HALLMAN BOOST CONTROLLERS

PRO SERIES

INSTALLATION INSTRUCTIONS

The ***HBC*** (***H***allman ***B***oost ***C***ontroller) that you just purchased is cnc machined of high quality billet Aluminum and Stainless Steel. This high performance boost controller has features not found on any other manual boost controller, such as:

- Fast Spool-up (This is not a bleeder valve type controller)
- Non-Locknut Adjustment System (Easy adjustment, no tools required, no locknut required)
- Over-Boost Protection (Internals and adjustment knob of valve cannot be lost)
- Expandability (Cockpit control ready with addition of an add-on kit)

Before you install your ***HBC*** you **must** already have a performance exhaust system, a low restriction air filter and an after market boost gauge. An after market boost gauge is a must because most stock gauges will not read correctly at higher than stock boost levels. **Raising your boost level will void your warranty and it can also destroy your engine if not done correctly.**

This kit includes much of the necessary hardware and instructions to install and mount the ***HBC*** on almost any turbo-charged application. **Note: Not all of the hardware will be used with each application.** In some applications the lines may be hard to install on the actuator. A tiny drop of motor oil on your finger and then applied to the fitting will allow for easier installation of the lines. Lines can be cut to any length that will allow for a suitable installation. Read through the instructions to find an application for your particular turbo setup.

Section 1, The Basics: Our boost controller functions by interrupting the pressure line running to the wastegate actuator. The boost controller creates a differential in that line. If your actuator is a 10 psi actuator and our controller is adjusted to create a 2 psi differential then you will have 12 psi of boost. Since you can control the differential, you can add boost beyond what your stock actuator is capable of producing. Referring to figure 1 will show a diagram of the valve and the proper connections for installation.

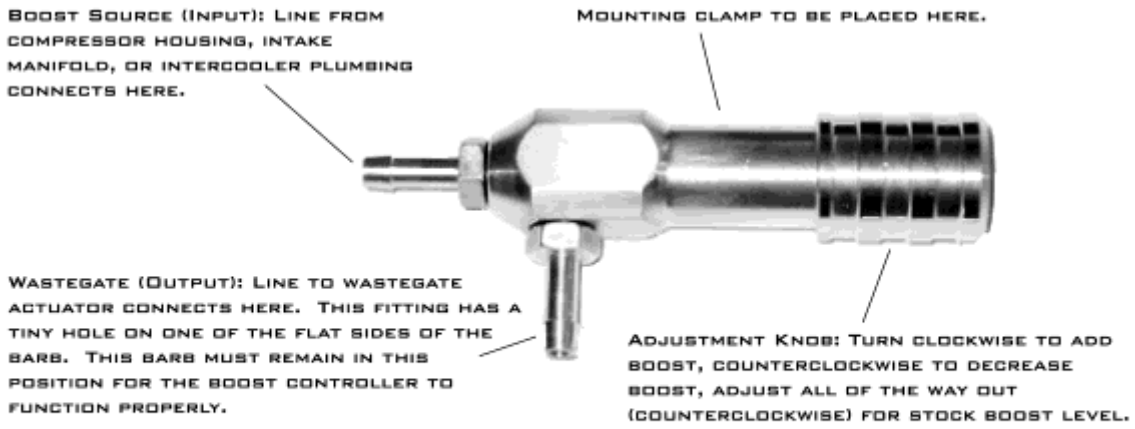


FIGURE 1.

First, locate your wastegate actuator. It is typically mounted to the turbo unless you have an external wastegate. You can refer to figure 2 for a diagram of the wastegate actuator. The actuator has a port on the canister; this port will have a vacuum line connected to it. The line will run to a boost source that is used to operate the actuator. If you trace the line from the actuator it will go to one of the following boost sources: the compressor housing of the turbo, the intercooler plumbing, or somewhere on the intake manifold. This is the line that you will want to remove or cut and install our controller inline between the boost source and the wastegate actuator. Again referring to figure 1 will provide a diagram as to which line connects to the appropriate barb. You may encounter a "T" in the line running between the wastegate actuator and the boost source. The vacuum line off of the "T" will run to a boost control solenoid. We recommend that you remove the "T" and the lines running to the solenoid but leave the solenoid plugged into the factory wiring harness.

