

2009 Toyota Highlander Limited

2009 MAINTENANCE Maintenance - Highlander

2009 MAINTENANCE**Maintenance - Highlander****OUTSIDE VEHICLE****GENERAL MAINTENANCE**

Performing the following maintenance checks on the vehicle is the owner's responsibility. The owner may perform the maintenance or take the vehicle to a service center. Check the parts of the vehicle described below on a daily basis. In most cases, special tools are not required. It is recommended that the owner perform these checks. The procedures for general maintenance are as follows.

1. GENERAL NOTES

- Maintenance requirements vary depending on the country.
- Check the maintenance schedule in the owner's manual supplement.
- Following the maintenance schedule is mandatory.
- Determine the appropriate time to service the vehicle using either miles driven or months elapsed, whichever reaches the specification first.
- Maintain similar intervals between periodic maintenance, unless otherwise noted.
- Failing to check each vehicle part could lead to poor engine performance and increase exhaust emissions.

2. TIRES

- a. Check the tire inflation pressure with a gauge. Make adjustments if necessary.
- b. Check the surfaces of the tires for cuts, damage or excessive wear.

3. WHEEL NUTS

- a. Check for nuts that are loose or missing. Tighten them if necessary.

4. TIRE ROTATION

- a. Check the maintenance schedule in the owner's manual supplement.

5. WINDSHIELD WIPER BLADES

- a. Check the blades for wear or cracks whenever they are unable to wipe the windshield clean. Replace them if necessary.

6. FLUID LEAKS

- a. Check under the vehicle for leaking fuel, oil, water and other fluids.

NOTE: If you smell gasoline fumes or notice any leaks, locate the cause and correct it.

7. DOORS AND ENGINE HOOD

- a. Check that all of the doors and the hood operate smoothly and that all the latches lock securely.
- b. When the primary latch is released, check that the engine hood secondary latch prevents the hood from opening.

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INSIDE VEHICLE**GENERAL MAINTENANCE**

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2. LIGHTS

- a. Check that the headlights, stop lights, taillights, turn signal lights, and other lights illuminate or blink properly. Also, check if they have enough brightness.
- b. Check that the headlights are aimed properly.

3. WARNING LIGHTS AND BUZZERS

- a. Check that all the warning lights and buzzers are working.

4. HORNS

- a. Check that the horn is working.

5. WINDSHIELD GLASS

- a. Check for scratches, pits or abrasions.

6. WINDSHIELD WIPERS AND WASHER

- a. Check that the windshield washers are aimed properly. Also, check that the center stream of washer fluid sprays on the windshield within the operating range of the wipers.
- b. Check if the wipers streak or not.

7. WINDSHIELD DEFROSTER

- a. When the heater or air conditioning is on the defroster setting, check if air comes out of the defroster outlet.

8. REAR VIEW MIRROR

- a. Check that the rear view mirror is securely mounted.

9. SUN VISORS

- a. Check that the sun visors move freely and are securely mounted.

10. STEERING WHEEL

- a. Check that the steering wheel has the proper amount of free play. Also check for steering difficulty

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and unusual noises (See **PROBLEM SYMPTOMS TABLE**).

11. SEATS

- a. Check that the seat adjusters, seatback recliner and other front seat controls operate smoothly.
- b. Check that all the latches lock securely in all positions.
- c. Check that the locks hold securely in all latched positions.
- d. Check that the headrests move up and down smoothly and that the locks hold securely in all latched positions.
- e. When the rear seatbacks are folded down, check that the latches lock securely.

12. SEAT BELTS

- a. Check that the seat belt system such as the buckles, retractors and anchors operate properly and smoothly.
- b. Check that the belt webbing is not cut, frayed, worn or damaged. Replace if necessary.

13. ACCELERATOR PEDAL

- a. Check that the accelerator pedal operates smoothly. In other words, check that the pedal does not have uneven pedal resistance or become stuck in certain positions.

14. BRAKE PEDAL

- a. Check that the brake pedal operates smoothly.
- b. Check that the pedal has the proper reserve distance and free play.
- c. Start the engine and check the brake booster function.

15. BRAKES

- a. In a safe place, check that the vehicle remains straight when applying the brakes.

16. PARKING BRAKE

- a. Check that the parking brake pedal has the proper amount of travel (see **PARKING BRAKE SYSTEM**).
- b. On a safe incline, check that the vehicle is held securely with only the parking brake applied.

17. AUTOMATIC TRANSAXLE "PARK" MECHANISM

- a. Check the lock release button of the shift lever for proper and smooth operation.
- b. When the shift lever is in the P position and all brakes are released on a low incline, check that the vehicle is stable.

UNDER**HOOD GENERAL MAINTENANCE****1. GENERAL NOTES**

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- Maintain similar intervals between periodic maintenance, unless otherwise noted.
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2. WINDSHIELD WASHER FLUID

- a. Check that there is sufficient fluid in the tank.

