

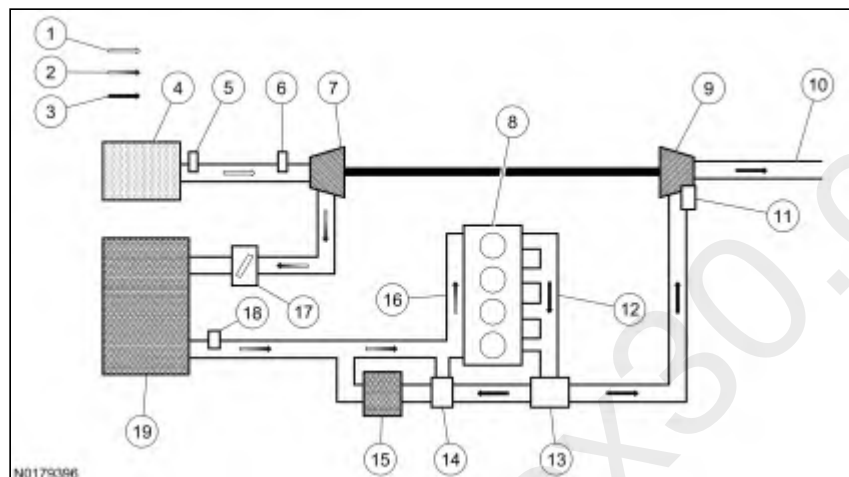
Intake Air Systems

Overview

The intake air system provides clean air to the engine, and optimizes airflow. The intake air system consists of an air cleaner assembly, turbocharger assembly, charge air cooler (CAC) and hoses. The intake air system also contains the mass airflow (MAF), intake air temperature (IAT), charge air cooler temperature (CACT) and manifold absolute pressure (MAP) sensors. For additional information on the intake air system components, refer to [Engine Control Components](#) in this section.

The filtered air enters the turbocharger assembly where it is heated and compressed. The heated compressed air enters the CAC system where it is cooled and then routed into the intake manifold for distribution into the combustion chambers.

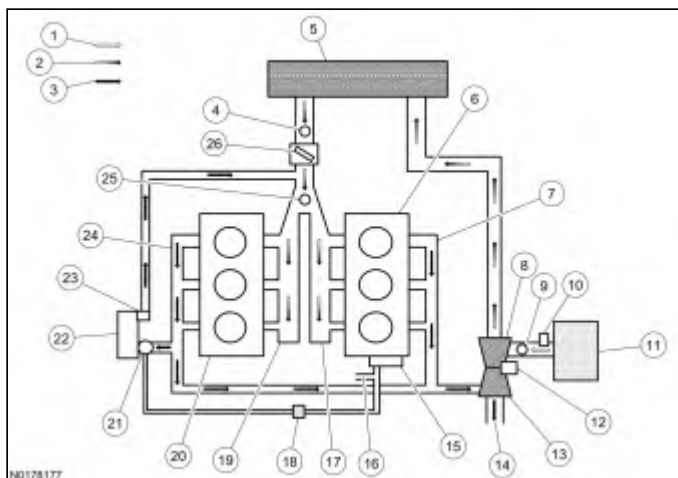
Intake Air System (Transit Connect)



Item	Number	Description
1	—	Intake Air
2	—	Compressed Air
3	—	Exhaust Air
4	—	Air Filter
5	—	Mass Airflow/Intake Air Temperature (MAF/IAT) Sensor
6	—	Crankcase Ventilation Heater
7	—	Turbocharger Intake Compressor
8	—	Cylinder Head
9	—	Turbocharger Exhaust Turbine
10	—	Outlet To Exhaust System
11	—	Variable Geometry Turbocharger Actuator
12	—	Exhaust Manifold
13	—	Exhaust Gas Recirculation (EGR) Valve
14	—	Exhaust Gas Recirculation (EGR) Cooler Bypass Valve
15	—	Exhaust Gas Recirculation (EGR) Cooler
16	—	Intake Manifold

17	—	Intake Throttle Assembly
18	—	Manifold Absolute Pressure (MAP) Sensor
19	—	Charge Air Cooler (CAC)

