



Gauge Solution Installation Instruction Manual

* VDO & SW Boost Gauges/ VW Vehicles *

The following guide contains guidelines, tips and tricks for installing your VDO or Stewart Warner boost gauge from 42. Note the index below to begin!

As always, read all instructions prior to installation. Do not deviate from basic wiring or mounting instructions. Always disconnect battery ground before making any electrical connections. If in doubt, please email 42 Draft Designs sales@42draftdesigns.com or seek professional help.

Mounting

- Mk4 A-Pillar Gauge Pods 2-3
- B5 A-Pillar Gauge Pods 4-6
- Single Gauge Panel 7

Boost Gauge Wiring

- VDO Boost Gauges 8
- Stewart Warner Boost Gauges 9
- VW Tips and Tricks 10-11
- Perfect Match LEDs 11-12

Tubing and Sending Units

- Boost Tubing Kit 13-14
- TDI Boost Tubing Kit 15
- Boost Gauge Troubleshooting 16-17

For more troubleshooting and FAQs please see our website!

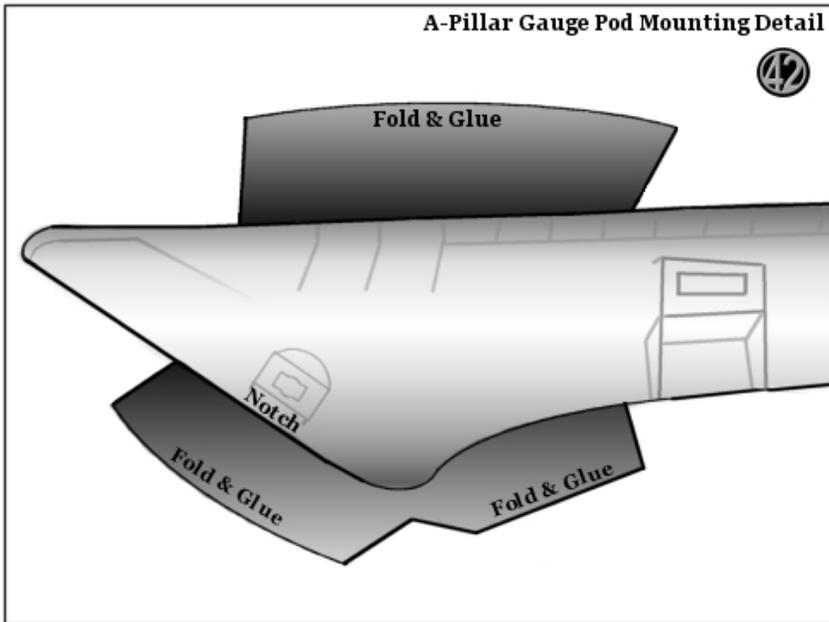
<http://www.42draftdesigns.com>

A-Pillar Gauge Pod Installation Instructions Jetta IV, Golf IV

Some 2001 and later Volkswagen vehicles use A-pillar mount airbags. A-pillar pods should **NOT** be used on these vehicles.

1. Remove A-pillar trim by locating upper seam and prying outward. Use clean hands and avoid using any type of tool to pry. Once a small opening is created at the pillar top, use some force to release the 3 plastic mounting clips. With A-pillar cover pulled out, lift upwards remove completely.
2. On a clean surface, test fit gauge pod on pillar trim. Notice the pod will only fit in the lowest position. Line edges up and wrap the fabric tabs over pillar trim. Use sharp scissors to precisely notch the tabs where any protrusions of the pillar trim exist.
3. Fit gauge and secure using the gauge's supplied mounting hardware. Decide on a wiring route. Wire and tubing can be run under the molded wire trail on the bottom of the pod. Install any tubing or wiring at this point. The gauge and lighting (LEDs have polarity!) should be tested prior to permanent installation.
4. With gauge secured, mount pod on the A-pillar trim. The three fabric tabs should be wrapped **tightly** and secured to the back of the A-pillar trim. For a permanent installation, use contact cement or glue of choice. For a temporary installation, use foil tape or duct tape to secure the fabric tabs to the back of the trim. During mounting, hold pod tightly against trim to assure a flawless seam between pod and trim. Consider using tape to hold tabs in place if gluing tabs one by one. Remember, tabs should be wrapped **tight** and glued to the **back** of the stock trim. This installation should make no permanent modification to the visible area of the stock A-pillar trim.
5. With pod mounted and glue dry, route wires and tubing down the side of the dashboard. Install wires and tubing based on manufacturer's instructions.
6. Reinstall A-pillar trim by inserting bottom section between the frame, dashboard, and weather stripping. Fold in and position based on the location of the upper seam. When in position, push trim back into place. Use force to snap mounting clips in securely. Good luck and have fun!