3. ENGINE COOLANT LEVEL

- a. Check that the coolant level is between the "FULL" and "LOW" lines on the see-through reservoir.

4. RADIATOR AND HOSES

- a. Check that the front of the radiator is clean and not blocked by leaves, dirt or bugs.
- b. Check the hoses for cracks, kinks, rot or loose connections.

5. BATTERY ELECTROLYTE LEVEL

- a. Check that the electrolyte level of all the battery cells is between the upper and lower level lines on the case.

HINT:

If the electrolyte level is difficult to see, lightly shake the vehicle.

6. BRAKE FLUID LEVEL

- a. Check that the brake fluid levels are near the upper level lines on the see-through reservoirs.

7. ENGINE DRIVE BELT

- a. Check the drive belt for fraying, cracks, wear or oiliness.

8. ENGINE OIL LEVEL

- a. Check the level on the dipstick with the engine stopped.

9. AUTOMATIC TRANSAXLE FLUID LEVEL

AUTOMATIC TRANSAXLE FLUID REFERENCE

Type	See procedure
U151E	See AUTOMATIC TRANSAXLE FLUID
U151F	See AUTOMATIC TRANSAXLE FLUID
U760E	See AUTOMATIC TRANSAXLE FLUID

10. EXHAUST SYSTEM

- a. Check for unusual exhaust sounds or abnormal exhaust fumes. Inspect the cause and repair it.

ENGINE

GENERAL MAINTENANCE

HINT:

Perform these procedures after the engine has cooled down.

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1. INSPECT DRIVE BELT

DRIVE BELT REFERENCE

Type	See procedure
2GR-FE	See <u>INSPECTION</u>
1AR-FE	See <u>ON-VEHICLE INSPECTION</u>

2. INSPECT SPARK PLUGS

SPARK PLUGS REFERENCE

Type	See procedure
2GR-FE	See <u>ON-VEHICLE INSPECTION</u>
1AR-FE	See <u>ON-VEHICLE INSPECTION</u>

3. INSPECT BATTERY

BATTERY REFERENCE

Type	See procedure
2GR-FE	See <u>ON-VEHICLE INSPECTION</u>
1AR-FE	See <u>ON-VEHICLE INSPECTION</u>

4. INSPECT AIR CLEANER FILTER

- a. Remove the air filter.
- b. Visually check that the air filter is not excessively damaged or oily.

HINT:

Oiliness may indicate that the PCV valve is stuck. If necessary, replace the air filter.

- c. Reinstall the air filter.

5. REPLACE AIR CLEANER FILTER

- a. Replace the air filter with a new one.

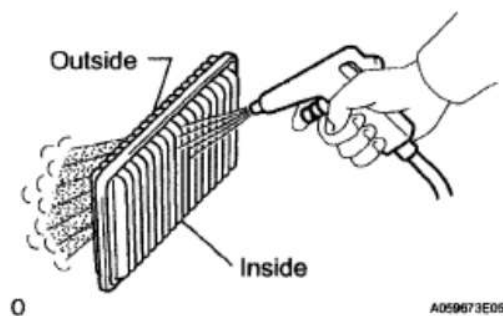


Fig. 1: Cleaning Air Cleaner Filter

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Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. REPLACE ENGINE OIL AND OIL FILTER

ENGINE OIL AND OIL FILTER REFERENCE

Type	See procedure
2GR-FE	See <u>REPLACEMENT</u>
1AR-FE	See <u>REPLACEMENT</u>

7. REPLACE ENGINE COOLANT

ENGINE COOLANT REFERENCE

Type	See procedure
2GR-FE	See <u>COOLANT</u>
1AR-FE	See <u>COOLANT</u>

8. INSPECT GASKET IN FUEL TANK CAP

FUEL TANK CAP REFERENCE

Type	See procedure
2GR-FE	See <u>FUEL TANK CAP</u>
1AR-FE	See <u>FUEL TANK CAP</u>

9. INSPECT FUEL LINES AND CONNECTIONS, FUEL TANK VAPOR VENT SYSTEM HOSES

- a. Visually check the fuel lines for cracks, leakage, loose connections, deformation or tank band looseness.

10. INSPECT EXHAUST PIPES AND MOUNTINGS

- a. Visually check the pipes, hangers and connections for severe corrosion, leaks or damage.

11. INSPECT CHARCOAL CANISTER

CHARCOAL CANISTER REFERENCE

Type	See procedure
2GR-FE	See <u>INSPECTION</u>
1AR-FE	See <u>INSPECTION</u>

BRAKE

GENERAL MAINTENANCE

1. INSPECT BRAKE LINE PIPES AND HOSES

HINT:

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Check in a well-lighted area. Check the entire circumference and length of the brake hoses using a mirror as required. Turn the front wheels fully to the right or left before checking the front brake.

