



# TR6 PI Notes

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## What No One Told You About PI:

There are a number of documents listing "how-to" convert a carburetted TR6 to PI. However, I haven't seen anyone document the problems associated with the system. Starting with the general problems and progressing to more technical issues:

PI will increase your power, but not by an enormous amount. The 135 or 150 HP figure quoted in the factory literature assumes high compression and a hot cam. Unless you have all of these features I doubt you will see an increase of more than a few HP. The only gains are due to the increased inlet area.

Mixture balance can be complex due to throttle shaft wear. Replacement shafts run about \$60 each or \$180 for entire setup. I could get the unit to run correctly at either idle or full throttle but seldom both. Now my definition of "run correctly" was determined by an Exhaust Gas Oxygen gauge, the minor variances that I was sweating would not be detected by most enthusiasts.

Remember that there is no temperature or altitude compensation on these units. If it gets cold you run lean, if it gets hot you run rich.

I found that the system was difficult to get running when cold. The problem is making sure the cold enrich screw is set correctly. The problem is further complicated by the fact that it is nearly impossible to adjust the cold enrich screw when the metering unit is on the car!

It is very difficult to detect a bad pressure regulator. If the regulator fails closed there will be insufficient fuel circulating to cool the pump and vapor lock will quickly result. I suggest that you install a pressure gauge either before or after the pressure regulator. The pressure on either side of the pressure regulator will be identical. Note that a Bosch pump flows too much volume for the Triumph regulator. As a result the outlet pressure will be over 100 psi thereby reducing the life of your pump. You can ignore the problem or install a second pressure regulator in the line.

If you want to modify the metering unit settings install an Exhaust Gas Oxygen gauge. Without it it is difficult to get the PI system running correctly. One friend installed a PI system, found it ran rich and had the metering unit professionally rebuilt. He still had a problem with the system running rich and has since pulled off the PI. I haven't had such problems, however, it took a bit of metering unit adjustment on my part (part of my problem is being at an elevation of 5000 ft).

If you plan to adjust the metering unit yourself beware that the full throttle setting screw is nearly impossible to adjust - and adjust you must if you want the car to run right. The headless screw comes with a locking nut that is normally seated against the metering unit. I used permanent thread lock to glue another nut to the end of the screw furthest from the metering unit. I then fitted a short piece of rubber hose over this nut. The hose can be cocked at an angle to prevent rotation of the screw. To adjust the screw pull the choke (to remove pressure on the screw), and align the hose with the screw and rotate by finger. This is rather tough because the screw is on the bottom side next to the engine. However, it is a whole lot easier than removing the metering unit!

I should also note that the locknuts under the black plastic cap are typically locked down so tight that it is impossible to adjust them on the car. So if you have the metering unit out of the car make sure you loosen the lock nuts. I covered them with a non-hardening caulking compound to make sure they didn't move.



This photo shows the engine side of the metering unit, the full throttle screw can be seen on the bottom. The cold enrich screw is almost visible above and to the left of the full throttle screw. The lock nuts are exposed (black cover removed) in the upper left side of the metering unit. I have been able to adjust the cold enrich screw with a wrench but it's not easy!

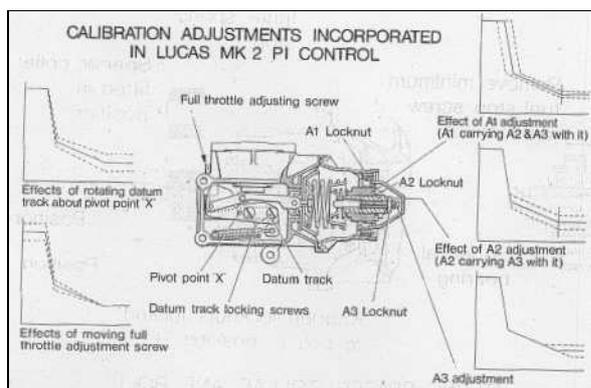




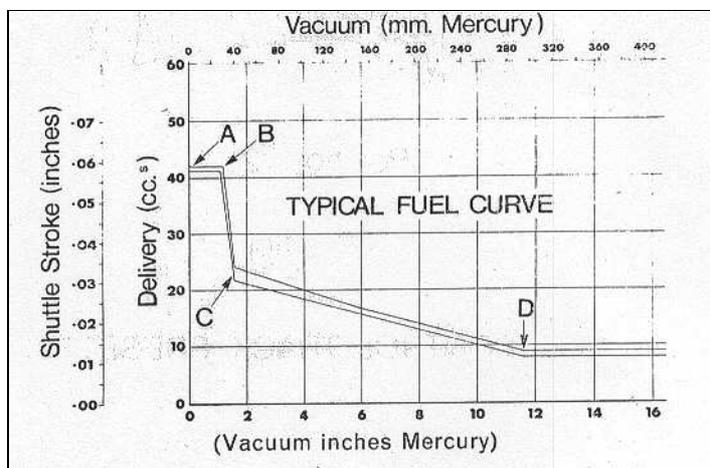
The full throttle screw with rubber hose cover canted to prevent rotation.



The full throttle screw with rubber hose removed. The photo shows that two nuts are at the end of the screw, the inner one is the metric (?) locking screw and the outer is an SAE. Originally I envisioned using a wrench to adjust this, however, it is virtually impossible to accomplish when mounted on the car.



This is the metering unit adjustment curve, the only data you really need. This basically tells you how to adjust the metering unit. I suggest modifying 4 items; locknuts A1, A2, A3 and full throttle adjusting screw.



This shows the scale of the adjustment curves. Note the car idles at 10 inches Hg.