Please view diagram to the right!



Some 2001 and later Volkswagen vehicles use A-pillar mount airbags. A-pillar pods should **NOT** be used on these vehicles.

Adhesives

Contact cement offers the best adhesion, but is difficult to remove. To change the gauge or lighting LED the pod will need to be removed. Keep this in mind when choosing an adhesion method. Many customers have found duct tape and foil tape to hold well while offering a removable adhesion.

Passat B5 A-Pillar Gauge Pod Installation Instructions

Some 2001 and later Volkswagen vehicles use A-pillar mount airbags. A-pillar pods should **NOT** be used on these vehicles.

1. Remove a-pillar trim by locating upper seam and prying outward. Use clean hands and avoid using any type of tool to pry. Once a small opening is created at the pillar top, use some force to release the 4 plastic mounting clips. With a-pillar cover pulled out, lift upwards and remove completely.
2. On a clean surface, lay out gauge pod and a-pillar trim. There will be a faint imprint on the a-pillar trim outlining the top of the dashboard. The bottom (plastic) edge of the gauge pod should be positioned to follow this line and rest on the dashboard. The dashed line in the drawing below represents the top of the dashboard.
3. Line edges up and wrap the fabric tabs over the a-pillar trim. Use sharp scissors to precisely notch the tabs where any protrusions of the pillar trim exist. Use masking tape to secure fabric tabs during test fitment. With gauge pod positioned, test fit the assembled gauge pod and a-pillar trim to check fitment. Adjust as required.
4. Once you have the pod positioned correctly, begin to mark the a-pillar trim for drilling.* See diagrams below for approximate positioning of the hole to be drilled. The hole should be at least 3/8" in diameter to accommodate tubing and wiring. The position of the hole should be such that the tubing can easily route from the gauge without any sharp bends. Before drilling the hole, be sure you are happy with the positioning of the gauge pod and have test fitted the assembled unit in the car with gauge and fittings installed. The hole should not be visible with gauge pod installed. **Measure twice, drill once.**
5. Fit gauge and secure using the gauge's supplied mounting hardware. Some gauges' u-brackets may need to be modified to fit within the tight constraints of this installation. Simply bend the u-bracket to clear the a-pillar trim. Install any fittings, tubing or wiring at this point. **The gauge and lighting (LEDs have polarity!) should be tested prior to permanent installation.** This is also a good time to be sure your gauge is clocked correctly.

6. With gauge secured, mount pod on the a-pillar trim. The three fabric tabs should be wrapped **tightly** and secured to the back of the a-pillar trim. For a permanent installation, use contact cement or glue of choice. For a temporary installation, use foil tape or duct tape to secure the fabric tabs to the back of the trim. During mounting, hold pod tightly against trim to assure a flawless seam between pod and trim. Consider using tape to hold tabs in place if gluing tabs one by one. Remember, tabs should be wrapped **tight** and glued to the **back** of the stock trim. No adhesive or screws should be used to fasten the gauge pod to the visible area of the stock A-pillar trim.

Adhesives

Contact cement offers the best adhesion, but is difficult to remove. To change the gauge or lighting LED the pod will need to be removed. Keep this in mind when choosing an adhesion method. Many customers have found duct tape and foil tape to hold well while offering a removable adhesion.

