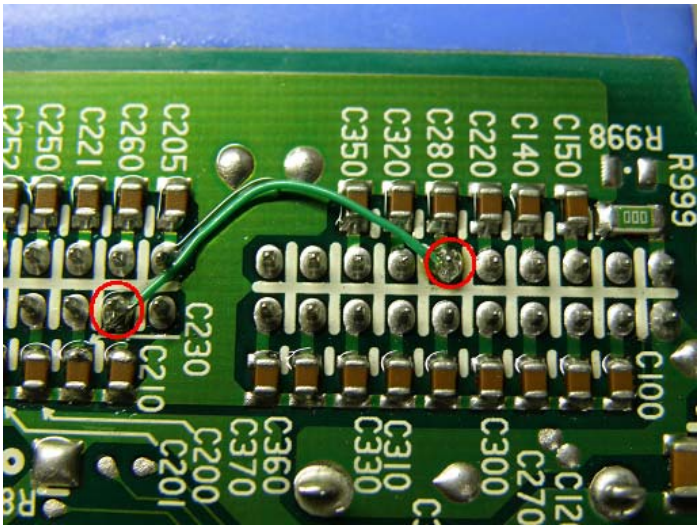


Solder pins 23 and 24 together

** During tuning it is sometimes found that knock sensing can be over sensitive and may need to be disabled if ECU continuously jumps to knock maps on upgraded/high mileage vehicles.*

2) O2 Sensor inputs – pin 29/55

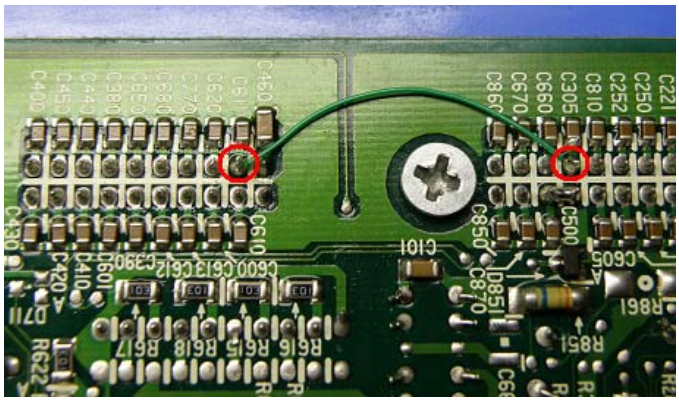
RB25 uses single O2 sensor. Z32 uses twin. Link the O2 sensor input for RB25 (pin 29) to pin 55 so both O2 sensor inputs (LHS and RHS) receive a signal. This avoids the potential condition of RHS bank being open circuit (& assigned a default value of 0.3 volts by the ECU) meaning a potentially lean condition.



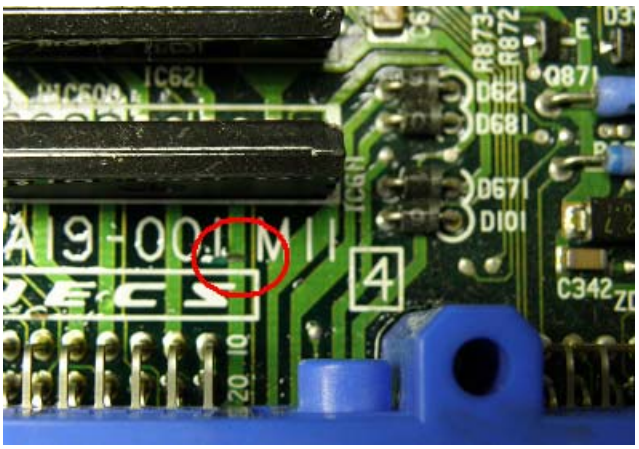
Link pins 29 - 55

3) Power Steer switch input – pin 19/34

RB25 power steering input goes to pin 19. This pin is used to drive the rad fan relay on Z32, so this signal must be moved to the Z32 power steer input pin (pin 34). This is achieved by linking across to the correct pin and then isolating the original pin by cutting a track on the board.



