

2004 GENERAL INFORMATION

Maintenance and Lubrication - Vue

SPECIFICATIONS

CAPACITIES - APPROXIMATE FLUID

Capacities - Approximate Fluid

Application	Specification	
	Metric	English
Air Conditioning Refrigerant R134a		
• 2.2L (L61) Engine	0.68 kg	1.5 lb
• 3.5L (L66) Engine	0.79 kg	1.75 lb
Cooling System		
• 2.2L (L61) Engine	7.0 L	7.4 qt
• 3.5L (L66) Engine	9.2 L	9.7 qt
Engine Oil Filter		
• 2.2L (L61) Engine	3.8 L	4.0 qt
• 3.0L (L66) Engine	4.3 L	4.5 qt
Fuel Tank	62.4 L	16.5 gal
Automatic Transmission		
• Honda 5 Speed, 5AT (RPO MJ7)	4.5 L	4.5 L
• Honda 5 Speed, 5AT RTU (RPO MJ8)	4.1 L	3.9 L
• GM, Continuously Variable Ratio, VT25-E, AWD, (RPO M16)	6.5 L	6.9 L
• GM, Continuously Variable Ratio, VT25-E, Electronic, (RPO M75)	6.5 L	6.9 L
Manual Transmission		
• GETRAG 5 Speed (RPO MG3)	1.7 L	1.8 qt
Wheel Nut Torque	125 N.m	92 lb ft
Engine Specifications		
• 2.2L (RPO L61) Engine (VIN F) Automatic, Manual Spark Plug Gap	1.14 mm	0.45 in
• 3.5L (L66) Engine (VIN U) Automatic Spark Plug Gap	1.1 mm	0.43 in

FLUID AND LUBRICANT RECOMMENDATIONS

Fluid and Lubricant Recommendations

Application	Fluid/Lubricant

Engine Oil 2.2L (RPO L61)	Engine oil which meets GM standards GM6094M and displays the American Petroleum Institute Certified for Gasoline Engines starburst symbol. GM Goodwrench oil meets all the requirements for the vehicle.
Engine Oil 3.5L (RPO L66)	Engine oil which displays the American Petroleum Institute Certified for Gasoline Engines starburst symbol. GM Goodwrench oil meets all the requirements for the vehicle.
Engine Coolant	50/50 mixture of clean, drinkable water and use only DEX-COOL(R) coolant.
Hydraulic Brake System	Delco(R) Supreme II Brake Fluid or equivalent DOT P/N 3 Brake Fluid
Windshield Washer Solvent	Optikleen Washer Solvent
Parking Brake Cable Guides	Chassis Lubricant GM P/N 12377985 (Canadian P/N 88901242) or lubricant meeting requirements of NLGI #2, Category LB or GC-LB.
Hydraulic Clutch System	Delco(R) Supreme II Brake Fluid or equivalent DOT 3 Brake Fluid Saturn P/N 21013073.
Manual Transaxle	Dextron(R) III Automatic Transmission Fluid Saturn P/N 21019223. (H-Specification).
Automatic Transaxle (except with 3.5L (RPO L66) Engine)	T-IV Fluid Saturn P/N 22689186.
Automatic Transaxle (with 3.5L (RPO L66) Engine)	ATF Z1 Automatic Transmission Fluid Saturn P/N 22717466.
VTi Variable Transaxle	DEX-CVT Fluid Saturn P/N 22688912.
VTi Variable Transaxle Additive	DEX-CVT Fluid Additive Saturn P/N 22697447.
Rear Drive Module and Power Transfer Unit (except with 3.5L (RPO L66 Engine)	VERSATRAK Fluid GM P/N 12378514 (Canadian P/N 88901045).
Rear Drive Module and Power Transfer Unit Rear Drive Module and Power Transfer Unit (except with 3.5L (RPO L66 Engine)	VERSATRAK Fluid GM P/N 12378514 (Canadian P/N 88901045).
Transfer Case (with 3.5L (RPO L66 Engine)	Synthetic Axle Lubricant GM P/N 12378261 (Canadian P/N 10953455).
Key Lock Cylinders	Multi-Purpose Lubricant, Superlube GM P/N 12346241 (Canadian P/N 10953474).
Hood Latch Assembly, Secondary Latch, Pivots, Spring Anchor and Release Pawl	Lubriplate Lubricant Aerosol GM P/N 12346293 (Canadian P/N 992723) or Saturn P/N 21038869 or Lubricant meeting requirements of NLGI#2, Category LB or GC-LB.
Hood, Lift Gate, Door, and Rear Folding Seat Hinges	Multi-Purpose Lubricant, Superlube GM P/N 12346241 (Canadian P/N 10953474).
Sunroof Track	Lubriplate Lubricant Aerosol GM P/N 12346293 (Canadian P/N 992723) or Saturn P/N 21038869 or

	Lubricant meeting requirements of NLGI#2, Category LB or GC-LB.
Weatherstrip Conditioning	Dielectric Silicone Grease GM P/N 12345579 (Canadian P/N 992887).

TIRE INFLATION PRESSURE SPECIFICATIONS

Tire Inflation Pressure Specifications

Application	Specification	
	Metric	English
The tire pressures in the table are the correct inflation pressures for the factory installed tires when they're cold. "Cold" means the vehicle has been sitting for at least 3 hours or driven no more than 1 mile (1.6 km). Inspect the tires inflation pressure when the tires are cold.		
Compact Spare	420 kPa	60 psi
Front Tires	210 kPa	30 psi
Rear Tires	210 kPa	30 psi

