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Cummins Competition Intake

Cummins Race Intake Manifold





1041580	Competition Intake, RAM 2003-05
1041581	Competition Intake, RAM 2006-07





Kit requires use of 6.7L Cummins Fuel Rail (sold separately)

General Kit Contents





1405800	1405801	1405811P
		
Manifold Upper	Manifold Lower	Charge Pipe
Qty: 1	Qty: 1	Qty: 1





1401562	1453221	1405211	1405212
			
Boot, 4 x 3.5	Boot	Clamp	Clamp, 3.5"
Qty: 1	Qty: 1	Qty: 1	Qty: 2





1405213	1405804	1405802	1405803
			
Clamp, 4"	Dipstick Spacer	Bracket, Rail	Bracket, Dipstick
Qty: 1	Qty: 1	Qty: 1	Qty: 1





1405805	1405806	1405807	1405808
			
Fuel Line, Cyl 1	Fuel Line, Cyl 2/3	Fuel Line, Cyl 4/5	Fuel Line, Cyl 6
Qty: 1	Qty: 2	Qty: 2	Qty: 1




1405809	1405817	FT-69924	1405819
			
Fuel Line, Feed	Hose Mender	1/8npt x Barb	M12 x Barb
Qty: 1	Qty: 1	Qty: 1	Qty: 2

1502017-Z	FT-81142	1453146	1500743
			
Banjo Adapter	1/8npt plug	M14 Plug	Harness
Qty: 1	Qty: 1	Qty: 1	Qty: 1




1405816	FT-0413965	1604053	1604031
			
CCV Tube	O-Ring	3/8in Hose	5/16in Hose
Qty: 1	Qty: 1	Qty: 30in	Qty: 30in

FT-0776778	CTL-8.5	1500403	1502019
			
5/8in Clamp	Spring Clamp	11/16in Clamp	Seal Washer
Qty: 2	Qty: 4	Qty: 2	Qty: 6

1900015	1403106	FT-11116108	FT-11116243
			
M8x30 Flange	M8x20 Flange	M8x45 Flange	M8x16 Flange
Qty: 14	Qty: 4	Qty: 1	Qty: 1

FT-0161815	FT-0161811	1900037
		
M6x35 Flange	M6x16	M6x12 Flange
Qty: 14	Qty: 3	Qty: 1

Kit Specific Contents

1041580 Kit	1041581 Kit	
1500740	1500741	1405818
		
Injector Harness Qty: 2	Injector Harness Qty: 1	Hose Mend; 90Deg Qty: 1

Introduction

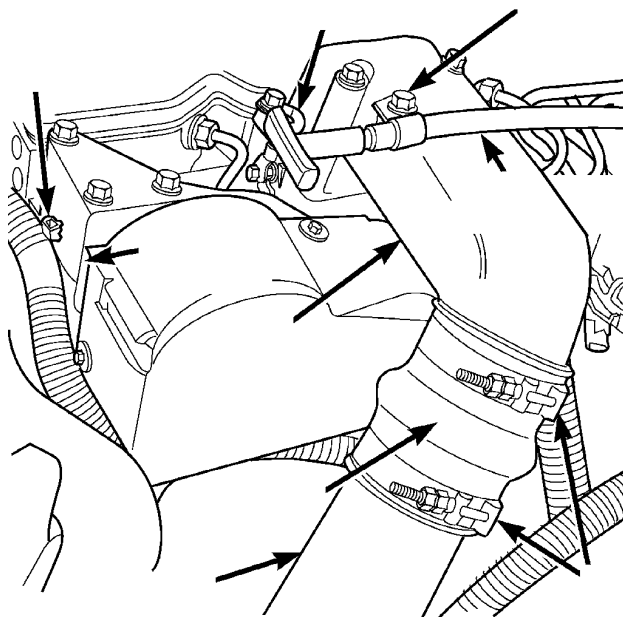
The BD Cummins Competition Intake Manifold creates a free-flowing path for air to travel into the engine. The large volume plenum allows the turbocharger to push air into the cylinder head and pre-load a volume of air for the engine to draw from. The intake assembly utilizes a 6.7L Cummins style fuel rail (sold separately), and re-routes the high-pressure fuel lines around the intake horn.

