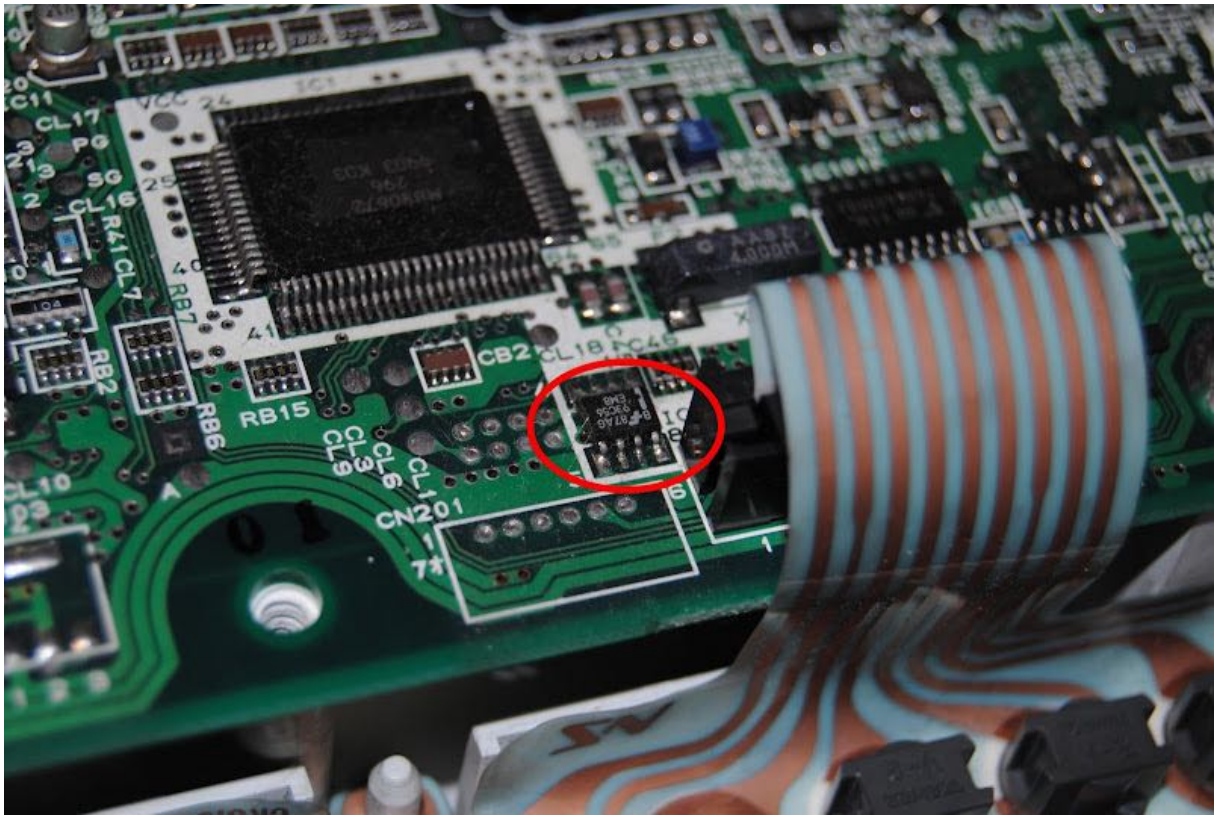
I bought a s2000 ap1 cluster, it was a bargain so I couldn´t say no...
cluster is from a jdm s2000, the only difference with usa/europe version is that mph/kmh function is disabled, here we use km/h so there was no point to enable the speed converter but I wanted to do that because it's a first step to change the mileage and because as mid engineer as I am this things draw my attention.

First of all I need to thanks all the honda comunity that invested before and posted on the internet specific info about this, in special a guy know as Orthello from clubintegra.com, ectune and other forums where he post.

