2004 GENERAL INFORMATION

Maintenance & Lubrication - GTO

SPECIFICATIONS

CAPACITIES - APPROXIMATE FLUID

Capacities and Specifications

Application	Capacities	
	English	Metric
Air Conditioning Refrigerant R134a	1.8 lbs	0.8 kg
Automatic Transmission (Drain and Refill)	5.3 quarts	5.0 L
Cooling System	15.1 quarts	14.3 L
Engine Oil with Filter (Drain and Refill)	6.5 quarts	6.2 L
Fuel Tank	18.5 gallons	70.0 L
Manual Transmission	4.6 quarts	4.4 L
Rear Axle Fluid	1.690 quarts	1.6 L
All capacities are approximate. When adding, be sure to fill to the appropriate level, as recommended in this manual. Recheck fluid level after filling		

FLUID AND LUBRICANT RECOMMENDATIONS

Fluid and Lubricant Recommendations

Application	Fluid/Lubricant
Automatic Transmission, Manual Transmission, Power Steering System Fluid	GM Goodwrench® Automatic Transmission Fluid-DEXRON®-III GM P/N 12378470, or the equivalent DEXRON®-lll automatic transmission fluid
Engine Coolant	A 50/50 mixture of water and GM Vehicle Care DEX-COOL® Antifreeze, GM P/N 12346290, or the equivalent DEX-COOL® antifreeze
Engine Oil	GM Goodwrench® Motor Oil SAE 5W-30, GM P/N 12345610, or the equivalent engine oil SAE 5W-30 SJ ILSAC GF-3. Refer to **Explanation of Scheduled Services**.
Door Hinges, Door Check Assembly, Engine Compartment Lid Hinges and Latch, Rear Compartment Hinges and Latch, Window Guides, Runners, and Regulator	GM Vehicle Care Lubriplate Lubricant, GM P/N 1052196,

Lubricant	or the equivalent lithium zinc oxide lubricant
Door Lock Striker, Door Lock Assembly Fork, Front Seat Adjuster, Front Seat Track and Rail Assembly, Pedal Pivot Point, Park Brake Shoe Actuator Pivot Point, and Windshield Wiper Pivot Point Lubricant	GM Vehicle Care Dri-Slide Lubricant, GM P/N 1052948, or the equivalent lithium molybdenum disulphide lubricant
Hydraulic Brake System, Hydraulic Clutch System Fluid	GM Vehicle Care Brake and Clutch Fluid Super DOT-4, GM P/N 88958860, or the equivalent DOT-4 brake fluid
Key Lock Cylinder Lubricant	Powdered graphite
Rear Axle Limited-Slip Differential	GM Vehicle Care Synthetic Gear Oil® 75W-140 GL-5, GM P/N 89021809, and GM Vehicle Care Limited Slip Differential Friction Modifier® 7098, GM P/N 89021958. Refer to**Lubricant Change** in Rear Drive Axle.
Weatherstrip Conditioning	GM Vehicle Care Weatherstrip Lubricant, GM P/N 3634770, or the equivalent weatherstrip lubricant
Windshield Washer Solvent	GM Vehicle Care Optikleen® GM P/N 1051515, or the equivalent windshield washer fluid

TIRE INFLATION PRESSURE SPECIFICATIONS

Tire Inflation Pressure Specifications

Application	Specification	
	Metric	English
Tires, Front and Rear	245 kPa	35 psi
Compact Spare	420 kPa	60 psi

MAINTENANCE ITEMS

Maintenance Items

Part	GM Part Numbers	Accolade Part Numbers
Battery	-	85-7YR
Engine Air Cleaner/Filter	92082656	-
Engine Oil Filter	88984215	PF-46
Spark Plugs	12571164	41-985

MAINTENANCE

SCHEDULED MAINTENANCE

See Maintenance I if the light comes on within ten months since vehicle was purchased or Maintenance II was performed.

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

Scheduled Maintenance

Service	Maintenance I	Maintenance II
Change engine oil and filter. Reset oil life system. Refer to **GM Oil Life System - Resetting**.	X	X
Visually check for any leaks or damage.	X	X
Inspect engine air cleaner filter. If necessary, replace filter.	X	X
Rotate tires and check inflation pressures and wear.	X	X
Inspect brake system.	X	X
Check engine coolant and windshield washer fluid levels and add fluid as needed.	X	X
Perform any needed additional services. See "Additional Required Services" in this section.	X	X
Inspect suspension and steering components.	-	X
Inspect engine cooling system.	-	X
Inspect wiper blades.	-	X
Inspect restraint system components.	-	X
Lubricate body components.	-	X
Check transmission fluid level and add fluid as needed. Refer to **Fluid and Lubricant Recommendations**	-	X
Inspect throttle system.	-	X

ADDITIONAL REQUIRED SERVICES

The following services should be performed at the first maintenance service (I or II) after the indicated miles (kilometers) shown for each item.