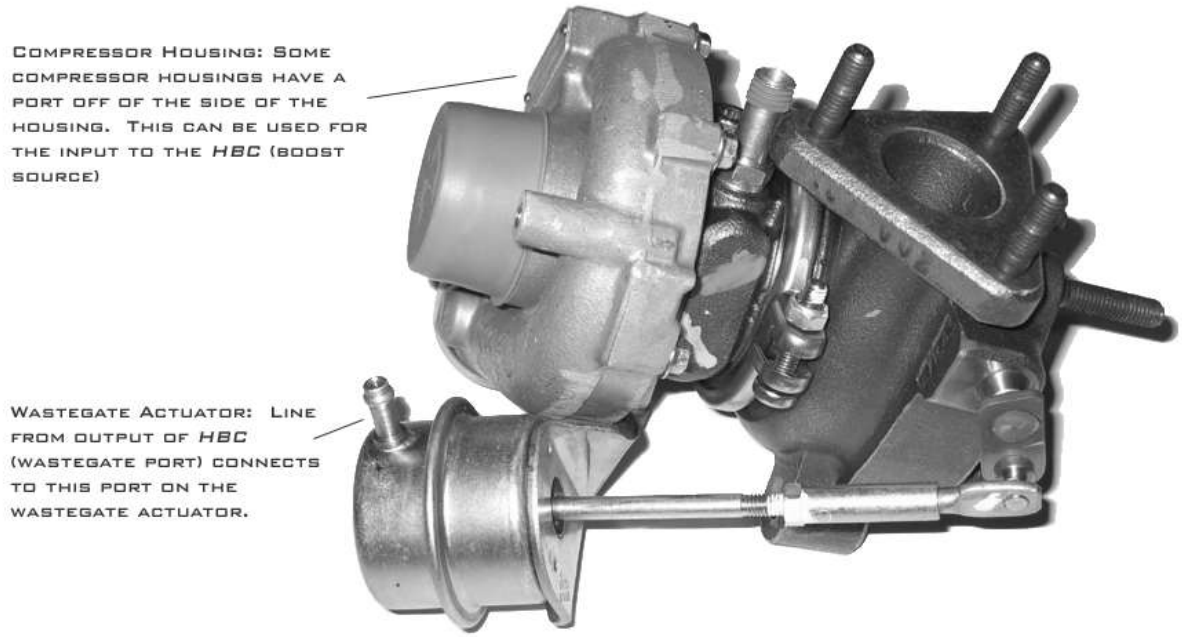


FIGURE 2.

The wastegate barb on the ***HBC*** will have a very tiny hole drilled into one of the flat spots. This barb with the tiny hole should always remain used as the wastegate barb and never be switched with the boost source barb. This hole needs to be between the valve and the wastegate actuator for the boost controller to function properly.

The ***HBC*** should be mounted in a convenient place so that adjustment can be easily made but located fairly close to the turbo in order to keep the vacuum lines fairly short. Your kit has 3 feet of vacuum line that you can cut in 2 pieces. One piece goes from the boost source to the valve and the other piece goes from the valve to the wastegate actuator. Secure all connections with the included cable ties.

Section 2, Testing The Car: Drive the car and check boost level. By turning the adjustment knob clockwise you will increase boost. Start off by adjusting the knob only ½ turn at a time. As you get close to your desired boost you may not want to turn it a full ½ turn. With only an exhaust and an air filter no more than a couple of pounds of boost past the stock level is recommended. If the car sputters, knocks or kicks under heavy acceleration, the boost is too high and needs to be turned down. This is called fuel cut and it is the computers way of protecting the engine. If you hit fuel cut you will need to disconnect the negative battery cable for about 30 seconds to reset the computer. Even if you turn down the boost and you do not reset the computer you will hit fuel cut again. This is because the computer remembers fuel cut and why it happened. If your car pings you will need to turn down the boost. Good Luck, have fun and make adjustments slowly.

Section 3, External Wastegates: Installation with an external wastegate is the same installation as described in section 1. The only difference is that the line from the output of the ***HBC*** should only connect with the side

port on the external wastegate. The top port of the external wastegate should always vent to atmosphere when using an ***HBC*** for controlling boost. Please refer to figure 3 for a diagram of external wastegate and proper connections.