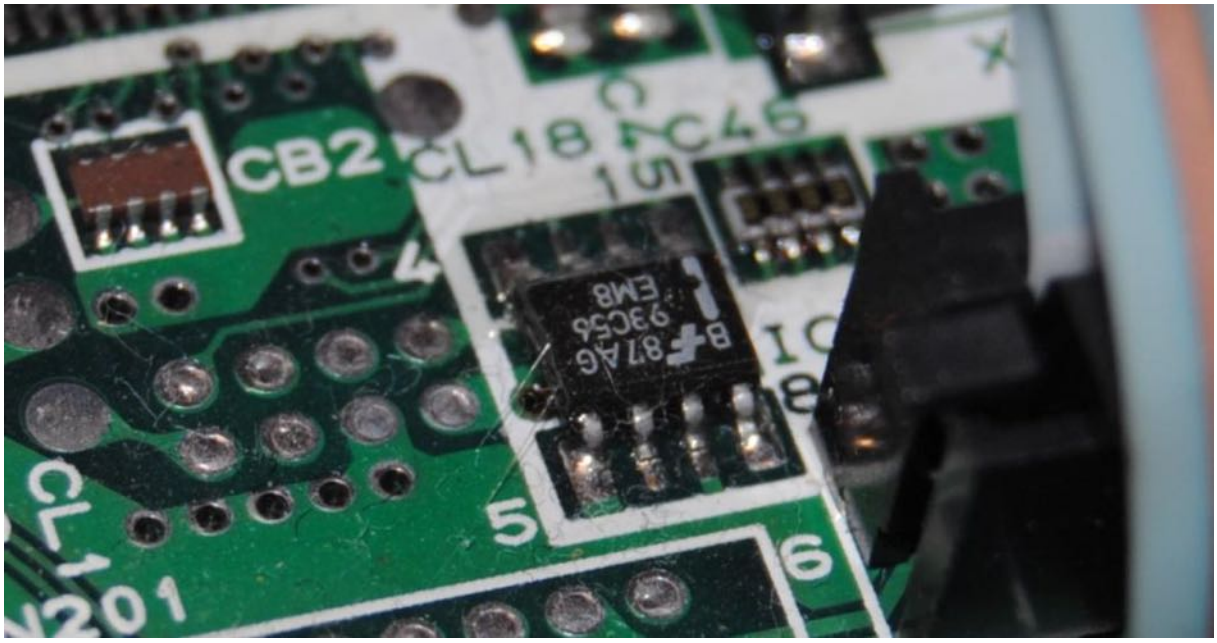
ok, let's go to the cluster, s2000 ap1 records milage and other things in a EEPROM, in a little 93c56 eeprom, other models and car brands use the same system.

So first we need to locate this eeprom, viewing the cluster from behind we need to take out 3 screws.