Installation



Disconnect both vehicle batteries before installation for safety.

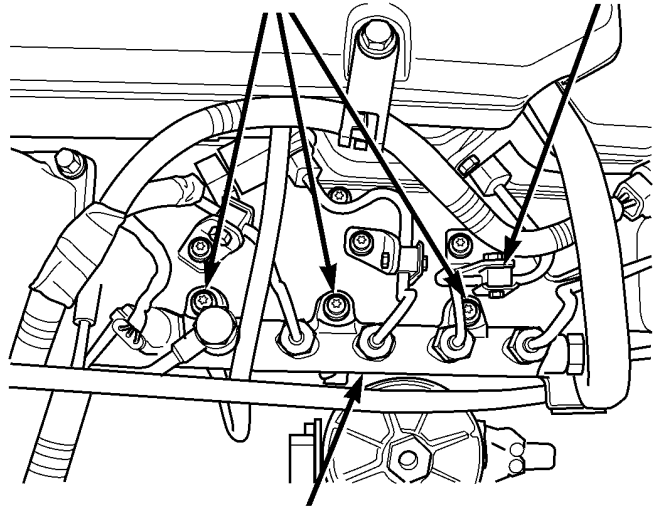
Remove Charge pipe and intake horn from engine.



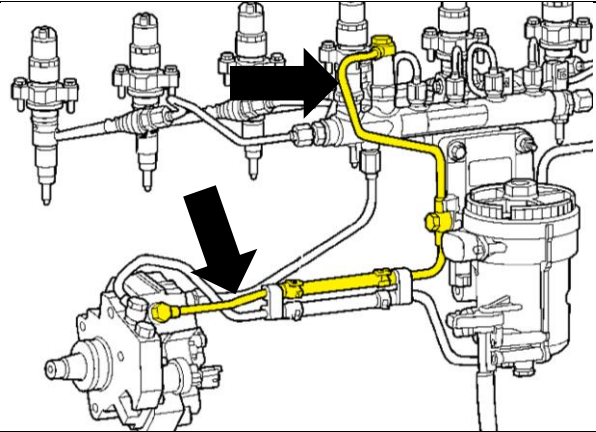
Remove fuel lines and fuel rail.

Fold Injector harness out of the way at this time.

Note: Be careful not to allow dirt into fuel system.



Remove CP3 return / fuel rail return hose assembly. Set aside, it will be reused in following steps.



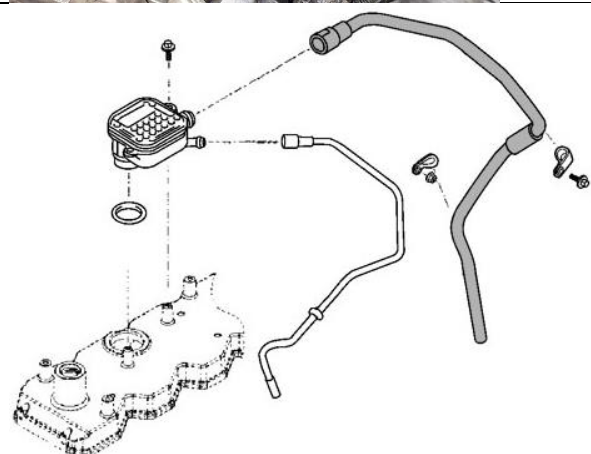
Remove grid heater and plate.

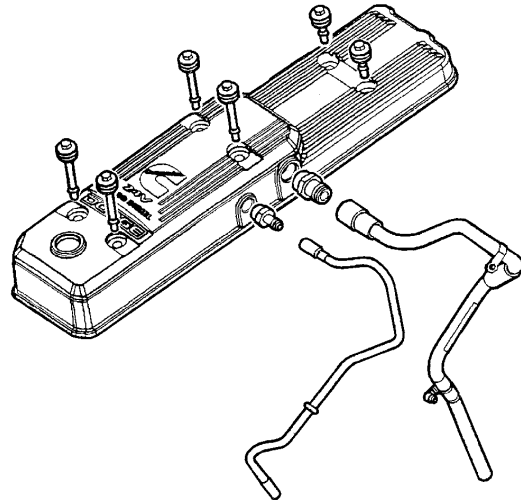
Note: Be careful not to drop parts into plenum.



