



Application: 2006-2013 Z06 Corvette

638-878

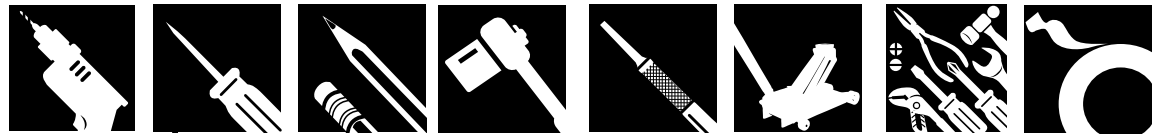


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Lingenfelter High Flow Air Intake System



Tools Needed



Read the entire instruction manual before beginning installation. Some stock parts will be used in reassembly.

This air intake kit requires re-calibration of the factory engine software. If you do not have a way to re-calibrate the engine do not install this system until you are able to do so.

STEP 1.

Disconnect battery ground.

STEP 2.

Remove gray retaining clip on the bottom side of the MAF sensor, then disconnect MAF sensor connector.

STEP 3.

Disconnect breather tube from bellows.

STEP 4.

Loosen hose clamp at throttle body, pull bellows from the throttle body.

STEP 5.

Work entire assembly free from push pins & remove assembly from car.

STEP 6.

Remove four screws holding top mount radiator shroud & unclip hose from top mount radiator shroud.

STEP 7.

Remove top mount radiator shroud.



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STEP 8.

Disconnect electrical connector for under hood light & unclip electrical connector for under hood light from the radiator shroud.

STEP 9.

Disconnect the electrical connector from the outside air temperature sensor located low on the right side of the shroud.

STEP 10.

Remove the two "Christmas tree" push fasteners holding the radiator shroud to the condenser (save the fasteners for reuse). They are located approximately midway up along each side.

STEP 11.

Raise front of vehicle, follow manufacturer instructions. Use jack stands to support vehicle.

THE FOLLOWING STEPS NEED TO BE PERFORMED FROM UNDERNEATH THE VEHICLE:

STEP 1.

Remove the three 10 mm screws holding the lower radiator air inlet block-off cover in position

STEP 2.

Remove the three 7 mm screws holding the front fascia inside the radiator opening.

STEP 3.

Next, remove the 7 mm screws on either side (one on each side). These are the screws holding the bottom of the bumper cover – see picture.

STEP 4.

To remove the radiator shroud you need to temporarily disconnect and remove the engine oil cooler.

STEP 5.

Remove the left wheel house extension and left brake cooler duct. To do this you will need to remove the three 7 mm head screws from underneath the vehicle, remove the five T-15 Torx head screws along the vertical wall of the wheel well and remove the three push fasteners in the wheel well.

STEP 6.

Install oil drain pan under vehicle.

STEP 7.

Using a small pick tool, carefully remove the two retaining clips holding the oil lines to the oil cooler. Do NOT pull the oil lines from the cooler at this time. The pictures show the clips and the fittings on the oil cooler. The oil cooler is shown removed from the vehicle to make it easier to see the parts involved.

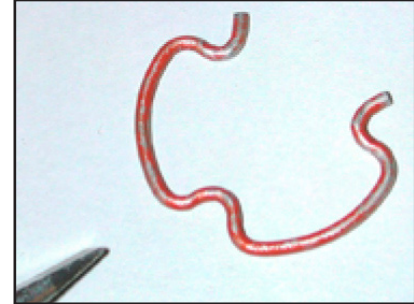




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STEP 8.

Using a 13 mm socket, remove the four screws retaining the oil cooler. Allow the right side of the cooler to drop (see picture).



STEP 9.

Disengage both oil lines and remove the oil cooler from the vehicle. Keep the ports aimed upright to prevent additional oil spills. Be sure to reinstall the oil line retaining clips on the oil cooler so that you don't lose them. When you reinstall the oil lines later on, you will not need to remove these clips – the lines simply push on.

STEP 10.

Cover the oil cooler ports and the oil lines to avoid contamination.

STEP 11.

Remove the two plastic push pins holding the radiator shroud to the bumper beam. Remove two plastic retainers from each side of the radiator shroud.

STEP 12.

Guide the side wings of the radiator shroud around the lower brackets. Remove the shroud from the top side, pushing condenser rearward as necessary for clearance. If the shroud does not clear the bumper during removal, it may be easier to free it from the under side of the vehicle.



NOTE: If you do not feel comfortable with performing the modifications to your shroud that are listed in the following steps or you would prefer to keep the existing shroud in stock form, LPE offers an already modified production GM shroud. Contact LPE or your LPE distributor.

STEP 13.

Cut out the template, cutting along the outer short dashed line only. Thoroughly clean the shroud to ensure adhesion of tape for the next step. Place the cut template on the shroud as shown, ensuring the line on the template matches up with the crease on the shroud.

STEP 14.

Secure the template in several places with tape. Use a center punch to mark the centers of the holes to be drilled. You should have 19 center punch marks. It is important to not remove the template until all 19 holes are marked.



STEP 15.

Remove template.

STEP 16.