Once we get the cover off, we locate the eeprom here

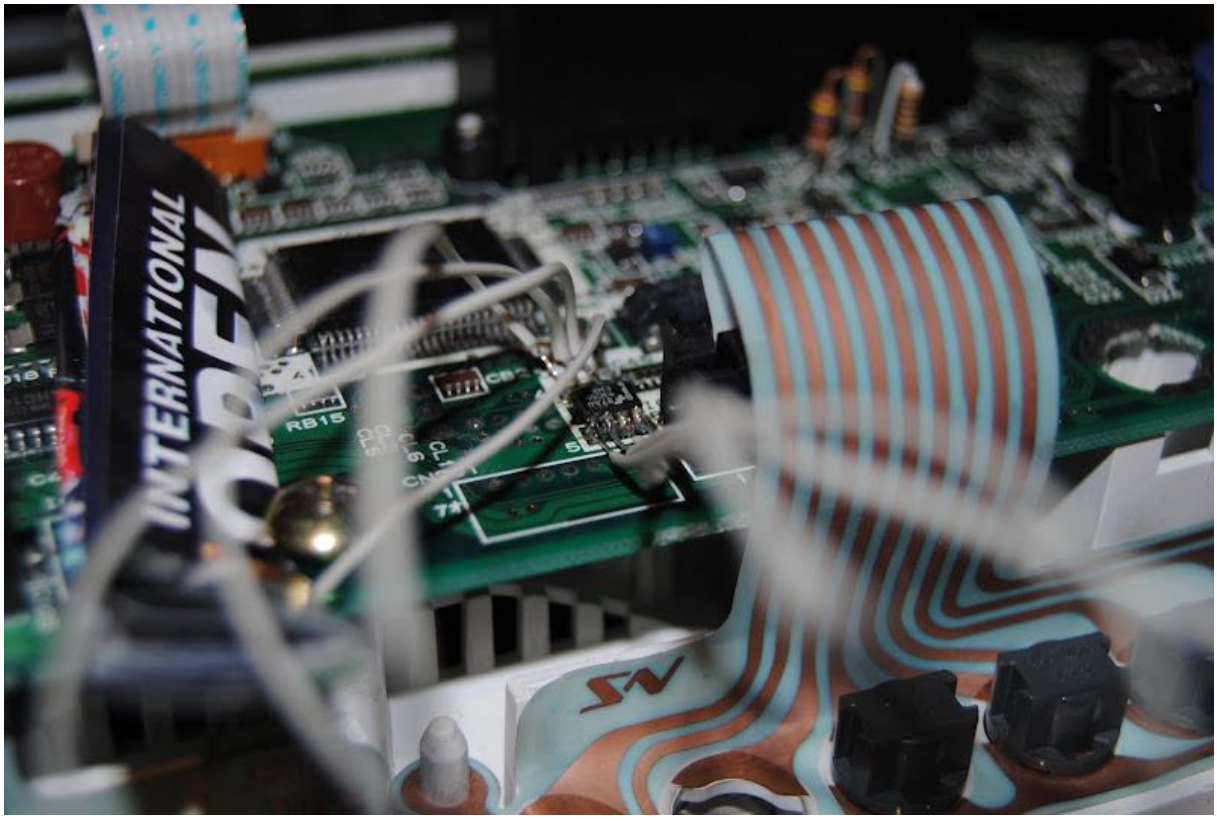


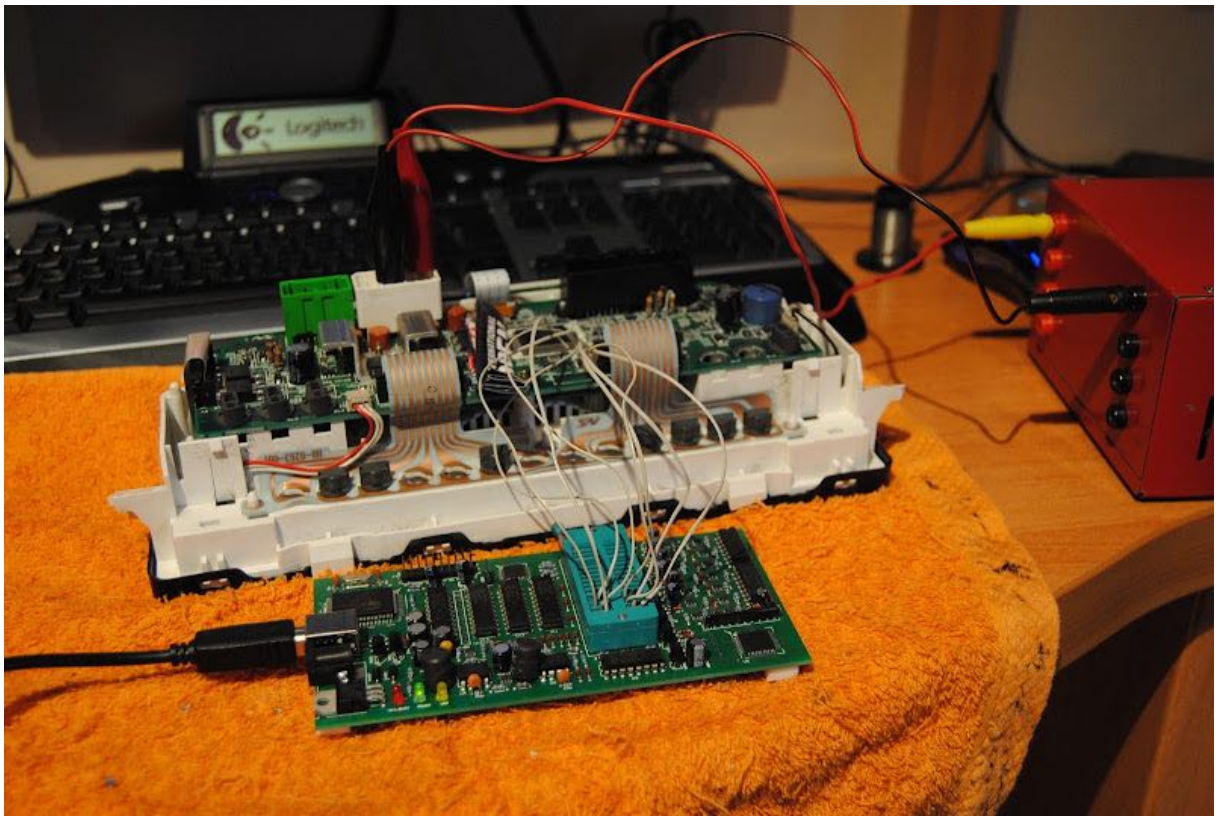
Zoom on this mother****er



Ok, we need to use a willem programmer, mine's