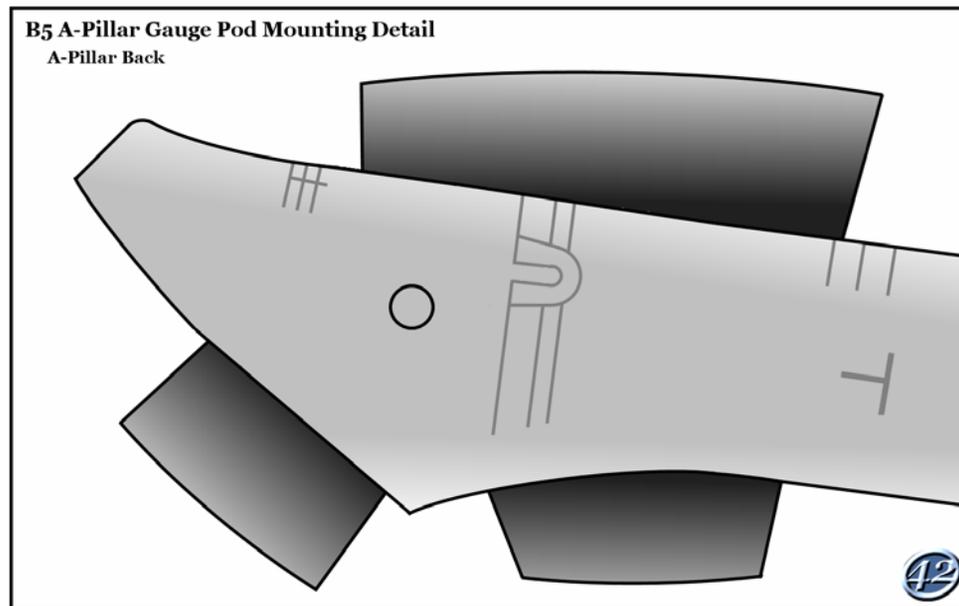
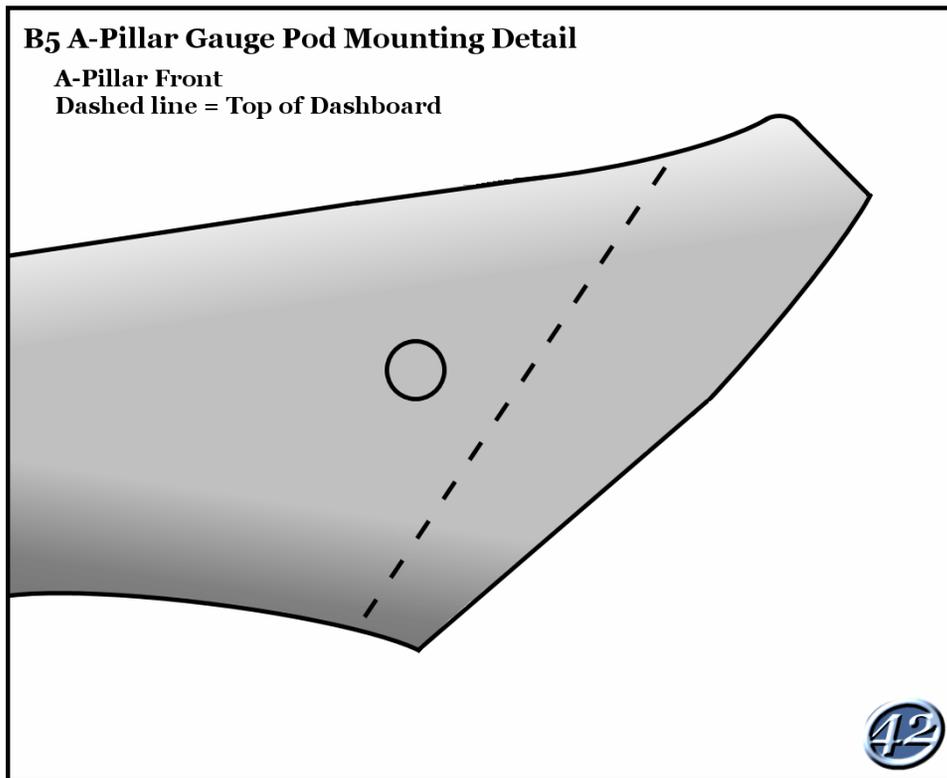
7. With pod mounted and glue dry, route wires and tubing down the side of the dashboard. Install wires and tubing based on manufacturer's instructions.
8. Reinstall A-pillar trim by inserting bottom section between the frame, dashboard, and weather stripping. Fold in and position based on the location of the upper seam. When in position, push trim back into place. Use force to snap mounting clips in securely. Good luck and have fun!

*Drilling

Fitment between the dashboard and a-pillar trim in the B5 is extremely tight. Boost gauge tubing cannot be routed between the pod and pillar trim. It is physically impossible to squeeze anything extra in this area. In order to run tubing to a boost gauge, a hole must be drilled in the stock pillar trim.

If installing a gauge other than boost, it may be possible to run wires without drilling a hole in the a-pillar trim. If running only wires to the gauge, installation can be attempted by routing the wires between the pod and the pillar trim. Any extra wires in this area will cause a tighter fitment in the area between the a-pillar trim and dashboard.

Please view diagrams on page 6!



