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Traction Control Unit

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# Requirements

The TN traction controller requires the following supporting hardware:

1. VR ABS (passive) or hall effect style speed sensors with:
   1. A single sensor on the undriven wheel
   2. At least 1 sensor on a powered wheel, preferably two sensors from each wheel (left and right).
2. An ECU capable of at least 1 of the following setups:
   1. An Odb1 style outputting to a single spark wire to the distributor
   2. A Coil on plug ECU configured or reconfigured in wasted spark mode.
   3. An ECU that can interpret 5V analog signal to retard timing.

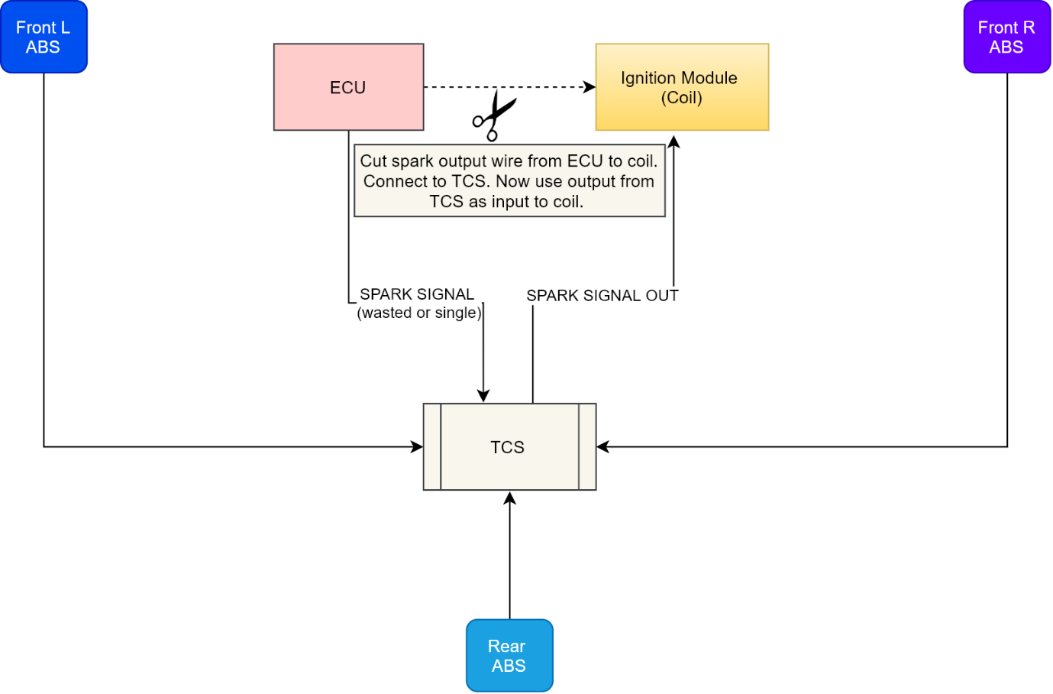
Note: If your ECU is converted to a coil on plug system then the ICM wire from the ecu that goes to the coil on plug controller will be intercepted. Eg: **HondaRulez COP mini.**

# Hardware Installation

## Overview

We shall describe instructions for regular ECU and **Hondata** based ECUs

Regular ECU  
There are speed sensors feeding into the device. We also intercept the ECU’s ignition output, that is, we pass the ignition signal through the device. The ecu’s spark output is cut and connected to the TCS yellow wire. The spark output of the TCS is at the white wire.

 **Figure 1 - Regular ECU**

### Hondata ECU

For Hondata ECUs, we connect the Ignition output signal to our #1 spark input on the TCS. There is no need to splice the wire and place the device between the ECU spark output and distributor ignitor. We also connect the 5V output from the device to the Hondata’s 5V input for TCS.

Chart, diagram, box and whisker chart

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**Figure 2 - Hondata ECU**

## Wiring

The diagram below gives the pinout and wire colours for the wire harness. It is recommended to install a 2A in-line fuse on the PWR line of this device.

This diagram assumes a Front Wheel Driven car. The undriven wheel is therefore the rear wheel (R-ABS).

