Thank you for purchasing the Craven Speed FlexPod Complete Gauge Pod Kit
For R56, R58, R59, R60 with Refresh Engines (2011+)

## Before You Start

Please read instructions completely before installing. These instructions contain the information required to install a variety of gauges, so some of the information will not pertain to your build.

- ALWAYS WEAR SAFETY GLASSES.
- **Install gauges only when engine is cool and ignition is off**.
- Make sure all necessary tools, materials, and parts are on hand.
- **Disconnect negative (-) battery cable** before installing gauge.
- Make sure mounting location does not impair visibility or interfere with driving.
- If you must drill, always check behind the mounting location for any wiring or components before drilling.

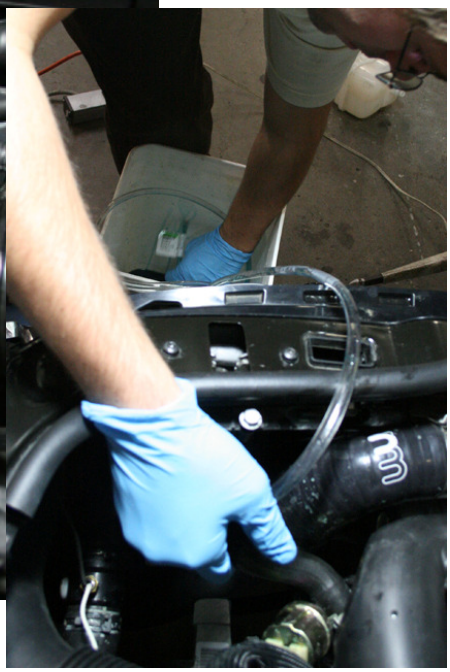
## Preparation for Installation of Sender(s)

1. Determine routing for PVC tubing for Boost and/or wiring for Oil Pressure, Water Pressure, Oil Temp, or Water Temp gauge(s)
2. Remove both windshield wipers. Be sure to mark the wiper location on the windshield with masking tape. Flip up nut covers, and remove the nut on each wiper. The wipers are taper-fit and need to be pulled off. They should be fairly tight, so it will take some pulling and rocking, etc. to get them loose. Be careful to keep the wiper spring from jumping from the wiper assembly. If the spring jumps, you will not be able to get it back on.

3. After the wipers have been removed, you will be able to remove the two 10mm nuts holding the cowl cover in place and have access to the hole in the firewall. We find that it is fairly easy to feed the new wires through the same firewall hole that the hood latch uses.

## Prep for Boost, Water Temp and Oil PSI Gauge Adapter Installation

1. Use a flathead screwdriver to loosen the hose clamps on the hose connecting the airbox to the intake on the turbo. Pull the hose back from the air box.
2. Loosen the hose clamp around the intake hose connected to the air filter box.
3. Unplug the MAF sensor and place the intake tube to the side.

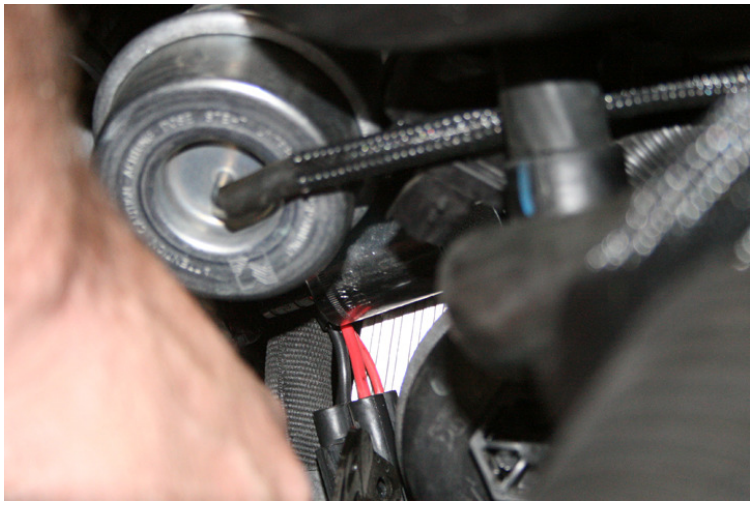


4. Loosen the hose clamp around the intake hose connecting the turbo to the intercooler at the turbo.
5. Now loosen the hose clamp that is down the hose near the intercooler. Remove the hose and set aside.
6. Drain the coolant expansion tank using a transfer pump or by siphoning. Alternatively, the coolant can be drained into a pan placed below the car by disconnecting the hose on the bottom of the tank (this method can get a bit messy).