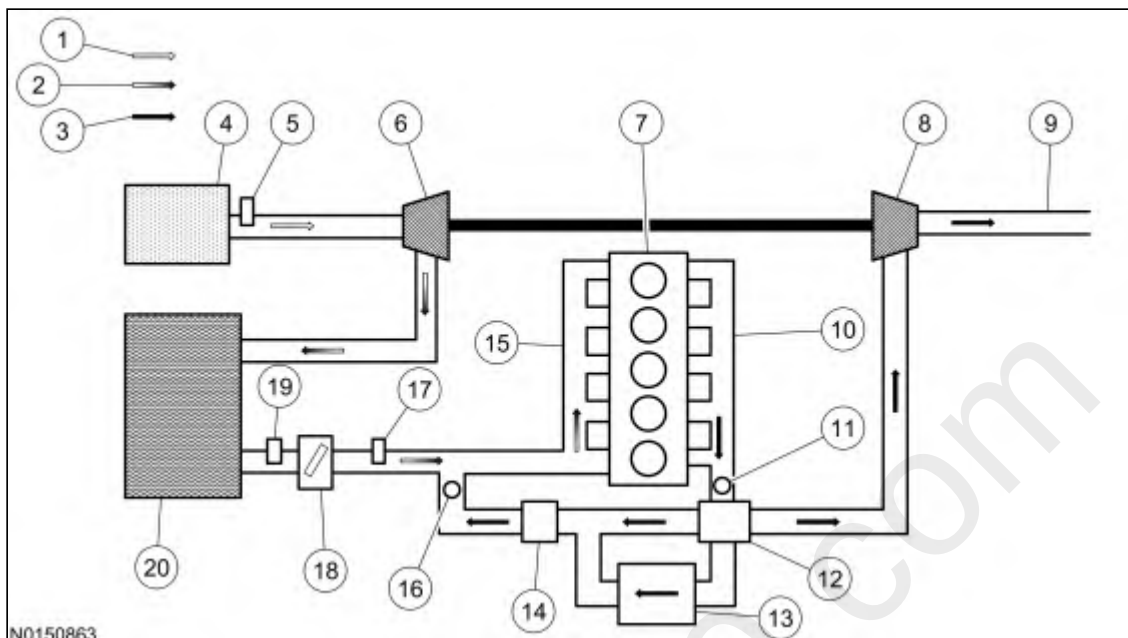
Intake Air System (F-150)



Item	Number	Description
1	—	Intake Air
2	—	Compressed Air
3	—	Exhaust Air
4	—	Charge Air Cooler Temperature (CACT) Sensor
5	—	Charge Air Cooler (CAC)
6	—	Cylinder Head Bank 1
7	—	Exhaust Manifold Bank 1
8	—	Turbocharger Intake Compressor
9	—	Positive Crankcase Ventilation Heated Fitting (PCVHF)
10	—	Mass Airflow/Intake Air Temperature (MAF/IAT) Sensor
11	—	Air Filter
12	—	Variable Geometry Turbocharger Control (VGTC)
13	—	Turbocharger Exhaust Turbine
14	—	Outlet To Exhaust System
15	—	Vacuum Pump
16	—	Outlet To Vacuum Reservoir
17	—	Intake Manifold Bank 1
18	—	Exhaust Gas Recirculation (EGR) Cooler Bypass Valve Solenoid
19	—	Intake Manifold Bank 2
20	—	Cylinder Head Bank 2
21	—	Exhaust Gas Recirculation (EGR) Cooler Bypass Valve Actuator
22	—	Exhaust Gas Recirculation (EGR) Cooler
23	—	Exhaust Gas Recirculation (EGR) Valve
24	—	Exhaust Manifold Bank 2