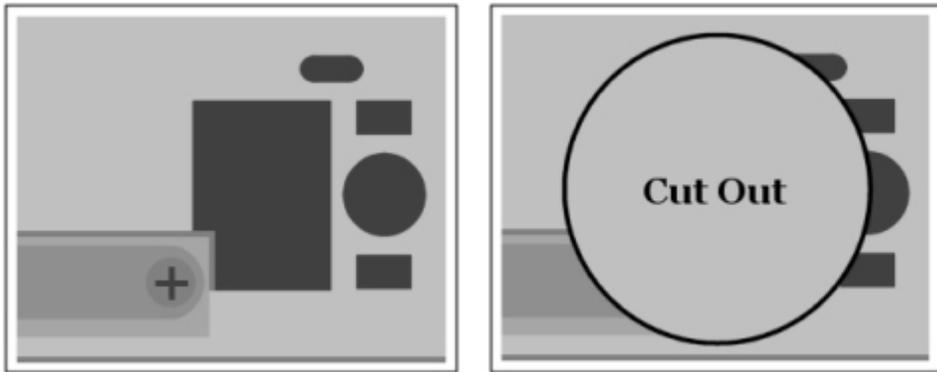
Jetta III, Golf III Single Gauge Panel Installation Instructions

Tools Recommended: Flat head screwdriver, Phillips head screwdriver, Rotary cutting tool (Dremel®)

1. Remove heated seat blank panels by prying out from the bottom. They will snap out when released.
2. Test fit gauge panel by inserting the long tab into the corresponding hole below the air vent. Push tab fully into the air vent hole and pop the bottom of panel into place. Using a permanent marker, trace the gauge hole. Remove panel.
3. Remove the gauge cluster screw using a phillips head screwdriver. Also remove the metal clip behind the screw by prying out with a flathead screwdriver. Using a Dremel or other cutting device, cut the traced circle approximately 1/8" larger in diameter.

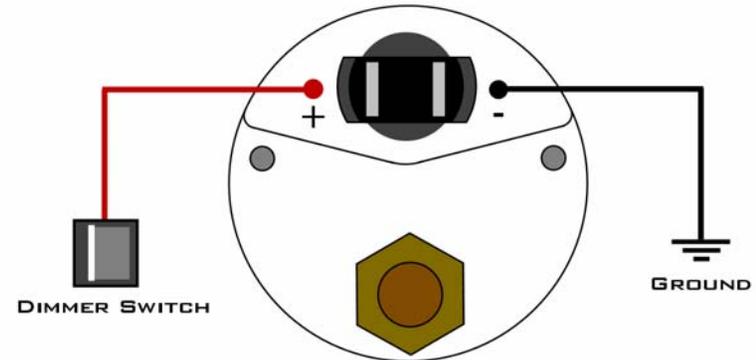
If you are using a mounting bracket on your gauge you will need to cut the majority of the console area out. With the gauge installed in the panel you will need room to clear the mounting bracket and snap in the assembled unit. This is only recommended if your gauge fits loose in the panel.

4. Route wires from the gauge to below the dash. Assemble the gauge and panel test all electrical connections. Refer to VDO manual for individual gauge wiring instructions.
5. Install the panel by again fitting the upper tab into the corresponding hole and popping into place. Align gauge and press into panel.



MK3 Single Gauge Panel – Cutting Detail

VDO Boost Gauge Wiring



Tools & Materials Required:

42 Draft Designs Wiring Kit
Wire Cutters
Wire Strippers
Terminal Crimper
Soldering Iron or Wire Taps

Always test your connections using a test light or multimeter before connecting any wires! Disconnect battery ground before making any connections! Your car may differ from the given instructions!

To begin, remove any interior panels necessary to access your dimmer switch and ground. Route the red 18 gauge wire from your dimmer switch to the gauge. Connect the red and the black wires to the light socket using the two included female spade connectors. Install your bulb or LED.

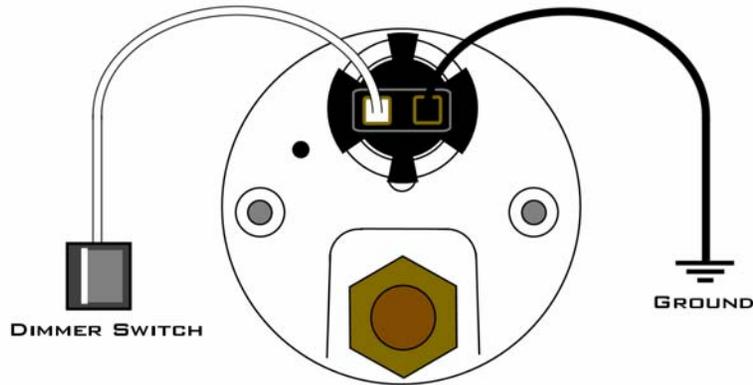
Locate the output wire on your dimmer switch and strip the insulation from a 1/4" section. Connect the red wire from your 42 wiring harness to the stripped section using a wire tap or solder. Be sure to shrink wrap or tape any bare wires.