- a. Using a mirror, check the entire circumference and length of the brake lines and hoses for:
 - Damage
 - Wear
 - Deformation
 - Cracks
 - Corrosion
 - Leaks
 - Bends
 - Twists

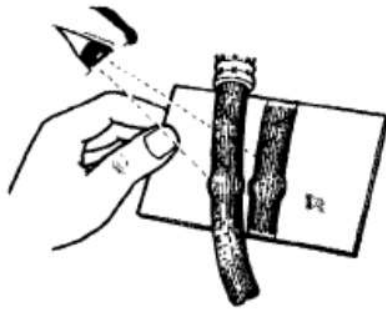


Fig. 2: Checking Entire Circumference And Length Of Brake Lines And Hoses
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSPECT BRAKE PEDAL

(See ADJUSTMENT)

3. INSPECT FRONT BRAKE PADS AND DISCS

(See INSPECTION)

- a. Refer to the hint below.

HINT:

If a squealing or scraping noise is heard from the brake while driving, check the pad wear indicator. If there are traces of the indicator contacting the disc rotor, the disc pad should be replaced.

4. INSPECT REAR BRAKE PADS AND DISCS

(See INSPECTION)

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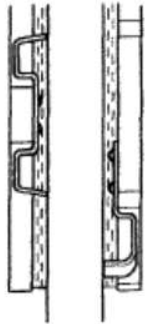


Fig. 3: Identifying Brake Linings

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. INSPECT PARKING BRAKE LININGS

(See INSPECTION)

6. INSPECT OR CHARGE BRAKE FLUID

Fluid:

SAE J1703 or FMVSS No. 116 DOT3

CHASSIS

GENERAL MAINTENANCE

1. INSPECT STEERING LINKAGE AND GEAR HOUSING

- a. Check the steering wheel free play.
- b. Check the steering linkage for looseness or damage.
 1. Check that the tie rod ends do not have excessive play.
 2. Check that the dust seals and boots are not damaged.
 3. Check that the boot clamps are not loose.
 4. Check that the steering gear housing is not damaged.
 5. Check that the connectors are properly connected to the steering gear housing.

2. INSPECT BALL JOINTS AND DUST COVERS

- a. Inspect the ball joints for excessive looseness.
 1. Jack up the front of the vehicle and place wooden blocks with a height of 180 to 200 mm (7.09 to 7.87 in.) under the front tires.
 2. Lower the vehicle until the front coil spring has about half its ordinary load. Place stands under the vehicle for safety.
 3. Check that the front wheels are pointing straight ahead. Use wheel chocks on all 4 wheels.
 4. Using a lever, pry up the end of the lower arm. Check the amount of play.

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Maximum ball joint vertical play:**0 mm (0 in.)**

If there is any play, replace the ball joint.

b. Check the dust cover for damage.

3. INSPECT DRIVE SHAFT BOOTS

a. Check the drive shaft boots for loose clamps, grease leakage, kinks or damage.

4. INSPECT AUTOMATIC TRANSAXLE

a. Visually check the transmission for fluid leakage. If oil is leaking, find the cause and repair it.

5. INSPECT TRANSFER (for 4WD)

a. Visually check the transfer for oil leakage. If oil is leaking, find the cause and repair it.

6. INSPECT REAR DIFFERENTIAL (for 4WD)

a. For the rear differential oil inspection, refer to the following procedures.

7. ROTATE TIRES

(See **INSPECTION**)

BODY**GENERAL MAINTENANCE****1. TIGHTEN BOLTS AND NUTS ON CHASSIS AND BODY**

a. Where necessary, tighten all the parts of the chassis.

- Front axle and suspension
- Drive train
- Rear axle and suspension
- Brake system
- Engine mounting, etc.

b. Where necessary, tighten all the parts of the body.

- Seat belt system
- Seat
- Doors and hood
- Body mountings
- Fuel tank
- Exhaust pipe system, etc.

2. REPLACE AIR CONDITIONING FILTER

- a. Remove the glove compartment assembly.
- b. Remove the filter case from the filter outlet.

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- c. Remove the filter from the filter case.
- d. Replace the filter with a new one.
- e. Installation is in the reverse order.

3. ROAD TEST

- a. Check the engine and chassis for abnormal noises.
- b. Check that the vehicle does not wander or pull to one side.
- c. Check that the brakes work properly and do not drag.
- d. Do setting of the parking brake shoes.

4. BODY INSPECTION

- a. Check the body exterior for dents, scratches and rust.
- b. Check the underbody for rust and damage. If necessary, replace or repair.

5. FINAL INSPECTION

- a. Check the operation of the body parts.
 - 1. Hood
 - Auxiliary catch operates properly.
 - Hood locks securely when closed.
 - 2. Front and rear doors
 - Door locks operate properly.
 - Doors close properly.
 - 3. Back door
 - Door lock operates properly.
 - 4. Seats
 - Seat adjusts easily and locks securely in any position.
 - Front seatback locks securely in any position.
 - Folding-down rear seatbacks lock securely.
 - 5. Be sure to deliver a clean car. Especially check.
 - Steering wheel
 - Shift lever knob
 - All switch knobs
 - Door handles
 - Seats