SECTION 6 – 3

SERVICE PROCEDURES AND SPECIFICATIONS

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### SPECIFICATIONS

#### MANUAL TRANSMAXLE

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil capacity</td>
<td>4.4 qts. (3.7 Imp. qts., 4.2 liters)</td>
</tr>
<tr>
<td>Oil type</td>
<td>Multipurpose gear oil API GL-4 or GL-5</td>
</tr>
<tr>
<td>Recommended oil viscosity</td>
<td>SAE 75 W − 90 or 80 W − 90</td>
</tr>
</tbody>
</table>

#### AUTOMATIC TRANSMISSION

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid capacity</td>
<td>6.2 qts. (5.1 Imp. qts., 5.9 liters)</td>
</tr>
<tr>
<td>Dry fill</td>
<td>Up to 2.6 qts. (2.2 Imp qts., 2.5 liters)</td>
</tr>
<tr>
<td>Drain and refill</td>
<td>Automatic transmission fluid DEXRON®-II</td>
</tr>
<tr>
<td>Fluid type</td>
<td></td>
</tr>
</tbody>
</table>

#### DIFFERENTIAL (Automatic transmission)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid capacity</td>
<td>1.1 qts. (0.9 Imp. qts., 1.0 liters)</td>
</tr>
<tr>
<td>Fluid type</td>
<td>Automatic transmission fluid DEXRON®-II</td>
</tr>
</tbody>
</table>

#### CLUTCHES

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedal freeplay</td>
<td>0.2 – 0.6 in. (5 – 15 mm)</td>
</tr>
<tr>
<td>Pedal freeplay</td>
<td></td>
</tr>
<tr>
<td>Fluid type</td>
<td>FMVSS No. 116 DOT 3 or SAE J1703</td>
</tr>
</tbody>
</table>

#### BRAKES

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum pedal clearance</td>
<td>3.3 in. (85 mm) Min.</td>
</tr>
<tr>
<td>Pedal freeplay</td>
<td>0.12 – 0.24 in. (3 – 6 mm)</td>
</tr>
<tr>
<td>Pad wear limit</td>
<td>0.04 in. (1.0 mm)</td>
</tr>
<tr>
<td>Parking brake lining wear</td>
<td>0.04 in. (1.0 mm)</td>
</tr>
<tr>
<td>Parking brake adjustment</td>
<td>5 – 8 clicks</td>
</tr>
<tr>
<td>Fluid type</td>
<td>FMVSS No. 116 DOT 3 or SAE J1703</td>
</tr>
</tbody>
</table>
## CHASSIS

### STEERING

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheel freeplay</td>
<td>Less than 1.2 in. (30 mm)</td>
</tr>
<tr>
<td>Power steering fluid type</td>
<td>Automatic transmission fluid DEXRON®-II</td>
</tr>
</tbody>
</table>

### TIRES AND WHEELS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tire size</td>
<td></td>
</tr>
<tr>
<td>U.S.A</td>
<td>195/60 R15 88V or 195/60 R15 86H</td>
</tr>
<tr>
<td>CANADA</td>
<td>195/60 R15 86H or 195/60 R15 88V</td>
</tr>
<tr>
<td>Recommended cold tire inflation pressure,</td>
<td></td>
</tr>
<tr>
<td>Vehicle load up to 4 occupants</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>32 psi (2.2 kg/cm², 220 kPa)</td>
</tr>
<tr>
<td>Rear</td>
<td>29 psi (2.0 kg/cm², 200 kPa)</td>
</tr>
<tr>
<td>Vehicle load up to vehicle capacity weight</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>35 psi (2.4 kg/cm², 240 kPa)</td>
</tr>
<tr>
<td>Rear</td>
<td>29 psi (2.0 kg/cm², 200 kPa)</td>
</tr>
<tr>
<td>Wheel size</td>
<td></td>
</tr>
<tr>
<td>Standard tire</td>
<td>15 x 5.5 JJ (aluminum wheels)</td>
</tr>
<tr>
<td>Spare tire</td>
<td>15 x 5.5 JJ (steel wheel)</td>
</tr>
<tr>
<td>Wheel nut torque</td>
<td>76 ft-lb (10.5 kg-m, 103 N-m)</td>
</tr>
</tbody>
</table>
CHECKING CLUTCH PEDAL FREEPLAY (U. S. A. ONLY)