Additional Required Services

Service and Miles	25,000 (41 500)	50,000	75,000 (125	100,000 (166	125,000 (207	150,000 (240

(Kilometers)		(83 000)	000)	000)	500)	000)
Inspect fuel system for damage or leaks.	X	X	X	X	X	X
Inspect exhaust system for loose or damaged components.	X	X	X	X	X	X
Replace engine air cleaner filter.	X	X	X	X	X	X
Change automatic transmission fluid and filter (severe service).	X	X	X	X	X	X
Change automatic transmission fluid and filter (normal service).	-	X	-	X	-	X
Replace spark plugs. Inspect spark plug wires.	-	-	-	X	-	-
Engine cooling system service (or every 5 years, whichever occurs first).	-	-	-	-	-	X
Inspect engine accessory drive belt.	-	-	-	-	-	X

MAINTENANCE FOOTNOTES

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.

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

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

(c) Visually inspect hoses and have them replaced if they are cracked, swollen or deteriorated. Inspect all pipes, fittings and clamps; replace with genuine 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.

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

(e) Make sure the safety belt reminder light and all your 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, have it repaired. Have any torn or frayed safety belts replaced. Also look for any opened or broken air bag coverings, and have them repaired or replaced. The air bag system does not need regular maintenance.

(f) Lubricate all key lock cylinders, door hinges and latches, hood hinges and latches and trunk lid hinges and latches. More frequent lubrication may be required when exposed to a corrosive environment. Applying silicone grease on weatherstrips with a clean cloth will make them last longer, seal better and not stick or squeak.

MAINTENANCE SCHEDULE

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.

Maintenance Schedule

Service	Maintenance I	Maintenance II
Change the engine oil and filter. Reset the oil life system. Refer to **GM Oil Life System - Resetting**.	X	X
Visually inspect for any leaks or damage. Refer to footnote (c) in **Maintenance Footnotes**.	X	X
Inspect the engine air cleaner filter. If necessary, replace the filter. Refer to **Air Cleaner Element Replacement** in Engine Controls - 5.7L.	X	X
Rotate the tires and inspect the tire inflation pressures and the tire wear. Refer to **Tire Rotation** and to **Tire Inflation Description** in Tires and Wheels.	X	X
Inspect the brake system. Refer to footnote (a) in **Maintenance Footnotes**.	X	X
Inspect the engine coolant and the windshield washer fluid levels. Add fluid as needed.	X	X
Perform any needed additional services. Refer to **Additional Required Services**.	X	X
Inspect the suspension and steering components. Refer to footnote (b) in **Maintenance Footnotes**.	-	X
Inspect the engine cooling system. Refer to footnote (c) in **Maintenance Footnotes**.	-	X
Inspect the wiper blades. Refer to footnote (d) in **Maintenance Footnotes**.	-	X
Inspect the restraint system components. Refer to footnote (e) in **Maintenance Footnotes**.	-	X
Lubricate the body components. Refer to footnote (f) in **Maintenance Footnotes**.	-	X

EXPLANATION OF SCHEDULED SERVICES

Engine Oil

If the LOW OIL LEVEL message appears on the Driver Information Center (DIC), test the engine oil level right away. Although the driver should test the engine oil level regularly, this message is an added reminder.

What Kind of Engine Oil to Use

Two factors should be considered when determining type of oil to use in a vehicle:

- The engine requires oil meeting GM Standard GM6094M. Use only oil that meets this standard.