MAINTENANCE ITEMS

Maintenance Items

Item	Type/Part Number
Engine Air Cleaner/Filter	<ul style="list-style-type: none"> • Saturn P/N 22676970 • ACDelco P/N
Engine Oil Filter	
<ul style="list-style-type: none"> • 2.2L (RPO L61) 	<ul style="list-style-type: none"> • Saturn P/N 12579143 • ACDelco P/N
<ul style="list-style-type: none"> • 3.5L (RPO L66) 	<ul style="list-style-type: none"> • Saturn P/N 12582255 • ACDelco P/N
Passenger Air Filter	<ul style="list-style-type: none"> • Saturn P/N 22665802 • ACDelco P/N
Spark Plugs	
<ul style="list-style-type: none"> • 2.2 L (RPO L61) 	<ul style="list-style-type: none"> • Saturn P/N 12569190 • ACDelco P/N
<ul style="list-style-type: none"> • 3.5L (RPO L66) 	<ul style="list-style-type: none"> • Saturn P/N 12582002 • ACDelco P/N
Windshield Wiper Blades (Shepherd's Hook Type)	
<ul style="list-style-type: none"> • Driver Side <p>Length 60.0 cm (23.6 in)</p>	<ul style="list-style-type: none"> • Saturn P/N 22703502 • ACDelco P/N 8-2241

<ul style="list-style-type: none"> • Passengers Side <p>Length 47.5 cm (18.7 in)</p>	<ul style="list-style-type: none"> • Saturn P/N • ACDelco P/N 8-2191
<ul style="list-style-type: none"> • Rear Wiper Blade <p>Length 28.0 cm (11.0 in)</p>	<ul style="list-style-type: none"> • Saturn P/N 22665009 • ACDelco P/N

MAINTENANCE

USING THE MAINTENANCE SCHEDULE

Because of all the different ways that customers use their vehicles, maintenance needs vary. Some vehicles may need more frequent inspections and replacements.

This schedule is for vehicles that adhere to certain driving conditions:

- Vehicles that carry passengers and cargo within recommended limits - These limits are described on the vehicle's Certification/Tire label. Refer to **Label - Vehicle Certification** and **Tire Placard** .
- Vehicles that are driven on reasonable road surfaces within legal driving limits
- Vehicles that use the recommended fuel

Perform the services in **Scheduled Maintenance** when indicated. Refer to **Additional Required Services** and **Maintenance Footnotes** for further information.

Refer to **Owner Checks and Services** for information on the following conditions:

- What parts should be inspected
- When to perform the inspection
- What can be done to help keep the vehicle in good condition

Refer to **Fluid and Lubricant Recommendations** and to **Maintenance Items** for the proper replacement parts, fluids, and lubricants to use. All parts should be replaced and all necessary repairs done before the vehicle is driven.

SCHEDULED MAINTENANCE

When the CHANGE ENGINE OIL light comes on, service is required for the vehicle. On vehicles driven under the best conditions, the engine oil life system may not indicate that vehicle service is necessary for over a year. However the engine oil and filter must be changed at least once a year and at this time the system must be reset.

If the engine oil life system is ever reset accidentally, the customer must have the vehicle serviced within 5 000 km (3,000 mi) since your last service. Reset the oil life system whenever you change the oil. Refer to **GM Oil Life System - Resetting** for information on the engine Oil Life System and resetting the system.

When the CHANGE ENGINE OIL light appears, certain services and inspections are required. Required services are described in the following paragraphs for Maintenance I and Maintenance II. It is recommended that the first service on a vehicle be Maintenance I, the second service be Maintenance II and that you alternate between the two thereafter. However, in some cases, Maintenance II may be required more often.

Maintenance I

Use Maintenance I if the CHANGE ENGINE OIL light comes on within 10 months since vehicle was purchased or if Maintenance II was performed.

Maintenance II

Use Maintenance II if the previous service performed was Maintenance I. Always use Maintenance II whenever the CHANGE ENGINE OIL light comes on 10 months or more since the last service or if the CHANGE ENGINE OIL light has not come on at all for one year.

Scheduled Maintenance

Service	Maintenance I	Maintenance II
Change the engine oil and filter. Refer to Detonation/Spark Knock in Engine Mechanical-2.2L or to Engine Oil and Oil Filter Replacement in Engine Mechanical-3.5L. Reset the oil life system. Refer to GM Oil Life System - Resetting .	X	X
Lubricate chassis components. Lubricate the front suspension, ball joints, steering linkage, transmission shift linkage and parking brake cable guides. Ball joints should not be lubricated unless their temperature is 10°F (-12°C) or higher, or they could be damaged.	X	X
Inspect the vehicle for leaks or damage. A fluid loss in the vehicle system could indicate a problem. Inspected, repair and add fluid to the system if necessary.	X	X
Inspect the engine air cleaner filter. If necessary, replace the filter. Refer to Air Cleaner Element Replacement in Engine Controls-2.2L or to Air Cleaner Element Replacement in Engine Controls-3.5L. The U.S. Environmental Protection Agency or the California Air Resources Board has determined that the failure to perform this maintenance item will not nullify the emission warranty or limit recall liability prior to the completion of the vehicle's useful life. We, however, urge that all recommended maintenance services be performed at the indicated intervals and the maintenance be recorded.	X	X
Rotate the tires and inspect the tire inflation pressures and the tire wear. Refer to Tread Wear Indicators Description and to Tire Rotation in Tires and Wheels.	X	X
Inspect the brake system. Inspect the brake lines and hoses for proper hook-up, binding, leaks, cracks, chafing, etc. Inspect the disc brake pads for wear and rotors for		