Locate a suitable common ground and connect using the included 1/4" ring terminal. Be sure to strip back enough wire and securely crimp.

With both wires connected and bulb installed, turn on the vehicle's lights and test the gauge lighting. If using an LED, be sure to check for polarity. If the LED doesn't light, remove and rotate the bulb 180°.

For tubing kit instructions see pages 13-15
For dimmer switch wiring see 'VW Tips & Tricks' page 10-11

Stewart Warner Boost Gauge Wiring



Tools & Materials Required:

42 Draft Designs Wiring Kit
Wire Cutters
Wire Strippers
Terminal Crimper
Soldering Iron or Wire Taps

Always test your connections using a test light or multimeter before connecting any wires! Disconnect battery ground before making any connections! Your car may differ from the given instructions!

To begin, remove any interior panels necessary to access your dimmer switch and ground. Route the white 18 gauge wire from your dimmer switch to the gauge. Connect the white and black wires to the light socket using the two included butt connectors. Install your bulb or LED.

Locate the output wire on your dimmer switch and strip the insulation from a ¼" section. Connect the white wire from your 42 wiring harness to the stripped section using a wire tap or solder. Be sure to shrink wrap or tape any bare wires.

Locate a suitable common ground and connect using the included ¼" ring terminal. Be sure to strip back enough wire and securely crimp.

With both wires connected and bulb installed, turn on the vehicle's lights and test the gauge lighting. If using an LED, be sure to check for polarity. If the LED doesn't light, remove and rotate the bulb 180°.

For tubing kit instructions see pages 13-15

For dimmer switch wiring see 'VW Tips & Tricks' pages 10-11

VDO & SW Gauge Wiring – Volkswagen Specific Tips & Tricks

Always test your connections using a test light or multimeter before connecting any wires! Disconnect battery ground before making any connections! Your car may differ from the given instructions!

Lighting Circuit

When wiring the lighting circuit of your gauges, it's best to wire them into your car's existing lighting circuit. This way the gauges will illuminate and dim with the rest of the dash. To do this, you'll need to tap into the dimmer switch.

In the mk4 chassis the dimmer switch wiring harness consists of 3 wires. The brown wire is ground, gray wire is incoming power and the white/blue wire is outgoing power. Tap the white/blue wire using a wiretap or by stripping a small portion of the wire and soldering in your power wire. Using 42's wiring kit for VDO gauges you'll be connecting the red wire to the white/gray wire of the dimmer switch. Using 42's wiring kit for SW gauges you'll be connecting the white wire to the white/gray wire of the dimmer switch.

In the mk3 chassis the dimmer switch is built into the headlight switch. The gray/blue wire located in position 1 is outgoing power. Tap this wire and connect it to the positive wire of your 42 lighting harness.

Ground

Ground is a simple connection in any VW. Because they use a common chassis ground, all you have to do is locate a screw that connects to the chassis. In the mk3 and mk4 chassis, a convenient location is the dashboard support. With your lower dash panels removed, locate a screw which connects the plastic dash panels to the metal dashboard support. Remove the screw and sand any paint of corrosion off the metal to ensure a good connection. Then, ground your wire using the included black wire and ring terminal.

Firewall

In the mk4 chassis there are 2 options for running wires through the firewall. On throttle by cable cars you'll need to run your wires through the firewall with the main wiring harness. You can poke through using a long metal rod or coat hanger. On throttle by wire cars there is an empty grommet above the throttle pedal. This grommet is located where a throttle cable would typically be located. Running wires through this grommet is ideal.

Also, you may choose to run wires through where the hood release cable enters the rain tray. If you do run wires through this grommet, be sure to poke a hole in the grommet and feed the wires

through the grommet. Rainwater will enter the cabin if the grommet is not installed correctly.

In the mk3 chassis there is an empty grommet above the clutch pedal. Running wires through this grommet is ideal.

Perfect Match LED Installation Instructions

- * Perfect Match LEDs should **NEVER** be powered without a 42 Draft Designs Power Regulator!
- **Power Regulator 12 volt input **MUST** be vehicle dimmer switch!
- ***Any other connection to power voids warranty immediately!