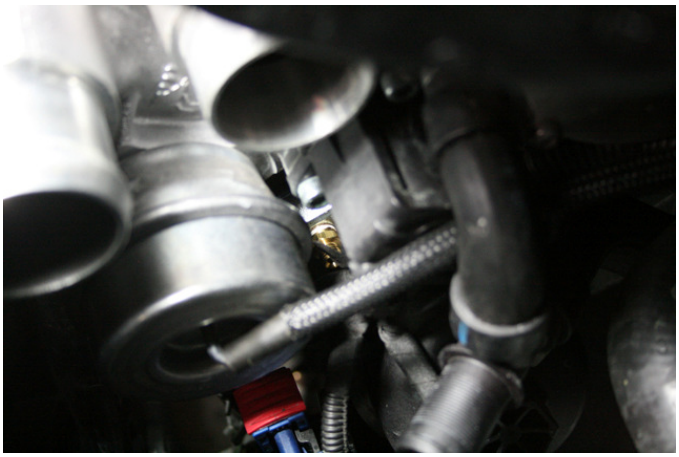
7. Once the coolant expansion tank and tubes connected to it are empty, go ahead and remove the tank itself by removing the 2 bolts and disconnecting all tubing.
8. Detach the engine cooling fan for the oil pressure gauge installation. Do this by first disconnecting the wiring harness attached to the fan. Next remove the 2 retainer bolts. One is located on the top of the fan and the second is located on the bottom. You may have to access the bottom bolt from underneath the car. Move the fan to the side.

## Install the Oil Pressure Tapless Adapter

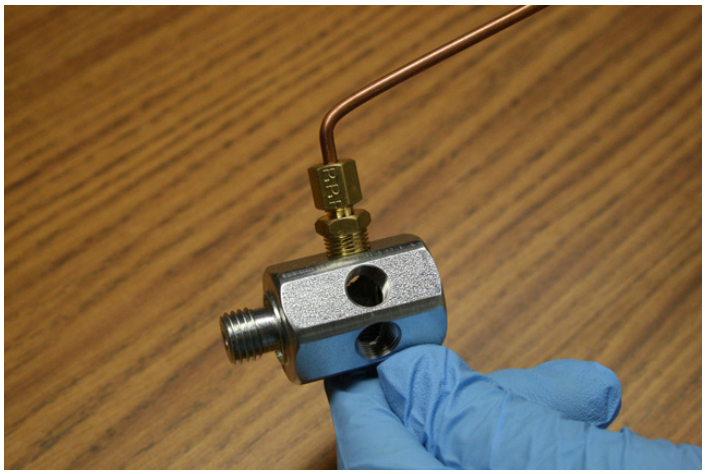
1. Plug all the 1/8$^{th}$ inch NPT holes on the two adapters with the included setscrews. One into part #1 and six into part #2.
2. Locate the factory Oil Pressure Sensor – it is behind the plastic oil filter cover on the oil filter housing. It is gold in color with a black connecter on the end.



3. Remove the wiring connecter by pushing on the plastic tab and gently pulling it off the factory oil pressure sensor.
4. Remove the factory sensor by using a long, 24mm socket wrench.
5. It is a good idea to keep this sensor clean after removal by wrapping it in a rag or placing it into a clean plastic bag.
6. Tightly insert one of the included 1/8 npt plugs into the tapless adapter part #1. Next put the rubber gasket ring onto the male end of part #1 and tightly insert it into the factory Oil Pressure Sensor cavity.
7. On the tapless adapter part #2, tightly insert the remaining six 1/8 npt plugs. Insert the factory oil pressure sensor into the end of part #2. Next put the rubber gasket ring onto the male end of part #2 and tightly insert the assembly into the end of part #1.
8. Choose the most accessible port on part #2 and remove this plug.
9. Connect the straight 1/8npt compression fitting to the open port on part #2. It is recommended to use teflon tape or other sealant.

