



If you are looking for a designer-inspired electronic boost control with the latest fashion in displays, the Gizmo MS-IBC is not the answer. The Gizmo MS-IBC doesn't make much of a fashion statement with its easy-to-read, three-digit, blue LED boost-pressure display and its heavy-duty, black-anodized, and extruded-aluminum case. However, if you are interested in an electronic boost controller that provides uncompromised boost response, rock-solid boost control and the ability to deliver six stages of boost control, the Gizmo MS-IBC definitely deserves a good look. At a retail price of just \$470.00, the Gizmo MS-IBC should be able to fit into just about any enthusiast's budget.

#### The Basics

The MS-IBC was designed to provide optimum boost response and control of any turbocharged application utilizing a wastegate. As a result, there are many ways to configure the MS-IBC to deliver maximum performance. With the MS-IBC installed in the vehicle, real-time boost pressure will illuminate on the MS-IBC display. The MS-IBC WILL NOT display manifold vacuum. The MAP sensor used in the MS-IBC senses boost only and not vacuum. As a result, the display will read "000" whenever the engine is not in boost. If the unit reads "000" after the power-up routine and the solenoid is spliced in properly, you have successfully installed the Gizmo MS-IBC.

#### Getting Started

Installation of the MS-IBC is very simple and straightforward. The MS-IBC head unit just needs its power wire to be connected to a switched source and its other wire to be connected to a

good ground. Once this step is completed, you need to run a small vacuum line to the MAP sensor port at the back of the head unit. The MS-IBC's boost control solenoid plugs into the head unit's harness while the ports on the solenoid are spliced into the signal lines leading to the wastegate. The port configuration is slightly different for internal-actuator versus external-wastegate applications, so be sure to use the correct configuration.

Once the installation of the unit is complete, it's time to configure the MS-IBC controller. The first order of business is to set up the MS-IBC to display boost pressure in the unit of measurement that you desire. You can choose PSI, kPa or BAR display. The next step is to set up your first stored boost setting parameter. The MS-IBC can store up to six different boost settings which is enough to have a tailored setting for the street, strip, dyno and different octane gasolines. The six boost settings can alternatively be dialed in for six different stages of boost control via the remote switch supplied with the MS-IBC.

#### Basic Programming

It's best to start the process in the "OPEN" loop controller mode with the boost duty cycle set to 10 percent. After making a full-throttle pass in third gear, the MS-IBC will record the peak-boost level attained. The MS-IBC records the peak boost level that stabilized for at least a half a second, this is referred to as the MAXIMUM STABLE BOOST for that particular duty cycle setting. Write this number down and increase the duty cycle to 20 percent to make a second pass. If the first pass lays down 12psi of boost



**Gizmo MS-IBC: Multi-Scramble Intelligent Boost Controller. Multi-stage, Electronic Boost Control up to 50psi**

Text by Michael Ferrara Photos by Phil Lam

pressure and the second pass generates 15psi of boost pressure, you now have an idea of the boost-to-duty-cycle relationship of the turbocharger system on the vehicle. From this relayed information, you should be able to adjust the duty cycle until the desired boost level is obtained. In the above example the increase of 10-percent in duty cycle increased the boost pressure by 3psi. Hence, we could estimate that a setting to 30-percent duty cycle would result in a boost pressure of 18psi. It's a good idea to never raise the duty cycle more than 10-percent at a time as you may exceed your desired boost level. Once you have verified the duty cycle setting for your target boost level, you can then try turning the mode to "CLOSED." In the closed mode, the MS-IBC will monitor the boost pressure and make on-the-fly changes to the duty cycle to stabilize boost pressure. As the user selects different boost presets from the six memory positions, the MS-IBC will display the memory number followed by the MAXIMUM STABLE BOOST pressure for that preset before going into the real-time boost-pressure monitoring mode.

#### Advanced Programming

In addition to setting the duty cycle and controller mode (open/closed) for each of the six boost level presets, the user also has the option to dial in the Gain setting. Turning this setting higher can help to increase boost response. However, increasing this setting will also increase boost overshoot. Boost overshoot is the amount of additional boost that is realized before the pressure settles to the desired level. To correctly dial in the Gain setting, it's best to datalog your boost pressure versus engine speed (rpm) to see the amount of boost overshoot being realized for a set gain level.

The MS-IBC can be configured to deliver six stages of boost control or it can be configured for a three-stage scramble mode. When the user sets the MS-IBC up for the staged-boost mode, each tap of the external trigger will cycle the MS-IBC to the next boost level preset. Hence, the MS-IBC could provide a different boost level for each of the six gears on a six-speed, turbocharged application. If the user sets up the MS-IBC for the scramble mode, activation of the external trigger will cause a set amount of additional duty cycle for a set amount of time. Hence the user can set the MS-IBC to deliver five percent of additional duty cycle for 10 seconds. If the user hits the button a second time during the 10-second period, the same set



amount of additional duty cycle will be added. If its hit a third and final time during the preceding 10-second period, the same set amount of additional duty cycle will be added.

For additional safety, the MS-IBC also allows the user to program each of the six boost memories for an Over-Boost Warning level. When this boost level is exceeded, the display will flash to alert the driver of an overboost condition.

#### Reality Check

As with any boost controller, there are two things that the MS-IBC cannot accomplish. The MS-IBC will not make your turbo bigger and it won't make your wastegate more efficient. If you have an application that has a turbo that's too small to maintain boost pressure at higher engine speeds, no boost controller in the world can fix this problem. Additionally, if your combination doesn't have a capable wastegate system to channel enough of the exhaust flow away from the turbine, you will experience boost creep. Once again, no boost controller can fix this problem either.

#### Real-World Testing

Recently we had the opportunity to get acquainted with the Gizmo Electronics MS-IBC on our Project EG Civic. Our B16 turbo Civic had previously run a best time of 10.5-seconds in the quarter mile. On its first trip to the strip with the MS-IBC in place, the Civic was able to lay down a 10.1-second blast. Since we have not yet tapped into the multi-stage capabilities of the MS-IBC, we believe that 9-second passes should be realized on the next visit to the dragstrip. Stay tuned. ■