



UK MKIII Supra Owners Group

## Fitting a Manual Boost Controller



Author	J Seaman
Date	29/08/07
Version	1.00
Edited by	NA

## Disclaimer

Neither the author nor the MKIII Supra Owners Group accepts liability, including liability for negligence, in respect of any statement in this guide.

The guide reflects the opinions of the author following his own experience, and does not state any of the opinions as pure factual information, and accepts no liability for the interpretation of the report by the reader. Neither the author nor the MKIII Supra Owners Group accepts liability for the distribution of this guide, or for the actions that may occur following the guides distribution.

The guide may not be distributed without the express permission of the author

When it comes to boost controllers you have a wealth of options from the complex electronic variants (electronic boost controllers - EBC) such as the Apexi AVC-R or the simpler Greddy Profec B Spec all the way down to manual boost controllers (MBC) and bleed valves. Bleed valves are frowned upon because they cause issues with control of boost due to the fact they simply bleed air that would go to the wastegate so you have either an EBC or an MBC.

Which do you pick? Up to you, they both do the same job but the EBC offers you a wealth of features such as high/low boost settings, control over how the boost hits etc etc. The MBC is about a tenth of the price.

Either way you are achieving the same goal which is to modify the amount of air that reaches the wastegate actuator (The bit that opens the wastegate and effectively limits the boost). I picked an MBS because it was cheap, simple and I was on a deadline. I may change for an EBC later on but to be honest I think I'm going to be hard pushed trying to justify spending a further £150-200 to replace my £20 MBC that works perfectly well.

The main benefit is increased boost and the that the wastegate won't see any boost pressure until the MBC 'decides' it should open. This means you get a quicker build up of boost due to the fact the wastegate is completely closed until we hit our desired level (on a stock car this is not the case as the wastegate begins to open as soon as a small amount of boost reaches the actuator).

Right, enough intro, if you pick an MBC then here's what you do with it:

Step 1 - Follow the guide for removing the 3000 pipe

Step 2 - Perform step 6 in the lexus/550 fitment guide to remove the accordion hose

Step 3 - Locate the hose from the turbo to the wastegate actuator



Step 4 - Use a monkey wrench to remove clips from both ends of the hose



Step 5 - Pull the hose clear of the car





Step 6 - You can now see the path we will be intercepting, from the turbo to the wastegate



Step 7 - Purchase a ball-bearing style MBC (may be called a grainger valve), expect to pay no more than £25. eBay will be your best bet



Step 8 - Here's what's inside, pretty self explanatory but :

1. The black bolt is used to compress the spring, the more you turn tighten it, the more pressure it applies
2. The solver nut is a locking nut to stop the black bolt from moving once set in position
3. The spring provides pressure against the ball bearing so it doesn't let air flow through the valve
4. The ball bearing blocks the feed from the bottom of the vale to its outlet
5. The valve itself - air is fed from the turbo into the bottom of the valve. Once enough pressure (boost) is applied, the ball bearing overcomes the force of the spring and pushes it out the way and air leaves the exit point on the right hand side to the actuator.





Step 9 - Based on the above explanation you should see the valve sits like this



Step 10 - The valve should be fitted with the smallest hose runs possible. You often see really long runs of hose but this means pressure will take longer to build in the pipework and can lead to serious boost spikes before the wastegate sees any pressure at all. Short pipe runs means it is harder to adjust your MBC but you should only need to do this on initial set up anyway



That's it really, all you need to do now is set the boost to the minimum value (screw the adjustment bolt all the way out so there is minimal force on the spring) and then keep testing the car then tightening the nut until you reach the desired pressure.

Note : There is only a small amount of travel on the adjustment bolt because small turns make a big difference to boost pressure.

Also, there is a hole in the top of the MBC to release build up of pressure on the wastegate when you come off throttle after boosting (This will create a small boost leak when you reach your desired pressure but shouldn't cause you any problems)

**IMPORTANT :** You should have an aftermarket boost gauge if you are going over 8 psi otherwise you will have no idea what boost levels you are reaching