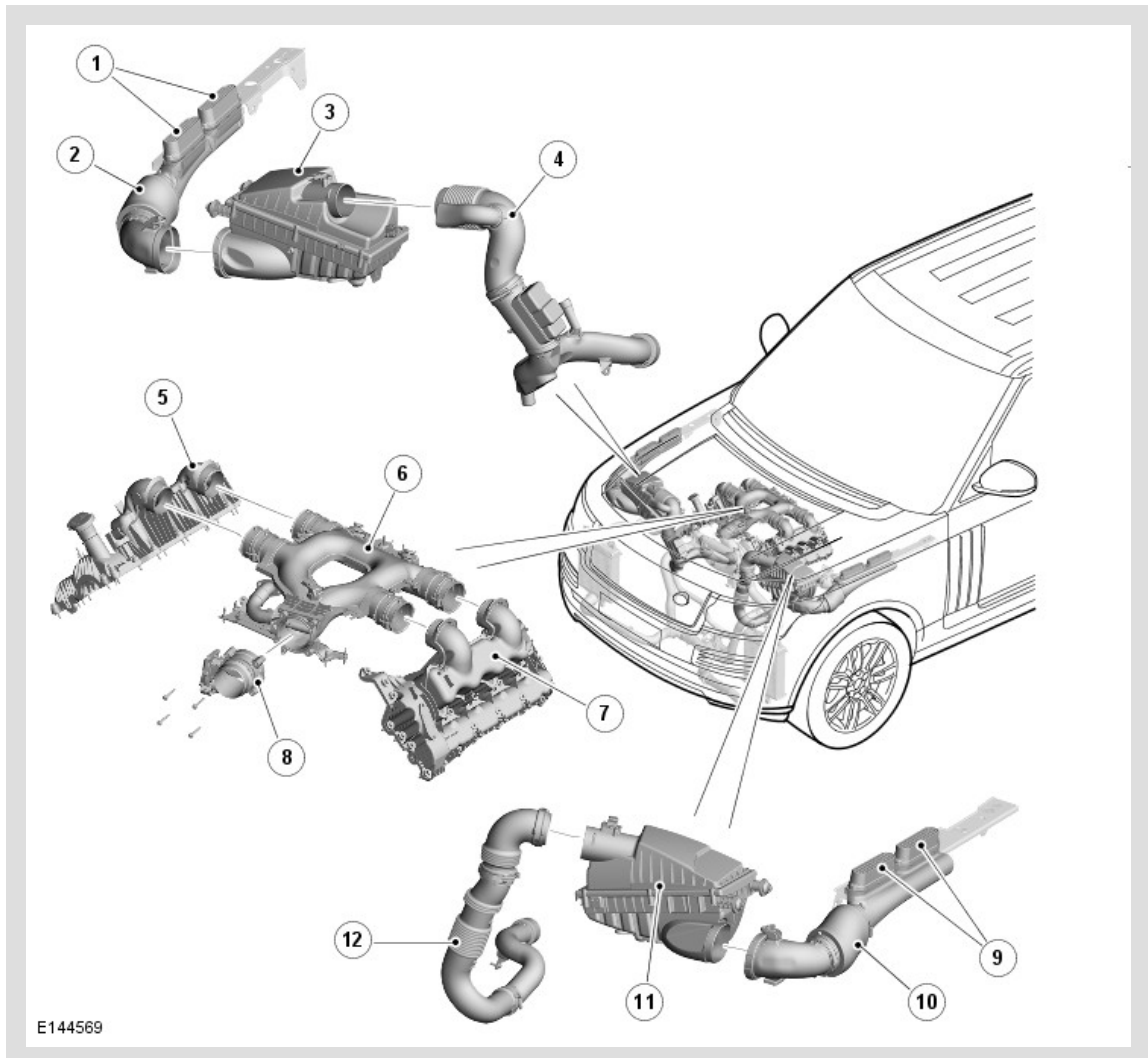


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2015.0 RANGE ROVER (LG), 303-12

