C6 CHEVROLET CORVETTE PERFORMANCE OIL COOLER KIT

PART NOS.

EC6-600
EC6-602

Made in USA



Important:

Read these instructions in their entirety prior to installation.

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APPLICATIONS

- 2005-2013 (C6) Chevrolet Corvette (All models and trims)
- This manual covers installation for EGM-106 and EGM-112 adapters.
  - The ports and procedures are the same for each adapter.
  - Refer to individual product manuals for additional information.

KIT COMPONENT LIST

ITEM	PART #	QTY	DESCRIPTION
1	EGM-112 OR EGM-106	1	Oil cooler adapter
2	EC6-600-51	1	Oil line, 90° fitting engine IN, 45° fitting cooler OUT
3	EC6-600-52	1	Oil line, 90° fitting engine OUT, 45° fitting cooler IN
4	OM-08-10	2	-8AN ORB to -10AN male adapter fitting
5	MHX-248C	1	Improved Racing 48-row, triple-pass oil cooler for C6 Corvette
6	HSC-1041	4	M8 flange screw
7	HTD-1006	1	Push-in zip-tie
8	HTD-1003	2	Zip tie
9	MHX-248C-TEM-PLATE	1	Acrylic template

INSTALLATION INSTRUCTIONS

- Typical Installation Time: 2-4 hours

⚠ WARNING: These products should only be installed by a qualified mechanic. Improper installation could result in severe engine damage.

PREPARING FOR INSTALLATION

1. Raise the front of the vehicle and support with approved automotive frame stands, lift, or ramps.

WARNING: NEVER work under a vehicle supported only by a jack.

2. Remove any underbody panels necessary to access the factory oil cooling system.
3. Open the hood. Tape the leading edge of the hood and the edges of the fender panels with masking or painter's tape to protect them from damage during removal of the front bumper cover.
4. To remove the front bumper cover, first remove the fasteners shown in **Figure 1**:
   - (4) 7 mm bumper cover screws under the nose of the hood (blue)
   - (10) 7 mm or T-15 screws and/or push clips securing the fender liners (5 per side) (green)
   - (5) 7 mm screws securing the lower front edge of the bumper cover (red)
   - (4) 10 mm nuts securing the inside of the fenders (2 per side) (magenta)
   - (2) 10 mm nuts securing the rear of the lower bumper cover (orange)

Tip: Removing the front wheels makes this step easier.

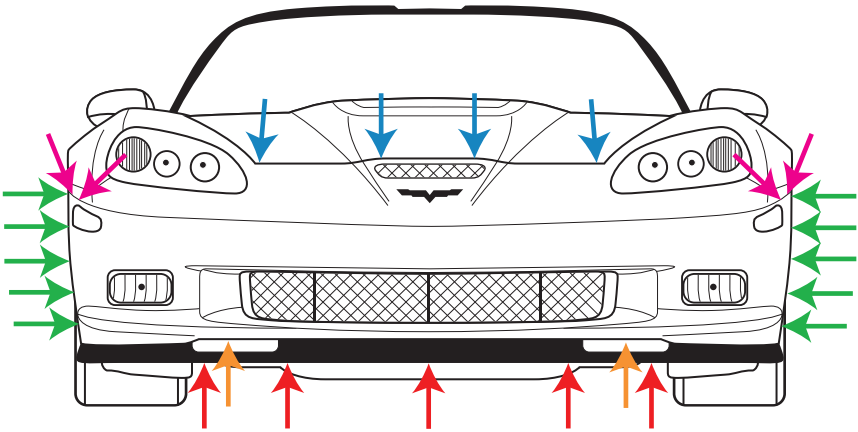


Figure 1 - Locations of Fasteners Securing the Front Bumper Cover

5. Disconnect all indicator and fog light wiring harness connectors.

6. Remove the (4) push clips (2 per side) securing the radiator shroud, shown in **Figure 2**.
7. Carefully remove the front bumper cover. The top edges of the bumper cover, near the headlights, are secured by a clip and need to be "popped" out of place.

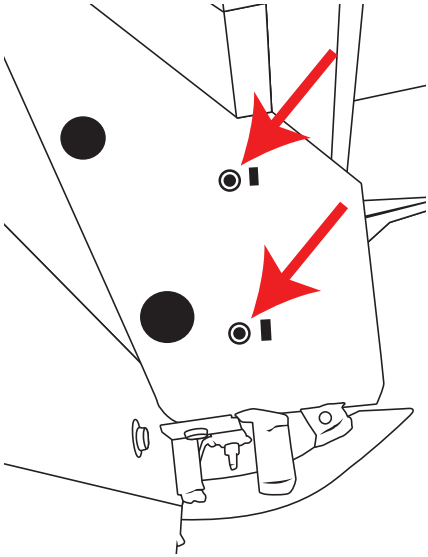


Figure 2 - Remove the (4) Push-Pins Securing the Radiator Shroud to the Bumper Cover

REMOVING THE FACTORY OIL COOLER SYSTEM

⚠ **For Z06, Z51, and Grand Touring Models only.**

Tip: Place a drain pan under the line fittings and oil cooler.