Disconnect CCV Drain and vent hoses (Early shown above, and Late model shown below.)

Note: Drain tube will be reused.



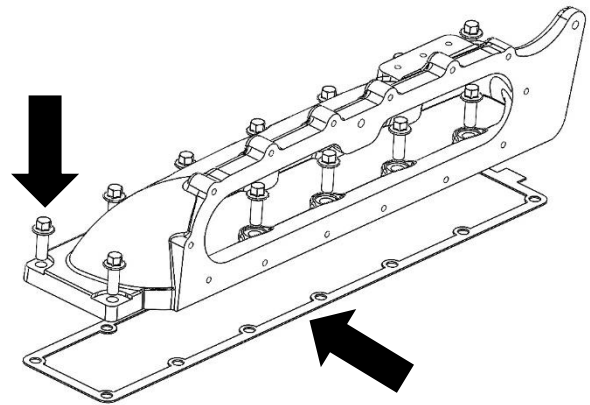


Install Upper Intake manifold (1405800), using M8x30 fasteners (1900015).

Use Loctite on fasteners.

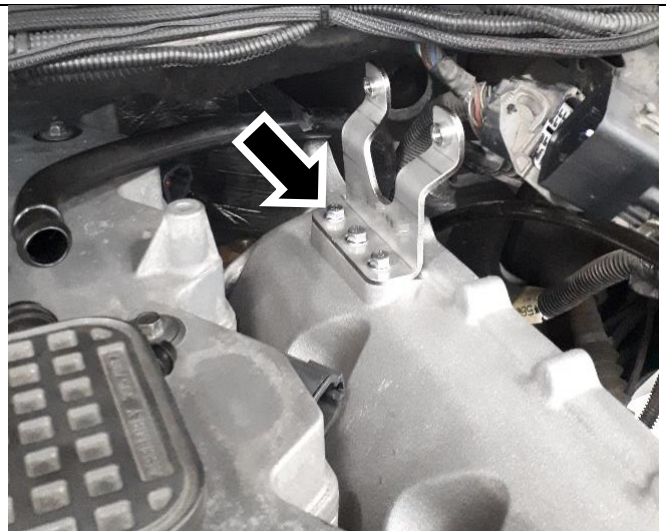
Re-use OEM Gasket.

Torque Spec: 18 ft-lbs



Install fuel rail bracket (1405802), using three [3] M6x16 fasteners (FT-0161811).

Torque Spec: 6.5 ft-lbs



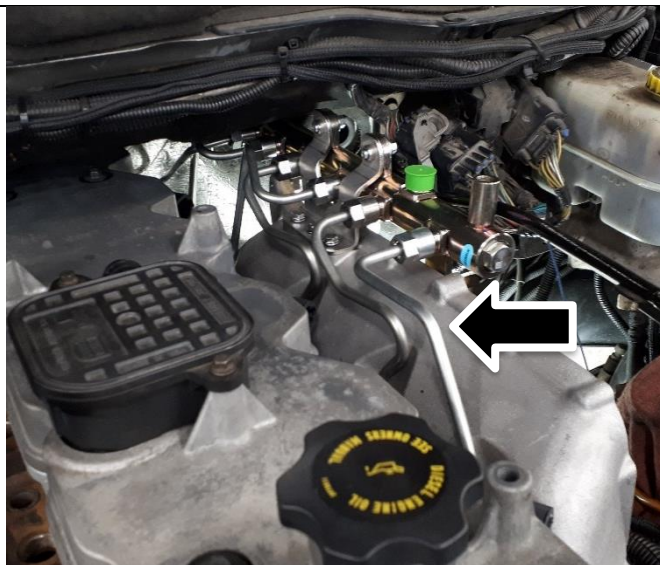
Install 6.7L Cummins fuel rail (not supplied) onto upper manifold, only using two (2) M8x20 (1403106) upper bolts at this time.

Note: It can be helpful to leave the bolts loose at this time.