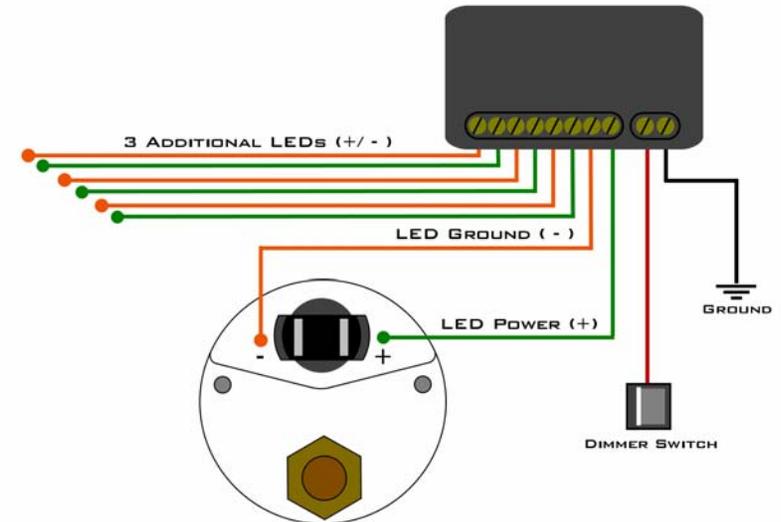
Tools Recommended: Wire Cutter, Wire Stripper, Terminal Crimper, Small Flat-Head Screwdriver

1. Remove any interior panels necessary to access the dimmer switch, common ground, and gauge mount. Locate the output wire of your dimmer switch and a common ground.
2. Using the included 22 gauge wire, tap the output wire of your dimmer switch and connect to the appropriate terminal of the power regulator.
3. Using the included 22 gauge wire and 'red' ring terminal, connect the power regulator to a common ground.
4. Remove VDO or SW light bulb socket and remove light bulb. Install PM LED by pushing directly into lamp socket.
5. Using 2 pieces of included 22 gauge wire and 2 'red' (VDO – spade terminals) (SW – butt connectors) connect one LED & lamp socket to the power regulator. Positive and negative power terminals are clearly labeled.
6. Apply power to the regulator by turning on the vehicle's lights. LED should light immediately. If not lit, remove the bulb from the lamp socket and rotate 180°.
7. Install up to 3 more LEDs as needed.
8. Mount power regulator in a solid location to ensure the best electrical connection. It is recommended that the power regulator be isolated from the gauge panel / pod.

Installation Tips & Precautions! :

- For best results, we recommend the connection to the dimmer switch output wire be soldered. Simply wrapping wires together is far from ideal.

- Never connect power regulator to vehicle common 12 volt power. The dimmer switch provides the regulator with a clean 12 volt power source. Vehicle common 12 volt is typically 14+ volts and will destroy this product!
- Never connect more than one LED to a set of +/- terminals. This regulator will power 4 LEDs – no more! Each set of terminals provides one LED with regulated power.
- Do not over tighten the power regulator screw terminals. Screw terminals are not head studs, they are just electrical connections! Last but not least, please **follow these instructions and pay attention to the warnings!** We don't provide these instructions for our health – we write them to ensure you, the customer is able to install our product flawlessly the first time and avoid common mistakes. Good Luck and Have Fun!