1. Cut and remove the zip-tie securing the factory oil lines to the radiator shroud.
2. Starting with the lower oil cooler line, pry-off the retaining clip from the hard-line fitting using a small flat-head screwdriver. Repeat for the upper oil cooler line.
3. Remove the lower oil cooler line from the oil cooler and allow the oil to drain. Remove the upper oil cooler line.
4. Remove the four M8 screws that secure the factory oil cooler to the radiator shroud and/or aluminum bracket. The cooler can now be removed.

5. Remove the two M6 screws securing the factory oil cooler adapter, located above the oil filter, with a 10 mm wrench.

Note: The rear screw must be removed first to allow the front screw to clear the catalytic converter during removal.

6. Using a long-reach ratchet extension (at least 12”) with a deep-well 13 mm socket, remove the screw securing the oil lines to the engine block.
7. Carefully pull the factory oil cooler adapter and oil line assembly out towards the rear of the vehicle.

INSTALLING THE IMPROVED RACING OIL COOLER KIT

1. Install the OM-08-10 adapter fittings into the oil cooler adapter. DO NOT overtighten.

Tip: Lubricate the adapter fitting O-rings with motor oil to prevent O-ring damage.

Tip: Use aluminum -AN fitting wrenches to avoid damaging the fittings.

2. Install the provided NPT plug into the Improved Racing oil cooler adapter sensor port using a 3/16” hex key. A sensor may also be installed in this port instead. DO NOT overtighten.
3. The wiring harness must be relocated to provide adequate clearance for the new oil lines. Loosen the screw securing the knock sensor to the block and remove the bracket securing the wiring harness to the block. Relocate the bracket to the screw hole directly above it, where the ground strap is secured, as shown in **Figure 3** on the next page. Reorient the knock sensor as shown in **Figure 3** and retighten the screw.

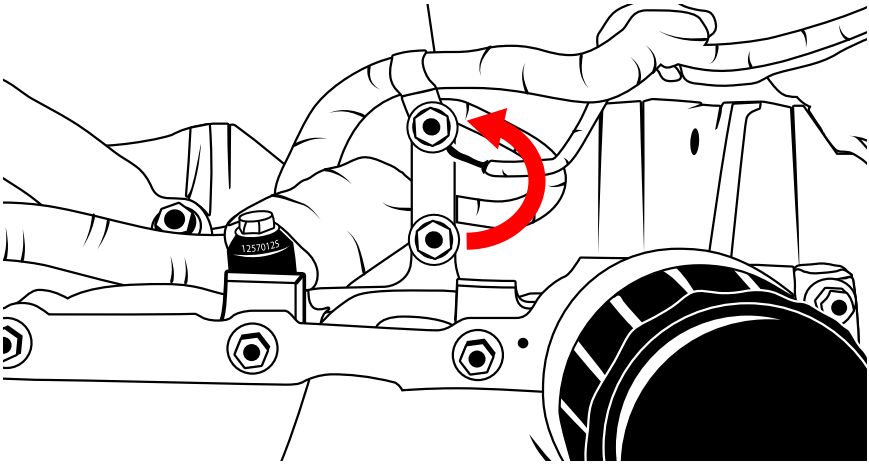


Figure 3 - Relocate the Wiring Harness and Orient the Knock Sensor as Shown

4. Route the oil lines between the subframe and engine block, following the same path as the factory oil lines. The two 90° fittings should be on the oil cooler adapter side. The lines will be connected as shown in **Figure 4**.

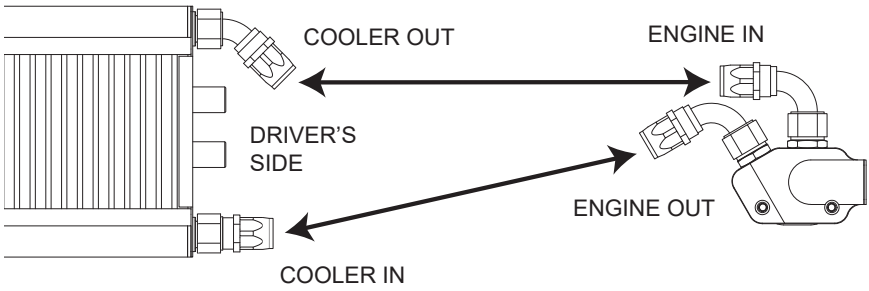


Figure 4 - Oil Line Connection Diagram

5. Orient the 90° hose end fittings as shown in **Figure 5** on the next page and tighten both hose ends to the oil cooler adapter.

