

Cadillac CTS-V Air Intake Kit 2009-2015 Model Year (6.2L LSA engine)



PN: L650140709

Parts List

LPE CTS-V Air Intake Kit, PN 650140709

#	Description	Part number
1	Air intake duct	XX03277-0002
1	LPE supercharged domed decal	L920100000
1	4" hump hose	TF01-476-BK
1	Straight hose, black, 2.5 inches	XX03277-0004
1	45 degree nipple connector	25862741
4	Hose clamp	705-1027
1	Lingenfelter decal	L920010000
1	Instructions	N/A

Tools & Materials Required

- Ratchet
- 10 mm socket
- Extension
- T-25 Torx tool
- Flat head screwdriver
- High speed cut-off tool

Optional Items

Part number	Description
33-2411	Cadillac CTS-V K&N Air Filter, 2009-2015
L220030709	2.55" LSA supercharger pulley, one piece
L250150309	LPE 10 bolt SC pulley hub and bolt kit
L220300709	2.55 2 piece LSA pulley, 8 rib, 10 bolt (requires 10 bolt hub)
L220310709	2.38 2 piece LSA pulley, 8 rib, 10 bolt (requires 10 bolt hub)
L220050709	LSA damper kit (SC pulley required)
L220646509	Stock diameter LSA pulley for LPE LSA damper, 8 rib, 7.87"
L220060709	6% OD LSA pulley, 8.25", for LSA damper kit
L220070709	11% OD LSA pulley, 8.66", for LSA damper kit
L220170709	18% overdrive LSA damper pulley, 9.17" OD
L220290709	23% overdrive LSA damper pulley, 9.55" OD
L220380709	28% overdrive LSA damper pulley, 10" OD
L220636509	LSA Idler Pulley Relocation Bracket Kit
L310065307	THERMOSTAT, 160 degree, 2007-2015, LSA LS9 LS3
L960130709	Solid supercharger isolator coupling, LSA and LS9
L200175307	Single bolt camshaft conversion kit
L210150309	GT9 camshaft, 215/247 629/656
L730100309	High flow LS9 & LSA injector, 62 lbs/hr, each [needs 8]
BOS0280158040	11.2 g/sec EV14 short injector, high impedance [needs 8]
K080645	8 rib 1643mm/64.5" belt
8PK1655	8 rib 1655mm/65.2" belt
12628026	Stock 1680mm/66.1" belt
K080670	8 rib 1702mm/67.0" belt
K080675	8 rib 1715mm/67.5" belt
K080680	8 rib 1727mm/68.0" belt
K080685	8 rib 1740mm/68.5" belt
K080690	8 rib 1753mm/69.0" belt
K080695	8 rib 1765mm/69.5" belt
K080700	8 rib 1778mm/70.0" belt
EFIAUTOCAL	EFILive AutoCAL programmer

If you would prefer not to modify your production supercharger front cover, LPE can supply a stock GM cover for you to modify or one with the parts already installed.

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

When referencing the side of the vehicle, the driver side of the vehicle is considered the left side and the passenger side of the vehicle is considered the right side of the vehicle.

Torque value warning - the torque values for the fasteners are provided in metric (Nm) and then imperial units. For the imperial units some are referenced in lb-ft and others in lb-in. Make sure you notice the difference and set your torque wrench correctly.

Aftermarket supercharger pulleys and dampers increase the supercharger speed and airflow, resulting in increased inlet pressure drop that can cause the factory rubber inlet duct to get sucked shut under high RPM use. For this reason Lingenfelter Performance Engineering has designed a replacement air intake system to resolve these potential problems. This is the same air intake that is included with the Lingenfelter CTS-V LSA supercharger pulley upgrade kit (part # L250070709).



1. Open the hood of the vehicle. If you have been driving the vehicle, allow the vehicle to cool down for a few hours before beginning this work.



2. Remove the connector from the mass air flow/intake air temperature (MAF/IAT) sensor electrical connector located on the end of the intake duct on the air filter box.



