

5. Recommended Fuel, Lubricants, Sealants and Adhesives

A: FUEL

1. FUEL OCTANE RATING

SUBARU engines are designed to use only unleaded gasoline with an octane rating of 87 AKI or higher. [This octane rating is the average of the Research Octane and Motor Octane numbers and is commonly referred to as the Anti-Knock Index (AKI).] Using a gasoline with a lower octane rating can cause persistent and heavy knocking, which can damage the engine. Do not be concerned if SUBARU vehicle sometimes knocks lightly when you drive up a hill or when you accelerate. See your dealer or a qualified service technician if you use a gasoline with the specified octane rating and SUBARU vehicle knocks heavily or persistently.

2. UNLEADED GASOLINE

The neck of the fuel filler pipe is designed to accept only an unleaded gasoline filler nozzle. Under no circumstances should leaded gasoline be used since it will damage the emission control system and may impair driveability and fuel economy.

3. GASOLINE FOR CALIFORNIA-CERTIFIED TLEV

If SUBARU vehicle is a California-certified Traditional Low Emission Vehicle (TLEV) as indicated on the underhood tune-up label, it is designed to optimize engine and emission control system performance with gasolines that meet California specifications. SUBARU vehicle will operate on gasoline meeting federal specifications.

B: FUELS CONTAINING ALCOHOL

Some gasoline blends sold at service stations contain alcohol or other oxygenates even though that fact may not be fully disclosed. If you are not sure whether there is alcohol present in the fuel, ask your service station operator. Do not use such fuels unless the gasoline/alcohol blend is suitable for your vehicle as explained at right:

- The fuel should be unleaded and have an octane rating no lower than that recommended below.
- Never use fuel containing more than 10% ethanol (ethyl or grain alcohol).
- Methanol (methyl or wood alcohol) is sometimes mixed with unleaded gasoline. Methanol can be used in your vehicle **ONLY** if it does not exceed 5% of the fuel mixture **AND** it is accompanied by sufficient quantities of the proper co-solvents and corrosion inhibitors required to prevent fuel system damage. Otherwise, fuel containing methanol should not be used.
- Unleaded fuel blends which contain no more than 15% MTBE (methyl tertiary butyl ether) or other oxygenates and which are approved by the Environmental Protection Agency may be used.
- You should avoid using fuels mixed with alcohol or other oxygenates on an exclusive basis. If driving problems such as engine stalling or hard starting result when such fuels are used, immediately discontinue their use and switch back to unleaded gasoline that does not contain alcohol or other oxygenates.

CAUTION:

Take care not to spill fuel during refueling. Fuels containing alcohol may cause paint damage.

C: LUBRICANTS

Lubricants	Specifications	Remarks
Engineoil	- API Classification: SJ or SH with the words "Energy Conserving or Energy Conserving II" - a New API Certified - CCMC Specification: G4 or G5 - ACEA Specification: A1 or A2 or A3	- For SAE viscosity number, refer to the following table. - a If it is impossible to get SJ or SH grade, you may use SG grade.
- Transmission and differential gear oil - AWD rear differential gear oil	API Classification: GL-5	For SAE viscosity number, refer to the following table.
Automatic transmission	"DEXRON IIE" or "DEXRON III" type	—
Power steering fluid	"DEXRON IIE" or "DEXRON III" type	—
Coolant	Genuine SUBARU Coolant (Part No. 000016218) (Anti-freeze, anti-corrosive ethylene glycol base)	For further coolant specifications, refer to the following table.
Brake fluid	DOT3 or DOT4	FMVSS NO. 116 - Avoid mixing brake fluid of different brands to prevent the fluid performance from degrading. - When brake fluid is added, be careful not to allow any dust into the reservoir.
Clutch fluid	DOT3 or DOT4	- a FMVSS NO. 116 - Avoid mixing brake fluid of different brands to prevent the fluid performance from degrading. - When brake fluid is added, be careful not to allow any dust into the reservoir.

Lubricants	Recommended	Application	Equivalent
Spray lubricants	SUBARU CRC (P/N 004301003)	O ₂ sensor	—
Grease	SUNLIGHT 2 N: glube R (P/N 003602010)	Steering shaft bearing, bushing for manual transmission gear shift system	—
	Valiant grease M-2 (P/N 003608001)	Steering gearbox	—
	Niglube RX-2 (P/N 003606000 or 725191040)	Piston boot of disc brake and sliding pin	—
	Molykote No. 7439 (P/N 725191460)	Contacting surfaces of drum brake shoes and shoe clearance adjuster	—
	Molylex No.2 (P/N 723223010)	Rear BJ and DOJ (for except front axle of AT vehicle) joints of axle shafts	—
	NTG2218 (CP/N 28093AA020)	BJ (for front axle) joints of axle shafts	—
	FX clutch grease (P/N 000040901)	Splines of transmission main shaft	—
	Slicolube G-30M	Control cables and throttle linkages subject to cold weather, w-striker, battery terminals, etc.	—
	SSG-6003 (P/N 28093TA000)	SFJ joints of axle shafts	—