Tip: Use aluminum -AN fitting wrenches to avoid damaging the fittings.

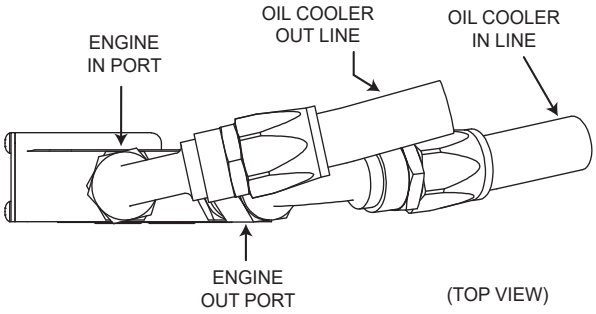


Figure 5 - Oil Cooler Adapter Line Fitting Orientation

6. Install the oil cooler adapter and gasket onto the oil pan using a 5 mm hex key and M6 socket screws. Torque the screws to a maximum of 10 lb-ft (13.6 N·m)

Tip: Shorten a 5 mm hex key to clear the factory catalytic converter and ease installation.

IMPORTANT NOTE ON POSITIONING THE OIL COOLER

IMPORTANT: Air flow to the upper section of the radiator may be restricted if you have an aftermarket cold air intake or a modified radiator shroud.

1. Test fit the cooler first and ensure there is an adequate gap between the top of the cooler and the plastic radiator shroud. If this gap is too small (less than 2”), the upper section of the radiator will not receive enough airflow, resulting in elevated coolant temps.
2. If the gap between the cooler and radiator shroud is inadequate: Do not use the factory oil cooler mounting holes and template described in the next section. Instead, position the cooler as far down and towards the rear of the vehicle as possible, and tilt the cooler as needed to create an adequate gap for airflow between the top of the cooler and radiator shroud.
3. If engine coolant temperatures continue to be too high, the best-performing mounting orientation for the cooler is to lay it flat in front of the radiator. Improved Racing offers two lay-down conversion kits for the EC6-600:
   a. EC6-690: includes new oil lines.
   b. EC6-691: reuses the EC6-600 oil lines.

   The lay-down conversion kits do not fit the C6 ZR1.

INSTALLING THE OIL COOLER

1. To install the cooler using the factory mounting holes, secure the clear acrylic template to the driver side radiator shroud where the oil cooler would mount, as shown in **Figure 6**.

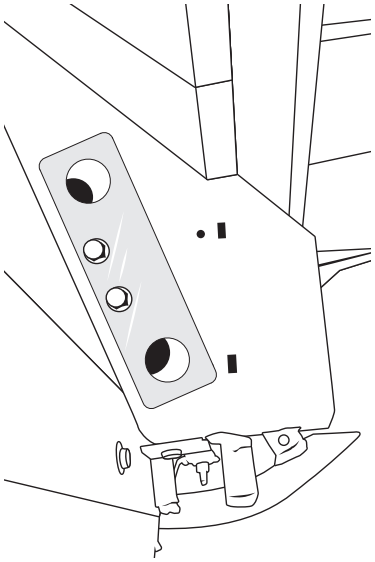


Figure 6 - Use Template to Trace the Oil Line Holes

2. Trace the outline of the circles for the oil cooler fittings onto the vehicle's radiator shroud with a permanent marker that is easy to see. Remove the template.
3. Use a sharp knife or razor blade to carefully cut the traced circles away from the radiator shroud.
4. Secure the oil cooler into the radiator shroud using the M8 screws. Torque screws to a maximum of 5 lb-ft (6.8 N·m).

COMPLETING THE INSTALLATION

1. Connect the oil lines to the oil cooler as shown in **Figure 4**. DO NOT overtighten.

Tip: Use aluminum -AN fitting wrenches to avoid damaging the fittings.

Caution: Ensure that no fittings loosen during this step.

2. Insert the new push-in zip tie to the radiator shroud and secure the hoses in place. Use the extra zip tie to fasten the oil lines together where appropriate. Ensure that the hoses clear the accessory drive.

3. Top off the oil level.
4. Remove the vehicle's fuel pump fuse, located in the passenger side engine bay fuse box, and crank the engine over multiple times in five-second intervals to prime the oil system.
5. Replace the fuse removed in Step 4, start the engine, and check for leaks.
    a. Once the oil pressure stabilizes, ensure there are no oil leaks from the oil cooler adapter, fitting junctions, or the oil cooler.
6. Turn off the engine. Check the oil level and top off as necessary.
7. Reinstall the front bumper cover and all related components removed in the *Preparing for Installation* section.
8. After 1-2 heat cycles, check again for leaks and retighten any fittings if necessary.

 Installation is now complete.
Thank you for purchasing an Improved Racing product!