<p>surface condition. Inspect the drum brake linings for wear or cracks. Inspect other brake parts, including drums, wheel cylinders, calipers, parking brake, etc. Inspect the parking brake adjustment.</p>	-	X
<p>Inspect the engine coolant and the windshield washer fluid levels. Add fluid as needed.</p>	X	X
<p>Inspect the suspension and steering components. Inspect front and rear suspension and steering system for damaged, loose or missing parts, signs of wear. Inspect power steering lines and hoses for proper hook-up, binding, leaks, cracks, chafing, etc. Inspect constant velocity joints, rubber boots and axle seals for leaks.</p>	-	X
<p>Inspect the engine cooling system. Inspect hoses and replace if they are cracked, swollen or deteriorated. Inspect all pipes, fittings and clamps; replace with GM parts as needed. To help ensure proper operation, a pressure test of the cooling system and pressure cap and cleaning the outside of the radiator and air conditioning condenser is recommended at least once a year.</p>	-	X
<p>Inspect the wiper blades. Inspect the wiper blades for wear or cracking. Replace the blade elements that appear worn or damaged or that streak or miss areas of the windshield. Refer to Wiper Blade Element Replacement in Wiper/Washer Systems</p>	-	X
<p>Inspect the restraint system components. Ensure the safety belt reminder light and all the belts, buckles, latch plates, retractors and anchorages are working properly. Look for any other loose or damaged safety belt system parts. If you see anything that might keep a safety belt system from doing its job, repair or replaced it. Replace torn or frayed safety belts, refer to in Seat Belts. Inspect for any opened or broken air bag coverings, and repair or replaced it. (The air bag system does require regular maintenance.)</p>	-	X
<p>Lubricate the body components. Lubricate all key lock cylinders, hood latch assemblies, secondary latches, pivots, spring anchor and release pawl, hood and door hinges, rear folding seats and liftgate hinges. Frequent lubrication may be required when exposed to a corrosive environment, refer to Fluid and Lubricant Recommendations in Maintenance and Lubrication. Applying dielectric silicone grease GM P/N 12345579 (CANADIAN P/N 1974984) or equivalent on the weather-strips with a clean cloth.</p>	-	X
<p>Inspect the transmission fluid level and add fluid as needed. Refer to Transmission Fluid Checking Procedure in Automatic Transmission-5AT or to Transmission Fluid Checking Procedure in Automatic Transmission-VT25-E.</p>	-	X
<p>Inspect the throttle system. Inspect the system for interference or binding and for damage or missing parts. Replace the parts as needed. Replace any components that have high effort or excessive wear. Do not lubricate the accelerator or cruise control cables.</p>	-	X
<p>Replace the passenger compartment air filter.</p>		

If the vehicle is mainly driven regularly under dusty conditions, the filter may require replacement often. Refer to **Passenger Compartment Air Filter Replacement** in Heating Ventilation and Air Conditioning.

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X

ADDITIONAL REQUIRED SERVICES

Perform the following services during the first maintenance (Maintenance I or Maintenance II) after the indicated kilometers (miles) shown for each item.

Additional Required Services

Service	41 500 km (25,000 mi)	83 000 km (50,000 mi)	125 000 km (75,000 mi)	166 000 km (100,000 mi)	207 500 km (125,000 mi)	240 000 km (150,000 mi)
Inspect the fuel system for damage or leaks.	X	X	X	X	X	X
Inspect the exhaust system for loose or damaged components.	X	X	X	X	X	X
Replace the engine air cleaner filter. Refer to Air Cleaner Element Replacement in Engine Controls-2.2L or to Air Cleaner Element Replacement in Engine Controls-3.5L.	X	X	X	X	X	X
VTi variable transaxle: Add Dex-CVT additive.	-	X	-	X	-	X
<p>2.2L- Transmission Severe Service Change the automatic transmission fluid and filter, refer to Fluid Filter Removal and/or Fluid Filter Installation and/or Transmission Fluid Replacement in Automatic Transmission-VT25-E, if the vehicle is mainly driven under one or more of these conditions:</p> <ul style="list-style-type: none"> • Heavy city traffic where the outside temperature regularly reaches 90°F (32°C) or higher • Hilly or mountainous terrain • Frequent trailer towing • Taxi, police or delivery service 	-	X	-	X	-	X
<p>2.2L- Transmission Normal Service Change the automatic transmission fluid and filter, refer to Fluid Filter Removal and/or Fluid Filter Installation and/or Transmission Fluid Replacement in</p>	-	-	-	X	-	-

Automatic Transmission-VT25-E.						
3.5L- Transmission Severe Service Change the automatic transmission fluid and filter, refer to <u>Lube Fluid Filter Replacement</u> and/or <u>Transmission Fluid Replacement</u> in Automatic Transmission-5AT if the vehicle is mainly driven under one or more of these conditions: <ul style="list-style-type: none"> • Heavy city traffic where the outside temperature regularly reaches 90°F (32°C) or higher • Hilly or mountainous terrain • Frequent trailer towing • Taxi, police or delivery service 	X	X	X	X	X	X
3.5L- Transmission Normal Service Change the automatic transmission fluid and filter, refer to <u>Lube Fluid Filter Replacement</u> and/or <u>Transmission Fluid Replacement</u> in Automatic Transmission-5AT	-	-	-	X	-	X
Replace the spark plugs. Refer to <u>Spark Plug Replacement</u> in Engine Controls-2.2L or to <u>Spark Plug Replacement</u> in Engine Controls-3.5L.	-	-	-	X	-	-
3.5L-Timing Belt Severe Service Refer to <u>Timing Belt Replacement</u> in Engine Mechanical-3.5L, if the vehicle is mainly driven under one or more of these conditions: <ul style="list-style-type: none"> • In heavy city traffic where the outside temperature regularly reaches 90°F (32°C) or higher. • In hilly or mountainous terrain. • When doing frequent trailer towing. • Uses such as found in taxi, police or delivery service. • In very high temperatures -- over 110°F (43°C). • In very low temperatures -- under -20°F (-29°C). 	-	X	-	X	-	X
3.5L- Timing Belt Normal Service						

<p>Refer to Timing Belt Replacement in Engine Mechanical-3.5L.</p> <p>The U.S. Environmental Protection Agency or the California Air Resources Board has determined that the failure to perform this maintenance item will not nullify the emission warranty or limit recall liability prior to the completion of the vehicle's useful life. We, however, urge that all recommended maintenance services be performed at the indicated intervals and the maintenance be recorded</p>	-	-	-	X	-	-
<p>2.2L-Change rear drive module and power takeoff unit fluid. (Severe Service), if the vehicle is mainly driven under one or more of these conditions:</p> <ul style="list-style-type: none"> • In heavy city traffic where the outside temperature regularly reaches 90°F (32°C) or higher. • In hilly or mountainous terrain. • When doing frequent trailer towing. • Uses such as found in taxi, police or delivery service. • In very high temperatures -- over 110°F (43°C). • In very low temperatures -- under -20°F (-29°C). 	-	X	-	X	-	X
<p>2.2L-Change rear drive module and power takeoff unit fluid. (Normal Service)</p>	-	-	-	X	-	-
<p>3.5L-Change transfer assembly fluid. (Severe Service), if the vehicle is mainly driven under one or more of these conditions:</p> <ul style="list-style-type: none"> • In heavy city traffic where the outside temperature regularly reaches 90°F (32°C) or higher. • In hilly or mountainous terrain. • When doing frequent trailer towing. • Uses such as found in taxi, police or delivery service. • In very high temperatures -- over 110°F (43°C). 	X	X	X	X	X	X