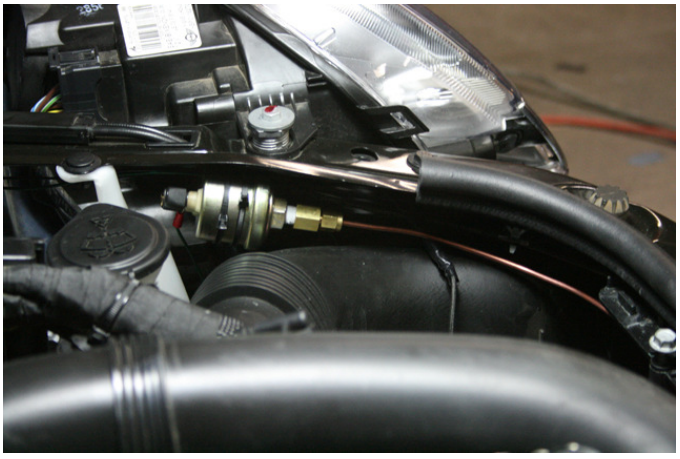


10. Attach the included brass tubing to the compression fitting and then add the female 1/8" npt compression fitting to the end of this tubing. It may be necessary to bend the remote tube at up to a 45 degree angle before attaching in order to avoid obstruction of the oil filter cover. (Make sure to install the remote tube <u>After</u> the tapless has been installed, unlike the illustration below) **Be very careful bending the remote tube—always do it slowly and do not overbend.**



11. Route the copper remote tube up between the turbo inlets and toward the front of the car. Be careful to avoid the hood latch.

12. Attach the sending unit from the included gauge to the female end of the compression fitting and secure the sender to the Lock bridge using the included zip ties.



13. Reconnect the factory Oil Pressure Sensor wiring harness.

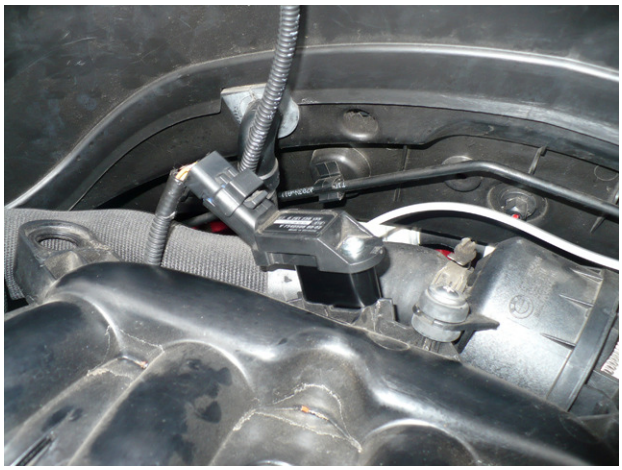
14. Attatch the gauge sensor wire to the sending unit. Run the sensor wire through the existing breakline slot in the cowl, and then through the hole in the firewall. Again, we find that it is fairly easy to share the firewall hole that the hood latch uses.
15. Make sure to secure the wiring to prevent damage from sharp edges, moving parts, or hot engine components.
16. Reinstall engine cooling fan, air intake hoses and coolent expansion tank.
17. Finish with the 'gauge installation and wiring' steps below.

