

The PTO circuit is used by the PCM to disable some of the OBD monitors during PTO operation. The PTO switch is normally open. When the PTO unit is activated, the PTO switch is closed and battery voltage is supplied to the PTO input circuit. This indicates to the PCM that an additional load is being applied to the engine. The PTO indicator lamp illuminates when the PTO system is functioning correctly and flashes when the PTO system is damaged.

When the PTO unit is activated, the PCM disables some OBD monitors which may not function reliably during PTO operation. Without the PTO circuit information to the PCM, false DTCs may be set during PTO operation. Prior to an inspection/maintenance (I/M) test, operate the vehicle with the PTO disengaged long enough to successfully complete the OBD monitors.

ENGINE CONTROL COMPONENTS > POWER TAKE OFF (PTO) SWITCH AND CIRCUITS > PTO CIRCUITS DESCRIPTION

The 3 PTO input circuits are PTO mode, PTO engage, and PTO RPM.

The PTO engage circuit is used when the operator is requesting the PCM to check the needed inputs required to initiate the PTO engagement.

The PTO RPM circuit is used when the operator is requesting additional engine RPM for PTO operation.

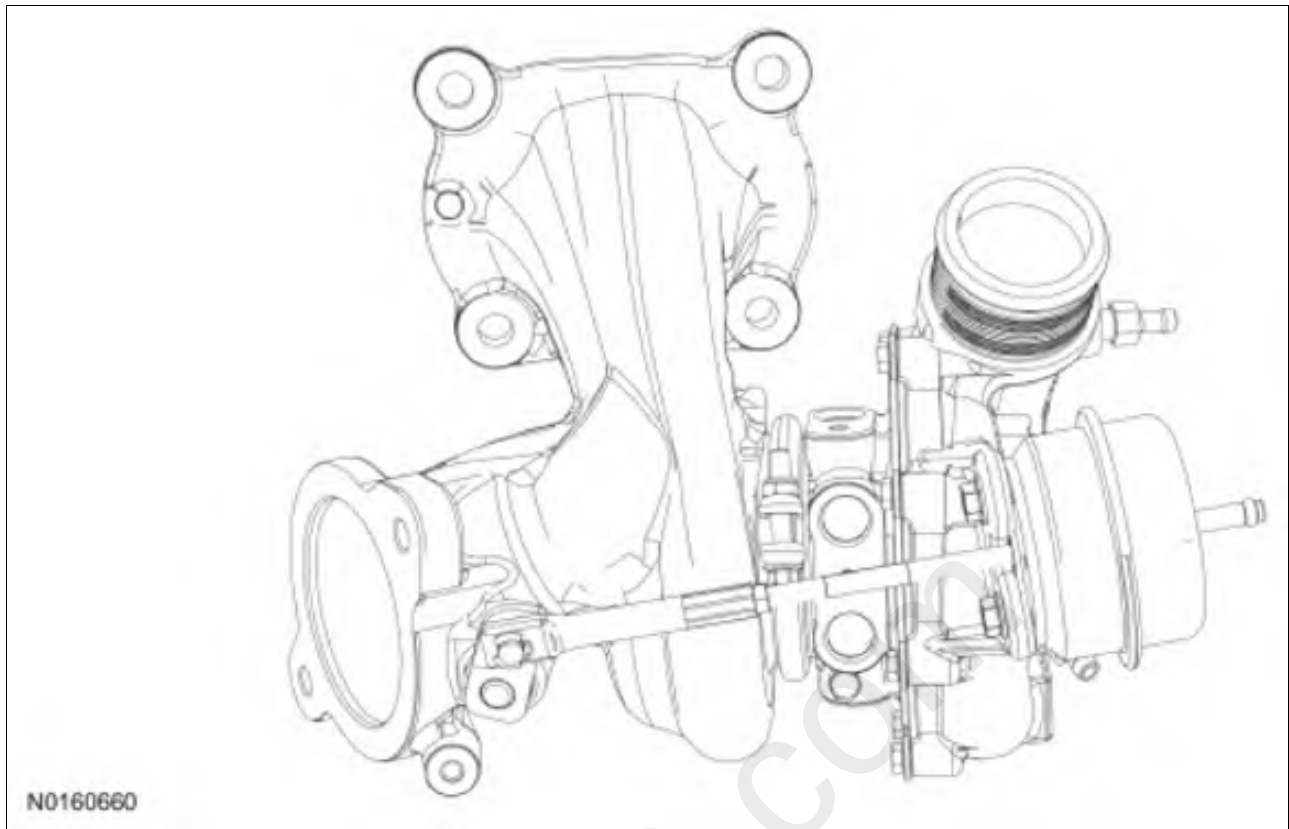
ENGINE CONTROL COMPONENTS > TURBOCHARGER

The turbocharger assembly is an exhaust driven centrifugal compressor. Expanding exhaust gases drive the turbine shaft assembly to speeds over 100, 000 RPM. The turbocharger increases the power output of an engine by increasing the mass of air entering the engine.

Two types of turbocharger are currently being used.

The first type of turbocharger has an integrated wastegate and a remote bypass valve.

Fig 1: Identifying Turbocharger With Integrated Wastegate And Remote Bypass Valve



Courtesy of FORD MOTOR CO.

The second type of turbocharger has an integrated wastegate and an integrated bypass valve in the turbocharger housing.