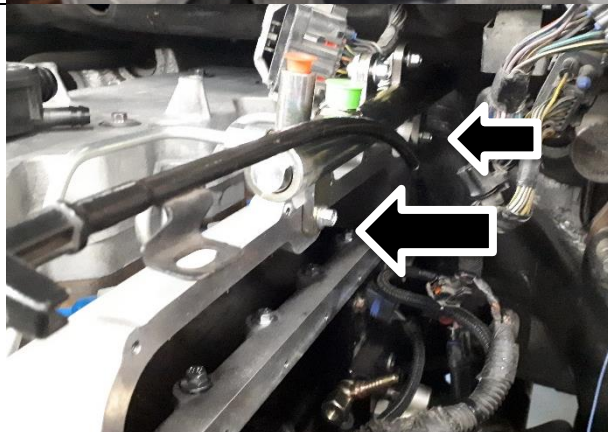
Install fuel lines starting at cylinder No. 6 and moving forward to cylinder No. 1. Install the following respective fuel lines:

Cylinder No.	Fuel Line PN
6	1405808
5	1405807
4	1405807
3	1405806
2	1405806
1	1405805



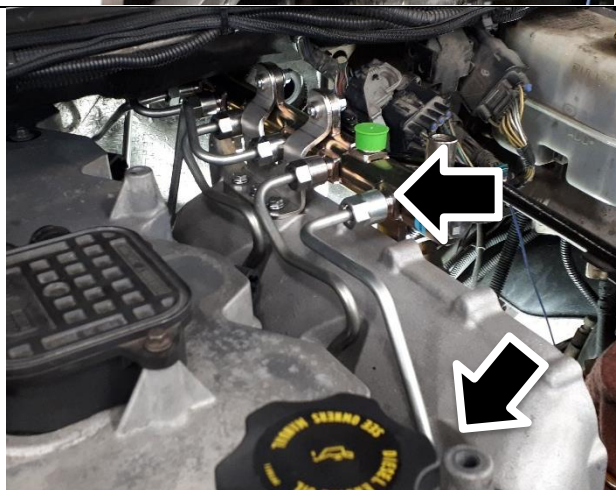
Install remaining two [2] M8x20 (1403106) fuel rail bolts, and tighten to spec.

Torque Spec: 16 ft-lbs



Tighten fuel lines to spec.

Torque Spec: 33 ft-lbs



Plug in rail pressure sensor using supplied extension harness (1500743).



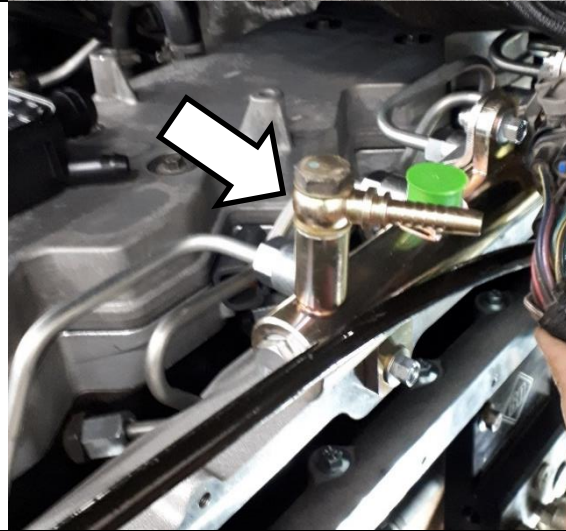
Acquire both banjo bolts and cp3 return hard pipe from previously removed return assembly.

Use supplied new seal washers for banjo fittings (1502019).



Using one of the banjo bolts, install supplied banjo fitting (1405819) onto rail return port.

Torque Spec: 18 ft-lbs

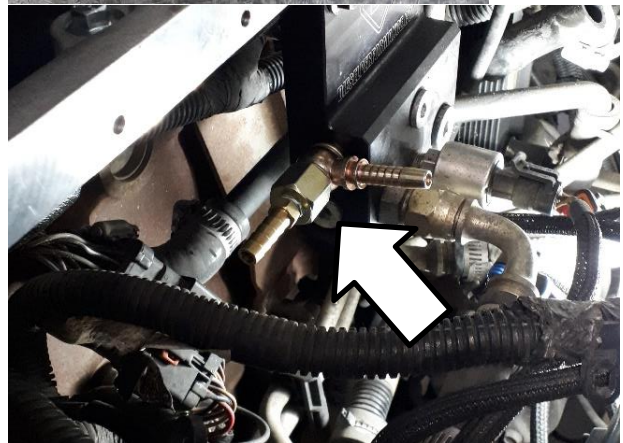


Install supplied barb fitting into supplied banjo bolt (1405819 & 1502017-Z).

