# Tuning AFM

Posted by Sterling Doc - 30 Jul 2011 19:33

---

One thing I haven't seen explored much online is how and why to tune the AFM.  I see Joe posted up a while back on the NASA Spec boards that removing the cat as we do can mess with A/F ratios, and that there is some benefit to fixing this with an AFM tune. I'm interested in what people have found with this. What A/F ratio are we shooting for? Do you guys adjust the wiper/track, the spring tension, or the air bypass screw on the AFM? How much does a click one way or the other change things?  After we've found some lean issues in local cars, I've just put an AEM A/F ratio gauge, and will log this with the Traqmate. I'm happy to share what I find, when I do start checking things out.

Thougts & experiences?

==========

# Re: Tuning AFM

Posted by FR Wilk - 09 Mar 2013 16:03

---

XX

==========

# Re: Tuning AFM

Posted by phlip - 11 Mar 2013 09:12

---

Thats funny. Reading one of the links in your sig it says never adjust the spring tension of the AFM. Adjusting the spring tension of the AFM is how I went from 128 to 139 horsepower in less then an hour of dyno time. It's also how I've got dozens of pre-OBD2 cars equiped with AFM's to pass state emission tests.

**FR Wilk wrote:**

AFM Tuning, what an interesting title for a thread.

==========

# Re: Tuning AFM

Posted by Sterling Doc - 11 Mar 2013 09:39

---

It seems remarkably effective on the dyno.

We don't spend much time at part throttle, so they dyno should reflect track use pretty well

Outside of chip tuning (not Spec) do you have any suggestions FR Wilk?

==========

## Re: Tuning AFM

Posted by RangerGress - 13 Mar 2013 05:35

_____

**phlip wrote:**

Thats funny. Reading one of the links in your sig it says never adjust the spring tension of the AFM. Adjusting the spring tension of the AFM is how I went from 128 to 139 horsepower in less then an hour of dyno time. It's also how I've got dozens of pre-OBD2 cars equiped with AFM's to pass state emission tests.

I'm dubious.  That's a helova lot of hp increase.  Rigorously testing engine management changes via dyno runs is not infantry simple.  It's hard for me to buy that Porsche left 11hp on the table that could have been recovered with a few spring clicks.

At a minimum, a careful analysis would have to be done re. what was changing (F/A, spark advance, etc.) in good runs vs. bad runs, and it would have to be repeated multiple times to confirm causality. Once can't just twiddle something, do another run and exclaim "wow, 11hp. Time to go home".

==========

## Re: Tuning AFM

Posted by Sterling Doc - 13 Mar 2013 10:11

_____

I'm pretty sure Porsche left fairly little on the table in it's intended configuration, but add 25 years, cat delete, mix-and match engine builds,and altitude variations etc., and it's not hard to imagine that the end result can be significantly out of tune, and we see it in bad A/F readings. When we correct the A/F's at WOT, we gain the power that was lost by being out of tune. In the end, we make very little more than factory power. It's not gaining power, just recouping what was lost. I'd agree 11 HP is not typical, but signficant gains are pretty routine. 128HP baseline is pretty low, so it's pretty safe to say that motor was out of tune. 139 HP is a healthy Spec motor. We often see cars running very lean (likely d/t the cat delete), and fixing that only seems prudent. At least anecdotally, the changes made seem to be pretty durable from one event to the next by Traqmate logged A/F ratios.

We can't advance spark, or almost any other parameter beyond replacing worn components, so we are only twirling one dial here.

==========