

MicroTech ECU Tuning Tips

Idle 30"Hg 1.43
14psi 01 7.71mS

Set the engine idle speed by adjusting the setting screw on the throttle body. Use the Idle function (Screen 1) if necessary to adjust the fuel curve to achieve a smooth idle with clean exhaust emissions. If the car blows black smoke, the mixture is too rich; if it "hunts" at idle (revs rise and fall), the mixture is too lean.

Load minMS 1.81
15psi 08 8.00mS

Next we need to set "off-idle" for smooth transition from idle when the throttle is opened. With no load on the motor, use light pressure on the throttle to free-rev to about 2000RPM. Scroll to the Load function (Screen 8) and adjust the 25"Hg, 20"Hg and 15"Hg screens as necessary to ensure a smooth transition from idle and that the engine revs cleanly as you open the throttle. This should result in an air/fuel ratio of about 14.7 - 13.5.

Now it's time to set up the main power maps: load the engine using a dynamometer or find a deserted spot where you can safely drive the car. Run the motor under load at about 3000RPM and adjust the 10"Hg, 5"Hg and 0"Hg Load screens. This should result in an air/fuel ratio of about 13.5 - 12.5.

If you have a turbo or supercharger, set up the boost Load maps (2psi - max. boost) while running the engine under load at about 3000 - 4000RPM.

NOTE: check air/fuel ratio with caution when setting up boost screens to avoid a lean out. This should result in an air/fuel ratio of about 12.5 - 11.5

This completes the coarse tuning of the system; now the other functions of the MT ECU can be used to fine-tune the system. All of these functions should be set up with the engine under load i.e.: on a dyno or while driving.

RPMwot 2000 +00%
3500 17 8.43mS

Scroll to Screen 17: **RPMwot**. This function must be set up under full load, so if you are road tuning you will need to find a big hill... Load the motor and check conditions every 500RPM from 500 - 9000RPM. If necessary, adjust the mixtures to maintain conditions through the rev range.

RPMcrs 8000 +24%
5500 18 9.57mS

Next, set up Screen 18: **RPMcrs**. Under light load (cruise), check conditions every 500RPM from 500 - 9000RPM. If necessary adjust the mixtures to maintain air/fuel ratios at light throttle openings all the way through the rev range.

NOTE: the **RPMwot** and **RPMcrs** functions are not active when programming in matrix mode.

Pump1 Amt +10%
15psi 19 8.52mS

Now adjust for throttle response and to remove any flat spots using the **Pump** functions (Screen 19). Remember that the MT ECU has two accelerator pump functions: **Pump1** for below 2000RPM and **Pump2** for above 2000RPM.

(Fuel + Ignition set-ups only)

t_rpm 6000 +25
+26 23 8.43sT

Now it is time to fine-tune the ignition functions. Firstly, scroll to Screen 23: **T°rpm**. This function sets the basic timing advance curve for the engine. If necessary, adjust the timing values every 500RPM in these screens so that there is no detonation (pinging) at any rev range under full load. **DO NOT** take turbo engines into boost at this stage; this function should be set up at about 10"Hg - 0"Hg.

t_map 04psi +00
+25 24*10.33mS

The **T°map** function (Screen 24) is the equivalent of a vacuum advance on a distributor. Use **T°map** to adjust timing advance under light load conditions (25"Hg - 15"Hg) for smooth cruise. If you are setting up a turbo motor, also adjust the boost screens (2psi - max. boost). In turbo systems, you may find that you have to retard the timing as boost rises in order to avoid detonation.

Water> 82 C +02%
82_C 20 8.33mS

t_wat 82 C +00
+25 28 7.19mS

This concludes the primary set-up of the MT ECU. There are still a few functions that need to be set once the engine has cooled down again (e.g. next morning):

Air_t 46 C +00%
37_C 21 10.62mS

t_air 38 C +00
+25 25 9.24mS

The **Water** and **T°wat** functions (Screens 20, 28) should be set up if necessary to adjust the fuel and ignition to maintain the air/fuel ratio as the engine temperature changes.

Crank> 82 C +00%
72_C 22 7.62mS

The **Crank** function (Screen 22) should be set up as temperatures rise - as the temperature rises, crank the motor and adjust the **Crank** correction value to assist the motor to start more easily at that temperature. The **Air_t** and **T°air** functions (Screens 21, 25) can be set up over time as required, as air temperature conditions change.