Install this onto fuel bowl with supplied banjo fitting and seal washers (1405819).

Note: BD fuel distribution block shown in place of bowl.

Torque Spec: 18 ft-lbs



Re-install cp3 return pipe onto pump, and connect all the return banjo fittings with supplied 5/16" hose and clamps (1604031 & CTL-8.5).

Approx hose lengths

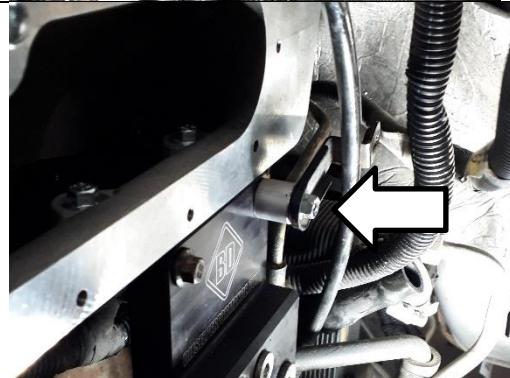
Rail to fuel bowl: 17.5"

CP3 to fuel bowl: 6"



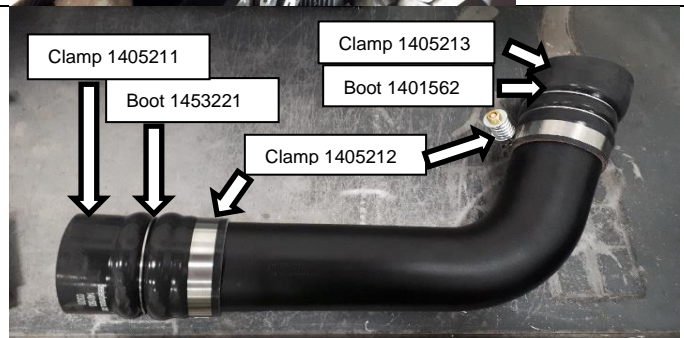
Install spacer (1405804) on dipstick tube, and use supplied M8x45 bolt (FT-11116108) to secure dip stick.

Torque Spec: 24 ft-lbs



Assemble boots onto charge pipe as shown.

Install charge pipe into truck, leaving clamp loose on charge pipe.



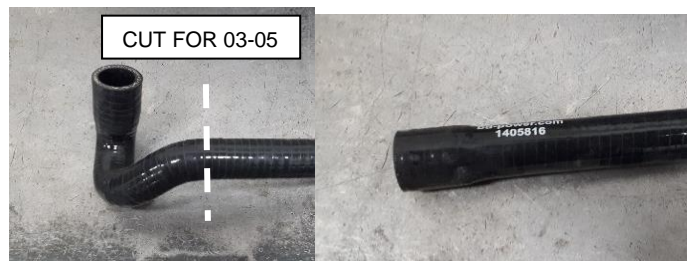
CCV Vent tube (1405816) install (shown on 2003-2005 style breather)

If model year 2003-2005:

Trim off curled end of tube, and attach straight end to breather.

If model year 2006+:

No cutting required. Attached curled end to vent port on valve cover.



Route hose around back of intake manifold and towards the ground, or

catch can. Secure away from hot or moving parts.

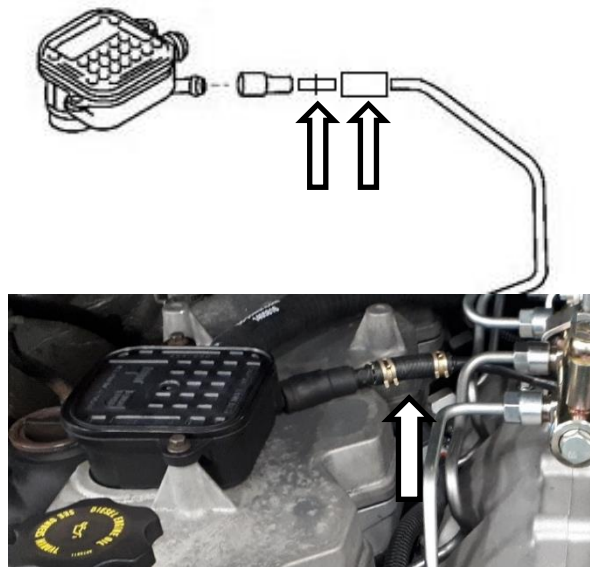
Trim loose end to desire length, if required.