VR ABS sensor wires are not polarity sensitive, there is no negative or positive.

Hall effect sensors carry **+VE** signal and **GND.**

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The **trim** input is already connected in the harness.

* **1. PWR** – switched 12V power
* **2. GND** – Ground
* **3. Spark in** – Spark output from ECU that goes to ignition coil. This is the RPM signal wire. See A or B below for wiring. **A** is for **hondata**, **B** is for regular ECU.
  + **A**. Connect this wire to the ICM wire of the Hondata ECU. Tap into the wire, do not cut the wire if you don’t have to.
  + **B**. If using regular ECU (not hondata) then you will need to splice the device so that it sits between the ignition output wire and ECU. The #12 white wire will then go to the ignition coil.
* **4**. **Trim -** The trim knob for quickly adjusting level of traction.
* **5/6. F-ABS 1** – Front left ABS sensor wire pairs. If using hall effect sensors, only connect the top wire (odd numbers). If using a 3 wire hall effect sensor only connect the output to the #6 or #5 wire, but not both. If using 2 wire ABS please connect both wires.
* **7/8. F-ABS 2** - Front right ABS sensor. Same rule apply as above.
* **9/10. R-ABS** – Rear (undriven) ABS sensor. Same rule apply as above.
* **11. 5V Analog** – 0 to 5V output for ECUs that can interpret this for retard (**Hondata** 5V input for example).
* **12. Spark Out** – This is where the spark is sent to the ignition coil from the traction device. This goes to ignition coil wire that was cut. If using **Hondata** this wire should be ignored.
* **13. Spark In 2 –** Second spark input. If using wasted spark in 4 cylinder this will handle the other 2 cylinders, while pin #3 above will handle the first 2. Ignore for **Hondata**
* **14. Spark Out 2 –** Spark output for second spark input above. Ignore for **Hondata**.

## Distributed Spark Systems

In this configuration the single spark output wire from the ecu to the distributor is intercepted. We splice in the TCS between the ECU and Distributor on this wire. In other words, cut the wire that goes to distributor, connect the yellow TCS wire to the ecu side and the white wire to distributor side.

Diagram

Description automatically generatedFor coil on plug converted using Honda Rulez, cut the internal ICM wire that was soldered.

## 4 Cylinder Coil On Plug Wiring

In this configuration we take a regular 4 cylinder with 4 coil on plug and reconfigure the output of 2 cylinders as shared wasted spark. You will pair cylinders 1 and 4, 2 and 3 if your firing order is 1,3,4,2.

Diagram

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## 4 Cylinder Wasted Spark Wiring

In this configuration the ECU has 2 outputs for spark that goes to 2 ignition coils. Choose one of the outputs to intercept with the TCS. Diagram

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# Software Configuration

## 

### 3D Table

This table allows you to configure the amount of power reduction per slip/per mph.

0 = no reduction, 100 = maximum reduction according to retard and ignition cut preference.

### Speed sensors

* Abs tooth count – This is the number of teeth on the ABS ring. Typically both front and rear will have same number of teeth on the ABS ring.
* Fw trim % - This allows you to adjust a multiplier to the reading of the front wheel. Usually this is at 0.
* Tyre size – the size of the tyres. Front and rear can be set.