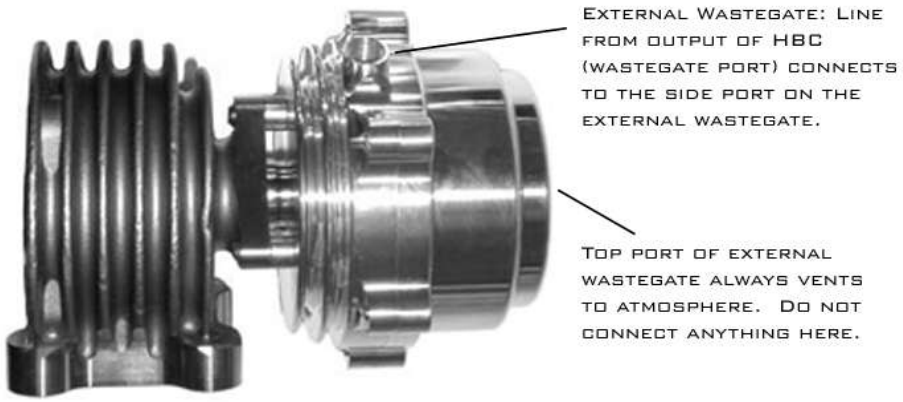


FIGURE 3.

Section 4, Twin Turbo Installation: Installation on a twin turbo car is the same installation as described in section 1. The only difference is that the line from the output of the ***HBC*** should connect into the supplied "T" which connects to a common line between the actuators. Please refer to figure 4 for a diagram of a twin turbo setup.

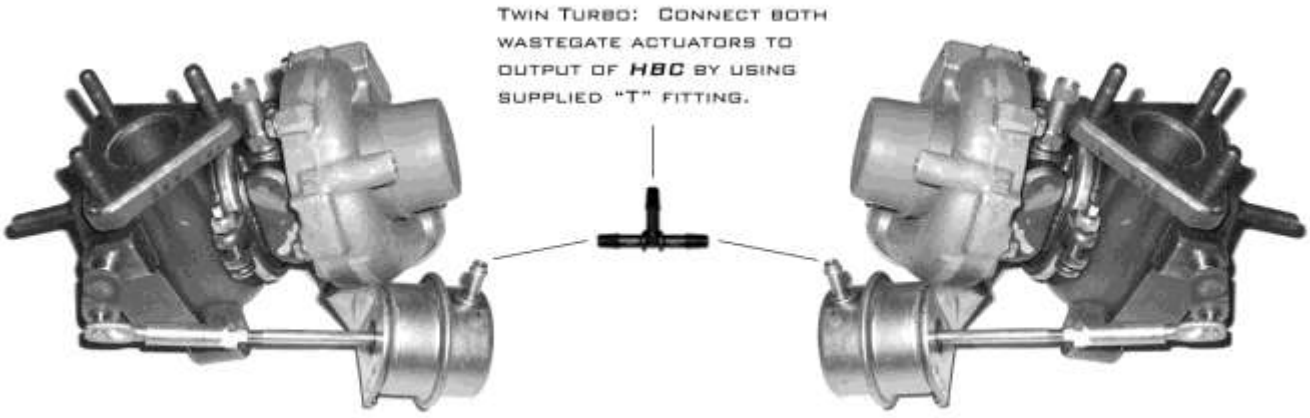
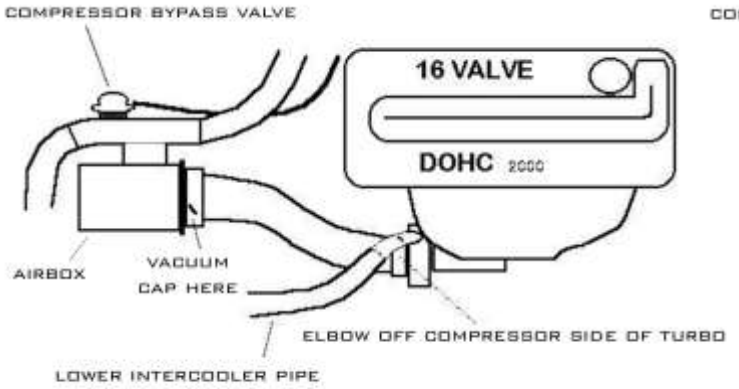


FIGURE 4.