2003-05 model years

Reinstall OEM breather drain tube. Route it up between fuel rail and manifold.

Use supplied 3/8" plastic coupler (1405817) and 3/8" hose (1604053) to extend as shown (approx. 3"). Use supplied clamps (1500403). Trim hose to desired length to allow drain pipe to route around intake, back down to block.



2006-07 model years

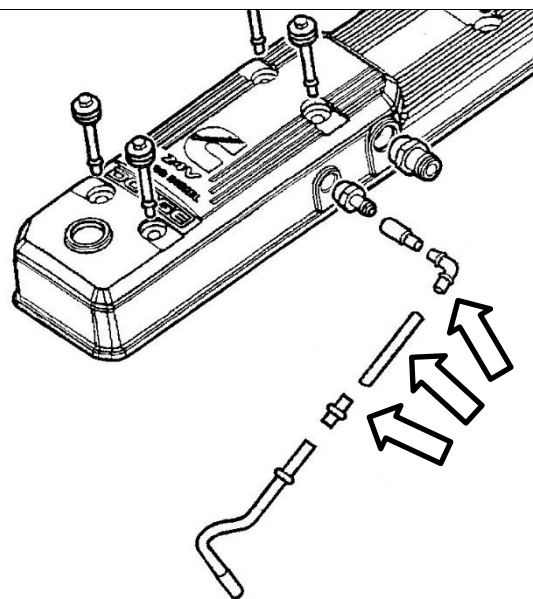
Use supplied 90deg (1405818) and straight coupler (1405817), with 3/8" hose (1604053) to connect drain port to OEM lower drain tube.

Use supplied clamps (1500403).

Use oem coupler at valve cover.

See lower illustration.

Route hose "downhill" to ensure oil drains back to the engine.



Route factory injector harness towards front of engine. (2005 model shown).

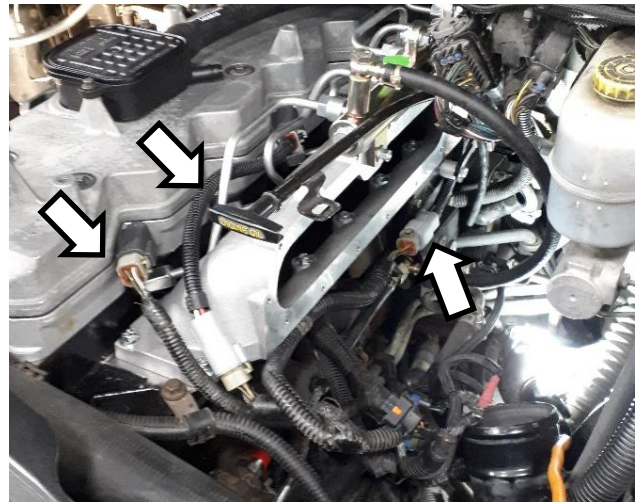
2003-05 model years (1500740 Harness):

Plug in Injector bank 1

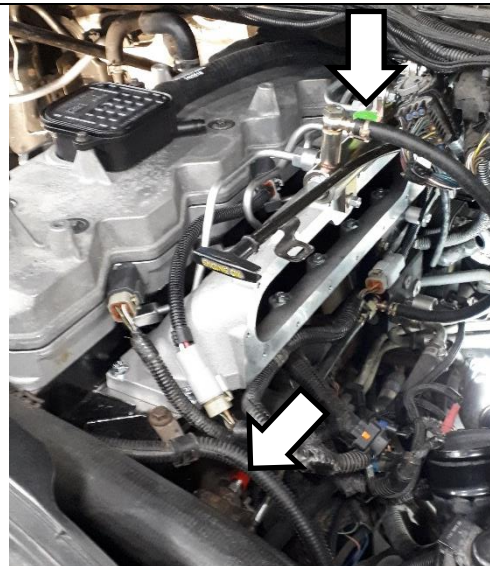
Install extension harness on bank 2 (middle) and bank 3 (rear). Route these harness to each respective connector, and secure.