INTAKE AIR DISTRIBUTION AND FILTERING - TDV8 4.4L DIESEL

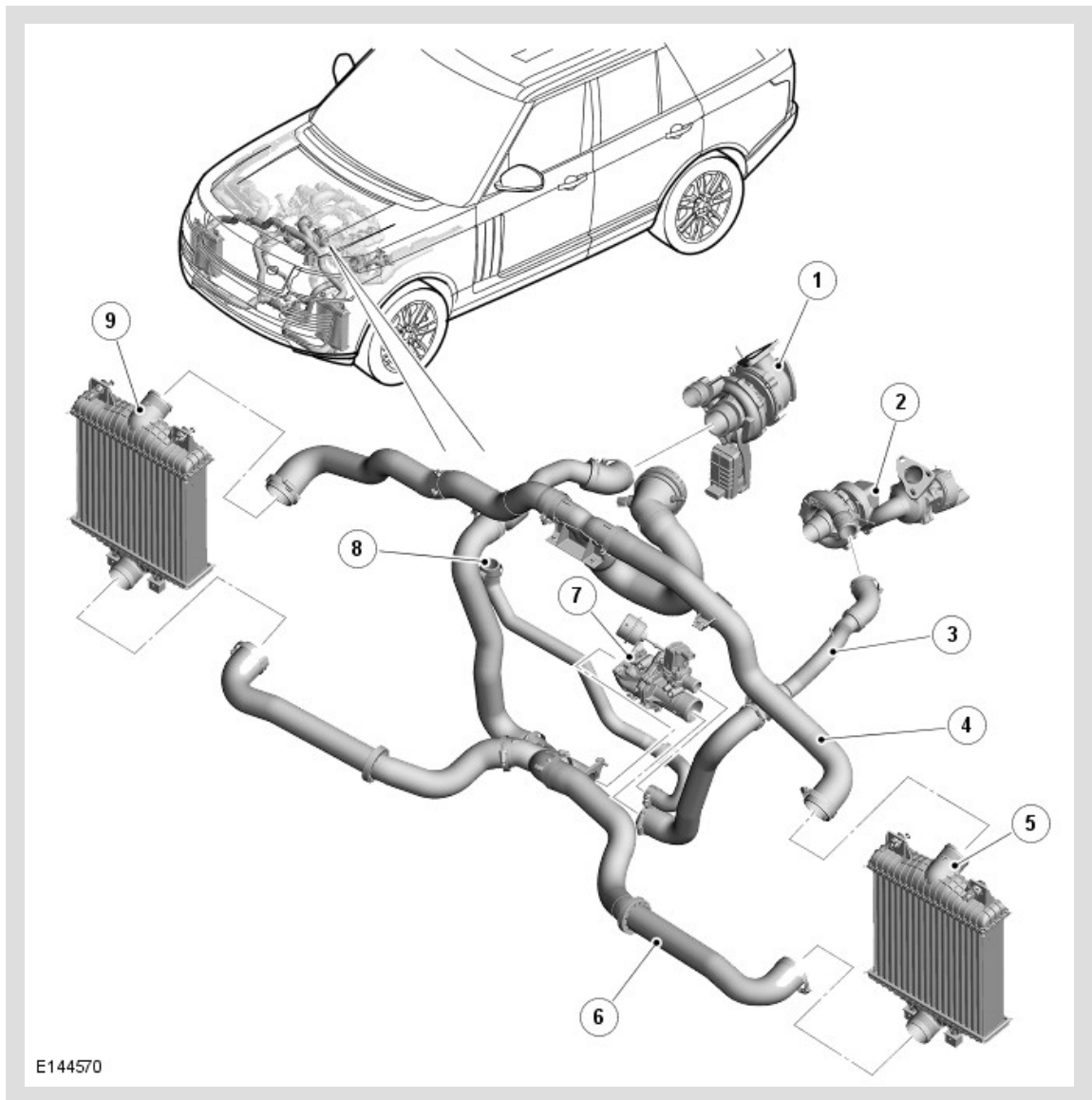
COMPONENT LOCATION - SHEET 1 OF 2



ITEM	DESCRIPTION
1	Right intake grilles
2	Right dirty air duct
3	Right air cleaner
4	Right clean air duct
5	Right intake manifold (integral with camshaft cover)
6	Charge air manifold
7	Left intake manifold (integral with camshaft cover)
8	Electric throttle

9	Left intake grilles
10	Left dirty air duct
11	Left air cleaner
12	Left clean air duct

COMPONENT LOCATION - SHEET 2 OF 2



ITEM	DESCRIPTION
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1	Primary turbocharger
2	Secondary turbocharger
3	Charge air ducts – secondary turbocharger to charge air intake valve
4	Charge air ducts – charge air coolers to electric throttle
5	Left charge air cooler
6	Charge air ducts – primary turbocharger and turbocharger intake valve to charge air coolers
7	Charge air intake valve
8	Charge air duct – charge air intake valve to left clean air duct
9	Right charge air cooler