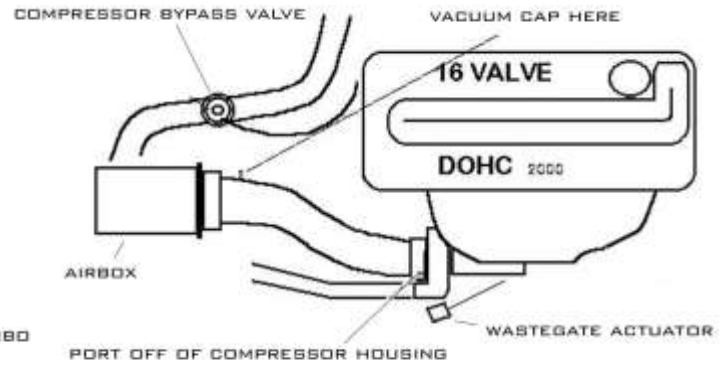
Section 5, Vehicle Specific Installation Instructions: This section will give detailed installation instructions and diagrams for specific factory turbo-charged vehicles.

Mitsubishi Eclipse - Eagle Talon - Plymouth Laser 2.0L Turbo: To install the ***HBC***, first locate the compressor side of the turbo. On first gen. (90-94) DSM's there will be an elbow that has a port on top with a pressure line that goes to the wastegate actuator and the boost solenoid on top of the airbox. On second gen. (95-99) DSM's the pressure line will be located on the side of the compressor housing. (Please refer to the following diagrams for clarification.) Disconnect this line on top of the elbow or at the compressor housing. Follow the line to the wastegate actuator and disconnect the line at this point also. In the line that runs to the wastegate on the stock setup there will be a "T" with a small line that runs to the boost control solenoid which is located on top of the airbox on the 1st gen. and behind the airbox on the 2nd gen. Remove the lines going to the solenoid and from the solenoid to the airbox. On the 1st gen. the solenoid can be unplugged and removed but on the 2nd gen., leave the solenoid plugged in to the wiring harness so that the ECU does not create a code. This will keep the check engine light from coming on. Use a vacuum cap to seal off the

port on the airbox. Run the line off the Output (wastegate) of the ***HBC*** to the wastegate actuator. Next connect the Input (boost source) line of the ***HBC*** to the port on top of the compressor elbow (1st gen.) or at the compressor housing (2nd gen.). The ***HBC*** can be mounted to one of the 10 MM bolts holding the fan shroud to the top of the radiator directly in front of the turbo. Use the wire ties to secure all connections and vacuum caps. Please refer to section 2 for instructions on testing the car.

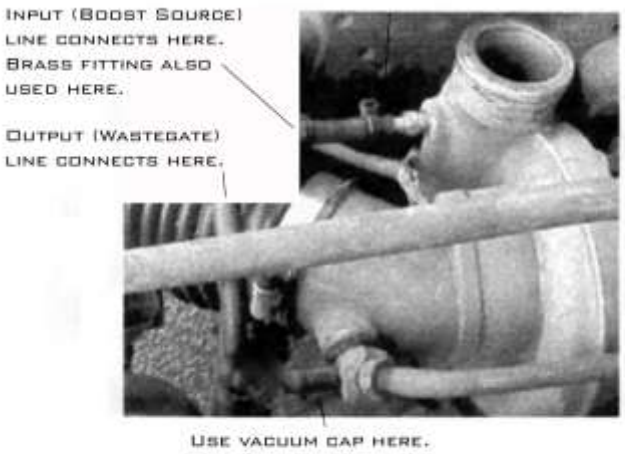


FIRST GEN DIAGRAM (1990 - 1994)



SECOND GEN DIAGRAM (1995 - 1999)