2006-07 model years (1500741 Harness):

Plug in injector harness bank 1 (front), and install extension harness on bank 2 (rear). Route harness, and secure.



Insert fuel feed line (1405809) from CP3 pump to Fuel rail. Leave nuts loose for now, to aid in manifold install.



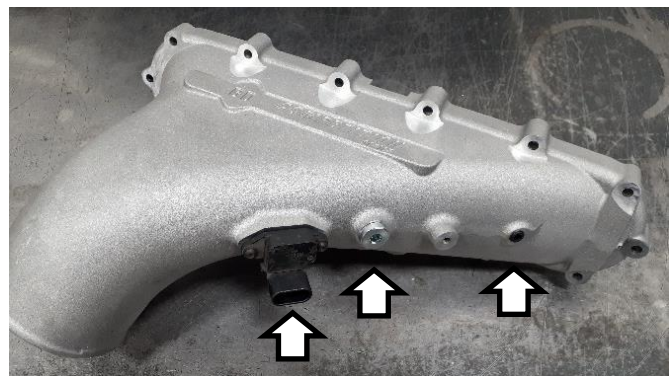
Install supplied O-ring (FT-0413965) into groove on lower intake manifold (1405801).



Lower intake manifold contains ports for MAP sensor, IAT sensor, or another auxiliary sensor.

Install original MAP sensor from OEM intake into lower manifold. Plug other ports with supplied plugs (1453146, FT-81142), unless using ports for IAT or Aux sensors.

Note: Blind threaded boss will be used to support a fuel pipe.



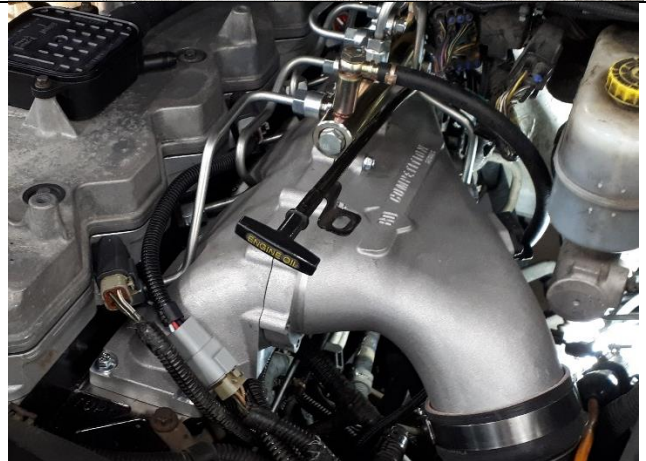
If additional ports are required:

The bottom side of the manifold has a flat region made available for drilling and tapping additional auxiliary ports.



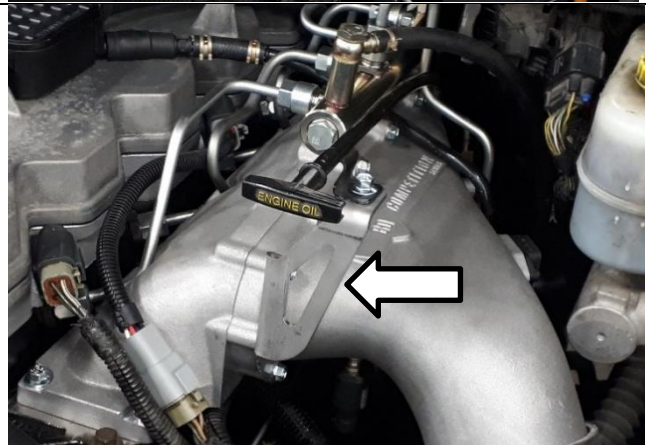
Install lower intake manifold between upper manifold and charge pipe using M6x35 bolts (FT-0161815).

Note: Leave front three bolts out, as these will be used to mount the dipstick in following steps.

