

NXS Manual Boost Controller Installation and Setup

Please read this document before you install the boost controller.

Precautions:

- 1) Never increase your boost without the additional fuel supply to support it. Please read the FAQ for more information on monitoring your progress.
- 2) The controller is shipped at a low boost setting to protect your engine. Follow the instructions below to adjust it. **Do not adjust the controller before installing it.**
- 3) When adjusting the controller, make small adjustments at first. The controller is sensitive and half a turn can cause gains of 1 psi or more. Make sure you tighten the lock nut after adjusting the boost controller.
- 4) Note that the controller has a very small orifice on the side of the elbow directly across from the wastegate nipple. This orifice must not be blocked if the controller is to operate correctly. (See Diagrams)

Let's get started:

- 1) Locate the wastegate on your turbo system. Most will have an internal design like the one in the illustration. Attached to the wastegate will be a vacuum line or hose. Remove the hose from the wastegate and seal it. A large, short, sheet metal screw works well for this purpose and will not work itself loose. **DO NOT DRIVE THE VEHICLE WITH THE WASTEGATE DISCONNECTED.** If you have an adjustable wastegate, set it to its lowest boost setting. Most factory wastegates are NOT adjustable. You'd know if you had one.
- 2) Attach a length of vacuum hose from the wastegate barb of the controller to the nipple on the wastegate. This is the nipple that you just removed the vacuum hose from. Zip-tie it in place so that it won't fall off. Also, be sure to secure any hoses and/or fittings that you had to add.
- 3) Locate a boost source using the diagrams as a guideline. Now, connect a piece of vacuum hose between the boost source and the straight end of the controller. A drop of oil on the brass tip will aid in adjusting the hose later. Do not use the original wastegate line as your boost source. The best point to use for a pressure source is the nipple on the turbocharger. If there is already a line attached, install a vacuum tee (as close to the nipple as possible) and splice into the connection. Alternate sources include the intake manifold or the pipe between the turbo and throttle. Do not zip-tie this hose yet. You may need to adjust these hoses later.

Troubleshooting:

The boost overshoots its target level before settling to a lower level. This is called "spiking". Ensure that you have provided the shortest path possible between the boost source and the boost controller, and from the boost controller to the wastegate. Your engine may also have small vacuum leaks that can cause this.

The manual boost controller worked great at first, but now my boost level is reduced each time I step on the throttle. Check the breather hole on the boost controller for obstructions. Use the illustrations to find it and make sure the hole is clear by inserting a very slender pin or needle.

I melted my pistons because I tried to run 20 more pounds of boost without the fuel to support it. Sorry, but you didn't read the FAQ or the precautions. Any method of raising the boost (manual boost controllers, electronic boost controllers, or adjustable wastegates) must be used with caution. The fuel to support the extra air must be present. Use an inexpensive air/fuel or EGT gauge to monitor your progress.

The NXS Boost Controller FAQ:

Can I use the Manual Boost Controller with my performance "chip"? Yes. The gains will probably be of a lower magnitude than those of unmodified cars. This is because many chip manufacturers have already set the boost to a higher setting. Additional gains can be found by using the NXS Manual Boost Controller if the chip manufacturer allows the boost signal to reach the wastegate before peak boost is achieved. This is usually the case, as the factory boost controller cannot respond fast enough to control "spiking".

Will you back up my factory warranty should I damage my engine? Unfortunately, carelessly increasing the boost without monitoring air/fuel ratios or exhaust temperature may damage your engine. We are not responsible for any damages should they occur. There are many quality EGT and air/fuel gauges available, to monitor your progress. Check the values at WOT at stock boost levels and then slowly increase the boost. When you notice a drop in O2 sensor voltage, or a rapid increase in EGT, you have reached the limits of your computer's capabilities. You will need to add more fuel. These same risks are present with any electronic controller or a chip. We will replace the manual boost controller with a replacement unit, should a defect in workmanship be discovered. One benefit of the NXS MBC is that it is easily removed should you decide to return your vehicle back to its previous specifications.

How high can I raise the boost? Provided you have the fuel to accommodate the extra boost, the NXS MBC will allow you to raise the boost limit to over 30psi. Actual limits of the controller are dependent on the turbo size and wastegate actuator parameters. The included instructions describe methods to modify the controller, should you find that you are unable to reach your target boost with the stock configuration. Also, keep in mind that some turbo systems will cut fuel delivery above a preset factory limit.

4) Check all connections to ensure that they are secure and will remain connected during testing. Now, start the vehicle and drive moderately for a few minutes. Monitor the boost level while you drive. If you have followed the instructions, you will now have a peak boost that is the same or LOWER than the stock boost setting. If this is true, then proceed to step 5. If the boost is now higher, check your connections before adjusting the boost controller. If the boost remains higher than stock, BRIEFLY accelerate in a higher gear and watch the boost. If the boost level exceeds your target limit, release the accelerator immediately and adjust the boost controller as follows. Loosen the lock nut and rotate the adjustment screw counter-clockwise (makes the controller longer) relative to the rest of the controller, one turn. Hold the opposite end of the controller while doing so. Re-tighten the lock nut and repeat step 4. If you have to lengthen the controller further, use care so that the screw and housing remain connected, or the ball and spring may fall out. If they do, please refer to the pictures. They will show you the correct order of the parts.

5) If you are at this step, then the boost is currently at a stock or lower threshold. Loosen the lock nut and turn the adjustment screw clock wise, relative to the intake source barb (makes the controller shorter), ¼ turn. Re-tighten the lock nut. Accelerate again in a higher gear and note the new boost setting. Repeat until you have reached your target boost level. Note: it may take a few turns before you begin to see a change. Be patient, adjust it a quarter turn at a time to avoid over boosting. It only takes twenty minutes or so to complete the adjustment.

6) When the adjustment is completed, zip-tie all connections and tighten the lock nut.

Congratulations, you have just installed your boost controller. Please use caution when driving your newly-tuned vehicle. Control problems may appear during rapid acceleration that weren't apparent at the stock boost level.

Modifying the Controller:

The NXS Motorsports Manual Boost Controller will support boost levels in excess of 25 psi. Should you find that you cannot reach your desired boost level, the boost controller may be modified by stretching the spring. This will allow the boost controller to support a higher boost level. If this does not increase your boost level, you may have reached the flow limits of your system.

Note: Although most factory turbo systems will easily accept boost increases of 20-30%, air/fuel mixtures should be monitored when raising boost above factory limits. This applies to any boost controller. It is a good idea to use one of the gauges mentioned above and raise the boost SLOWLY. Again, we cannot be held responsible for damage caused by reckless boost adjustment.