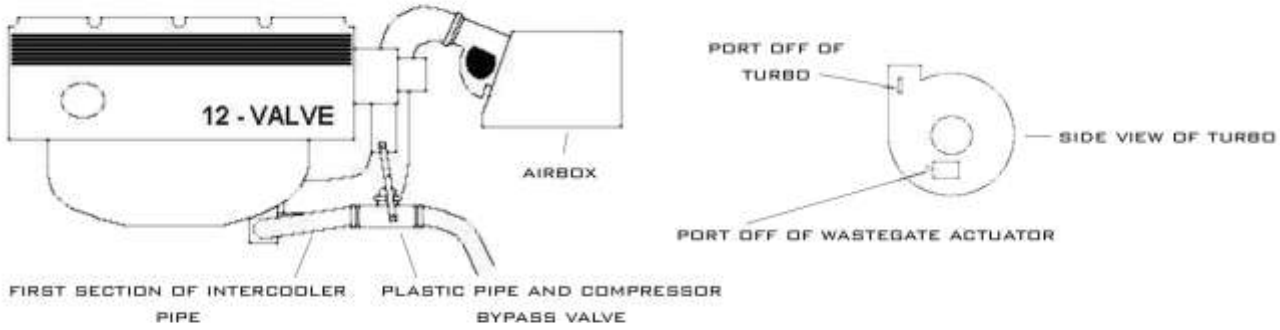
Ford Mustang - Ford Thunderbird - Merkur xr4ti 2.3L Turbo: To install the ***HBC,*** first locate the compressor side of the turbo. Off of the side of the compressor housing there will be a "T" fitting with vacuum lines; this is on later model 2.3L turbo's. The lines will go from one side of the "T" to the wastegate and from the other side of the "T" to a boost control solenoid, from the solenoid to the air inlet for the turbo. You will want to remove the vacuum lines, solenoid and also the "T" fitting out of the compressor housing, it will screw out. Replace the "T" with the supplied brass barb fitting. Use one of the vacuum caps to cap off the barb on the air inlet to the turbo. Now you can connect the line from the Input (boost source) of the ***HBC*** to the new brass barb that you just installed in the compressor housing. Connect the Output (wastegate) line of the ***HBC*** to the wastegate actuator. On older 2.3L turbo motors there will not be a "T" off of the compressor housing, only an "L" fitting with only one line going directly to the wastegate. Remove the line and fitting to install the supplied brass barb fitting. Connect the ***HBC*** to the same barbs as explained above. Be sure to secure all connections with wire ties. Please refer to section 2 for instructions on testing the car.



FORD 2.3L TURBO DIAGRAM

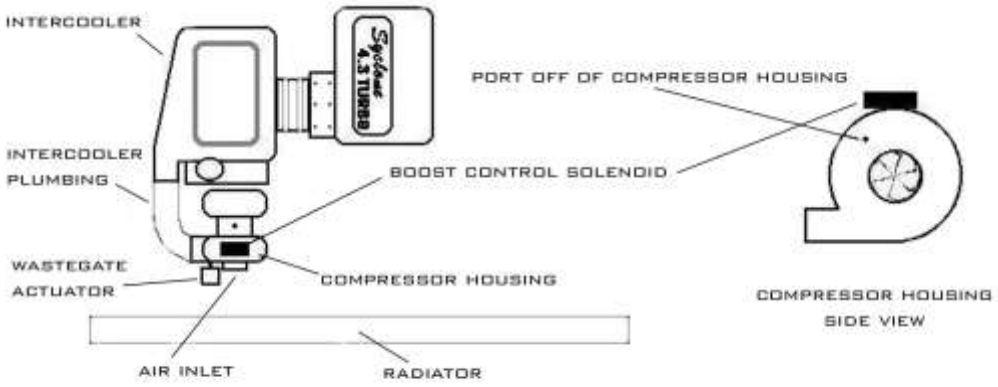
Mazda MX-6 - Ford Probe 2.2L Turbo: To install the ***HBC***, first locate the intercooler pipe off of the compressor side of the turbo that goes into the intercooler. You will want to remove the first section of intercooler pipe from the turbo to the plastic pipe, which holds the compressor bypass valve. You may also want to remove the plastic pipe with the bypass valve, as it will be easier to hook up the ***HBC*** with this out of the way. There is a port that points down off

of the compressor side of the turbo. The port is located right below where the intercooler pipe clamps to the turbo. There is a vacuum line connected to this port which is about 5 inches long. It runs to a port on the wastegate actuator which is located under the air inlet for the turbo. Disconnect this vacuum line from both ports. Run the line off of the Output (wastegate) of the ***HBC*** to the wastegate actuator port. Connect the Input (boost source) line to the port coming off of the compressor housing. Use the wire ties to secure all connections. Reconnect all of the intercooler plumbing and make sure all of the clamps that you removed are tight. Please refer to section 2 for instructions on testing the car.