a GQ-3X from MCUmall (nice usb powered support).

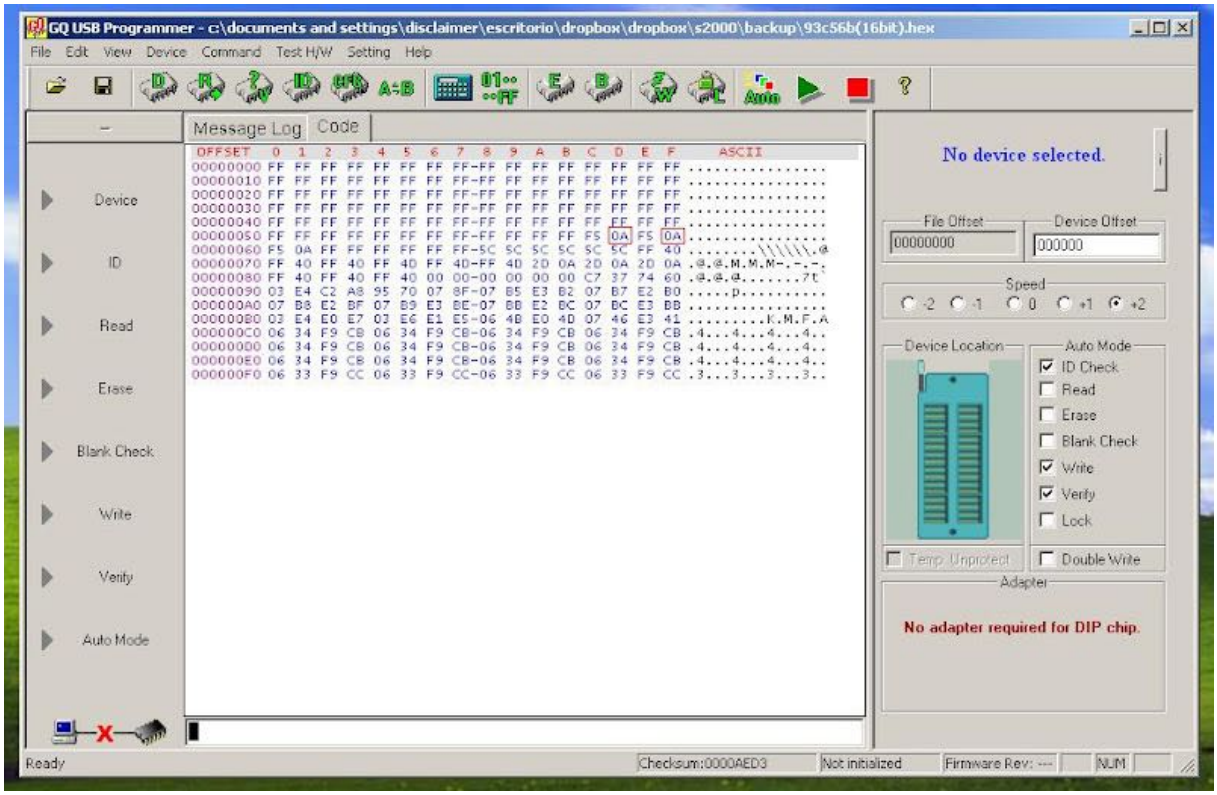
We don't need to remove the eeprom from the pcb, we can solder some wires to run to the willem like this.