Press down lightly on the clutch pedal and measure the distance it moves freely before the clutch resistance is felt. The freeplay should be within the above limits.

If the freeplay is more or less, have your Lexus dealer inspect the clutch.

CHECKING BRAKE AND CLUTCH FLUIDS

To check the fluid levels, simply look at the see-through reservoirs. The brake and clutch fluid levels should be within 0.4 in. (10 mm) and 0.2 in. (5 mm) respectively below each maximum level line.

It is normal for the brake fluid level to go down slightly as the brake pads wear. So be sure to keep the reservoir filled.

If any reservoir needs frequent refilling, it may indicate a serious mechanical problem.

If the level is low, add FMVSS No. 116 DOT 3 or SAE J1703 brake fluid to the brake or clutch reservoir.

Remove and replace the reservoir cover by hand. Add brake fluid up to the line. This brings the fluid to the correct level when you put the cover back on.
Use only newly opened brake fluid. Once opened, brake fluid absorbs moisture from the air, and excess moisture can cause a dangerous loss of braking.

**CAUTION:**
Use caution in filling the reservoirs because brake fluid can harm your eyes and damage painted surfaces. If fluid gets in your eyes, flush your eyes with clean water.

**NOTICE:**
If you spill some of the fluid, be sure to wash it off with water to prevent it from damaging the parts or painting.

**CHECKING BRAKE PEDAL FREEPLAY**

With the engine stopped, first reduce the vacuum in the booster by depressing the brake pedal several times. Then lightly and slowly press down on the pedal with your fingers and measure the distance it moves before slight resistance is felt.

If the freeplay is more or less than specification, have your Lexus dealer adjust the brakes.

**CHECKING BRAKE PEDAL CLEARANCE**

With the engine running, have someone press the brake pedal several times and then press hard (approximately 110 lb. [50 kg, 490 N]) on it. The distance from the asphalt sheet to the top surface of the pedal should not be less than specified.

If the clearance is less, your Lexus dealer should adjust the brakes.
CHECKING PARKING BRAKE ADJUSTMENT

Count the number of clicks as you slowly pull on the parking brake as far as it will go (approximately 44 lb. [20 kg, 196 N]). The adjustment is correct if you hear 5 to 8 clicks.

If you count more or less clicks, have the parking brake adjusted by your Lexus dealer.

CHECKING THE BRAKE BOOSTER

Sit in the driver’s seat and follow the instructions given below. If your brakes do not operate as described, have them checked at your Lexus dealer.

1. With the engine stopped, depress the brake pedal several times: the travel distance should not change.
2. With the brake fully depressed, start the engine: the pedal should move down a little when the engine starts.
3. Depress the brake, stop the engine, and hold the pedal in for about 30 seconds: the pedal should sink slightly when the engine stops. Afterward, the pedal should neither sink nor rise.
4. Restart the engine, run it for about a minute and turn it off. Then firmly depress the brake several times: the pedal travel should decrease with each application.

CHECKING POWER STEERING FLUID

Check the fluid level through the reservoir. If necessary, add DEXRON®-II automatic transmission fluid.
If the vehicle has been driven around 50 mph (80 km/h) for 20 minutes (a little more in frigid temperatures), the fluid is hot (140°F – 175°F or 60°C – 80°C). You may also check the level when the fluid is cold (about room temperature, 50°F – 85°F or 10°C – 30°C) if the engine has not been run for about five hours.