OVERVIEW

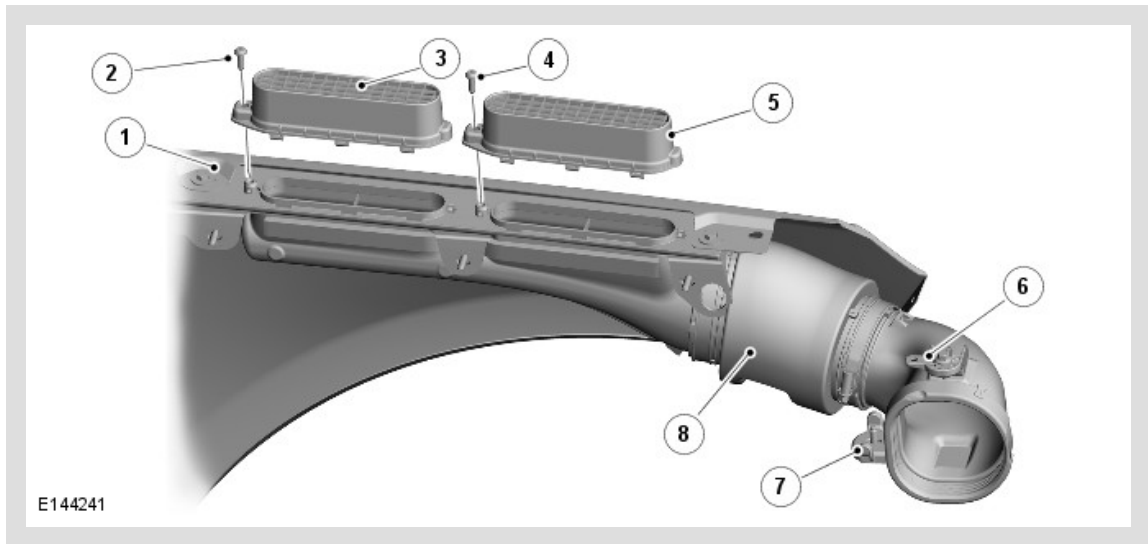
The intake air distribution and filtering system cleans, compresses and cools the intake air. The system comprises:

- Two dirty air ducts.
- Two air cleaners.
- Two clean air ducts.
- Two turbochargers.
- Charge air ducts.
- A turbocharger intake valve.
- Two charge air coolers.
- An electric throttle.
- A charge air manifold.
- Two intake manifolds.

Air flows through the dirty air ducts, air cleaners and clean air ducts to the compressor intakes of the turbochargers. The turbochargers compress the air, which is then transferred through the charge air ducts to the turbocharger intake valve, charge air coolers, electric throttle and intake manifolds.

DESCRIPTION

DIRTY AIR DUCTS



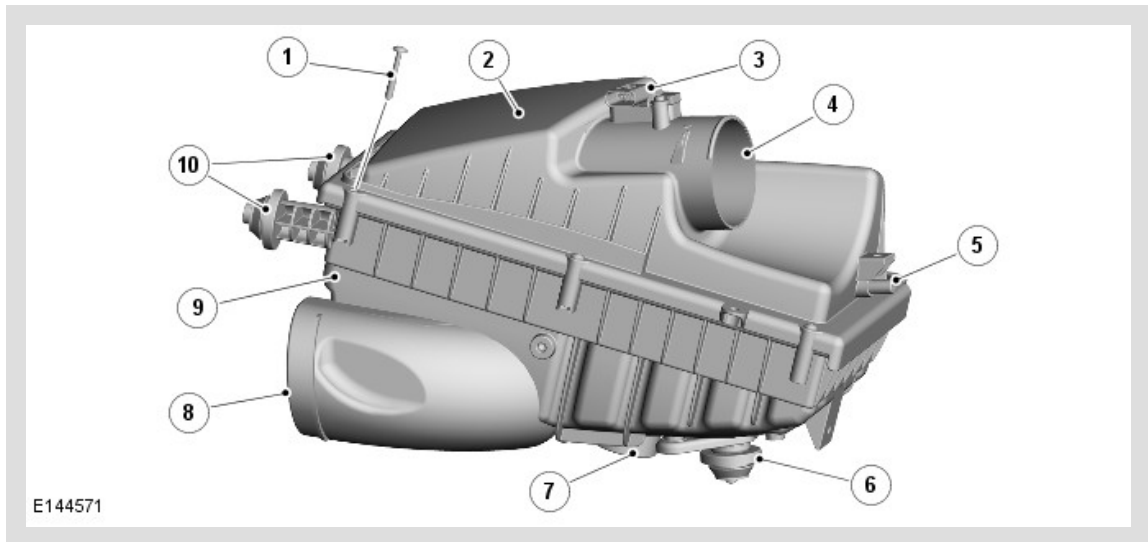
ITEM	DESCRIPTION
1	Front fender support
2	Screw
3	Intake grille
4	Screw
5	Intake grille
6	Front upper bracket
7	Front lower bracket
8	Non-porous sleeve

The dirty air ducts are installed in the front fenders to transfer ambient air from under the edges of the hood to the air cleaners.

