



How to: Install a 2015+ Ford EcoBoost F150 Intercooler

This article documents the installation of our [Full-Race 2015+ F150 Ecoboost Intercooler / CAC Upgrade Kit](#). The addition of a high performance air-to-air intercooler is a simple but crucial upgrade for any turbocharged vehicle. Also known as the 'CAC' (charge air cooler), the stock unit is located below the radiator, in the lower front bumper whereas the Full-Race intercooler which mounts high in the grille. This straightforward install can be done with basic mechanical skills and hand tools.



Note: This entire job can be performed with the truck on the ground - No need to raise the vehicle. The most difficult part is removing the grille shutters. Once you are familiar with the process, the installation can be completed in 1 hour 30 minutes. **Minimum tools required: 13mm, 11mm, 10mm, 5/16** sockets, 12" socket extension, 6" socket extension, socket wrench, T-20 torx, 4mm allen wrench cutting tool for vacuum hose, plastic cutting device like saw or whizzer wheel.**

1. Starting with a stock EcoBoost F150: first open the hood, disconnect the battery, remove the front Grille. You must pop off the plastic headlight surrounds to get the grille free.



2. Remove Shutter Assembly from Grille. Leave plug disconnected (it will not throw a code). You will need to gently cut the plastic center piece away.



3. Next we must access the the OEM cold side charge pipe. This requires you to unbolt the intake tube Y-pipe first to access and remove the TB cold side charge pipe.



4. With the intake out of the way, unplug the MAP sensor and disconnect the PCV hose (located just before the throttle-body). Loosen the Throttle-Body (cold-side) hose clamp to release the coupler, then use a small flathead screwdriver (or your fingers) to free the spring clip <#4 in the photo>. Remove charge pipe from engine bay. Unbolt E-BOV from CAC if it will be retained:



5. Using a long extension and 10mm socket, loosen and disconnect the hot-side charge pipes from the back of the stock CAC. Then Unbolt and Remove the stock CAC upper mounting bracket using the long extension and 10mm socket. Be sure to save the rubber CAC mounting grommets, they will be re-used:



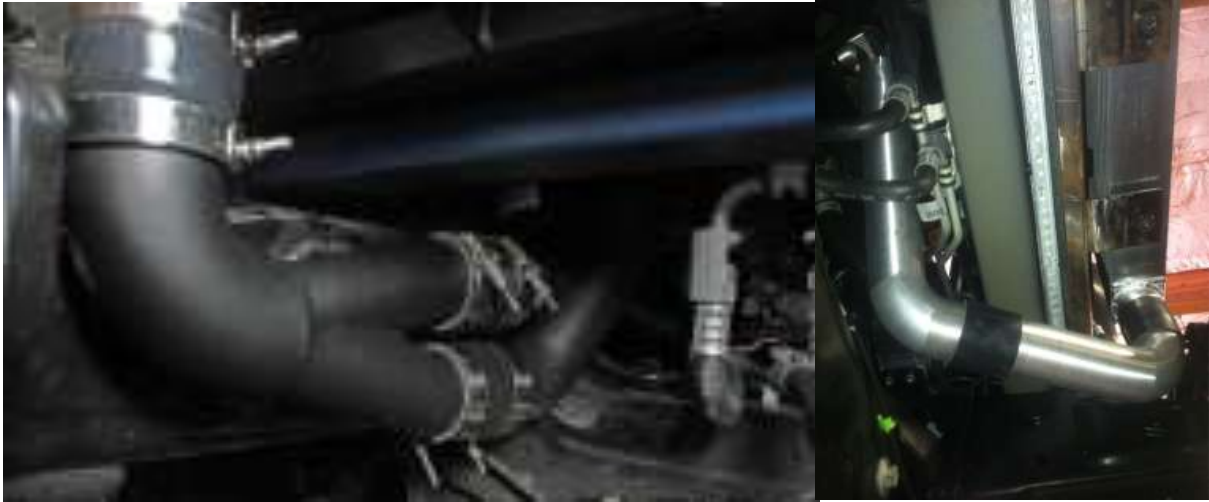
6. Unbolt the lower mounting bracket - to allow the stock CAC to drop out the bottom. **Removal of front spoiler/air dam may be required to aide in CAC removal.** Also remove the factory hotside couplers. After this step the stock CAC and its components are out of the vehicle and we can begin installing



7. Begin installing the Intercooler Mounting Beam, use the 10mm socket and long extension to firmly tighten in place:



8. Install the (2) Full-Race 2.5" straight couplers on the hot pipes and get the Y-pipe oriented (it helps to use soapy dish water in a squirt bottle when sliding these on). Keep the clamps loose - do not tighten yet.



9. Now that the mounting beam is tightened and the Y-pipe is loosely in place - we can install the intercooler. NOTE: the hood latch should remain in the stock location, sandwiched between the headlight/radiator support and the intercooler's upper mount:



11. Using a size **T-20** 'torx' bit, unscrew the MAP sensor retaining screws out of the stock plastic cold-side charge pipe. Carefully insert the sensor onto the Full-Race cold pipe's mounting bung using our provided **4mm** allen screws (take care not to damage the o-ring!). Next, install the cold side 3" charge pipe in the vehicle and connect the PCV hose and MAP sensor harness plug



12. BOV Configuration

a OEM eBOV: Mount charge pipe in vehicle and install E-BOV as shown below.

or

b Aftermarket External BOV: Install Tial or TurboSmart external BOV on Full-Race cold-side charge pipe. Be sure to sandwich brown ring gasket between mounting flange and BOV. This is done easiest with charge pipe out of vehicle. Also install 1/4" banjo bolt in center of BOV. An External Vacuum/Boost source from the intake manifold must be used, we recommend the Full-Race Catch can PCV delete OR Throttle Body spacer with boost ports for this.

If OEM eBOV is used, install it on the lower charge pipe now. Using the mounting bolt, this is how it should look:



If Full-Race Catch can AND external BOV are used, the PCV delete location is ideal for BOV vacuum signal.



13. All pipes and couplers should be in place, ready for the clamps to be tightened down. Align and orient the clamps as shown, then tighten down. **Do not go crazy and overtighten, it can crush the tube or cut the silicone coupler:**



14. Test fit the Grille for clearance. Make sure there is nothing rubbing.



15. Finally - go over all hardware and couplers/clamps to double check for tightness, and make sure there are no misalignments. Be certain nothing is overtightened and crushing a tube or cutting a coupler. Be certain the MAP sensor is plugged in and the EVAP quick disconnect hose reinserted. Lastly, button up the lower area. Installation is now complete!