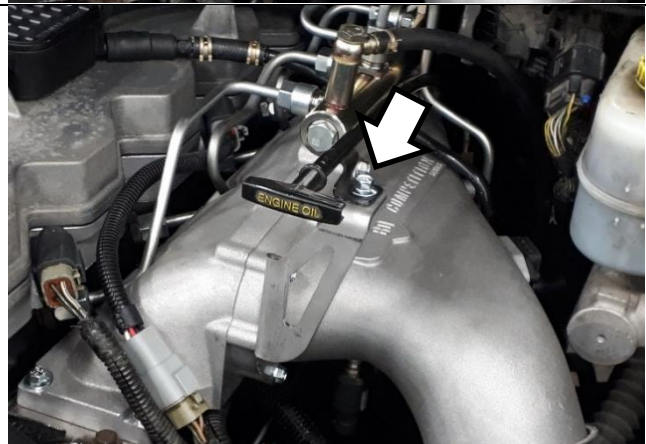


Install dipstick bracket with remaining M6x35 bolts (FT-0161815).

Torque all M6 bolts to 6.5 ft-lbs



Secure dipstick with supplied M8x16 bolt (FT-11116243).

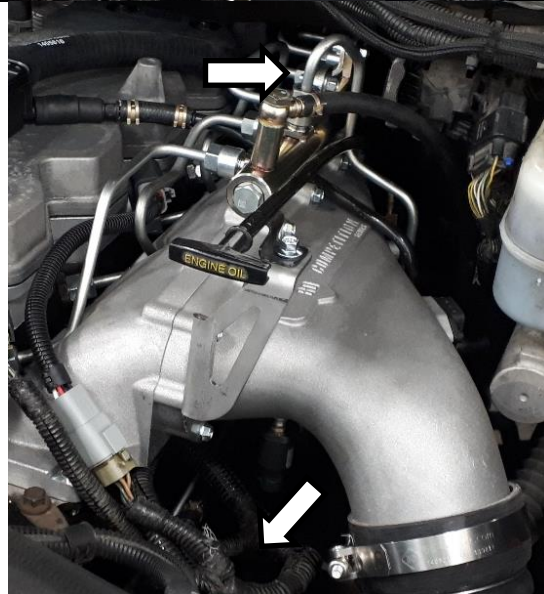


Be sure to plug in MAP sensor, and any other sensors installed on manifold at this time.

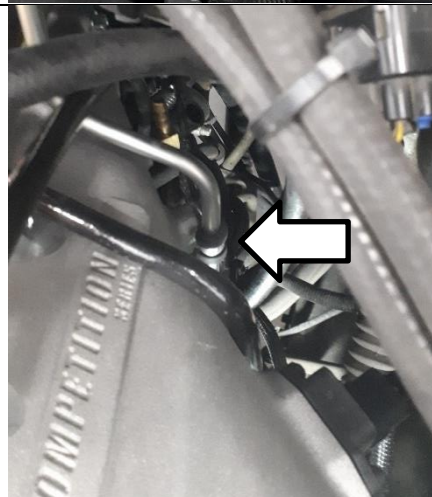


Tighten Fuel feed pipe at cp3 pump and fuel rail.

Torque spec: 33 ft-lbs



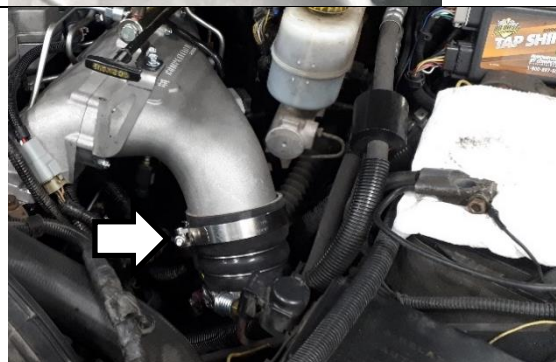
Secure fuel feed pipe to manifold, using supplied insulated clamp and M6x12 bolt (FT-0776778,1900037).



Tighten CAC pipe clamps to manifold *and* Charge air cooler.

Note: Ensure all clamps are tight at all connections.

Spec: Tighten until spring bind.



Re-install any other components removed for installation of the intake.

Eg: engine covers etc.



Start the vehicle and check for fuel or air leaks.

Kit Layout

