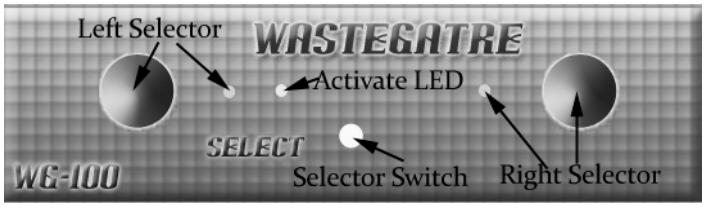
WASTEGATRE WG-100

Installation Instructions & User Manual

Operation



The Wastegatre WG-100 is an electronic boost controller that uses your Manifold Absolute Pressure (MAP) sensor's signal as an input to determine the engine's boost pressure, and activates your vehicle's existing (or added) waste gate solenoid to control boost. There are 4 wires on the Wastegatre WG-100: Red is power, black is ground, yellow is MAP sensor signal wire, and blue is waste gate solenoid ground. The selector switch toggles between the left and right control knobs. The green LEDs show which control knob is selected. The amber LEDs are tied to the waste gate solenoid activation circuit and lights up when the solenoid is activated. Turning the control knobs counter clockwise will lower boost, while clockwise raises boost.

Installation

To begin, determine a convenient place to mount the Wastegatre in the passenger compartment. It should be where you can see and reach it while driving. There are mounting tabs to permanently mount the Wastegatre with sheet metal screws. You could also fabricate a bracket to mount it, or graft it into the center stack or console if you wish. You will need to route your wires, so keep this in mind as you decide.

Find a good chassis ground, preferably one shared by your ECU so that the MAP signal is what the ECU sees and remains consistent. Using the included eyelet, secure the black ground wire to this ground source. Next find a voltage source that provides battery voltage when the key is in the "On" position. You can use an eyelet at the fuse block or one of the side crimp connectors to splice into another wire. Run your red power wire to this voltage source.

You can tap the MAP signal wire at the sensor, ECU, or anywhere in between. If you have a wiring diagram, the ECU may be the easiest choice as many vehicles locate the ECU inside the passenger compartment. When you think you have the correct wire, check it with a volt meter. With the key on and engine not running, you should have about 2.5 volts (with a 2-BAR MAP sensor). With the engine running at idle, this voltage should drop to less than 1 volt. Using a splice connector, tap into this wire. You do not want to cut the factory wire. You may shave back a little insulation and solder the

Wastegatre's yellow wire to your MAP signal wire and protect it with *liquid electrical tape*, or just splice in with the included connector.

The blue wire activates the *ground* side of your waste gate solenoid. Most factory vehicles provide a constant voltage to the solenoid and activate it with the ground circuit. Check your solenoid to verify that it has battery voltage to one of the terminals when the key is on. Some vehicles (such as Chryslers) have a circuit that will power your solenoid only for a second or two when you turn the key on, and if the engine isn't started, will shut the voltage off. You may need the engine running to perform this check. Once you have verified which wire is power, and that it has power constantly, cut the **other** wire (ground side). Leave at least 2" to 3" of wire between your cut and the connector (or ECU) in case you wish to return to stock later. Strip a ¼" of the insulation off and connect the Wastegatre's yellow wire to the solenoid side of the cut. There is a butt connector included for this, but the recommended method is to solder the wires and protect them with heat shrink tubing.

At this point you are wired in and should be fully functional. Tape or wire tie your loose wires out of the way to keep them away from excess heat and sharp objects. Protect them the best you can. Mount the Wastegatre in the place you determined earlier. Installation is now complete. Now it's time to adjust it.

Before we begin, you should have at least minimal instrumentation to determine safe boost levels. A boost gauge is mandatory. It would also be helpful to have a Wide Band AFR gauge and EGT gauge to monitor the safety of the engine. The boost gauge will tell you just how much pressure the turbo is generating. You now have direct control over this variable. A WB AFR gauge will tell you if you are running too lean. As a rule of thumb, keeping the AFR between 11:1 and 11.8:1 is usually safe at sane boost levels. The EGT gauge will let you know if you have excessive combustion temperatures that can melt pistons or valves, thus grenading your engine. Assuming you have your gauge sensor located close to the cylinder head, keeping temps under 1600˚ F should keep you relatively safe.

Tuning

Now let's begin. With both knobs turned fully counter-clockwise, select the left setting. The left green LED should be lit with the key on. (If not, see "Troubleshooting" below.) With the engine up to operating temperature, accelerate to a higher gear where you can hold boost for at least a couple of seconds. Watch the boost gauge as you turn the left knob clockwise. You should see maximum boost start to rise. Stop turning the knob when you are at the desired boost level for your "Low" setting. Flip the selector switch so that the right green LED is lit and repeat, but targeting your "High" boost setting. As

you drive, the amber LED will alert you that the Wastegatre is activating the waste gate solenoid.