<ul style="list-style-type: none"> In very low temperatures -- under -20°F (-29°C). 						
<p>3.5L-Change transfer assembly fluid. (Normal Service) Change the fluid the first time the vehicle is serviced after 100,000 miles (166 000 km) and when the vehicle is serviced after each subsequent 50,000 miles (83 000 km).</p>	-	-	-	X	-	X
<p>3.5L- Change rear drive module fluid. (Severe Service) Refer to Lubricant Replacement - Rear Drive Axle in Rear Drive Axle, if the vehicle is mainly driven under one or more of these conditions:</p> <ul style="list-style-type: none"> In heavy city traffic where the outside temperature regularly reaches 90°F (32°C) or higher. In hilly or mountainous terrain. When doing frequent trailer towing. Uses such as found in taxi, police or delivery service. In very high temperatures -- over 110°F (43°C). In very low temperatures -- under -20°F (-29°C). 	-	X	-	X	-	X
<p>3.5L- Change rear drive module fluid. (Normal Service) Refer to Lubricant Replacement - Rear Drive Axle in Rear Drive Axle.</p>	-	-	-	X	-	-
<p>3.5L- Inspect valve clearance, refer to Valve Rocker Arm and Valve Lash Adjuster Replacement in Engine Mechanical-3.5L.</p>	-	-	-	X	-	-
<p>Engine cooling system service or every 5 years, whichever occurs first. Refer to Draining and Filling Cooling System Pressure Cap Testing Cooling System Leak Testing Coolant System Flushing in Engine Cooling.</p>	-	-	-	-	-	X
<p>Inspect the engine accessory drive belt. Refer to Drive Belt Excessive Wear Diagnosis in Engine Mechanical-2.2L or to Drive Belt Excessive Wear Diagnosis in Engine Mechanical-3.5L.</p>	X	X	X	X	X	X

MAINTENANCE FOOTNOTES

Footnotes

(1)

The U.S. Environmental Protection Agency or the California Air Resources Board has determined that the failure to perform this maintenance item will not nullify the emission warranty or limit the recall liability prior to the completion of the vehicle's useful life. It is, however, strongly recommended that all recommended maintenance services be performed at the indicated intervals and that the maintenance be recorded.

(2)

Lubricate the suspension, steering linkage, transaxle shift linkage and the underbody contact points and linkage.

(3)

Visually inspect the brake lines and the hoses for proper hook-up, binding, leaks, cracks, chafing, etc. Inspect the disc brake pads for wear and inspect the rotors for surface condition. Inspect other brake parts, including the calipers, the parking brake, etc. Inspect the parking brake adjustment.

(4)

Visually inspect the front and rear suspension and the steering system for damaged, loose or missing parts, for signs of wear, or for lack of lubrication. Inspect the power steering lines and the hoses for proper hook-up, binding, leaks, cracks, chafing, etc.

(5)

Visually inspect the hoses and replace any that are cracked, swollen or deteriorated. Inspect all pipes, fittings and clamps. Replace as needed. To help ensure proper operation, pressure test the cooling system and the pressure cap, and clean the outside of the radiator and the air conditioning condenser at least once a year.

(6)

Visually inspect the wiper blades for wear or cracking. Replace all blade inserts that appear worn or damaged or that streak or miss areas of the windshield.

(7)

Verify that the safety belt reminder light and all of the belts, buckles, latch plates, retractors and anchorages are working properly. If the vehicle has a built-in child restraint, verify that the harness straps, latch plates, buckle, clip, child head restraint and anchorages are working properly. Look for any other loose or damaged safety belt system parts. Repair anything that might keep a safety belt system from

doing the job. Replace any torn or frayed safety belts. Also look for any opened or broken air bag coverings, and repair or replace these parts. The air bag system does NOT need regular maintenance.

(8)

Lubricate all key lock cylinders, hood latch assembly, secondary latch, pivots, spring anchor, release pawl, rear compartment hinges, outer liftgate handle pivot points, rear door detent link, roller mechanism, liftgate handle pivot points, latch bolt, fuel door hinge, cargo door hinge, locks and folding seat hardware. Lubricate the hood and door hinges, rear folding seats, liftgate hinges, fuel door hinge, power sliding door cable and sliding door tracks. More frequent lubrication may be required when the vehicle has been exposed to a corrosive environment. Applying silicone grease on weather-strips with a clean cloth will ensure longer life, create a better seal, and prevent sticking or squeaking.

(9)

If the vehicle is driven regularly under dusty conditions, the filter may require replacement more often.

(10)

Change the automatic transaxle or VTi variable transaxle fluid if the vehicle is mainly driven under one or more of the following conditions:

- In heavy city traffic where the outside temperature regularly reaches 32°C (90°F) or higher
- In hilly or mountainous terrain
- When doing frequent trailer towing
- In uses such as found in taxi, police or delivery service

(11)

Drain, flush and refill the cooling system. Refer to **Draining and Filling Cooling System** in Engine Cooling for the proper procedure. Inspect the hoses. Clean the radiator, the condenser, the pressure cap, and the filler neck. Pressure test the cooling system and the pressure cap.

(12)

Inspect the throttle system for interference or binding and for damaged or missing parts. Replace parts as needed. Replace any components that have high effort or excessive wear. Do NOT lubricate the accelerator or the cruise control cables.

(13)

A fluid loss in any vehicle system could indicate a problem. Inspect and repair the system and inspect the fluid level. Add fluid if needed.