Boost Tubing Kit – Installation Instructions

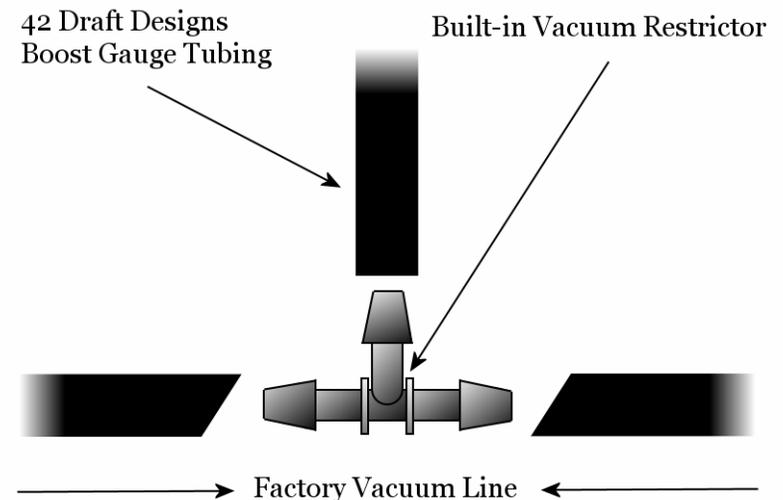
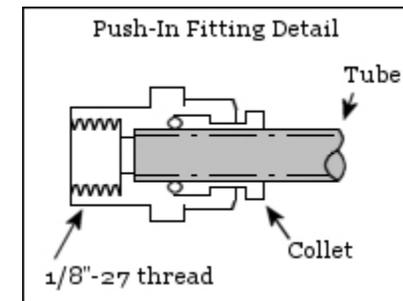
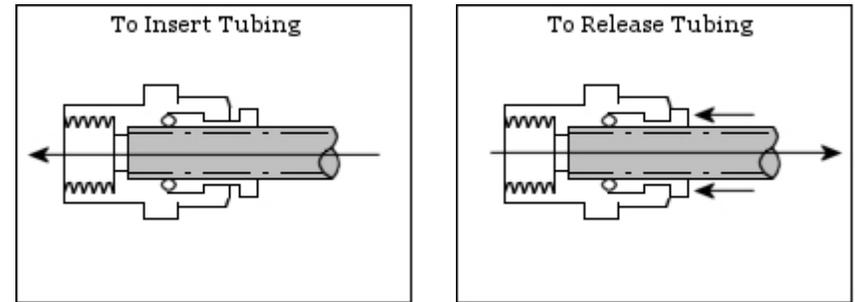
Tools Recommended: 17mm open end wrench, sharp knife or scissors

1. Route tubing through firewall and position ends in their respective locations. Tubing route & length are your choice.
2. To tap into the vacuum system, locate engine's fuel pressure regulator. The braided vacuum line which runs from the intake manifold to the fuel pressure regulator may be tapped for an accurate reading. Using a sharp knife or scissors, cut the line in half. Use the included T-fitting to join the vacuum line back together.
3. Use the third barb to connect the boost tubing to the vacuum system. Push the tubing all the way down over the barb. No wire ties or hose clamps are needed. To remove any tubing from the T-fitting, use a sharp knife to cut back the tubing which covers the barb.
4. Thread the included push-in fitting onto the back of the gauge and tighten using a 17mm open end wrench. Do not over tighten, as plastic threads will strip.
5. With gauge in hand, press the boost tubing into the push-in fitting. To prepare tubing, cut the tube squarely (if not already) and mark the tubing 11/16" (17mm) from the end of the tube. Insert tube straight into fitting until it bottoms out on the interior shoulder and insertion mark is no longer visible.
6. To remove tubing, push collet toward body and pull on tubing to release.

Restrictor T Fitting

The T-fitting included with our boost tubing kit has a built in restrictor to prevent vibrations in the boosted air stream from reaching the gauge. Vibrations produced by the turbocharger will vibrate the internals of the gauge and produce a 'buzz' sound. In order for the T-fitting to work properly, the center barb of the fitting must connect to the boost gauge tubing. To test the fitting, notice the center barb is not a through-hole. Located inside the bottom of the barb is a tiny hole.

For Push-In Fitting & T-Fitting Diagrams – reference page 14



Tubing must be installed as shown!

TDI Boost Tubing Kit – Installation Instructions

Tools Recommended:

17mm Open End Wrench	Sharp Knife or Scissors
#21 (.159") Drill Bit	Portable Drill
#10-32 Tap	Plastic Thread Sealant

1. Route tubing through firewall and position ends in their respective locations. Tubing route & length are your choice.
2. To tap into the boost system, locate engine's plastic intercooler plumbing. The lower or upper intercooler pipes may be tapped. Remove the tube which you wish to tap and find an ideal location to install the barb. The location should be thick and discrete, but easy to locate.
3. With the tube installed, be sure the chosen location does not interfere with any engine components. Mark and remove. Carefully drill a hole in the marked location using a #21 (.159") drill bit. Using a #10-32 tap, lightly tap the drilled hole. Tapping plastic requires very little force – the tap should thread the hole easily and back out easily. Be careful not to use excessive force and strip the hole.
4. Thread the included barb into the tapped hole. Use some thread sealant to assure no leaks. Super glue or hobby cement will offer a permanent seal on ABS plastic. Simple Teflon® tape will also offer a good seal.
5. With the pipe installed, push the tubing all the way down over the barb. No wire ties or hose clamps are needed. To remove any tubing from the T-fitting, use a sharp knife to cut back the tubing which covers the barb.
6. Thread the included push-in fitting onto the back of the gauge and tighten using a 17mm open end wrench. Do not over tighten, as plastic threads will strip.
7. With gauge in hand, press the boost tubing into the push-in fitting. To prepare tubing, cut the tube squarely (if not already) and mark the tubing 11/16" (17mm) from the end of the tube. Insert tube straight into fitting until it bottoms out on the interior shoulder and insertion mark is no longer visible.
8. To remove tubing, push collet toward body and pull on tubing to release.