Do your tuning on back or side roads, or large vacant parking lots to reduce the chance of an accident. You may opt for a co-pilot to help with the driving and tuning chores. Don't take chances, be safe.

Troubleshooting

No lights come on. Check your power and ground wires. One of the green LEDs should be lit any time the key is in the "On" position.

The green LED is lit, but it won't control boost. Is your amber LED coming on? If so you have a connection problem pertaining to the waste gate solenoid. Verify the connector is connected (maybe you forgot to hook it back up). Verify you have power going to the wire you didn't cut on the solenoid. Check your connection with the solenoid ground wire and the Wastegatre's yellow wire for continuity. Finally check all your hoses to and from the solenoid to ensure the solenoid sees manifold pressure, and that it can get that pressure to the waste gate canister when it's activated. You may also have to check your waste gate canister and lever arm to make sure both are functional and not seized. If it worked before installing the Wastegatre, you either connected something incorrectly, or disrupted something else in the process of installation.

If the amber LED is *not* coming on, check to see if you are tapped into the correct wire for the MAP sensor signal, and that you have a good connection. Use a straight pin to puncture the insulation around the yellow wire, then use a volt meter to make sure the Wastegatre sees your MAP voltage.

The boost spikes high before settling down to my setting. Check for an orifice in the hoses between manifold pressure and your waste gate solenoid, and between the solenoid and the waste gate canister. If there is one, remove it and test again. Check for collapsed or pinched hoses also. If everything checks out, but you still have a boost spike, relocate your waste gate solenoid closer to the waste gate canister. The shorter the hoses between the manifold and the solenoid, and between the solenoid and the canister, the less likely you will see boost spikes.

Kit Contents

We have included additional components to make installation a bit easier. You should have a bag that includes the following items:

(2) Red butt connectors

(2) Red eyelets

(2) Side splice connectors

Warranty

Ecosceptor, LLC includes a 1 year manufacturer's warranty. If the Wastegatre fails within the first year, contact the vendor you purchased it from to get an RMA. Return it and a new one will be shipped to you. You cover the shipping of your old one and your vendor will cover the shipping cost of your replacement.

Guarantee

You have 30 days from shipment date to decide if you love the Wastegatre and want to keep it, or return it for a refund. We want you to be happy with your purchase. If you are not, we'll take it back and refund the purchase price. This does not include shipping or any labor costs for the installation.

Online Help

For additional help you can log on to www.Wastegatre.com to access a soldering tutorial, performance recommendations, and other resources. We are also hosting mpgResearch.com, an online forum with a myriad of subjects relating to performance and fuel economy. For a direct technical line, email our tech guy Mike Holler at mpgChris@yahoo.com. A technical hotline will be shortly forthcoming.

Look for ***Head Porting for Performance and Economy*** at FuelEconomyTips.biz coming soon. You may find great value in ***The Ultimate Fuel Economy Book***, also at the same site. Both books were written by the inventor of the Wastegatre, and focus on performance and combustion efficiency (which translates to fuel economy).

FAQ

Will the Wastegatre work with factory turbocharged cars?

Yes. Your factory MAP sensor and waste gate solenoid will be used.

Can I use it on turbo retrofits?

Yes, but you will have to add your own waste gate solenoid. These can be found in the junk yards. Be sure to grab a portion of the wiring harness and the plug to make it easy to splice in with your vehicle's wiring. If you are retaining the 1-BAR MAP sensor, you will have to add a separate 2-BAR MAP to control the Wastegatre. Find the wiring diagram for the vehicle you used the add-on MAP from and follow the 5 volt VREF, ground, and signal wiring. Tie into another sensor's VREF and chassis ground, and send the signal to the Wastegatre's blue wire. If swapping in a turbo rated MAP, wire it up as with a factory installation.

Can I use the Wastegatre if I'm clamping the MAP with a zener diode?

No, unless you use a separate MAP sensor rated at least at the boost level you intend to run. You might have a factory turbo car with a 2-BAR MAP wanting to run 20 psi boost. Wire in a 3-BAR MAP as outlined above and feed the Wastegatre the signal from the 3-BAR MAP, letting the 2-BAR MAP feed the ECU.

What level of quality goes into the Wastegatre for the price?

The Wastegatre uses automotive and industrial grade components. The electronics are rated to perform between -20 degrees F. up to 185 degrees F. The wires are automotive grade and resistant to petrochemicals and antifreeze, with a higher-than-normal temperature range. The Wastegatres are engineered and assembled in the USA by a veteran company that has been in the electronics business for almost half a century.

How can the Wastegatre deliver so much for so little?

We create our own advertising using a company that offers us the same ads for less than rate card. We are using off-the-shelf components to keep costs down. We don't have a large facility that costs $thousands in rents and utilities each month. We economize wherever we can without compromising quality of the product or service. In other words, we are acting responsibly with cost conscious business practices.