3. Remove the fresh air inlet positive crankcase ventilation (PCV) connector from the middle of the intake duct.



4. Loosen the band clamp on the intake duct that connects to the factory supercharger front cover.



5. Loosen the band clamp on the factory air cleaner housing using a flat head screwdriver or an 8 mm hex bit Allen socket.



6. Carefully remove the intake duct, be careful not to let dirt or debris enter the intake duct during the installation.



Steps 7-22 are for disassembling the airbox to modify the bottom part of the air filter housing, which will reduce inlet restriction.

7. Using a T-25 Torx tool, remove the three (3) Torx bolts from the top portion of the air filter housing. The location of the first bolt is next to the power steering reservoir.



8. The location of the second bolt is located in between the fender and the strut tower.



9. The location of the third bolt is directly behind the driver front headlight assembly.



10. Carefully remove top of air filter housing.



11. Using a 10 mm socket, remove the air filter housing bracket bolt located on the driver side strut tower.



12. Carefully remove the bottom portion of the air filter housing by pulling up and away from the fender from the location shown.



13. We are now going to modify the factory airbox. Any kind of cut-off tool or die grinder will work for this portion of the install.



14. Using a flathead screwdriver or small pry bar, pry away the air inlet from the bottom of the factory air cleaner housing.



15. Use the next 5 pictures as a reference. Use a silver marker and mark out the locations on the airbox to cut. This is the front of the factory airbox.



16. (Left side of factory airbox)



17. (Under side of factory airbox)



18. (Right side of factory airbox)



19. (Right side of factory airbox)



20. Cut the airbox along your marked lines. After the final cuts have been made, your new airbox should look like this.



21. Re-install your modified bottom portion of your air filter housing. Reinstall your stock air filter or install the K&N replacement filter.

NOTE: LPE recommends the use of a K&N air filter (part # 33-2411).



22. Install the top portion of your air filter box. Make sure to plug in the MAF sensor after bolting down the housing bolts.



23. Install the barbed end of the supplied 45 degree plastic fitting [part # 25862741] into the fitting on the hump hose.



24. The front coupler will mount onto the throttle body in the position shown.



25. Mount the front coupler on the throttle body and tighten down the band clamp. Make sure to position the inlet as indicated to the left and reconnect your PCV hose.



26. Install the other coupler in the kit to the air filter housing and tighten down the band clamp on housing.



27. Loosen both band clamps and put them on both couplers. Gently work the LPE provided elbow into both couplers. Move each band clamp towards the elbow and tighten when it reaches the edge of the coupler as shown.

Install the supplied Lingenfelter decal on the duct as shown.

28. Start your vehicle and listen for any leaks. If there are any problems check all the sensors and vacuum lines for proper hook up and position.

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PERFORMANCE ENGINEERING

Table 1 - belt length and idler pulley diameters required for different LSA supercharger pulley and damper pulley combinations.

