



Subaru Periodic Maintenance Services

The frequency of scheduled inspection and maintenance services required on Subaru vehicles is minimal when compared with vehicles of the past. While the number of items requiring regular replacement has decreased, the number of items needing periodic inspection has not. Periodic maintenance offers an excellent opportunity for engine belts, hoses and other parts to be checked for wear. Old tune-up standbys like spark plugs, fuel and air filters are still on every Subaru vehicle, and they still require periodic inspection and replacement.

The same applies to the other items on the Subaru maintenance schedule. The important thing is to carefully inspect each item. If additional corrective action is required, now is the time to find out. In this article, we'll concentrate on some of the items on the maintenance schedule that tend to be overlooked.

Drive Belts

Drive belts certainly last longer than they used to, but they don't last forever. That's why they should be inspected at the 30 month or 30,000 mile intervals

and replaced at 60 month or 60,000 mile intervals. If inspection reveals that any of the belts is cracked, frayed or worn, they should be replaced. Proper belt tension, for both new and used belts, must be observed. Refer to the service manual for vehicle-specific belt tension information. Most Subaru vehicles employ sliding-bolt adjusters, which makes drive belt adjustment simple and precise.

Camshaft Drive Belt(s)

Most late model 49-state Subaru vehicles have a 30 month, 30,000 mile camshaft belt inspection recommendation, with a 105 month/105,000 mile replacement recommendation. Different Subaru vehicles have employed different camshaft drive belt configurations; consult a vehicle service manual for belt inspection and replacement recommendations for the particular Subaru vehicle you're servicing.

Inspecting the belt(s) before the recommended replacement interval involves removing the accessory drive belts, then removing a protective cover to get a look at the belt(s). Manually crank the engine through four rotations while checking the timing belt's back

surface for cracks or damage. A loose belt, or one that is cracked or has been damaged by oil or coolant should be replaced. Measure the timing belt width, then compare this measurement to the service manual specifications. Misalignment of the idler pulley, tensioner, water pump pulley and cam sprockets may cause the edges of the timing belt to wear away. Any other visible signs of wear would make the belt a likely candidate for replacement.



Timing Belt Replacement

Engine Cooling System and Engine Coolant

Engine coolant should be replaced at 30 month or 30,000 mile intervals. Check the condition of the hoses and other cooling system components during every scheduled maintenance visit. Check for cracked or otherwise damaged cooling systems hoses, as well as any signs of coolant leakage. A cooling system pressure test will confirm the integrity of the cooling system and radiator cap. A radiator hydrometer can be used to test the antifreeze concentration of the coolant. Use of Subaru Genuine Coolant, which contains antifreeze and anti-rust agents that are specially made for Subaru engines, which feature aluminum crankcases. Some Subaru vehicles feature an air breather plug in the radiator, which can be used to remove trapped air during a coolant change.

Fuel Filter and Fuel Lines

A 30 month or 30,000 mile fuel filter replacement interval is prescribed. Remove the battery negative cable before you begin work on the fuel filter.

While you're replacing the fuel filter, don't forget to check the condition of the rest of the fuel system. If any of the rubber hoses (especially the ones that were opened up to replace the filter) look damaged or frayed, they must be replaced before they can cause any further damage. Weak fuel hose clamps should be replaced, and the new ones must be properly positioned and tightened to specification.

Drivetrain Fluids

There is no recommended replacement interval for the transmission fluid on late model Subaru vehicles. The same applies to manual transmission and front and rear differential lubricants. In all cases, the recommended procedure is a fluid inspection at 30 month or 30,000 mile intervals. If the fluid in any of these units is found to be dirty, contaminated or at the incorrect level during the inspection, fluid replacement and/or seal or gasket repair are the only options.

Differential and transmission fluid recommendations for varying climate conditions can be found in the appropriate Subaru service manual. Subaru recommends against the practice of mixing lubricants from different manufacturers. Although both may comply with the GL and API ratings, lubricants from different manufacturers are refined from different base oils and additives. Combining them may produce unpredictable results.

Rear differentials and manual transmissions feature familiar add and drain plugs, while many Subaru automatic transmissions actually have a drain plug in the transmission pan (a feature welcomed by anyone who's ever had

the misfortune to take an ATF bath). Another welcome feature is the fill level dipstick that can be found on manual as well as automatic Subaru transaxles.

Brake Fluid

Many late model Subaru vehicles are equipped with ABS braking systems. The added complexity of these systems provides an additional incentive for following the recommended brake fluid replacement interval of 30 months or 30,000 miles. Brake fluid accumulates water and other contaminants over time. These contaminants can attack the internal parts of the brake system, compromising its performance and possibly causing brake failure.

Note: When the brake fluid level in the reservoir tank is lower than the specified limit, the brake fluid warning light in the combination meter will come on.

Do not mix brake fluids from different manufacturers. Doing so may degrade the quality of the fluid. Only DOT 3 or 4 brake fluid should be used in any Subaru vehicle. Consult the service manual for vehicle specific brake bleeding procedures.