Ok, going carefully with where goes every wire on the willem, we setup our software and read the eeprom content. I selected in my software 93c56B (16 bits) (important set to 16bits), I was able to read it a max speed (called "+2" in my case).

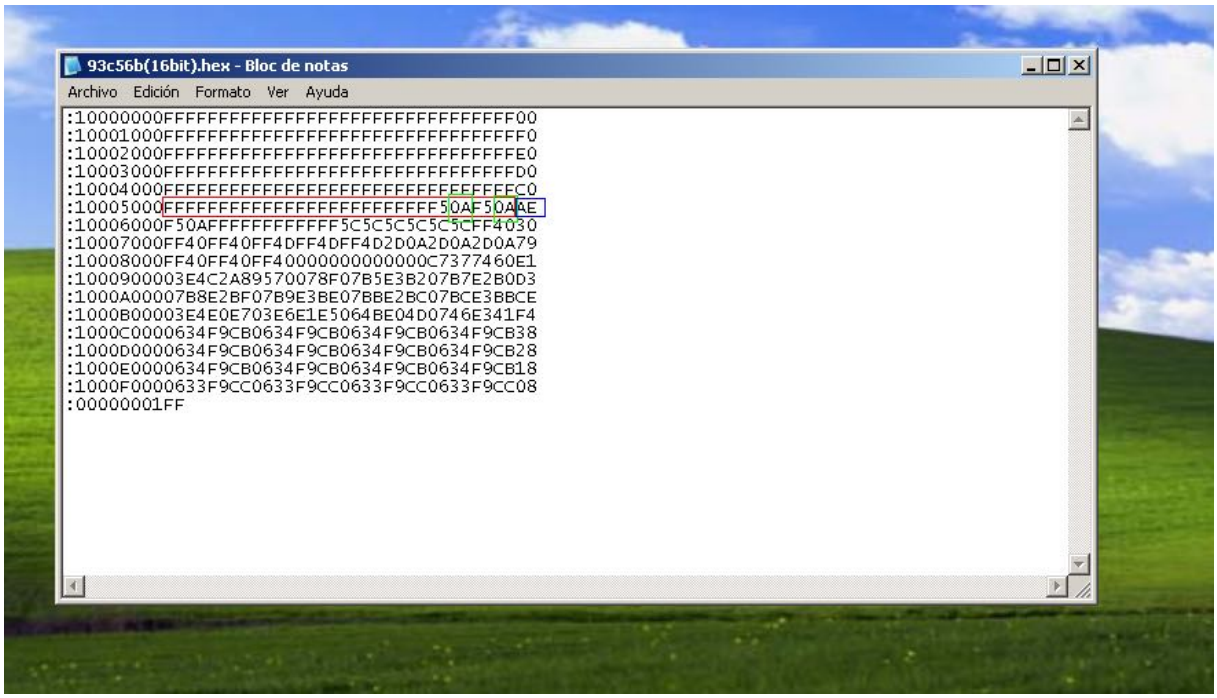
Ok, we get something like this



in red I marked the locations $5D and $5F this two locations need to be edited with a 00 (double zero) to enable the convertor. I strongly recomend to save a backup of this in a .hex file.

Ok, backup saved.