Drill four 5/16" holes first as shown on template.

STEP 17.

Drill seven 11/32" holes as shown on template.

STEP 18.

Drill eight 1/2" holes as shown on template.



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STEP 19.

Using a ruler & marking tool, connect outer edges of 1/2" holes to form cut line as shown with "dashed lines" on template.

STEP 20.

Using saw or other suitable cutting tool cut on line drawn, making sure to NOT CUT OUTSIDE OF LINE.

STEP 21.

Reinstall modified radiator shroud. Install two push fasteners, securing the shroud to the bumper beam.

STEP 22.

Install oil cooler, securing it in place with the four bolts previously removed. Install the two oil lines into the oil cooler ports. IMPORTANT – oil lines must be pushed in and then pulled back to verify proper engagement.

STEP 23.

From the top side, install the two factory "Christmas tree" fasteners holding the radiator shroud to the condenser.

STEP 24.

Remove the protective cover from the LPE supplied air filter.

NOTE: Inspect inside of filter for any debris prior to installing in the vehicle. Be very careful during the remainder

of the installation process to not let any dirt or objects fall into the filter.

STEP 25.

Thoroughly clean edge of airbox with supplied alcohol pad.

STEP 26.

Cut supplied foam seal to fit airbox as shown in image. Install rubber seal to three edges of airbox as shown. Make sure the foam seal does not interfere with the mounting holes.

STEP 27.

Slide airbox and filter assembly in place as shown.

STEP 28.

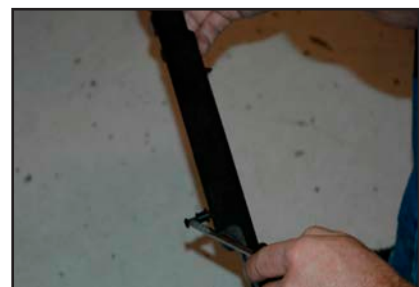
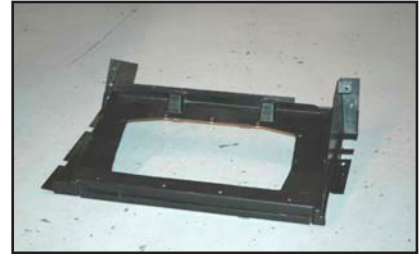
Use four of the supplied push lock plastic rivet fasteners to secure the airbox flange to the shroud. Pinch pieces together as tight as possible while securing the fasteners.

STEP 29.

From underneath the vehicle, starting with the bottom, center fastener, install the remaining seven fasteners, pinching pieces tight together while fastening.

STEP 30.

Remove two plastic pins from the top mount radiator shroud by prying up center nail, then pulling out (as shown in image).





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STEP 31.

Install the two supplied "Christmas tree" fasteners into same holes that held the two plastic pins. Install top radiator shroud ensuring it engages fan shroud in the center as shown. Tuck water hose back into holders on shroud, secure with four bolts previously removed.

STEP 32.

Assembling the duct work:

STEP 33.

Slide the larger (100–120 mm) worm gear clamp over the neck of the air filter in the airbox assembly.

STEP 34.

Using a rotating motion, work the large end of the air-bridge into the air filter neck, do not tighten the clamp at this time. The logo on the air-bridge should face as shown in the image.

STEP 35.

On the other end of the air-bridge, install the supplied straight silicone coupler. Slide two 90–110 mm clamps onto the coupler.

STEP 36.

Rotate the air-bridge to the left of the throttle body to continue assembly (see picture).

STEP 37.

Install MAF sensor housing into the coupler. Make sure the arrow on the sensor is pointing towards the engine.

STEP 38.

Remove the 3/8" barbed plastic quick couple from the accordion section of your stock air intake system (see picture). Install the quick coupler into the silicone hump hose by pushing the barbed side into the 3/8" nipple on the hump hose. Do not use lubricant.

STEP 39.

Slide 90–110 mm clamps on either side of the hump hose and then slide the hump hose onto the MAF housing. Rotate the hump hose such that the nipple will locate just above the throttle body motor (roughly 10 o'clock position, see pictures). Rotate the MAF sensor assembly such that the logo on the sensor housing is at the top and lines up with the logo on the air-bridge.

STEP 40.

Rotate the assembly to engage the hump hose over the throttle body. Make sure the bottom of the hose is properly located over the throttle body.





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STEP 41.

Push the "hump" portion of the hose towards the throttle body while tightening the clamp on the throttle body.



STEP 42.

Tighten the next two clamps (in order going away from the throttle body), making sure the hoses are fully engaged.

STEP 43.

Push downward on the air-bridge while tightening the connection between the straight coupler and the air-bridge.



STEP 44.

Look at the air filter from underneath at this time, if it is not parallel with the cut in the shroud, it may be straightened now.



STEP 45.

Tighten the clamp retaining the air-bridge to the air filter.

Note: This clamps best when the hose clamp is positioned as pictured.

STEP 46.

Connect the stock breather tube line that couples with the 3/8" nipple located in the hump hose.