Each dirty air duct locates in the intake of the related air cleaner and is attached to the front inner fender with two brackets. The intake of each dirty air duct is attached to two intake grilles on top of the front fender support. When the hood is closed, the intake grilles locate in guides attached to the hood inner panel.

A porous section, covered by a non-porous sleeve to prevent moisture ingress, is incorporated into each dirty air duct to reduce induction noise.

AIR CLEANERS



ITEM	DESCRIPTION
1	Screw (6 off)
2	Lid
3	Mass air flow sensor (left air cleaner) or mass air flow and temperature sensor (right air cleaner)
4	Air outlet
5	Vacuum system connection (right air cleaner only)
6	Isolator
7	Drain valve
8	Air intake
9	Base
10	Isolators

An air cleaner is located in each front corner of the engine compartment. Three spigots fitted with isolator bushes locate each air cleaner in holes in the related front inner fender and front suspension housing.

Each air cleaner consists of a filter element installed in a base and enclosed with a lid secured by six screws. The filter element is a pleated, paper type with an integral seal. Air intake and outlet connections are incorporated into the base and lid respectively. The bottom of the base incorporates a drain valve to prevent the accumulation of water in the air cleaner.

The lid of the right air cleaner incorporates a connection for the engine vacuum system. For additional information, refer to:

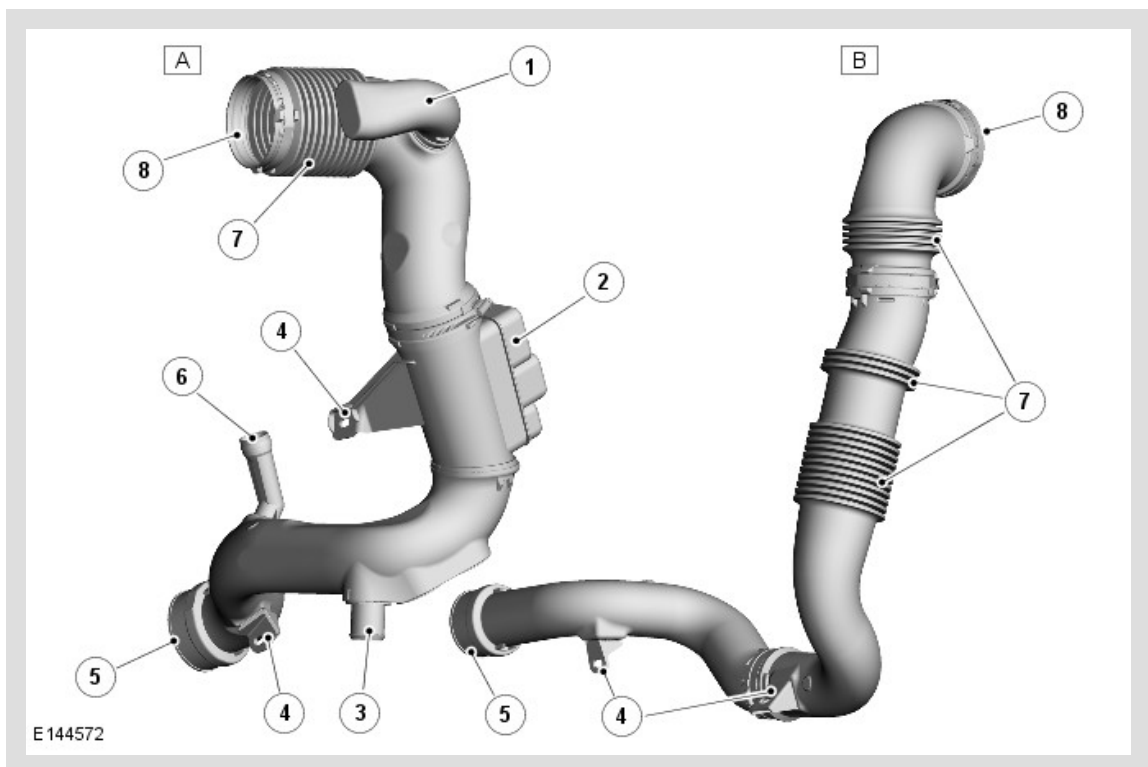
[Turbocharger](#) (303-04G Fuel Charging and Controls - Turbocharger - TDV8 4.4L Diesel, Description and Operation),

[Engine Emission Control](#) (303-08E Engine Emission Control - TDV8 4.4L Diesel, Description and Operation).