Crank Pulley PN (Crank only OD%)	Supercharger Pulley	Supercharger Pulley PN	Belt length	Belt PN (imperial)	Belt PN (metric)	Upper Idler	Lower Idler	Idler Bracket (PN)	Pulley Ratio	Total OD%	SC Speed @ 6500 RPM Engine Speed
stock 7.8" (L220646509) (0%)	stock 3.0"	*	stock 1680mm	12628026 (GM)		stock 90 mm	stock 70 mm	stock	2.6	N/A	16,900
	2.55" press-on	L220030709	1655mm/65.2"	K080653	8PK1655	stock 90 mm	stock 70 mm	stock	3.1	18%	19,900
	2.55" 10 bolt	L220300709	1643mm/64.5"	K080645	8PK1643	stock 90 mm	stock 70 mm	stock	3.3	26%	21,300
	2.38" 10 bolt	L220310709	stock 1680mm	12628026 (GM)		stock 90 mm	stock 70 mm	stock	2.8	6%	17,900
8.25" L220060709 (6%)	2.55" press-on	L220030709	66.0"	K080660	8PK1676	stock 90 mm	stock 70 mm	stock	3.2	25%	21,000
	2.55" 10 bolt	L220300709	stock 1680mm	12628026 (GM)		LPE 100 mm, 0.350" spacer, M10X1.5x60mm cap head screw	stock 70 mm	stock	3.5	34%	22,500
8.66" L220070709 (11%)	stock 3.0"	*	67.5"	K080675	8PK1715	stock 90 mm	stock 70 mm	stock	2.9	11%	18,800
	2.55" press-on	L220030709	67.0"	K080670	8PK1702	stock 90 mm	stock 70 mm	stock	3.4	31%	22,100
	2.55" 10 bolt	L220300709	67.0"	K080670	8PK1702	stock 90 mm	stock 70 mm	stock	3.6	40%	23,700
	2.38" 10 bolt	L220310709	68.0"	K080680	8PK1727	stock 90 mm	stock 70 mm	LPE (L220636509)	3.1	18%	19,900
9.17" L220170709 (18%)	2.55" press-on	L220030709	67.5"	K080675	8PK1715	stock 90 mm	stock 70 mm	LPE (L220636509)	3.6	38%	23,400
	2.55" 10 bolt	L220300709	67.5" (tight)	K080675 K080670	8PK1715 8PK1702	stock 90 mm	stock 70 mm	LPE (L220636509)	3.9	48%	25,000
	2.38" 10 bolt	L220310709	69.0"	K080690	8PK1753	stock 90 mm	stock 70 mm	LPE (L220636509)	3.2	23%	20,700
	stock 3.0"	*	68.0"	K080680	8PK1727	stock 90 mm	stock 70 mm	LPE (L220636509)	4.0	54%	26,000
9.55" L220290709 (23%)	2.55" press-on	L220030709	68.5"	K080685	8PK1742	stock 90 mm	stock 70 mm	LPE (L220636509)	3.8	44%	24,300
	2.55" 10 bolt	L220300709	68.0" (tight)	K080680	8PK1727	stock 90 mm	stock 70 mm	LPE (L220636509)	3.2	23%	20,700
	2.38" 10 bolt	L220310709	68.0"	K080680	8PK1727	stock 90 mm	stock 70 mm	LPE (L220636509)	4.0	54%	26,000
	stock 3.0"	*	70.8" (tight)	K080708 K080700	8PK1797 8PK1775	stock 90 mm	stock 70 mm	LPE (L220636509)	3.3	28%	21,700
10.0" L220380709 (28%)	2.55" press-on	L220030709	69.6"	K080696	(-)	stock 90 mm	stock 70 mm	LPE (L220636509)	3.9	51%	25,500
	2.55" 10 bolt	L220300709	69.0" (tight)	K080690	8PK1753	stock 90 mm	stock 70 mm	LPE (L220636509)	4.2	62%	27,300
	2.38" 10 bolt	L220310709	69.0"	K080690	8PK1753	stock 90 mm	stock 70 mm	LPE (L220636509)	3.9	51%	25,500
	stock 3.0"	*	70.0" (tight)	K080708 K080700	8PK1797 8PK1775	stock 90 mm	stock 70 mm	LPE (L220636509)	3.3	28%	21,700
9.73" 10 rib L220450709 (requires 10 rib tensiometer pulley)	2.70" 10 rib	XX03873-0004 (tensioner pulley PN L220620709)	67.5"	K100675	10PK1715	LPE 76 mm, 0.350 spacer, M10X1.5x60mm cap head screw	LPE 76 mm, 0.200 spacer, M10X1.5x60mm cap head screw	LPE (L220636509)	3.5	35%	22,800
	2.95" 8 rib	Included with Magnuson LSA TVS2300 Heartbeat Kit	68.0"	K080680	8PK1727	-	-	LPE (L220636509)	3.1	N/A	20,100

Supercharger speeds above 23,000 RPM are not recommended. To calculate supercharger speed, multiply your maximum engine speed by the pulley ratio value listed above.