Inline Restrictor Fitting

The inline fitting included with our boost tubing kit has a built in restrictor to prevent vibrations in the boosted air stream from reaching the gauge. Vibrations produced by the turbocharger will vibrate the internals of the gauge and produce a 'buzz' sound. This fitting may be installed anywhere in the boost tubing. We recommend installing it underneath the dashboard. Simply cut the tubing and install. No hose clamps are necessary.

Boost Gauge Troubleshooting

Leaks

If you can hear a leak inside the car it's most likely the push-in fitting. Don't panic! Your push-in fitting is **not** defective. These fittings were designed for industrial applications and can handle absolute vacuum and 200psi. If your push-in fitting is leaking, you simply need to insert the tubing all the way. Reference our *Boost Gauge Tubing Kit Installation Instructions* and push the tubing in all the way! It should take some force.

If you feel like you have a leak under the hood, start checking over your OEM vacuum lines. Our fittings fit too tight to leak, so any additional leaks would be from rotten OEM lines. It may be worth your while to replace any braided OEM line that feels dry rotted.

Boost / Vacuum Readings – 1.8T

If you feel like your gauge isn't reading correctly, first drive the car. You must put load on the engine for a boost gauge to show any real reading. Simply revving the engine will show vacuum readings only. Drive the car in 3rd or 4th gear and engage the throttle completely at a low rpm. This will put sufficient load on the motor to make full boost. Don't be alarmed when the gauge spikes and boost drops steadily. This is caused by the undersized OEM turbo running out of breath.

The 1.8T engine will be in vacuum when not boosting. When the engine is warmed up, the engine should pull 16" – 20" of vacuum at idle. When driving around town, the engine should be in vacuum anytime the throttle body is closed or only open slightly. The car will only make boost when there is sufficient load on the motor.

Early 150hp 1.8T motors should boost 8-10psi stock. Later 180hp and 225hp 1.8T motors should boost 12-14psi stock. If you purchase a performance chip please contact the manufacturer for expected boost readings. Typical 'chipped' 180hp 1.8t engines spike 22+psi and hold 15-16psi in the upper RPMs.

Boost / Vacuum Readings – TDI

If you feel like your gauge isn't reading correctly, first drive the car. You must put load on the engine for a boost gauge to show any real reading. Simply revving the engine will show only slight boost. Drive the car in 3rd or 4th gear and engage the throttle completely at a low rpm. This will put sufficient load on the motor to make full boost. Don't be alarmed when the gauge spikes and boost drops slightly. TDI turbos are infamous for spiking high when needed.

TDI motors have no throttle body, therefore they pull very little vacuum. A 0-15 or 0-30 boost gauge should be used. If you are using a

30"-25psi boost gauge on your TDI, you will notice that the motor pulls less than 5" of vacuum. This is normal.

Buzzing – 1.8T

The T-fitting included with our boost tubing kit has a built in restrictor to prevent vibrations in the boosted air stream from reaching the gauge. Vibrations produced by the turbocharger will vibrate the internals of the gauge and produce a 'buzz' sound. In order for the T-fitting to work properly, the center barb of the fitting must connect to the boost gauge tubing. To test the fitting, notice the center barb is not a through-hole. Located inside the bottom of the barb is a tiny hole. Blowing through this barb will produce only a small amount of air.

Buzzing – TDI

The inline fitting included with our boost tubing kit has a built in restrictor to prevent vibrations in the boosted air stream from reaching the gauge. Vibrations produced by the turbocharger will vibrate the internals of the gauge and produce a 'buzz' sound. This fitting may be installed anywhere in the boost tubing. We recommend installing it underneath the dashboard. Simply cut the tubing and install. No hose clamps are necessary.

If your gauge is still making a buzzing noise, an additional inline restrictor can be added. You can also experiment with adding an additional buffer at the gauge. Remove the push-in fitting and place a small amount of cotton inside the brass threaded barb on the back of the gauge. Use cotton from a cotton ball or Q-tip. Beware – cotton can be very restrictive. Start small and be sure that the additional restriction has not affected boost and vacuum readings.



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Third Edition, Volume 2: May 2006
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