## Install the PSIclone Boost Adapter

1. Using the T-25 wrench unscrew the 4 screw on the air filter box top. Take the air box top off.
2. On the left side of the air filter, unscrew one screw using the T25 wrench.
3. Pop the air box off the mounting points and roll the base up and to the carss left; leave it connected to the lower hose.
4. Unplug the wire from the OEM sending unit.
5. Remove the sending unit--it just pulls out after the bolt is removed.
6. Put the o-ring (included) on the PSIclone adapter.
7. Fit the PSIclone adapter together with the sending unit.
8. Put 2 wraps of Teflon tape on the included brass connector.
9. Install the connector to the 1/8 pipe tap hole on the PSIclone adapter with a crescent wrench.

10. Connect the gauge unit PVC tubing to the brass connector.

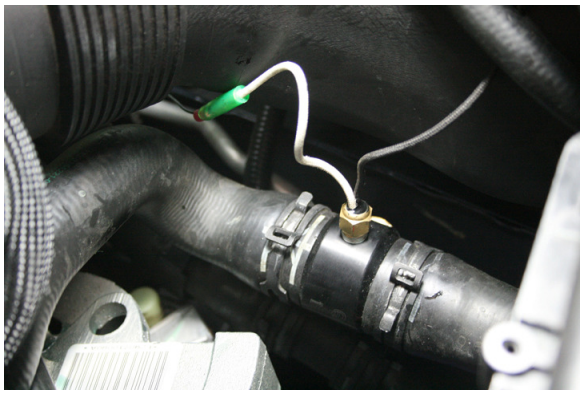
11. Press the PSIclone with the o-ring into the hole where the sending unit was, making sure to line up the holes for the T-25 screw.
12. Put the T-25 screw through the holes on the sending unit and the PSIclone.
13. Tighten the screw with T25 wrench.
14. Plug the OEM sending unit wire back into place.
15. Run the PVC tubing through the existing breakline slot in the cowl, and then through the hole in the firewall. Make sure to secure the tubing to prevent damage from sharp edges, moving parts, or hot engine components.



16. Cut off one of the tips of an existing nipple in the rubber covering. Run the tube through this cover and then up the steering column.

## Attaching the HotLink Water Temp Adapter

1. Locate the coupler on the driver's side of the engine compartment on the water hose.
2. Be prepared to spill a bit of coolant, but pull the hose off one side of the coupler, then remove the coupler itself.
3. Put the included hose clamp loosely over one side of the hose, then insert the HotLink Adapter with the 1/8 NPT opening facing up.
4. Tighten the clamp onto the adapter then repeat for the other side of the hose.
5. Now install the temperature gauge probe into the 1/8NPT opening.

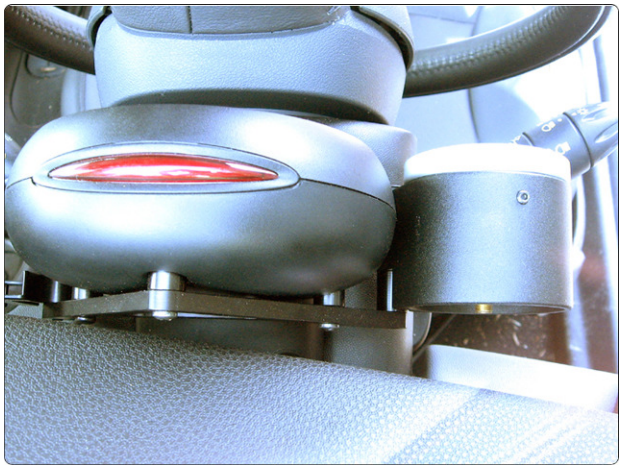


## Attaching the Oil Temp Adapter

1. Raise the car. Jack Stands should always be used.
2. Loosen the oil filler cap.
3. Assemble the oil temp sensor and the drain plug adapter so you have a new, leak free, oil drain plug.
4. Do not let the oil drain yet, but start unscrewing the oil drain plug. If you are going to do an oil change, now is the time; if not, wear gloves and you may be able to plug the leak and swap the plugs with limited oil loss. Be prepared for the oil spillage either way.