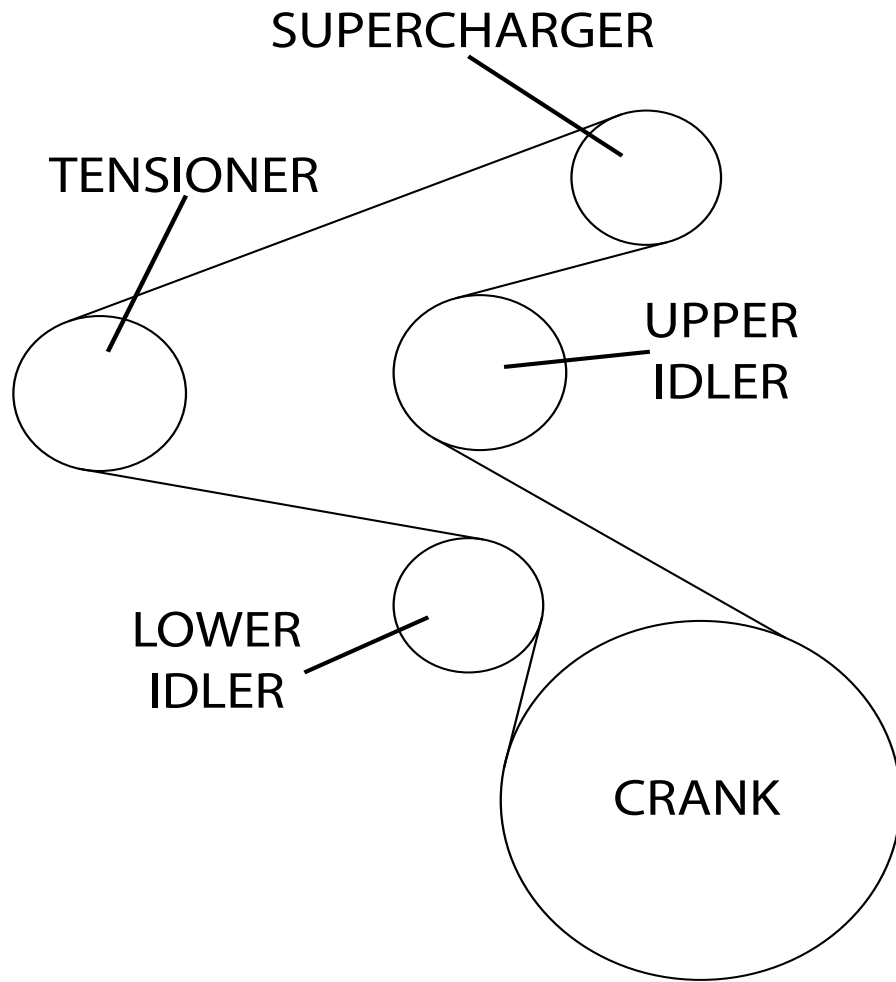
Pulley ratios above 35% should only be used in applications with proportionally lower maximum engine speeds (below 6500 RPM).

For applications where the crank pulley diameter is greater than or equal to 9.17", LPE idler relocation bracket (PN: L220636509) is required in order to provide enough clearance between the crank pulley and the lower idler pulley. For bearing durability reasons LPE does not recommend using idler pulleys smaller than 70mm.

An LPE idler pulley is required for these pulley/belt combinations.

*A stock diameter 10 bolt pulley is also available from LPE, PN L220600709

Figure 1: Belt routing diagram



Many other items are available from LPE for your Cadillac CTS-V including low temperature thermostats, camshafts, ported throttle bodies and much more. Contact LPE, visit our web site, or contact your LPE distributor for information about our other products.

For additional product installation information and technical support, contact LPE or your LPE products distributor. You can also find technical support and usage discussions regarding this product and many other LPE products in our Internet forums:

<http://www.lingenfelter.com/LPEforumfiles>

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