MX-6 - Probe Diagrams

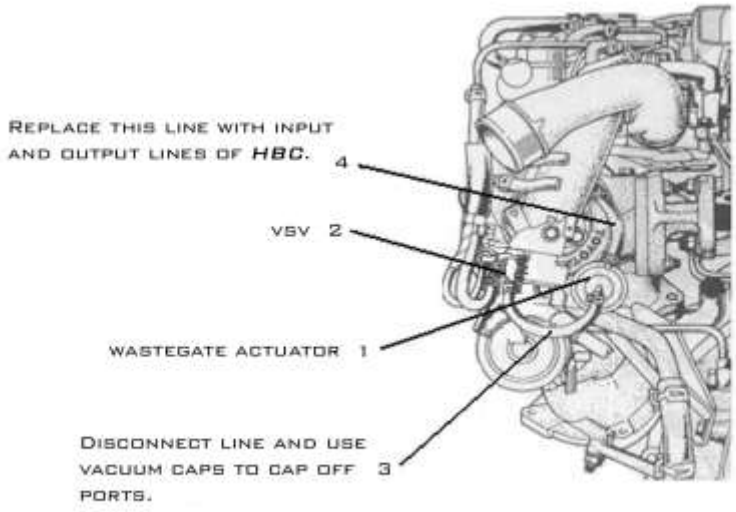
GMC Syclone - GMC Typhoon 4.3L Turbo: To install the ***HBC***, first locate the factory boost control solenoid. The solenoid is the little black box that is located on top of the turbo next to the intercooler plumbing. Once you have located the solenoid, disconnect the air intake hose at the turbo and move it out of the way. This will make it easier to install the ***HBC***. Next remove the vacuum line that goes from the boost control solenoid to the port on the turbo, which is located on the compressor housing just below and to the left. The port off of the compressor housing is where you will attach the Input (boost Source) line off of the ***HBC***. Next follow the other line coming off of the solenoid down to the wastegate actuator which is located next to the air inlet hose. Remove the stock vacuum line and attach the Output (wastegate) line off of the ***HBC*** here. Be sure to use the wire ties to secure all vacuum line connections. Please refer to section 2 for instructions on testing the car.



GMC 4.3L Turbo Diagram

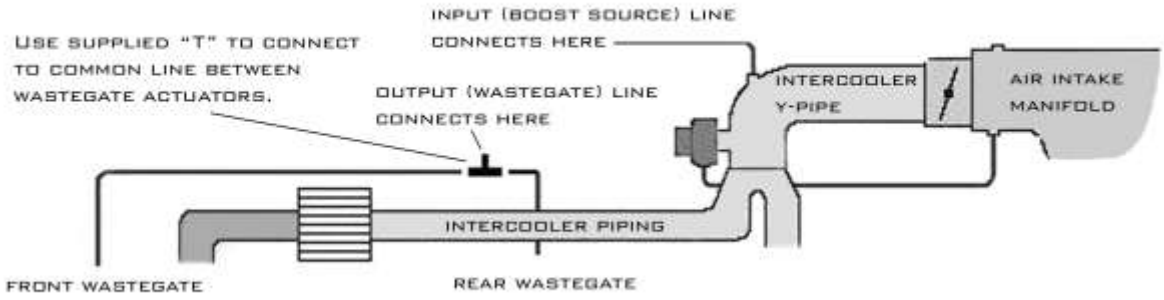
Toyota Supra 3.0L Twin Sequential Turbo: To install the ***HBC*** you must first locate the VSV and the wastegate actuator. There is only one wastegate for both turbo's, it is located on the following diagram and is labeled as "1". There are two actuators but only one is to the actual wastegate so make sure you are hooking up to the right one as shown in the diagram. Once you locate the actuator you will want to disconnect the line (labeled "3" in the diagram) that runs from the top port of the actuator to the VSV. The VSV is labeled "2" in the diagram. Use the supplied vacuum caps to block off the ports on the VSV and the top of the actuator where you removed this line. Next locate the line that runs from the bottom port of the actuator to the compressor housing port (labeled "4" in the diagram). You will want to remove this

line and hook the Input (boost source) line off of ***HBC*** to the port on the compressor housing and the Output (wastegate) line off of ***HBC*** the to the wastegate actuator bottom port. Make sure to secure all connections with the supplied wire ties. Please refer to section 2 for instructions on testing the car.