The lid of each air cleaner incorporates either a MAF (mass air flow) sensor (left air cleaner) or a MAFT (mass air flow and temperature) sensor (right air cleaner). The sensors are connected to the ECM (engine control module) .

For additional information, refer to: [Electronic Engine Controls](#) (303-14E Electronic Engine Controls - TDV8 4.4L Diesel, Description and Operation).

CLEAN AIR DUCTS



A = RIGHT CLEAN AIR DUCTS; B = LEFT CLEAN AIR DUCTS

ITEM	DESCRIPTION
1	Resonator
2	Resonator

3	Charge air recirculation connection
4	Bracket
5	Air outlet
6	Crankcase ventilation hose connection
7	Convolute
8	Air intake

The clean air ducts transfer air from the air cleaner outlets to the compressor intakes on the turbochargers. The clean air ducts incorporate convolute sections to accommodate relative movement between the engine mounted turbochargers and the body mounted air cleaners. The right clean air duct incorporates two resonators to reduce induction noise. The right clean air duct also incorporates connections for:

- The bypass hose from the turbocharger intake valve.
For additional information, refer to: [Turbocharger](#) (303-04G Fuel Charging and Controls - Turbocharger - TDV8 4.4L Diesel, Description and Operation).
- The crankcase ventilation hose from the oil separator.
For additional information, refer to: [Engine Emission Control](#) (303-08E Engine Emission Control - TDV8 4.4L Diesel, Description and Operation).

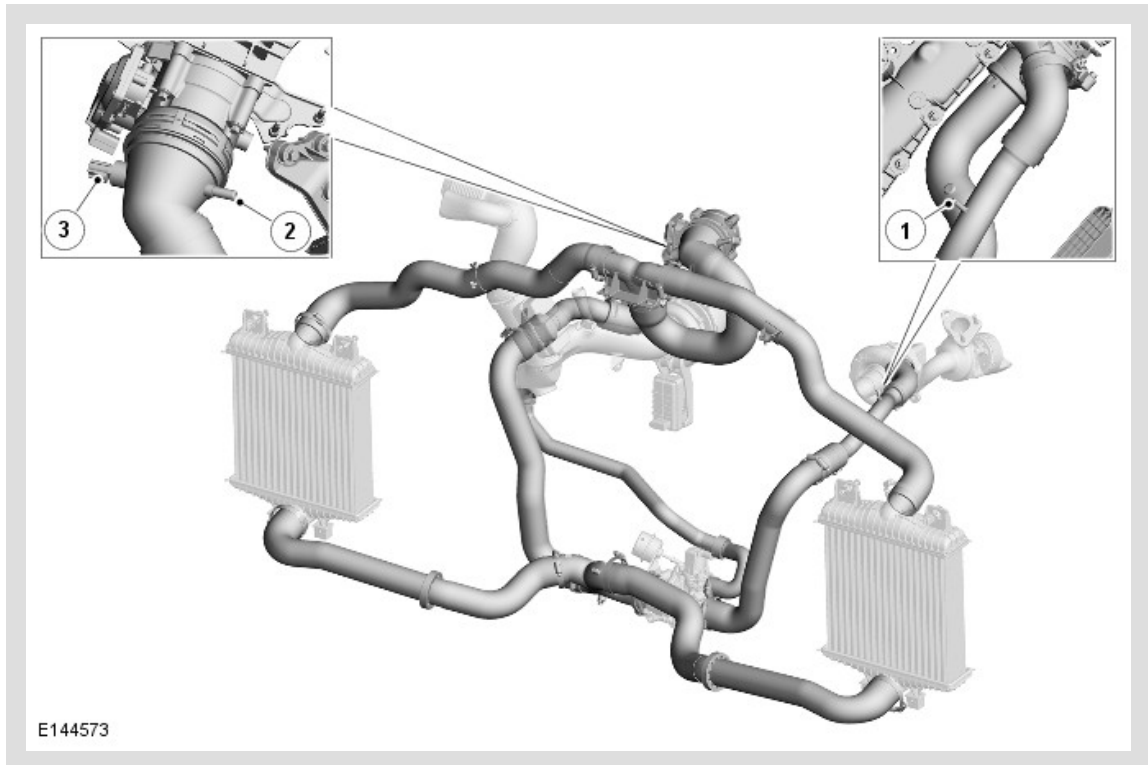
A bracket on each clean air duct is attached to the related engine mounting bracket. The left air cleaner duct also has a bracket that attaches it to a mounting bracket on the A/C (air conditioning) compressor. The right clean air duct also has a bracket that attaches it to the front of the right cylinder head.