### Other settings

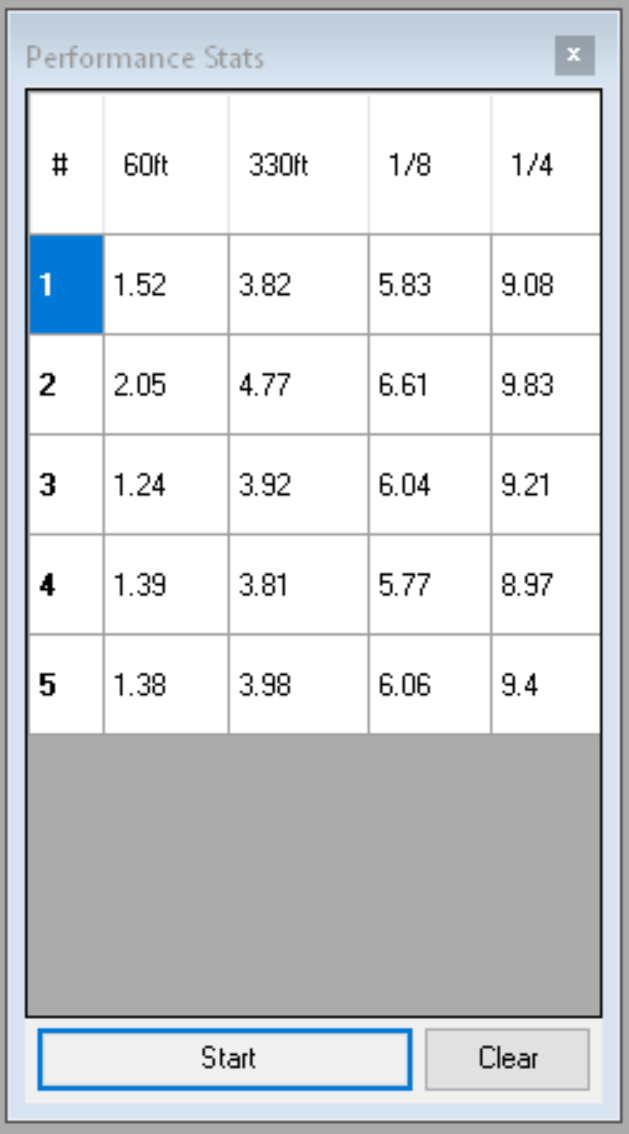
* RPM Divisor – Adjust this value until the RPM of the software matches that of the car’s tachometer.
* Minimum RPM – This is the minimum RPM that the TCS will start working. Below this number all slipping will be ignored.

### Retard vs Ignition Cut

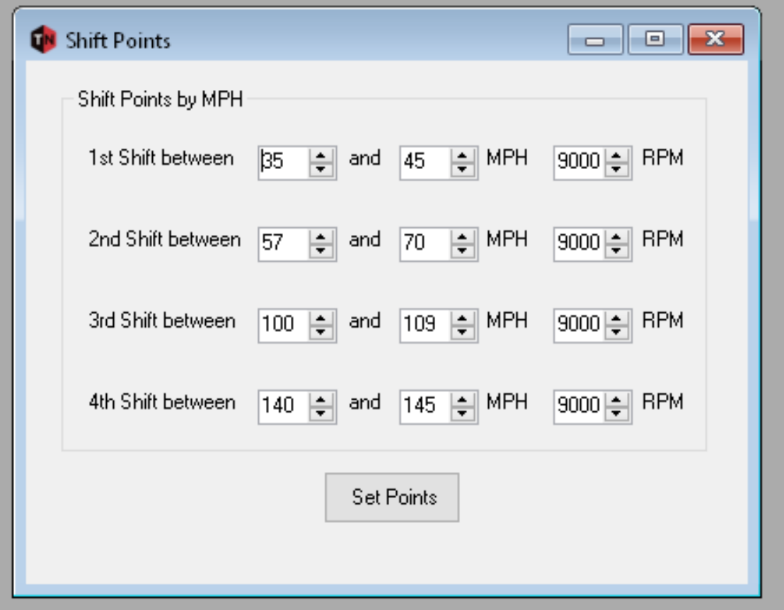
* This setting allocates a balance between ignition retard and ignition cut for power reduction. The retard percentage is calculated against the max degrees retard.  
  *Note: If using a distributor system, the max degree retard we recommend must not be greater than 12 degrees. This is because if a low timing number is commanded by the ecu along with TCS retard it can send spark to the wrong cylinder.*

Performance Stats

This tool allows you to see improvements of straight-line performance (drag racing). To use this tool, bring the vehicle to a stop then click the start button. The software timer will not start immediately, instead it begins the recording from the moment you move.



## Shift Points

The shift light is conditional on both the RPM and specified speed bracket being hit. In this example below, 1st gear shift light will only appear if MPH is between 35 and 45 MPH, and RPM is at 9000. This is useful for drag racing situations where the car is spinning, and you want to avoid shifting early.