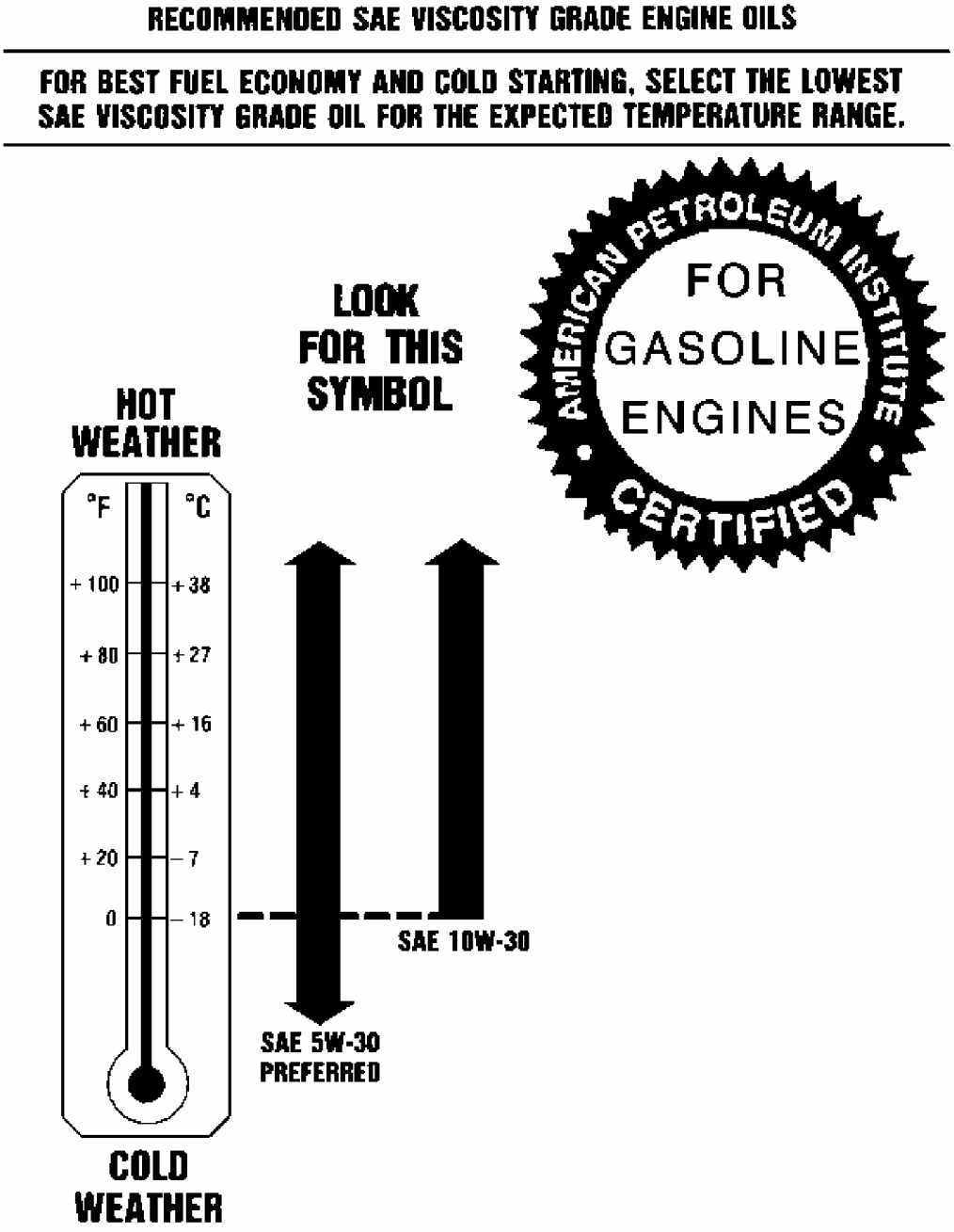

Fig. 1: Identifying Recommended Engine Oil Viscosity (United States & Canada) Courtesy of GENERAL MOTORS CORP.

- SAE 5W-30 is the only viscosity grade recommended for use in GM vehicles.
  - If the temperature is greater than -18° C (0° F) and if SAE 5W-30 is not available, you may use SAE 10W-30.

    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).

  - If the temperature falls below -20° C (-4° F), 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 temperature.

Engine Oil Additives

Do NOT use 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 reset accidentally, the oil must be changed within 5 000 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

Inspect your tires and wheels regularly for unusual wear and damage. Refer to**Tire Rotation** in Tires and Wheels.

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** in Hydraulic Brakes.

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.

Power Steering Fluid

It is not necessary to regularly check power steering fluid unless you suspect there is a leak in the system or you hear an unusual noise. A fluid loss in this system could indicate a problem. Have the system inspected and repaired. Refer to **Power Steering Fluid Leaks** in Power Steering.

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-4 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

How to Reset the Service Engine Oil message

The GM Oil Life System ™ calculates when to change your engine oil and filter based on vehicle use. Anytime your oil is changed, reset the system so it can calculate when the next oil change is required. If a situation occurs where you change your oil prior to a Service Engine Oil message being turned on, reset the system.

After changing the engine oil, reset the system by performing the following steps:

1. With the engine off, turn the ignition key to ON.
2. Fully press and release the accelerator pedal slowly two times within five seconds.
3. Turn the key to LOCK.

   If the Service Engine Oil message comes back on when you start your vehicle, the engine oil life system has not reset. Repeat the procedure.

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

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.

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

Engine Coolant Level

Inspect the engine coolant level and add DEX-COOL® 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** .

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.

Park Brake and Automatic Transmission PARK (P) Mechanism 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.

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.