(14)

For supercharged engines only: Inspect the supercharger oil level and add the proper supercharger oil.
Refer to **Capacities - Approximate Fluid** .

EXPLANATION OF SCHEDULED SERVICES

Engine Oil Requirements with the 2.2L L4 (L61) Engine Only

RECOMMENDED SAE VISCOSITY GRADE ENGINE OILS

FOR BEST FUEL ECONOMY AND COLD STARTING, SELECT THE LOWEST SAE VISCOSITY GRADE OIL FOR THE EXPECTED TEMPERATURE RANGE.

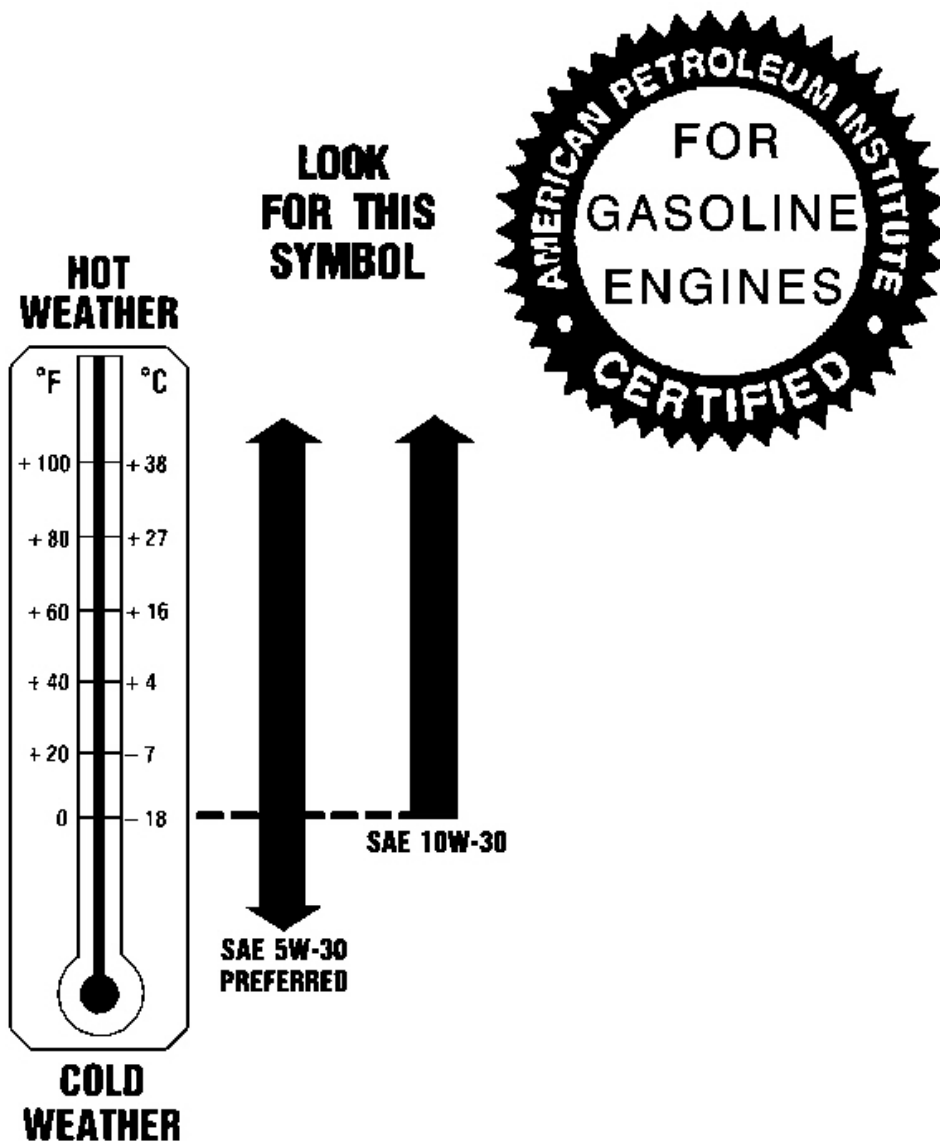


Fig. 1: Engine Oil Viscosity (United States and Canada)

Courtesy of GENERAL MOTORS CORP.

The vehicle's engine requires oil meeting GM Standard GM6094M. Use only an oil that meets GM Standard GM6094M. GM Goodwrench(R) oil meets all the requirements.

The viscosity chart shows, SAE 5W-30 is best for the vehicle. However, if the temperature will be 0°F (-18°C) or above and SAE 5W-30 is not available, you may use SAE 10W-30.

These numbers on an oil container show its viscosity, or thickness. Do not use other viscosity oils such as SAE 20W-50.



Fig. 2: Engine Oil Quality (United States and Canada)
Courtesy of GENERAL MOTORS CORP.

Oils meeting these requirements should also have the starburst symbol on the container. This symbol indicates that the oil has been certified by the American Petroleum Institute (API).

You should look for this information on the oil container, and use those oils that are identified as meeting GM Standard GM6094M and have the starburst symbol on the front of the oil container.

If you are in an area of extreme cold, where the temperature falls below -20°F (-29°C), it is recommended that you use either an SAE 5W-30 synthetic oil or an SAE 0W-30 oil. Both will provide easier cold starting and better protection for your engine at extremely low temperatures.

When the CHANGE ENGINE OIL light comes on, service is required for the vehicle. On vehicles driven under the best conditions, the engine oil life system may not indicate that vehicle service is necessary for over a year. However the engine oil and filter must be changed at least once a year and at this time the system must be reset.

If the engine oil life system is ever reset accidentally, the customer must have the vehicle serviced within 5 000 km (3,000 mi) since your last service. Reset the oil life system whenever you change the oil. Refer to for information on the engine Oil Life System and resetting the system.