Let's change that positions. We open the .hex file that contains our cluster data using notepad



marked in red is the row that we saw before in the willem software, we need to change the green squares ($5D and $5F locations) by 00. Blue square is the checksum.

so, the full line is :10005000FFFFFFFFFFFFFFFFFFFFFFFF50AF50AAE

we know that last two hex digits "AE" are the checksum of the line. What's checksum? checksum is a system to verify that the rest of the data of the line is correct.

We are going to modify our line changing the pair "0A" by "00" so the line without the checksum is

:10005000FFFFFFFFFFFFFFFFFFFFFFFF500F500+checksum

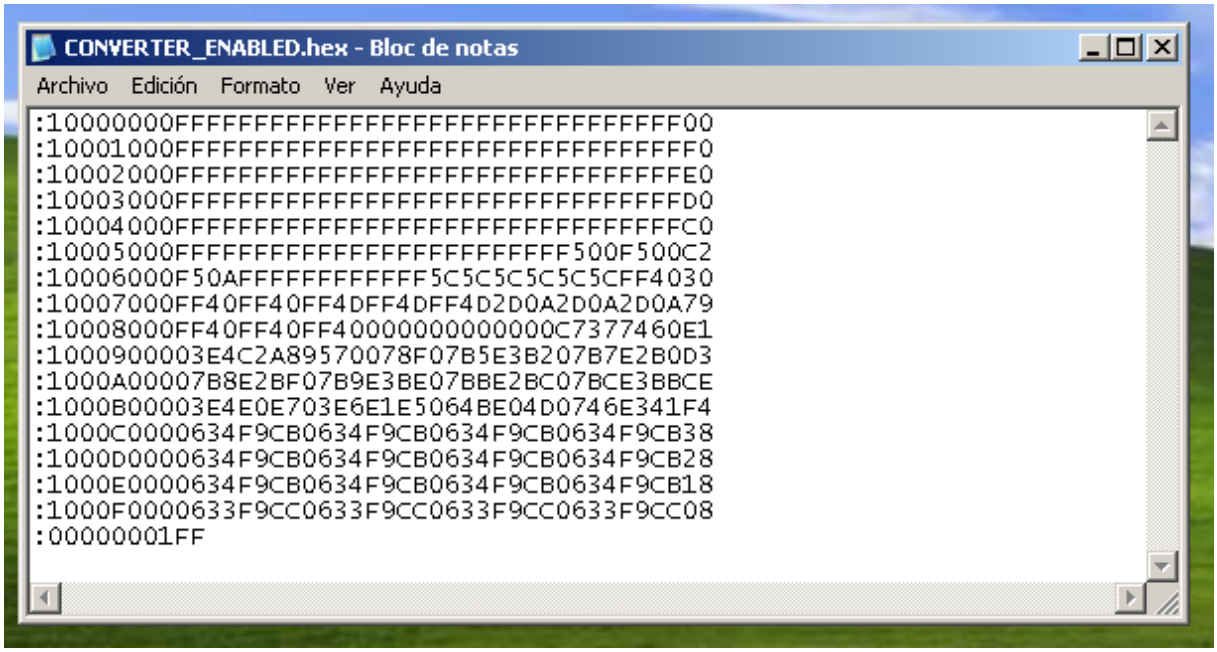
now we need to calculate our new checksum, the formula is add pair by pair hex digits of the line, do the NOT operand to the result, and finally add a 1. In our case:

10+00+50+00+FF+FF+FF+FF+FF+FF+FF+FF+FF+FF+FF+FF+F5 +00+F5+00 = E3E
NOT(E3E) = FFFFFFFFFFFFF1C1
FFFFFFFFFFFFF1C1 + 1 = FFFFFFFFFFFFF1C2

so, out checksum is the last 2 hex digits, "C2".

The final line is: :10005000FFFFFFFFFFFFFFFFFFFFFFFF500F500C2

our file would look something like this



ok, we saved the file and burn this new .hex file with the willem, in my case I was only able to burn it at +1 speed.

The cluster now will let you change from kmh/mph by pressing the switch for 1-2 seconds.

http://www.youtube.com/watch?v=3zLkT_YdAzk

As I said at the beginning, this is a first step to change de mileage to suit our swaps, I need more time to test it but like some people have done, it's possible, anyway hope that this D.I.Y help someone to enable the convertor.