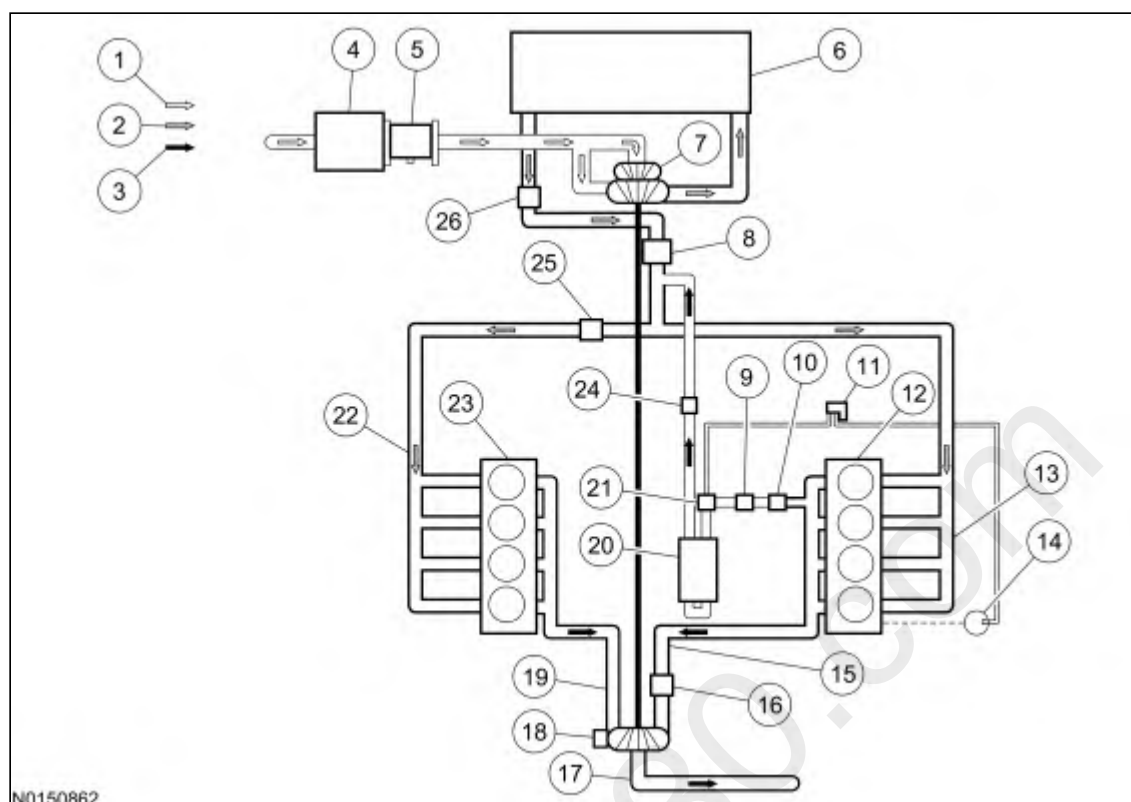
25	—	Manifold Absolute Pressure (MAP) Sensor
26	—	Intake Throttle Assembly

Intake Air System (Transit)



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Item	Number	Description
1	—	Intake Air
2	—	Compressed Air
3	—	Exhaust Air
4	—	Air Filter
5	—	Mass Airflow/Intake Air Temperature (MAF/IAT) Sensor
6	—	Turbocharger Intake Compressor
7	—	Cylinder Head
8	—	Turbocharger Exhaust Turbine
9	—	Outlet To Exhaust System
10	—	Exhaust Manifold
11	—	Exhaust Gas Recirculation Temperature Bank 1, Sensor 1 (EGRT 11)
12	—	Exhaust Gas Recirculation (EGR) Cooler Bypass Valve
13	—	Exhaust Gas Recirculation (EGR) Cooler
14	—	Exhaust Gas Recirculation (EGR) Valve
15	—	Intake Manifold
16	—	Exhaust Gas Recirculation Temperature Bank 1, Sensor 2 (EGRT 12)
17	—	Manifold Absolute Pressure (MAP) Sensor
18	—	Intake Throttle Assembly
19	—	Charge Air Cooler Temperature (CACT) Sensor

Typical Intake Air System (All Others)

Item	Number	Description
1	—	Intake Air
2	—	Compressed Air
3	—	Exhaust Air
4	—	Air Filter
5	—	Mass Airflow/Intake Air Temperature (MAF/IAT) Sensor
6	—	Charge Air Cooler (CAC)
7	—	Turbocharger Compressor Wheel
8	—	Intake Throttle Assembly
9	—	Exhaust Gas Recirculation (EGR) Valve
10	—	Exhaust Gas Recirculation Temperature Bank 1, Sensor 1 (EGRT 11)
11	—	Exhaust Gas Recirculation (EGR) Cooler Bypass Valve solenoid
12	—	Cylinder Head Bank 1
13	—	Intake Manifold Bank 1
14	—	Mechanical Vacuum Pump
15	—	Exhaust Manifold Bank 1
16	—	Exhaust Pressure (EP) Sensor
17	—	Outlet To Exhaust System
18	—	Turbocharger Actuator

19	—	Exhaust Manifold Bank 2
20	—	Exhaust Gas Recirculation (EGR) Cooler
21	—	Exhaust Gas Recirculation (EGR) Cooler Bypass Valve Actuator
22	—	Intake Manifold Bank 2
23	—	Cylinder Head Bank 2
24	—	Exhaust Gas Recirculation Temperature Bank 1, Sensor 2 (EGRT 12)
25	—	Manifold Absolute Pressure (MAP) Sensor
26	—	Charge Air Cooler Temperature (CACT) Sensor

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