Engine Oil Requirements with the 3.5L V6 (L66) Engine Only

RECOMMENDED SAE VISCOSITY GRADE ENGINE OIL

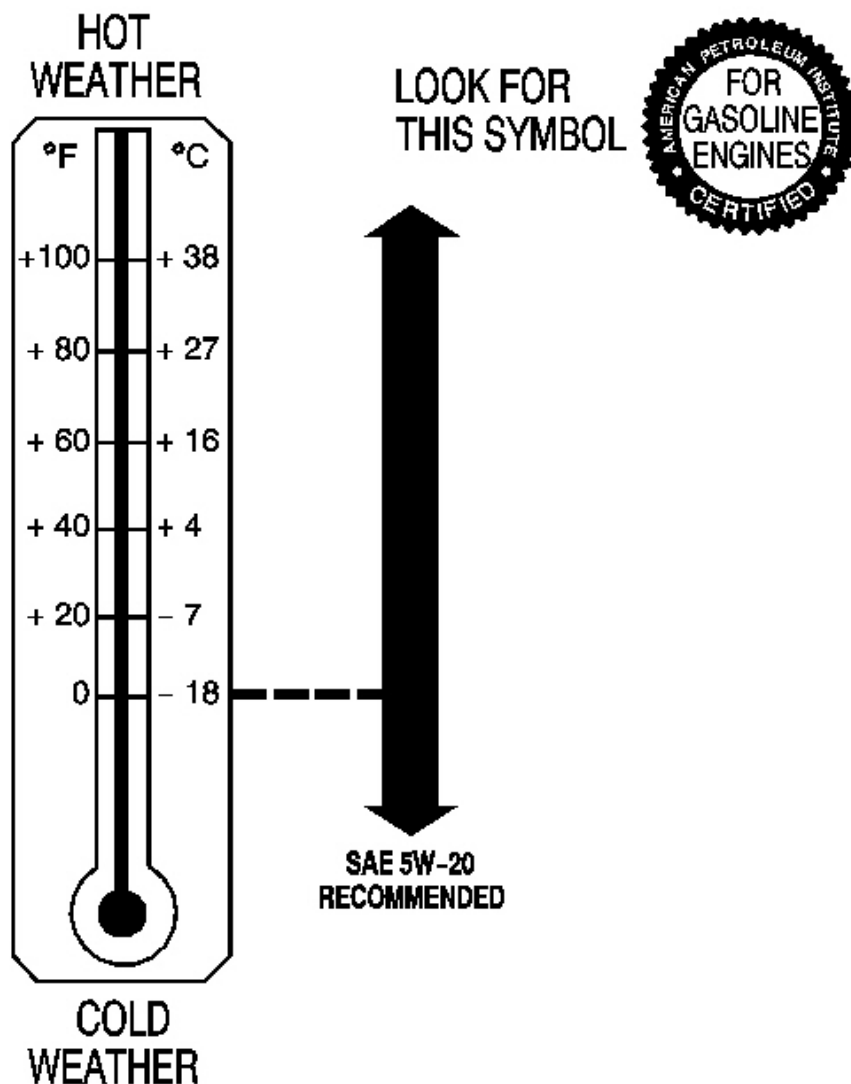


Fig. 3: View Of Engine Oil With The 3.5L V6 (L66)
Courtesy of GENERAL MOTORS CORP.

The vehicle's engine requires oil meeting GM Standard GM6094M. Use only an oil that meets GM Standard

GM6094M. GM Goodwrench(R) oil meets all the requirements.

The viscosity chart shows, SAE 5W-20 is best for the vehicle.

These numbers on an oil container show its viscosity, or thickness. Do not use other viscosity oils such as SAE 20W-50.



Fig. 4: View of Numbers On Oil Container Show Its Viscosity or Thickness
Courtesy of GENERAL MOTORS CORP.



Fig. 5: Engine Oil Quality (United States and Canada)
Courtesy of GENERAL MOTORS CORP.

Oils meeting these requirements should also have the starburst symbol on the container. This symbol indicates that the oil has been certified by the American Petroleum Institute (API).

You should look for this information on the oil container, and use those oils that are identified as meeting GM Standard GM6094M and have the starburst symbol on the front of the oil container.

When the CHANGE ENGINE OIL light comes on, service is required for the vehicle. On vehicles driven under the best conditions, the engine oil life system may not indicate that vehicle service is necessary for over a year. However the engine oil and filter must be changed at least once a year and at this time the system must be reset.

If the engine oil life system is ever reset accidentally, the customer must have the vehicle serviced within 5 000 km (3,000 mi) since your last service. Reset the oil life system whenever you change the oil. Refer to for information on the engine Oil Life System and resetting the system.

Engine Oil Additives

Do NOT engine oil additives. The recommended oils with the starburst symbol that meet GM Standard GM6094M are all that is needed for good performance and engine protection.

When to Change Engine Oil-GM Oil Life System

The vehicle has a computer system that tells the owner when to change the engine oil and filter. This system is based on engine revolutions and engine temperature, and not on mileage. Based on driving conditions, the mileage at which an oil change will be indicated can vary considerably. For the oil life system to work properly, the system must be reset every time the oil is changed.

When the system has calculated that oil life has been diminished, the system will indicate that an oil change is necessary. A CHANGE ENGINE OIL message in the Driver Information Center (DIC) will come on. The oil should be changed within the next two gasoline fill-ups after this message appears. It is possible that, if the car is being driven under the best condition, the oil life system may not indicate that an oil change is necessary for over a year. However, the engine oil and filter must be changed at least once a year and at this time the system must be reset

If the system is ever rest accidentally, the oil must be changed within 5000 km (3,000 mi) since the last oil change. Reset the oil life system whenever the oil is changed.