Brake Fluid Replacement

Brake Pads, Shoes, Rotors and Drums

The maintenance schedule calls for inspection of all brake components during 30 month or 30,000 mile major services. It's possible to

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Brake Pad Measurement

determine the remaining pad thickness by sighting through the caliper inspection holes. A more precise method involves moving the caliper to get a clear shot at the pads. The Subaru service manual lists minimum pad thickness specs, as well as rotor runout limits.

Minimum brake lining thickness as well as drum dimension specifications for drum brake models can be found in the vehicle service manual. Minimum rotor and pad thickness dimensions for rear disk models can also be found in the service manual.

Models equipped with rear disk brakes feature a drum brake setup inside the rear rotor that serves as the parking brake assembly. Remove the caliper, caliper bracket and rear brake pads to reach the parking brake assembly. Adjust the parking brake (to compensate for wear by turning of the parking brake star wheel adjuster. Rear drum brakes feature automatic adjusters.

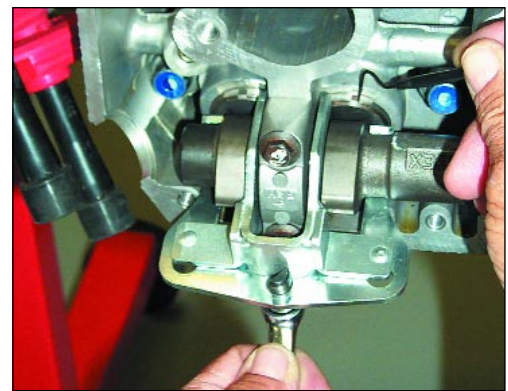
While you're working on inspecting the brakes, you're right around the cor-



CV Boot Inspection

ner from another unpredictable maintenance item. Inspect the front and rear drive axle boots for deformation, damage or failure. While these are normally very long-lived, there's no way of predicting what debris or other material might come in contact with and possibly damage the axle boots. If the boots are damaged, replace them with new ones.

Keep an eye on brake wear items during your regular maintenance inspections. If it appears unlikely that the vehicle will make it to the next inspection before the brakes are completely worn out, alert the owner. He'll then have the option to have the work done now or during a return visit.



2.5 Liter DOHC Valve Adjustment

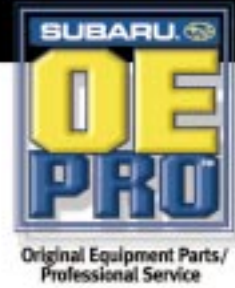
Brake Hoses and Lines

At 15 month/15,000 mile intervals, check the following brake system items:

- Scratches, swelling, corrosion or traces of fluid leakage on brake hoses or pipe joints,
- Adjacent parts interfering with brake pipes or hoses during driving or loose connections or clamps,
- Any traces of fluid leakage, scratches or other damage on the master cylinder, wheel cylinder, pressure control valve and Hill-Holder.

Service Brake and Parking Brake

Procedures for checking brake pedal free height and specified pedal stroke can be found in the vehicle service manual. These tests must also be performed during the 15 month/15,000 mile service. A low or spongy service brake pedal is a sure indication of a brake problem. Check to see if air is in the hydraulic line by the feel of the pedal operation. The brake system must be bled to remove the air. Check for even operation



of all brakes, using a brake tester or by driving the vehicle for a short distance on a straight road. The parking brake should be adjusted after adjusting the shoe clearance for the rear brakes. Adjust the parking brake lever by turning the adjuster (double nut) until the parking brake lever is set at the specified number of “clicks” when the specified amount of force is exerted (consult service manual). The parking brake mechanism must apply and release completely, with no brake drag after the parking brake lever is released. Rusted or binding parking brake cables may keep the parking brake from releasing normally.

Clutch Operation

Some Subaru vehicles are equipped with cable-operated clutch systems, while others feature a hydraulic arrangement.

Clutch linings, like brake linings, do wear over time. Cable-operated clutch systems will require adjustment to compensate for wear. Adjustment details, as well as information about the adjustment of the Hill-Holder system installed on some manual transmission-equipped Subaru vehicles, can be found in the appropriate vehicle service manual. To test a Subaru hydraulic clutch system pedal free play:

- Push the release fork to retract the slave cylinder push rod. The fluid level in the clutch master cylinder should rise.
- If the fluid level rises, the pedal free play is correct.
- If the fluid level does not rise, or the push rod cannot be retracted, adjust the clutch pedal according to the service manual procedures.

Check the fluid level using the

scale on the outside of the clutch master cylinder reservoir. If the level is below “MIN,” add DOT 3 or 4 brake fluid to bring it up to “MAX.” Inspect the underside of the master cylinder, clutch damper, slave cylinder, hoses, pipes and couplings for fluid leaks. If leaks are found, correct them by retightening the fitting and/or replacing the damaged parts.

Valve Clearance

Some Subaru vehicles are equipped with hydraulic valve lash adjusters, while others feature “solid” lash adjusters. Solid adjusters require a clearance inspection at 105 months/105,000 miles. Consult the manual to determine whether the vehicle you are servicing has solid or hydraulic valve lash adjusters. Procedures for adjusting valve clearance on solid adjuster engines can also be found there.