

## **Caring for Subaru Turbocharged Engines**

**Protect your turbocharged Subaru vehicle with these recommended basic operation and maintenance guidelines.**

New Subaru vehicles are thoroughly checked for quality and craftsmanship. Safety, performance, and dependability are given top priority in their designs, making them easy to operate and maintain.

The following information updates factory recommendations for the care and maintenance of new Subaru turbocharged vehicles.

### **The Turbocharger**

The turbocharger, commonly called a “turbo,” is operated by the energy contained in the exhaust gas. The exhaust gas spins a turbine inside the turbocharger at an extremely high speed (more than 100,000 rpm). That compresses the air/fuel mixture in the cylinders, which creates higher power output.

Because of the turbine’s rotation speed and the high temperature of the exhaust gas driving the turbo, proper cooling is needed to maintain its durability. Engine oil plays a major role in lubricating and cooling the turbo, so following recommended oil change guidelines is important.

### **Engine Oil and Oil Filter**

Proper lubrication of the turbocharger requires high-quality engine oil. Some do not provide enough lubrication performance or durability when used in turbocharged engines. Using poor-quality oil or oil not designed for turbo engines may cause damage to the turbocharger and other engine components. Consequently, it is critical to follow Subaru vehicle owner’s and service manuals for recommended oil grade and viscosity.

A second key component of the lubrication system is the oil filter. The Subaru Genuine Oil Filter, available at your Subaru dealer, is the only filter that Subaru has tested to meet requirements for filtration and flow. Aftermarket oil filters may have different filtration performance and relief-valve opening pressure, which could affect filter and engine performance. Subaru Genuine Oil Filters help ensure optimum engine and turbocharger performance.

## **Engine Oil and Oil Filter Replacement Interval**

Due to heat generated by the turbocharger and carbon deposits contained in exhaust gas, the oil in a turbocharged engine will deteriorate faster than the oil in a naturally aspirated engine. Therefore, special care should be taken to use proper grade oil and to monitor oil deterioration.

Under normal driving conditions, the recommended oil and oil filter change interval for turbo vehicles is every 3,750 miles or four months, whichever comes first.

However, for vehicles driven in conditions beyond normal, such as racing conditions, the oil and oil filter may require more frequent changing.

## **Racing-Type Driving**

Racing-type engine stress doesn't only occur on the track. Racing-type driving occurs when the drivetrain, suspension, and other vehicle components are used at near peak capacity. Any driving where the engine speed is kept high – either by using lower gears at higher speeds or using engine braking – is considered racing-type driving.

Important: A “track day” or autocross event requires an oil and oil filter change immediately before and immediately after the event. Make sure to check other engine fluid levels as well.

## **Engine Oil Level**

Check the oil dipstick periodically to make sure the oil level is within proper range in order to keep the turbocharger properly lubricated and cooled. More frequent level checks are necessary especially when utilizing engine braking, because this increases the engine's demand for lubrication.

Important: Allowing the engine oil level to drop by more than one quart may cause oil starvation, oil pump cavitation, and bearing damage. Over time, this cumulative damage will cause turbocharger and engine failure.

## **Oil Changes**

Carbon deposits produced by a turbocharged engine can accumulate at the bottom of the oil pan. When changing the oil, always drain the oil through the oil drain plug hole on the oil pan.

A vacuum draining device could leave carbon deposits at the bottom of the oil pan and potentially contaminate the new oil.

## **Fuel Requirements**

Turbocharged Subaru engines are designed to operate on premium unleaded (91-octane AKI or higher) gasoline. This is essential for maximizing performance and is required to prevent possible engine damage.

## **Driving Tips**

1. Do not rev the engine or accelerate past half throttle immediately after start-up. Oil requires time to heat up for full flow, and high-rpm driving with a cold engine can damage the turbocharger.
2. After highway driving or high-load driving, Subaru recommends allowing the engine to cool by idling for at least 30 seconds before shutting off.

## **Modifications**

Engine modifications such as, but not limited to, adding a boost pressure controller, using a non-genuine aftermarket air intake or exhaust system, changing the air bypass valve, "chipping," etc., may negatively affect the warranty. Your Subaru dealer offers a line of Subaru Performance Tuning parts, which are designed and tested to Subaru standards and do not void the warranty.

## **Years of Driving**

With proper care as outlined above and in your owner's and service manuals, Subaru vehicles will provide owners many years of driving enjoyment.