Tire and Wheel Inspection and Rotation

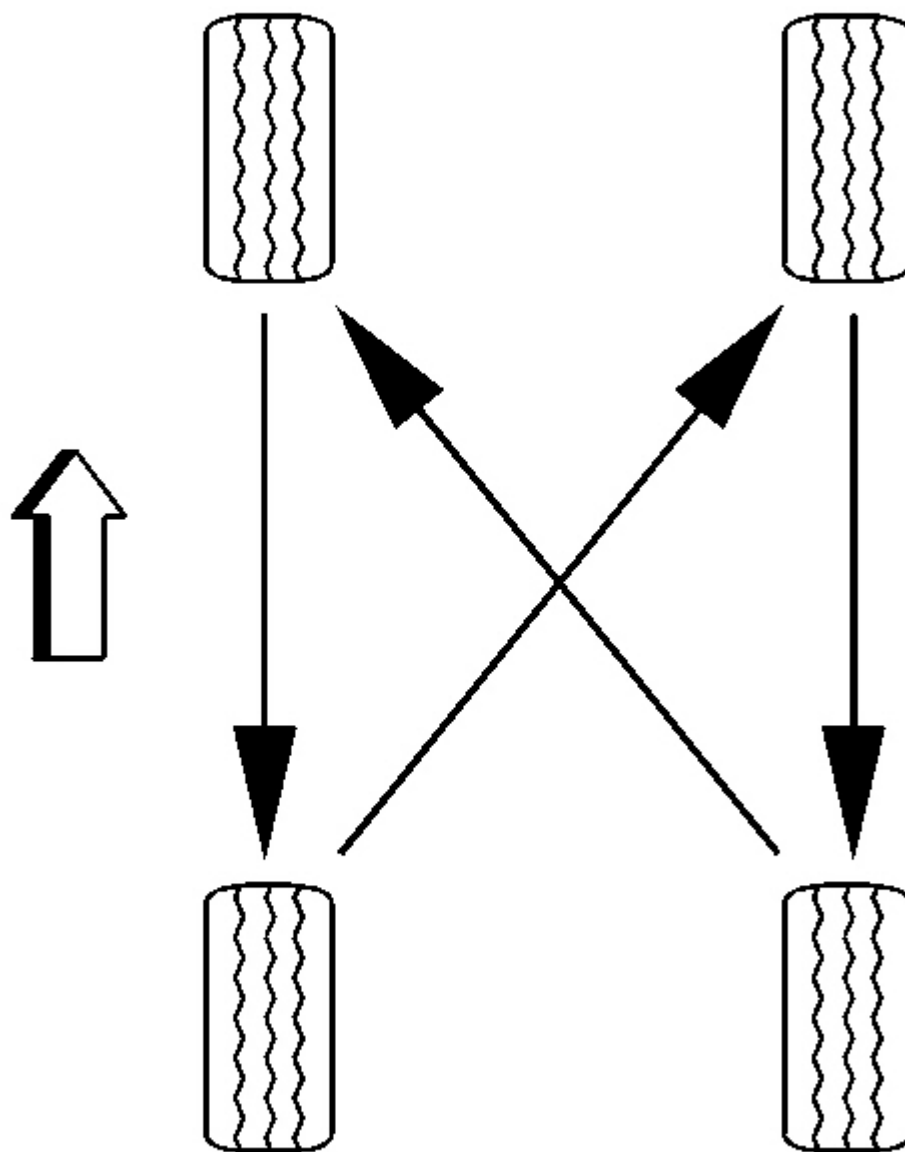


Fig. 6: Tire Rotation Pattern
Courtesy of GENERAL MOTORS CORP.

- Tires should be rotated every 8 000-13 000 km (5,000-8,000 mi).

Any time you notice unusual wear, rotate the tires as soon as possible and test the wheel alignment. Also inspect for damaged tires or wheels. Refer to **Tire Rotation** in Tires and Wheels.

- The purpose of regular rotation is to achieve more uniform wear for all tires on the vehicle. The first rotation is the most important. Refer to **Scheduled Maintenance** for scheduled rotation intervals.

When towing the Saturn vehicle with all four wheels on the ground, the transaxle and tire maintenance should be scheduled by mileage accumulated through both driving and towing, not to driven odometer mileage. Tire wear will reflect actual rolling mileage and may be greater than expected for the current odometer mileage. Keep a record of how many miles the vehicle was towed so they can be added to the mileage on the vehicle odometer when following the maintenance schedule for recommended services.

When rotating your tires, always use the correct rotation pattern shown here.

- Do not include the compact spare tire in your tire rotation.
- After the tires have been rotated, adjust the front and rear inflation pressures Refer to **Tire Placard** .
- Ensure that all wheel nuts are properly tightened. Refer to **Capacities - Approximate Fluid** .

Engine Air Cleaner/Filter

Inspect the air cleaner filter every oil change and replace at the first oil change after 40 000 km (25,000 mi).

Automatic Transaxle Fluid

It is not necessary to check the transaxle fluid level. A transaxle fluid leak is the only reason for fluid loss. Change both the fluid and filter every 83 000 km (50,000 mi) if the vehicle is mainly driven under one or more of these conditions:

- In heavy city traffic where the outside temperature regularly reaches 32°C (90°F) or higher
- In hilly or mountainous terrain
- When doing frequent trailer towing
- Uses such as found in taxi, police or delivery service

Manual Transmission Fluid

It is not necessary to check the transmission fluid level. A transmission fluid leak is the only reason for fluid loss. Refer to **Fluid and Lubricant Recommendations** .

Hydraulic Clutch

The hydraulic clutch linkage is self-adjusting. This system does not have its own reservoir. The reservoir receives fluid from the brake master cylinder reservoir. Refer to **Master Cylinder Reservoir Replacement** .

Cooling System

The cooling system is filled with DEX-COOL engine coolant. This coolant is designed to remain in the vehicle for 5 years or for 166 000 km (100,000 mi), whichever occurs first, if you add only DEX-COOL extended life coolant.

Windshield Washer Fluid

When adding windshield washer fluid, be sure to read the instructions before use. If operating the vehicle in an area where the temperature may fall below freezing, use a fluid that has sufficient protection against freezing.

Brake Fluid

Your brake master cylinder reservoir is filled with DOT-3 brake fluid.

There are only two reasons why the brake fluid level in the reservoir might go down:

- The brake fluid goes down to an acceptable level during normal brake lining wear. When new linings are put in, the fluid level goes back up.
- The fluid may be leaking out of the brake system. If so, fix the brake system.

Adding brake fluid will not correct a leak. If you add fluid when the linings are worn, then the reservoir will contain too much fluid when new brake linings are installed. You should add or remove brake fluid, as necessary, only when work is being done on the brake hydraulic system.