Clean all dirt from outside of the reservoir tank and look at the fluid level. If the fluid is cold, the level should be in the “COLD” range. Similarly, if it is hot, the fluid level should be in the “HOT” range. If the level is at the low side of either range, add DEXRON®-II automatic transmission fluid to bring the level within the range.

To remove the filler cap, turn it counterclockwise and lift up. To reinstall it, turn it clockwise. After replacing the filler cap, visually check the steering box case, vane pump and hose connections for leaks or damage.

CAUTION:
The reservoir tank may be hot so be careful not to burn yourself.

NOTICE:
Avoid overfilling, or the power steering could be damaged.

CHECKING STEERING WHEEL FREEPLAY

With the vehicle stopped and the front wheels pointed straight ahead, rock the steering wheel gently back and forth. If the freeplay is more than specified, have it inspected by your Lexus dealer.

Use only a very light finger pressure to rock the wheel slowly.
CHECKING AUTOMATIC TRANSMISSION FLUID

1. Check the fluid level only when the transmission is at normal operating temperature. With the vehicle level, first set the parking brake and then start the engine. While the engine is idling, depress the brake pedal and shift the selector lever into each range from “P” to “L” and return to “P”.

   If the vehicle has been driven over 10 miles or 16 km (15 miles or 24 km in frigid temperatures) and the fluid temperature is 160°F – 175°F (70°C – 80°C), the transmission is at normal operating temperature.

   You may check the level when the transmission is cold. If the vehicle has not been driven for over five hours and the fluid is about room temperature 70°F – 85°F (20°C – 30°C), the transmission is cold.

   However, checking a cold transmission is to be used for your reference only and the transmission must be checked again for correct level at normal operating temperature.

   If the vehicle has just been driven for a long time at high speed, in city traffic in hot weather, or the vehicle has been pulling a trailer, an accurate fluid level cannot be obtained. Check the level after the fluid has cooled down (about 30 minutes.)

2. With the engine still idling, check the fluid level and condition on the dipstick. If necessary, add DEXRON®-II automatic transmission fluid.

   a. Turn the dipstick lever clockwise to unlock position, and pull it out and wipe it clean.

   b. Reinsert the dipstick – push it in as far as it will go.

   c. Pull the dipstick out and look at the fluid level. If the transmission is cold, the level should be in the “COOL” range on the dipstick. Similarly, if it is hot, the fluid level should be in the “HOT” range. If the level is at the low side of either range, add DEXRON®-II automatic transmission fluid to bring the level within the range. (Fluid is added through the dipstick tube, using a funnel.)
d. While checking the fluid level, also check the condition. If the fluid is black or if it smells burnt, have it changed.

**CAUTION:**
- When the engine is running, keep hands and clothing away from the moving fan and engine drive belts.
- Be careful not to touch the hot exhaust manifold.

**NOTICE:**
Avoid overfilling, or the transmission could be damaged.

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### CHECKING TIRE PRESSURE

The recommended cold tire pressures, tire size and the vehicle capacity weight are given on the label inside the glovebox lid.

You should check the tire pressures every two weeks, or at least once a month. And don’t forget the spare! The air pressure for the spare tire should be 4 psi (0.3 kg/cm², 30 kPa) above the recommended cold tire pressure. Incorrect tire pressure can reduce tire life and make your vehicle less safe to drive.

Low tire pressure results in excessive wear, poor handling, reduced fuel economy, and the possibility of blowouts from overheated tires. Also, low tire pressure can cause poor sealing of the tire bead. If the tire pressure is excessively low, there is the possibility of wheel deformation and/or tire separation. So keep your tire pressures at the proper level. If a tire needs frequent refilling, have it checked by your Lexus dealer.
High tire pressure produces a harsh ride, handling problems, excessive wear at the center of the tire tread, and a greater possibility of tire damage from road hazards.