Before connecting the wiring harness to the new 100 mm MAF sensor, you need to re-pin the connector by swapping pins E & D. If you do not feel comfortable re-pinning the connector, a plug and play adapter harness is available from LPE (PN L480020206). Contact LPE or your LPE distributor for details.

2006-2007 Z06 Corvette connector

Pin Wire Color Circuit No. Function

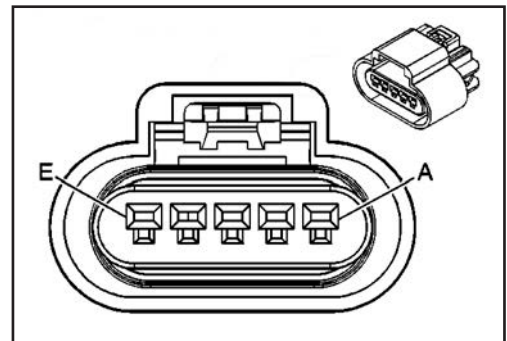
A YE 492 MAF Sensor Signal

B BK/WH 451 Ground

C PK 539 Ignition 1 Voltage

D TN 2760 Low Reference

E TN 472 IAT Sensor Signal



TO RE-PIN THE MAF SENSOR HARNESS CONNECTOR:

STEP 1.

If your MAF connector is equipped with the purple locking plate/wire loom shown in the image (see red arrow), use a small screw driver to remove the plastic locking plate/wire loom from the back of the harness.

STEP 2.

Using a small screw driver, remove the purple plastic pin guide from the inside of the connector (see picture below).

STEP 3.

Make note of the wire positions (see table above). We recommend putting



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tape or something on one of the two wires to make it easier to tell them apart once you have removed them from the connector.

STEP 4.

Again using the blade of a thin screw driver, VERY gently pry back the plastic locking clips from the metal pins on pins D & E (tan wires). While prying back the plastic clip, gently pull on the wire for that pin and the wire should pull out easily. Repeat the process for the other pin. Now reinstall the wires, swapping the wire and pin from D into E and from E into D.

STEP 5.

Replace the plastic pin guide

STEP 6.

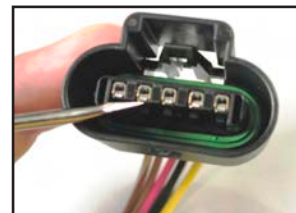
If equipped, replace the plastic locking plate/wire loom.

STEP 7.

Connect the MAF sensor harness connector to the MAF sensor.

STEP 8.

Replace the gray retaining clip on the MAF harness connector.



THE FOLLOWING STEPS NEED TO BE DONE FROM UNDERNEATH THE VEHICLE:

STEP 1.

Replace the previously removed two factory Christmas tree fasteners retaining the shroud to the plastic side panels.

STEP 2.

Install the lower air intake block off cover.

STEP 3.

Replace the five 7 mm head screws previously removed.

STEP 4.

Replace the three 10 mm head screws to secure the block off cover.

STEP 5.

Reinstall the left wheel extension housing and brake duct.

STEP 6.

You are now finished under the vehicle so you may lower the vehicle back down from the jack stands.

STEP 7.

With the vehicle back on the ground, you now need to perform the following steps:

STEP 8.

Check for hood clearance issues, if you need to readjust, loosen clamps and push the air bridge assembly toward the throttle body while tightening the clamps.



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STEP 9.

Reconnect the outside air temperature connector and the hood light connector.

STEP 10.

Reconnect the battery ground cable.

STEP 11.

Reprogram your engine control module (ECM) or install an ECM that has already been reprogrammed. Contact LPE for additional information.

STEP 12.

If you are reprogramming the ECM yourself, the MAF sensor curve can be found on the LPE web site at:
<http://www.lingenfelter.com/instructions.htm>

STEP 13.

Replace the oil lost during the removal of the oil cooler.

STEP 14.

Start the vehicle and check for oil leaks at the oil cooler lines.

STEP 15.

Check your oil level. Be sure to follow the manufacturer's recommendations for checking the oil level on the Z06 Corvette. The dry-sump oil system on the LS7 engine has a different oil level checking procedure than other Corvettes. Congratulations - you have completed the installation.

WARNING: CAUTION SHOULD BE USED WHEN DRIVING IN HEAVY RAIN. DO NOT DRIVE THROUGH DEEP STANDING WATER.

Filter service - A filter service kit is available from LPE for cleaning and re-oiling the air filter (part number SB-88-0005). The correct amount of oil for this filter element is 39 grams (1.4 ounces) of oil. Replacement filters are also available from LPE (filter part number L660070105). How frequently you should clean your filter will depend on your driving conditions. LPE recommends checking your filter at every oil change or 3,000 miles. If there is a build up of dirt as thick as the wire mesh, then LPE recommends you clean your filter. As dirt builds up on your filter, the restriction of the airflow also increases.

Many other items are available from LPE for your Z06 Corvette including low temperature thermostats, camshafts, ported throttle bodies, port matched intake manifolds, intake manifolds, turbocharged engine packages and much more. Contact LPE, visit our web site, or contact your LPE distributor for information about our other products.