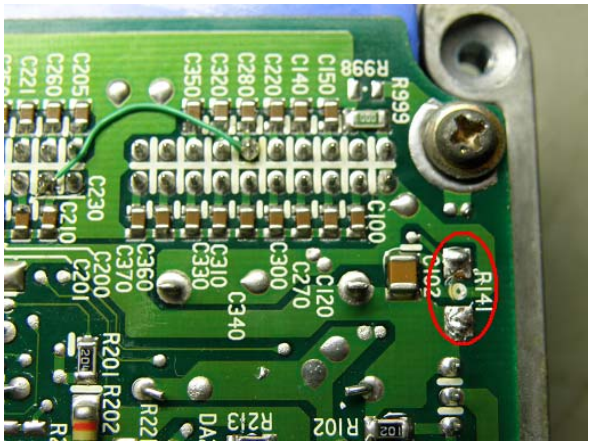
Link pins 19 - 34



Cut track on top side of ECU

4) Full throttle switch input – pin 33

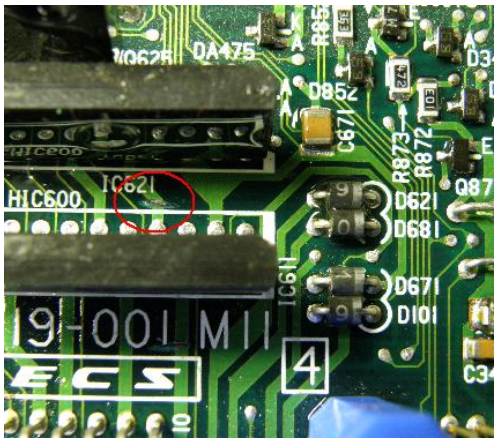
Z32 uses a switch to sense wide open throttle. This is not used on the RB25 – it has an ABS input on this pin, so it must be disconnected. This is achieved by removing a resistor on the reverse side of the ECU.



Remove R141 on reverse side of ECU

5) FICD output – pin 33

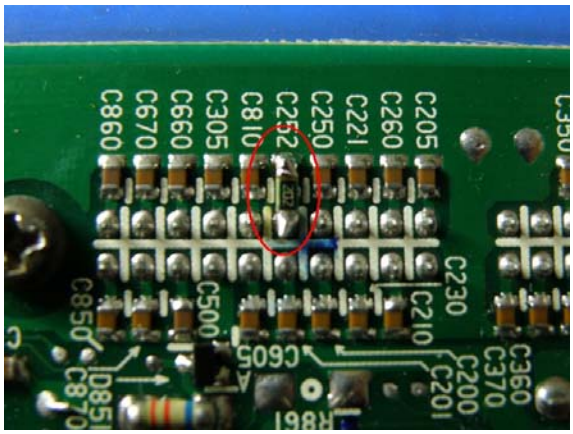
Z32 uses pin 33 to drive the FICD (Fast Idle Control Device – for idle up when aircon is on). This pin goes to the Exhaust Overtemp Lamp on the R33 dash, so it's best this is disconnected. FICD is driven separately on the R33 via the Aircon system.



1Cut track near IC621 (5 pins from left)

6) Fuel Temperature input – pin 36

Z32 uses a fuel temperature sensor. This is not used on the RB25 and the matching pin does not have a wire connected. A Diagnostic Trouble Code (DTC) will be raised be the Z32 ECU if it senses that the voltage on this pin is out of range. This input can be simulated by fitting a 2 kohm resistor between pin 36 and GND – which will give a reading of around 25 degrees fuel temp.



7) Injectors – pins 105, 110, 112, 114

R33's actually seem to run fine without changing the injector pins around but theoretically they should be swapped as Z32 and R33 firing order is different.

Z32 to R33 injector wiring changes
R33 pin 105 to Z32 pin 110 (Injector)
R33 pin 110 to Z32 pin 105 (Injector)
R33 pin 112 to Z32 pin 114 (Injector)
R33 pin 114 to Z32 pin 112 (Injector)