TURBOCHARGERS

The turbochargers are attached to the exhaust manifolds. A VGT (variable geometry turbine) turbocharger, designated as the primary turbocharger, is located on the right side of the engine. A fixed vane turbocharger, designated as the secondary turbocharger, is installed on the left side of the engine.

For additional information, refer to: [Turbocharger](#) (303-04G Fuel Charging and Controls - Turbocharger - TDV8 4.4L Diesel, Description and Operation).

CHARGE AIR DUCTS



ITEM	DESCRIPTION
1	Charge air pressure sensor connection
2	Secondary turbocharger air pipe connection
3	Charge air temperature sensor

The charge air ducts interconnect the turbocharger compressor outlets, turbocharger intake valve, charge air coolers and electric throttle.

The charge air duct connection with the electric throttle incorporates connections for:

- An air tube connected to the secondary turbocharger.
For additional information, refer to: [Turbocharger](#) (303-04G Fuel Charging and Controls - Turbocharger - TDV8 4.4L Diesel, Description and Operation).

- A charge air temperature sensor connected to the ECM .
For additional information, refer to: [Electronic Engine Controls](#) (303-14E Electronic Engine Controls - TDV8 4.4L Diesel, Description and Operation).

The charge air duct connected to the outlet of the secondary turbocharger incorporates a connection for the charge air pressure sensor.

For additional information, refer to: [Electronic Engine Controls](#) (303-14E Electronic Engine Controls - TDV8 4.4L Diesel, Description and Operation).