5. When you install the oil drain plug adapter, use the included o-ring or factory crush washer from the OEM plug. We recommend a new crush washer is possible. Torque spec on the drain plug is 22.0 lbs/ft.
6. When routing the wire from the new sensor to the gauge take care to notice all moving parts and remember that some of this wire is exposed beneath the vehicle. Take precaution to prevent the wire from being severed by road hazards.

## Attaching the A bracket



1. Remove factory-mounting screws behind tachometer using the # 25 Torx wrench.
2. Keep these Torx screws safe; you will need them again.
3. Pull the tach towards you to slide the tach off of a hidden rail.
4. Lean the tach towards the wheel to gain access to the 3 screws on the back of it.
5. Using the Philips, remove the three screws on the back cover of the tach.
6. You may wish to keep the OEM screws, but you will not need them for the install.
7. Place the Bracket W so that it fits into the three holes where the screws were.
8. Affix the bracket with the included Plastite screws.
9. Make sure the bracket is tight and does not wobble.
10. Put the tach back in its original position, and reattach it with the Torx screws.

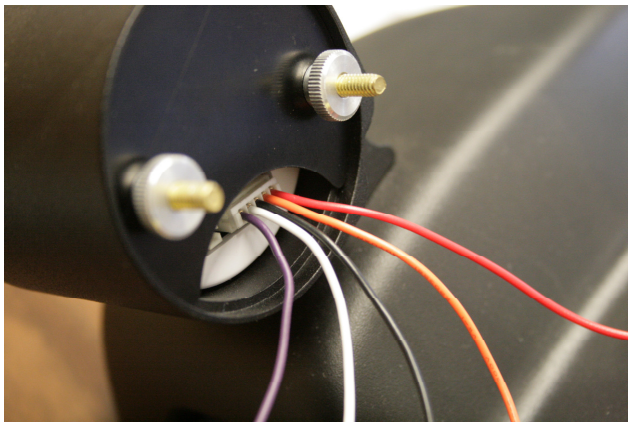
## Add a 52mm Cup to each mounting point


1. Attach gauge cup to mounting hole in bracket using a ¼-20 Bolt and the spacer, then adjust to desired height.
2. Use included plastic plugs to hide mounting screws.
3. Insert gauge, allowing the studs on the back to poke through the holes in the back plate. Tighten the nuts included with your gauge to the studs.

4. Alternately, for gauges that do not have mounting studs, you may use the included rubber pads to create a resistance fit; stick the rubber pads to the inside of the gauge cup and slowly, but firmly insert your gauge. Start with one rubber pad and if it is not tight enough, add a second and so on.
5. Attach gauge cup to mounting hole in bracket using a ¼-20 Bolt and adjust to desired height. Use the included spacer to bring the gauge out to match the depth of the tachometer. Repeat.
6. Use included plastic plugs to hide mounting screws.
7. Plug all required wiring into the gauges and insert them into each cup.
8. Cut excess PVC tubing and plug it into the boost gauge.