Last edited by DiSCLAiMER; 11-02-2011 at 01:39 AM.

Reply Like

The following users liked this post:

Rung

11-01-2011, 11:43 AM

#**30**

DiSCLAiMER

Honda-Tech Member

Thread Starter

Join Date: May 2010

Posts: 104

Likes: 0

Received 3 Likes on 3 Posts

Re: Europe poorboy EG6

---

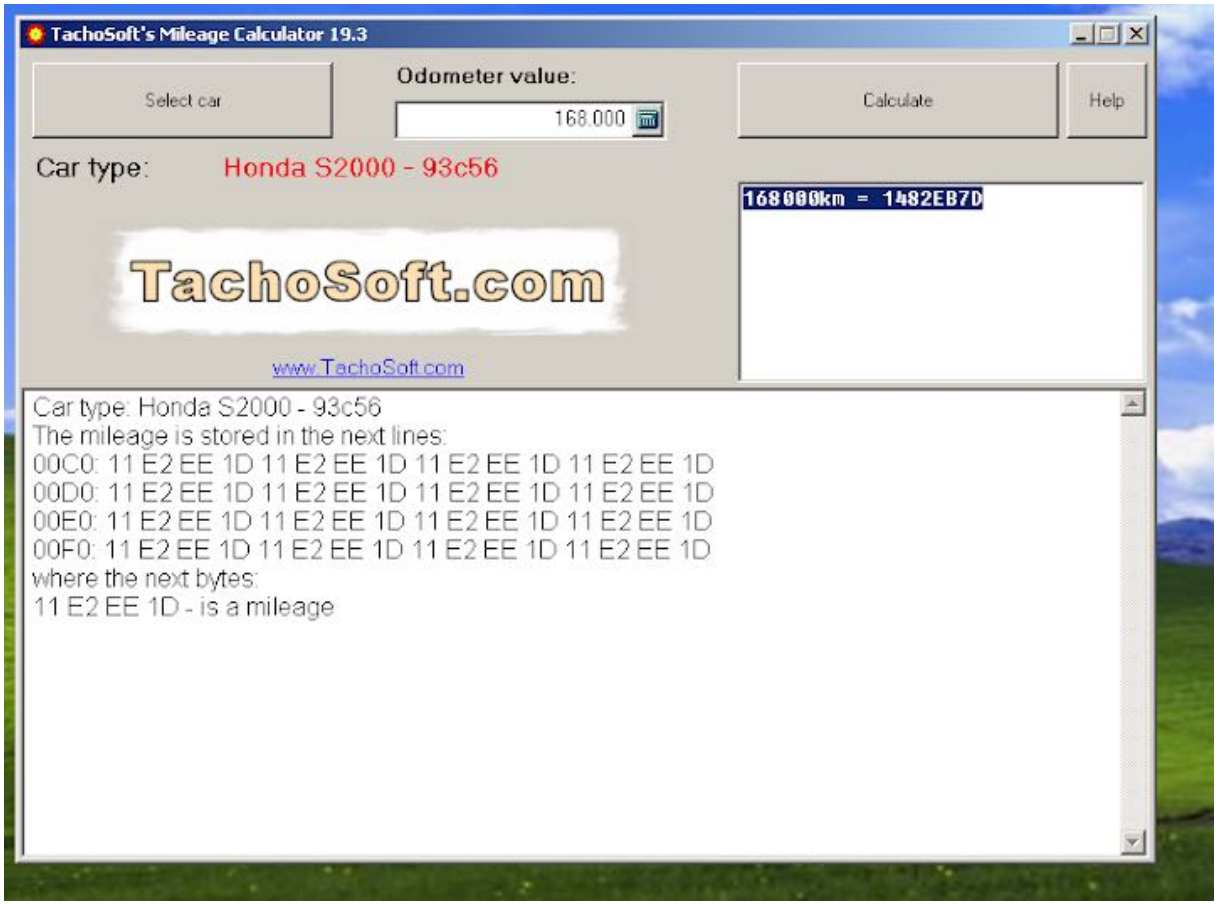
mileage done.

remembering from my last post mileage is saved in the eeprom from rows $C0 to $F0 so...

how to know what hexadecimal numbers I need edit??