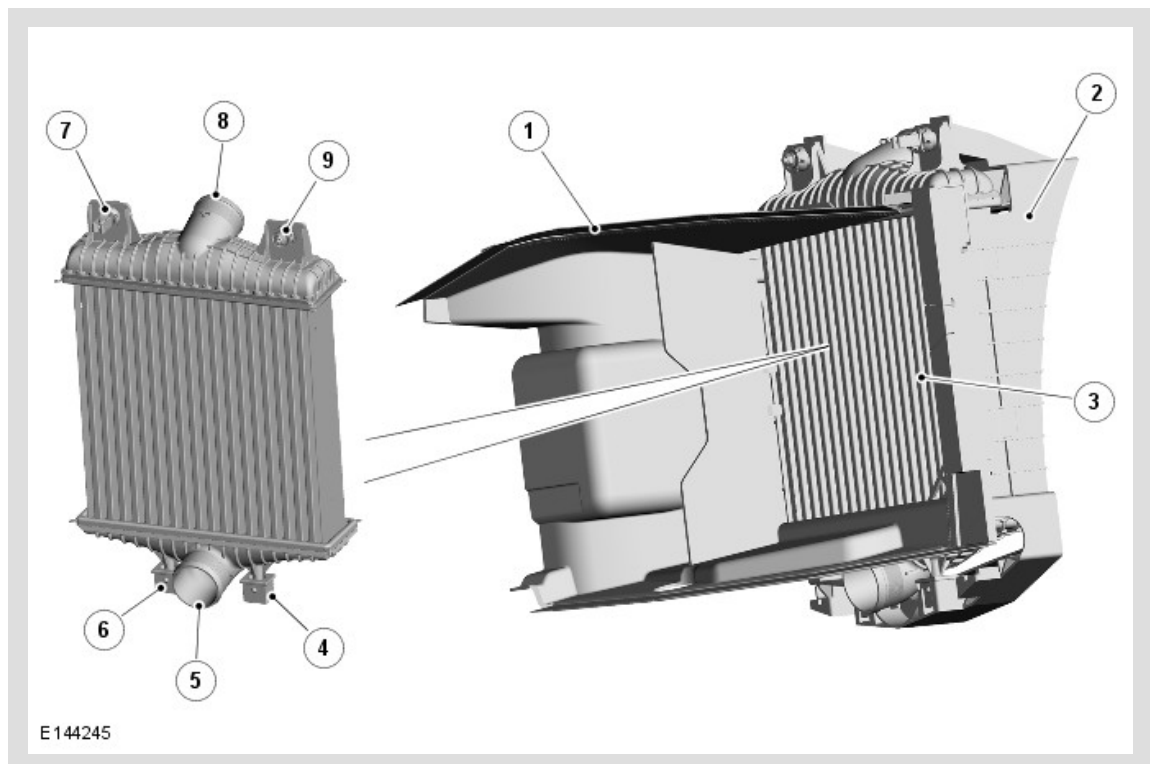
TURBOCHARGER INTAKE VALVE

The turbocharger intake valve is attached to a bracket on the front subframe and the cooling pack protector.

The charge air intake valve is used by the ECM to change turbocharger operation between mono and bi-turbo modes. The valve controls the flow of air from the compressor of the secondary turbocharger to the clean air duct of the primary turbocharger and to the charge air coolers.

For additional information, refer to: [Turbocharger](#) (303-04G Fuel Charging and Controls - Turbocharger - TDV8 4.4L Diesel, Description and Operation).

CHARGE AIR COOLERS



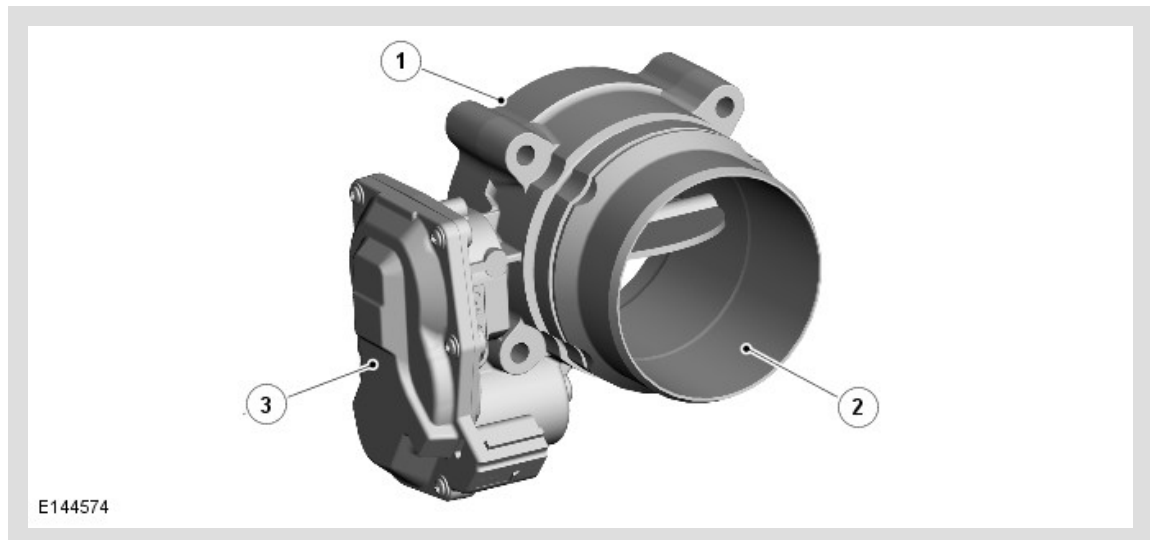
ITEM	DESCRIPTION
1	Front air duct
2	Rear air duct
3	Charge air cooler

4	Isolator
5	Air intake
6	Isolator
7	Isolator bush
8	Air outlet
9	Isolator bush

The charge air coolers are air to air heat exchangers that reduce the intake air temperature.

A charge air cooler is installed each side of the cooling pack, behind the outer air intakes in the front bumper. The charge air coolers are installed in air ducts attached to the front bumper armature and the front end carrier. The lower end tank of each charge air cooler is located in the air ducts by two spigots fitted with isolator bushes. The upper end tank of each charge air cooler is attached to the front end carrier and the air ducts with two isolator bushes, nuts and bolts.