The following instructions for checking tire pressure should be observed:

- **The pressure should be checked only when the tires are cold.** If your vehicle has been parked for at least 3 hours and has not been driven for more than 1 mile or 1.5 km since, you will get an accurate cold tire pressure reading.

- **Always use a tire pressure gauge.** The appearance of the tire can be misleading. Besides, tire pressures that are even just a few pounds off can degrade handling and ride.

- **Do not bleed or reduce tire pressure after driving.** It is normal for the tire pressure to be higher after driving.

- **Never exceed the vehicle capacity weight.** The passenger and luggage weight should be located so that the vehicle is balanced.

- **Be sure to reinstall the tire inflation valve caps.** Without the valve caps, dirt or moisture could get into the valve core and cause air leakage. If the caps have been lost, have new ones put on as soon as possible.

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**ROTATING TIRES**

To equalize the wear of your tires, rotate the tires every 7500 miles (12000 km).

The wheel assemblies are of the uni-directional type and must be rotated only between the front and rear as illustrated above.

When rotating tires, check for uneven wear and damage. Abnormal wear is usually caused by incorrect tire pressure, improper wheel alignment, out-of-balance wheels, or severe braking.

After rotation, be sure to bring the front and rear tire pressures to specification and check wheel nut tightness.

Before storing radial, snow or studded tires, mark the direction of rotation and be sure to install them in the same direction when replacing. Tires should be stored in a cool dry place.
CHECKING AND REPLACING TIRES

When to replace your tires

Replace the tires when the tread wear indicators show.

The tires on your Lexus have built-in tread wear indicators to help you know when the tires need replacement. When the tread depth wears to 0.06 in (1.6 mm) or less, the indicators will appear. If you can see the indicators in two or more adjacent grooves, the tire should be replaced.

The effectiveness of snow tires is lost if the tread wears down below 0.16 in. (4 mm).

If you have tire damage such as cuts, splits, cracks deep enough to expose the fabric, or bulges indicating internal damage, the tire should be replaced.

If a tire often goes flat or cannot be properly repaired due to the size or location of a cut or other damage, it should be replaced. If you are not sure, consult with your Lexus dealer.

If an air loss occurs while driving, do not continue driving with a deflated tire. Driving even a short distance can damage a tire beyond repair.

Uniform tire quality grading

This information has been prepared in accordance with regulations issued by the National Highway Traffic Safety Administration of the U.S. Department of Transportation. It provides the purchasers and/or prospective purchasers of Lexus vehicles with information on uniform tire quality grading.

Your Lexus dealer will help answer any questions you may have as you read this information.

DOT quality grades – All passenger vehicle tires must conform to Federal Safety Requirements in addition to these grades. These quality grades are molded on the sidewall.
**Treadwear** – The treadwear grade is a comparative rating based on the wear rate of the tire when tested under controlled conditions on a specified government test course. For example, a tire graded 150 would wear one and a half (1-1/2) times as well on the government course as a tire graded 100. The relative performance of tires depends upon the actual conditions of their use, however, and may depart significantly from the norm due to variations in driving habits, service practices and differences in road characteristics and climate.

**Traction A, B, C** – The traction grades, from highest to lowest, are A, B and C, and they represent the tire’s ability to stop on wet pavement as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tire marked C may have poor traction performance.

Warning: The traction grade assigned to this tire is based on braking (straightahead) traction tests and does not include cornering (turning) traction.

**Temperature A, B, C** – The temperature grades are A (the highest), B, and C, representing the tire’s resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel. Sustained high temperature can cause the material of the tire to degenerate and reduce tire life, and excessive temperature can lead to sudden tire failure. The grade C corresponds to a level of performance which all passenger car tires must meet under the Federal Motor Vehicle Safety Standard No. 109. Grades B and A represent higher levels of performance on the laboratory test wheel than the minimum required by law.