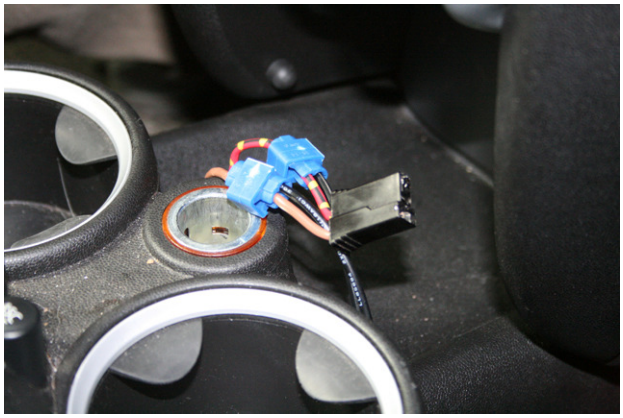

## Gauge Installation and Wiring

1. In case it has not already been done, please **disconnect negative (-) battery cable** before continuing. This step will make it easier to keep from accidental blown fuses.
2. Remove the kick panel below the steering column, the heater core cover next to the driver's leg to determine the path of the wiring.
3. Remove the center console to gain access to the cigarette pluge wiring harness. This is performed by removing the 3 screws, one in each cup holder.
4. Plug in the wiring harnesses that came with each guage (if applicable) and place the gauges into each of the gauge cups you installed prior (see photo below).
5. Using the included 22 AWG solid wire, connect the BLACK wire from the gauge to the BROWN ground wire on the cigarette lighter wiring harness.
6. Connect RED wire from the gauge to a 12V (+) ignition source. This is the RED with YELLOW stripe wire, also located on the cigarette lighter wiring harness.
7. For amber backlight that matches your MINI OE gauges, connect the ORANGE wire to the dash lighting circuit. You'll find a

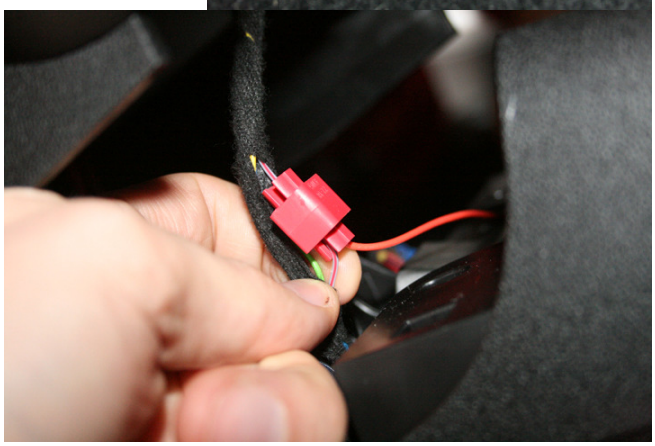


lighting wire underneath the center console directly beneath the lighter socket. It will be the GRAY wire.

8. (OPTIONAL) For white backlight connect the WHITE wire to dash lighting circuit **instead** of the ORANGE wire.



9. For Stepper Gauges only, connect the PURPLE wire from the gauge to a constant 12V (+) source. You'll find this going into the ODBII port under the kick panel. The wire will be RED with a BLUE stripe. Easy access to the wire can be obtained by removing the 2 retaining screws on the OBD plug.



10. Run all wiring behind the panels that were removed earlier and up through, behind the steering column.

## Put it all back together

1. Work backwards in reverse order – putting back the air filter, the MAF sensor, and the turbo inlet hose.
2. Reconnect the intake hose, securing with hose clamps. Verify there are no leaks.
3. Re-attach all cover panels. Re-install windshield wipers using the tape markings you made earlier.
4. Reconnect negative (-) battery cable. Start and run engine for approximately 30 seconds. Turn off engine and check gauge installation for leaks. Tighten or reseal tubing connections as needed and retest. Wait until the engine cools.

## Enjoy your new Gauges

**Boost/Vaccuum** - The boost gauge reads both vacuum and boost. Your Turbo charged Mini will read vacuum much of the time. Reading will vary, but you will only see boost under hard acceleration.

**Oil Temp** - The oil temperature level should hover around 200 degrees under normal conditions. Oil temps can reach over 230, but at this point the viscosity of the lubricant is breaking down and can begin to cause damage to the engine.

**Water Temp** - Normal water readings are in the 190-200 degrees. Higher temps lead to increased pressure in the system and indicate that there could be other problems.

**Oil Pressure** - Oil Pressure is not static. At idle the pressure should be around 30PSI. As the RPMs increase, so will pressure. There is no need for concern until 90PSI.

## Troubleshooting

Problem: Gauges are not lighting up
Possible solution: Re-check all wiring to make sure that the correct connections have been made.

Problem: Gauge need flutters
Possible solution: check to make sure that all the electrical connections are secure and that a strong ground connection has been made.

Problem: Lights are showing white (red) when they should be red (white)
Possible solution: Make sure that the red (white) wire is connected to the GRAY wire under the center console.

Problem: Boost gauge shows lower than expected boost.
Possible solution: Check for any leaks in the boost line.

Questions, Comments, Suggestions?
Call Craven Speed at 434-272-8364