ELECTRIC THROTTLE



ITEM	DESCRIPTION
1	Air outlet
2	Air intake
3	Electric motor

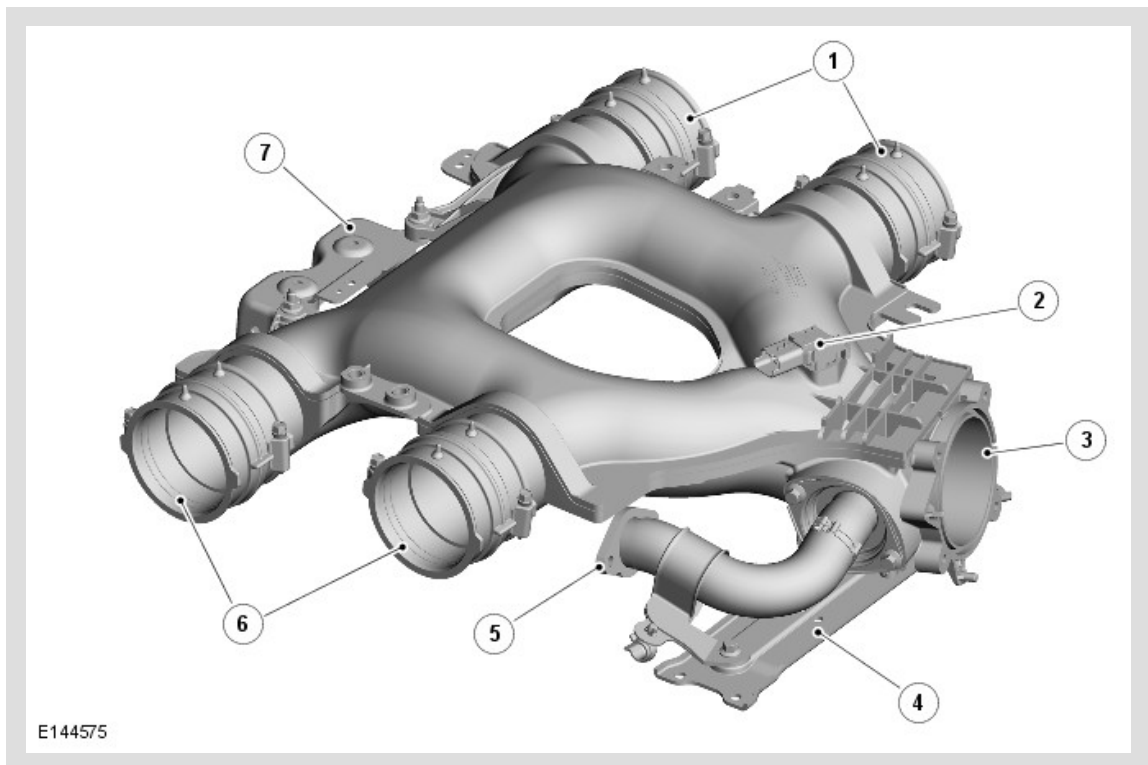
The electric throttle regulates the air flow from the charge air coolers into the charge air manifold.

The electric throttle is installed at the front of the engine, between the cylinder heads. Four bolts and a gasket are used to attach the electric throttle to the charge air manifold.

The throttle plate is operated by a DC (direct current) electric motor attached to the throttle body. The motor is controlled by the ECM and is constantly adjusted in response to driver inputs with the throttle pedal to precisely control the amount of air allowed into the intake manifolds.

For additional information, refer to: [Electronic Engine Controls](#) (303-14E Electronic Engine Controls - TDV8 4.4L Diesel, Description and Operation).

CHARGE AIR MANIFOLD



ITEM	DESCRIPTION
1	Left intake manifold connections
2	Manifold absolute pressure sensor
3	Air intake
4	Front support bracket
5	Exhaust gas recirculation pipe
6	Right intake manifold connections
7	Rear support bracket

The charge air manifold distributes the air from the electric throttle to the two intake manifolds. The manifold is installed between the cylinder banks on two support

brackets. The front support bracket is attached to the two cylinder heads. The rear support bracket is attached to the oil cooler and filter assembly.

A pipe connection on the right side of the charge air manifold allows for the attachment of the outlet pipe from the EGR (exhaust gas recirculation) valve. The pipe attachment in the manifold is specifically designed to mix the recirculated exhaust gas with the intake air and provide an even distribution to each side of the engine.

A MAP (manifold absolute pressure) sensor is located in the top of the charge air manifold where the air flow splits for the two intake manifolds.

For additional information, refer to: [Electronic Engine Controls](#) (303-14E Electronic Engine Controls - TDV8 4.4L Diesel, Description and Operation).

INTAKE MANIFOLDS

The intake manifolds are an integral part of the camshaft covers. Each intake manifold has two hose connections with the charge air manifold.

For additional information, refer to: [Engine](#) (303-01E Engine - TDV8 4.4L Diesel, Description and Operation).