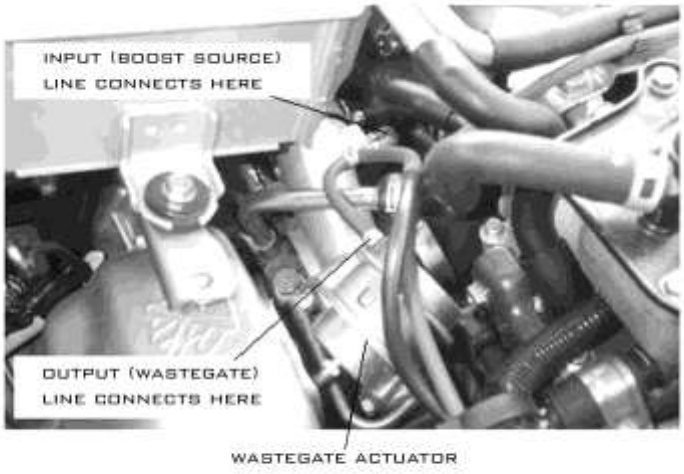
TOYOTA 3.0L TWIN SEQUENTIAL TURBO DIAGRAM

Mitsubishi 3000 GT – Dodge Stealth VR4 3.0L Twin Turbo: To install the ***HBC*** you must first locate the Intercooler "Y" pipe. This is the pipe that is connected to the throttle body. Located on the side of the "Y" pipe there is a port with a vacuum line that goes to a line distributor. This distributor runs 3 other vacuum lines to the front and rear wastegate's and the boost control solenoid. Remove the distributor and the line that goes to the "Y" pipe. At the "Y" pipe port you will want to connect the Input (boost source) line off of the ***HBC*** here. Use the supplied "T" to connect the Output (wastegate) line to the front and rear wastegate actuator lines. You can discontinue using the boost control solenoid as this will give you steadier boost without it. The ECU will still retard timing under knock keep your motor safe. Secure all lines with the supplied wire ties. You can also use a vacuum cap to cap the port on the airbox that had the line on it coming from the boost control solenoid. Please refer to section 2 for instructions on testing the car.



MITSUBISHI 3.0L TWIN TURBO DIAGRAM

Subaru Impreza WRX 2.0L Turbo: To install the ***HBC*** you must first locate the wastegate actuator. The wastegate actuator is a gold looking canister that is on top of the turbo. The wastegate actuator has a vacuum line that runs between it and the compressor housing of the turbo. In the middle of this line is a "T" with another vacuum line that runs to the boost control solenoid. For this install you will eliminate the use of this solenoid, so that the line that runs to the solenoid can be removed. You will want to also remove the lines on the wastegate actuator and the line at the compressor housing. Now you are ready to install the ***HBC***. Connect the Input (boost source) line off of the ***HBC*** to the compressor housing port. Next, connect the Output (wastegate) line off of the ***HBC*** to the wastegate actuator port. Secure these connections with wire ties. Please refer to the following diagram for any clarification. Please refer to section 2 for instructions on testing the car.



SUBARU 2.0L TURBO DIAGRAM

Section 6, RX Option (Changing Your Spring): If you purchased the RX option your kit came with a ceramic ball and two different springs, one light and one heavy. The light spring came already installed in the controller and the heavy spring is included in a marked bag. The light spring is good for adding up to 5 pounds of boost over the stock boost level. If your stock level is 10 psi then the light spring could add up to an additional 5 psi for a total of 15 pounds of boost. The heavy spring can add much more than that. The light spring will allow you to adjust boost in very small increments.

To change the spring, first gently turn the adjustment knob on the back of the ***HBC*** counterclockwise until it will not turn anymore. Next, you will need to remove the input barb on the front of the ***HBC***, please refer to figure 1 for clarification***.*** Once you remove the barb take the ball out of the controller followed by the spring. Install the new spring followed by the ball and then the barb. You will want to snug the barb up but do not over tighten it to where you damage the o-ring that seals it. Usually this can be accomplished just by turning it very tight with your hand, not a wrench.

Section 7, Cockpit Controlled Upgradeable: Every Pro or Pro RX HBC is able to be easily upgraded to cockpit controlled adjustability. Through the addition of an Add-On Kit you can have the convenience of being able to adjust your boost without ever getting out of your car. For more information or to make a purchase please contact your ***HBC*** Dealer or visit us online at: www.hallmanboostcontroller.com.

Section 8, Warranty Information: The ***HBC*** Pro Series controllers are covered by a 2 year manufacturer warranty. The warranty guarantees the products to be free of manufacturer defects. Hallman Boost Controller will fix or replace, at our choice, any defective pro series boost controller submitted for a warranty claim that meets the following criteria. To be eligible for warranty you must fill out and mail in your product registration card within 30 days of your purchase of the product. The item submitted for a warranty claim must be unmodified from the end user. For a warranty request you must contact us first by phone or e-mail.

Section 9, Tech Support and Contact Information: If you need tech support you may reach us through e-mail or by phone.

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