Inspect brake lines and hoses for proper hook-up binding, leaks, cracks or chafing. Inspect disc brake pads for wear. Refer to **Brake Pad Inspection** in Disc Brakes. Inspect the rotors for poor surface condition. Inspect other brake system components, including brake calipers and the parking brake. Test the parking brake adjustment. The brakes may need to be inspected more often if the customer's driving habits or conditions result in frequent braking.

GM OIL LIFE SYSTEM - RESETTING

The GM Oil Life System calculates when to change the engine oil and filter, based on the vehicle use. Anytime the oil is changed, reset the system so the next required oil change can be calculated. If the oil is changed before the Change Engine Oil light turns ON, reset the system.

After changing the engine oil, perform the following steps:

1. Turn the ignition to RUN, with the engine OFF.
2. Fully press and release the accelerator pedal 3 times within 5 seconds.

If the Change Oil light flashes, the system has been reset. The light will flash for up to 30 seconds or until the ignition is turned OFF.

If the light comes on again and stays on for 30 seconds at the next ignition cycle, the system did not reset. Reset the system again.

OWNER CHECKS AND SERVICES

The following information covers the tests, inspections, and services required to train the safety, dependability, and emission control performance of the vehicle.

Complete the necessary repairs and procedures on time. Use only the recommended fluids and lubricants. Refer to **Fluid and Lubricant Recommendations** .

At Each Fuel Fill

Perform the following underhood procedures at each fuel fill.

Engine Oil Level

Inspect the engine oil level and add the proper oil when necessary. Refer to **Fluid and Lubricant Recommendations** .

NOTE: It is important to check your oil regularly and keep it at the proper level. Failure to keep your engine oil at the proper level can cause damage to your engine not covered by your warranty.

Engine Coolant Level

Inspect the engine coolant level and add DEX-COOL(R) coolant mixture when necessary. Refer to **Fluid and Lubricant Recommendations** .

Windshield Washer Fluid Level

Inspect the fluid level in the windshield washer tank and add the proper fluid when necessary. Refer to **Fluid and Lubricant Recommendations** .

At Least Once a Month

Tire Inflation

Visually inspect tires including the spare tire. Verify that the tires are inflated to the pressures specified on the Certification/Tire label located on the driver door lock pillar. Refer to **Label - Vehicle Certification** .

Cassette Tape Player Service

If applicable, clean the tape player for every 50 hours of tape play.

At Least Once a Year

Starter Switch Check

CAUTION: When you are doing this inspection, the vehicle could move suddenly. If the vehicle moves, you or others could be injured.

CAUTION: When performing this check, the vehicle could move suddenly. Personal injury or property damage may result. Make sure there is

enough room around the vehicle, in case the vehicle does move. Do not use the accelerator pedal, and be ready to turn OFF the engine immediately if it starts.

1. Ensure that you have enough room around the vehicle, which should be parked on a level surface.
2. Firmly apply both the park brake and the regular brake.
3. Start the engine:
 - On automatic transmission vehicles, try to start the engine in each gear. The starter should work only in PARK (P) or NEUTRAL (N). If the starter works in any other position, the vehicle needs service.
 - On manual transmission vehicles, put the shift lever in NEUTRAL (N), push the clutch down halfway and try to start the engine. The starter should work only when the clutch is pushed down all the way to the floor. If the starter works when the clutch is not pushed all the way down, the vehicle needs service.

Automatic Transmission Shift Lock Control Check

CAUTION: When you are doing this inspection, the vehicle could move suddenly. If the vehicle moves, you or others could be injured.

CAUTION: When performing this check, the vehicle could move suddenly. Personal injury or property damage may result. Make sure there is enough room around the vehicle, in case the vehicle does move. Do not use the accelerator pedal, and be ready to turn OFF the engine immediately if it starts.

1. Ensure that you have enough room around the vehicle, which should be parked on a level surface.
2. Firmly apply the parking brake. Be ready to apply the regular brake immediately if the vehicle begins to move.
3. With the engine off, turn the key to the RUN position, but don't start the engine.
4. Without applying the regular brake, try to move the shift lever out of PARK (P) with normal effort.
5. If the shift lever moves out of PARK (P), the vehicle needs service.

Ignition Transmission Lock Check

1. With the vehicle parked, set the parking brake.
2. Try to turn the ignition key to LOCK in each shift lever position:
 - With an automatic transmission, the key should turn to LOCK only when the shift lever is in PARK (P).
 - With a manual transmission, the key should turn to LOCK only when you press the key release button.
3. On all vehicles, the key should come out only in LOCK.

CAUTION: When you are doing this inspection, the vehicle could move suddenly. If the vehicle moves, you or others could be injured.

CAUTION: When performing this check, the vehicle could move suddenly. Personal injury or property damage may result. Make sure there is enough room around the vehicle, in case the vehicle does move. Do not use the accelerator pedal, and be ready to turn OFF the engine immediately if it starts.

CAUTION: When you are doing this check, your vehicle could begin to move. You or others could be injured and property could be damaged. Make sure there is room in front of your vehicle in case it begins to roll. Be ready to apply the regular brake at once should the vehicle begin to move.

Follow this procedure to test the park brake and the automatic transmission PARK mechanism:

1. Park on a fairly steep hill, with the vehicle facing downhill.
2. Keep your foot on the hydraulic brake pedal.
3. With the park brake set, perform the following test:
 1. Start the engine.
 2. Place the transmission in NEUTRAL.
 3. Slowly remove foot pressure from the regular brake pedal. If the vehicle moves, refer to **Park Brake Adjustment** in Park Brake.
4. In order to check the PARK (P) mechanism of an automatic transmission, additionally perform the following test:
 1. Shift to PARK (P).
 2. Release all brakes. If the vehicle moves, refer to **Park Brake Adjustment** in Park Brake.

Underbody Flushing Service

At least every spring, use plain water to flush any corrosive materials from the underbody. Clean thoroughly any areas where mud and other debris can collect.