There's a formula that returns what you need to put in hex for a specific mileage in that rows, but..... it's boring.

The software TachoSoft' Mileage Calculator simplifies this operation, for example:



Now we only need to calculate the checksums like I do before, if I got this .hex and I wanted to change mileage:

:10000000FFFFFFFFFFFFFFFFFFFFFFFFFFFFFF00
:10001000FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF0
:10002000FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFE0
:10003000FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFD0
:10004000FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFC0
:10005000FFFFFFFFFFFFFFFFFFFFFFFF500F500C2
:10006000F50AFFFFFFFFFF5C5C5C5C5C5CFF4030
:10007000FF40FF40FF4DFF4DFF4D2D0A2D0A2D0A79
:10008000FF40FF40FF40000000000000C7377460E1
:1000900003E4C2A89570078F07B5E3B207B7E2B0D3
:1000A00007B8E2BF07B9E3BE07BBE2BC07BCE3BBCE
:1000B00003E4E0E703E6E1E5064BE04D0746E341F4
:1000C0000634F9CB0634F9CB0634F9CB0634F9CB38
:1000D0000634F9CB0634F9CB0634F9CB0634F9CB28
:1000E0000634F9CB0634F9CB0634F9CB0634F9CB18
:1000F0000633F9CC0633F9CC0633F9CC0633F9CC08
:00000001FF

let's do some numbers:

168000km = 1482EB7D

14+82+EB+7D+14+82+EB+7D+14+82+EB+7D+14+82+EB+7D

NOT(10+00+C0+00+14+82+EB+7D+14+82+EB+7D+14+82+EB+7 D+14+82+EB+7D)+1 = checksum 38

NOT(10+00+D0+00+14+82+EB+7D+14+82+EB+7D+14+82+EB+7 D+14+82+EB+7D)+1 = checksum 28

NOT(10+00+E0+00+14+82+EB+7D+14+82+EB+7D+14+82+EB+7 D+14+82+EB+7D)+1 = checksum 18

NOT(10+00+F0+00+14+82+EB+7D+14+82+EB+7D+14+82+EB+7 D+14+82+EB+7D)+1 = checksum 08

1000C0001482EB7D1482EB7D1482EB7D1482EB7D38
1000D0001482EB7D1482EB7D1482EB7D1482EB7D28
1000E0001482EB7D1482EB7D1482EB7D1482EB7D18
1000F0001482EB7D1482EB7D1482EB7D1482EB7D08

result .hex:

:10000000FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF00
:10001000FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF0
:10002000FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFE0
:10003000FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFD0
:10004000FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFC0
:10005000FFFFFFFFFFFFFFFFFFFFFFFF500F500C2
:10006000F50AFFFFFFFFFFF5C5C5C5C5C5CFF4030
:10007000FF40FF40FF4DFF4DFF4D2D0A2D0A2D0A79
:10008000FF40FF40FF40000000000000C7377460E1
:1000900003E4C2A89570078F07B5E3B207B7E2B0D3
:1000A00007B8E2BF07B9E3BE07BBE2BC07BCE3BBCE
:1000B00003E4E0E703E6E1E5064BE04D0746E341F4
:1000C0001482EB7D1482EB7D1482EB7D1482EB7D38
:1000D0001482EB7D1482EB7D1482EB7D1482EB7D28
:1000E0001482EB7D1482EB7D1482EB7D1482EB7D18
:1000F0001482EB7D1482EB7D1482EB7D1482EB7D08
:00000001FF

and well, u know, burn it on to the eeprom and voilà:


3
4
5
6
7
8
0
mph
km/h
TRIP A
168383 550.7


3
4
5
6
7
8
0
mph
km/h
TRIP A
104586 634.0