Warning: The temperature grade of this tire is established for a tire that is properly inflated and not overinflated. Excessive speed, underinflation, or excessive loading, either separately or in combination can cause heat buildup and possible tire failure.

**Tire selection**

When replacing a tire, use only the same size and construction as originally installed and with the same or greater load capacity.

Using any other size or type of tire may seriously affect handling, ride, speedometer/odometer calibration, ground clearance, and clearance between the body and tires or snow chains.

Do not mix radial, belted, or conventional tires on your vehicle.
It can cause dangerous handling characteristics, resulting in loss of control. If you need to charge from conventional tires to radial tires or vice versa, replace them as a set.

**INSTALLING SNOW TIRES AND CHAINS**

**When to use snow tires or chains**

Snow tires or chains are recommended when driving on snow or ice.

On wet or dry roads, conventional or radial tires provide better traction than snow or studded tires.

**Snow tire selection**

If you need snow tires, select the same size, construction and load capacity as the original tires on your Lexus.

Do not use tires other than stated above. Since your vehicle has radial tires as original equipment, make sure your snow tires also have radial construction. Do not install studded tires without first checking local regulations for possible restrictions.

**Snow tire installation**

Snow tires should be installed on all wheels.

installing snow tires only on the front wheels can lead to an excessive difference in road grip capability between the front and rear tires, which could cause loss of vehicle control.

**CAUTION:**

- Snow tires should be inflated to 4 psi (0.3 kg/cm², 30 kPa) above the normal cold tire recommendations, but never above the maximum cold tire pressure shown on the tire sidewall.
- Never drive over 75 mph (120 km/h) with any type of snow tires.

**Tire chain selection**

Regulations regarding the use of tire chains vary according to location or type of road. Always check the local regulations before installing chains.

Use SAE Class “S” type radial tire chains except radial cable chains or V-bar type chains.

**Chain installation**

When installing chains on your tires, carefully follow the instructions of the chain manufacturer.

Install the chains on the front tires as tightly as possible. Do not use tire chains on the rear tires. Retighten chains after driving 1/4 – 1/2 mile (0.5 – 1.0 km).

**CAUTION:**

- Do not exceed 30 mph (50 km/h) or the chain manufacturer’s recommended speed limit, whichever is lower.
- Drive carefully avoiding bumps, holes, and sharp turns, which may cause the vehicle to bounce.
- Avoid sharp turns or locked-wheel braking, as use of chains may adversely affect vehicle handling.
REPLACING WHEELS

When to replace your wheels

If you have wheel damage such as bends, cracks or heavy corrosion, the wheel should be replaced.

If you fail to replace damaged wheels, a tire may slip off a wheel or they may cause loss of handling control.

Replacement with used wheels is not recommended as they may have been subjected to rough treatment or high mileage and could fail without warning. Also, bent wheels which have been straightened may have hidden structural damage and therefore should not be used. Never use an inner tube in a leaking wheel which is designed for a tubeless tire.

Wheel selection

When replacing wheels, care should be taken to ensure that they are equivalent to those removed in load capacity, diameter, rim width, and offset.

Correct replacement wheels are available at your Lexus dealer.

A wheel of a different size or type may adversely affect handling, wheel and bearing life, brake cooling, speedometer/odometer calibration, stopping ability, headlight aim, bumper height, vehicle ground clearance, arc tire or snow chain clearance to the body and chassis.

ALUMINUM WHEEL PRECAUTIONS

- After driving your vehicle the first 1000 miles (1600 km), check that the wheel nuts are tight.
- If you have rotated, repaired, or changed your tires, check that the wheel nuts are still tight after driving 1000 miles (1600 km).
- When using tire chains, be careful not to damage the aluminum wheels.
- Use only the Lexus wheel nuts and wrench designed for your aluminum wheels.
- When balancing your wheels, use only Lexus balance weights or equivalent and a plastic or rubber hammer.
- As with any wheel, periodically check your aluminum wheels for damage. If damaged, replace immediately.