D: FLUID**CAUTION:**

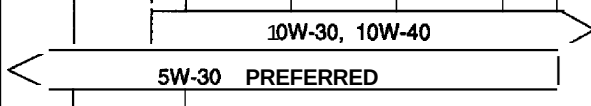
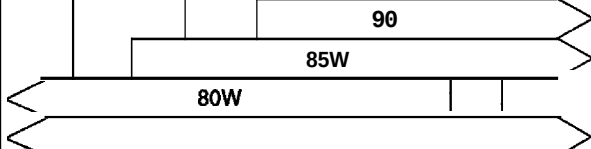
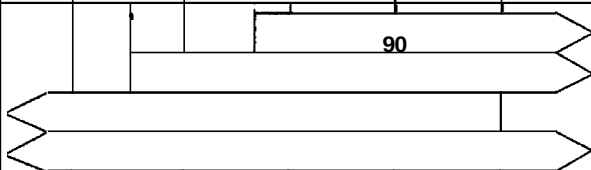
- Each oil manufacturer has its base oil and additives. Thus, do not mix two or more brands (Except engine oil).
- When replenishing oil, it does not matter if the oil to be added is a different brand from that in the engine; however, use oil having the API classification and SAE viscosity No. designated by SUBARU.

NOTE:

If vehicle is used in desert areas with very high temperatures or for other heavy duty applications, the following viscosity oils may be used:

API classification: SJ

SAE Viscosity No: 30, 40, 10W-50, 20W-40, 20W-50

ITEM	API Classification	New API Certification Mark Star burst mark	CCMC Specification	ACEA Specification	(°C) -30 -20 -15 0 15 30 40							
Engine oil	SJ or SH with the words "Energy Conserving or Energy Conserving II"		G4 or G5	A1 or A2 or A3								
•Transmission gear oil	GL-5	—	—	—								
•AWD rear differential gear oil •Front differential gear oil for automatic transmission	GL-5	—	—	—								
					(°F)	15	23		77			
					(°C)	-26	-5		25			B1H0183A

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E: COOLANT**CAUTION:**

- Avoid using any coolant or only water other than this designated type to prevent corrosion.
- SUBARU's engine is aluminum alloy, and so special care is necessary.

Lowest anticipated atmospheric temperature	SUBARU coolant-to-water ratio (Volume) %	Specification gravity					Freezing point
		at 10°C (50°F)	at 20°C (68°F)	at 30°C (86°F)	at 40°C (104°F)	at 50°C (122°F)	
Above -30°C (-22°F)	50 — 50	1.084	1.079	1.074	1.068	1.062	-36°C (-33°F)
Above -15°C (5°F)	30 — 70	1.053	1.049	1.044	1.039	1.034	-16°C (-3°F)

*: It is recommended that distilled water be used.

F: SEALANTS

	Recommended	Application	Equivalent
Sealant	Three Bond 1105 (P/N 004403010)	Rear differential oil drain plug, bearing cap (#5), etc.	Dow Corning's No. 7038
	Three Bond 1215 (P/N 004403007)	Matching surface of oil pump, transmission case, etc. Flywheel and drive plate tightening bolts, etc.	Dow Corning's No. 7038
	Starcalking B-33A (P/N 000018901)	Sealing against water and dust entry through weatherstrips, grommets, etc.	Butyl Rubber Sealant
	Three Bond 12178	Matching surface of transmission oil pan	—
	Three Bond 1102 (P/N 004403006)	Steering gear box adjust screw	—
	Three Bond 1280B	Matching surface of engine cam cap	—

G: ADHESIVES

Adhesive	Cemedine 5430L	Weatherstrips and other rubber parts, plastics and textiles except soft vinyl parts.	3M's EC-1770 EC-1368
	Cemedine 540	Soft vinyl parts, and other parts subject to gasoline, grease or oil, e.g. trim leather, door inner remote cover, etc.	3M's EC-776 EC-847 EC-1022 (Spray Type)
	Cemedine 3000	Bonding metals, glass, plastic and rubber parts. Repairing slightly torn weatherstrips, etc.	Armstrong's Eastman 91 ⁰
	Essex Chemical Corp's Urethane E	Windshield to body panel.	Sunstar 580