

# Toyota Avalon -> Highlander Front Brake Upgrade - Print-Safe Visual Guide

**Vehicle:** 2013 Avalon Limited

**Upgrade:** Highlander dual-piston calipers + rotors/pads + braided lines

**Format:** Letter (8.5x11), grayscale-friendly

## Overview

This guide provides a clear, step-by-step procedure for upgrading the front brakes on a 2013 Toyota Avalon Limited using Highlander dual-piston calipers and matching components. It is written for competent driveway mechanics who value thoroughness and safety.

## Tools and Torque Summary

Tool	Purpose
Floor jack and 2 jack stands	Safe lifting
Lug wrench (21 mm)	Wheel removal
Socket set (10-19 mm)	Calipers and brackets
Torque wrench	Critical fasteners
Flare-nut wrench (10 mm)	Hard-line fitting
Brake bleeder hose and bottle	Bleeding
Wire or bungee cord	Hang calipers
Brake cleaner, anti-seize, grease	Surface prep
DOT 4 brake fluid (1 L minimum)	Bleeding

**Torque Specs:** Bracket 90-105 ft-lb | Slide Pins 20-30 ft-lb | Banjo 22-30 ft-lb | Flare Nut 12 ft-lb | Lugs 76 ft-lb

## Procedure

- Chock rear wheels, loosen lug nuts 1/4 turn, jack and secure front safely.
- Remove wheels; turn steering for better access.
- Crack hard-line fitting at chassis bracket (do not disconnect yet).
- Remove spring retainer clip and loosen banjo bolt at caliper; cap line to prevent drips.
- Remove caliper slide pins and lift caliper; hang with wire. Remove bracket bolts and rotor.
- Clean hub face thoroughly; apply a thin film of anti-seize. Install new rotor and secure with a lug nut.
- Mount Highlander bracket (Torque 90-105 ft-lb).
- Grease abutments, install pads, torque slide pins (20-30 ft-lb).
- Route braided line untwisted; clip into chassis bracket securely.
- Attach banjo bolt with new crush washers (Torque 22-30 ft-lb).
- Tighten hard-line flare nut (12 ft-lb). Repeat the entire procedure on the other side.
- Bleed sequence: RR -> LR -> RF -> LF. Keep reservoir full; bleed until bubble-free.
- Top off fluid, clean any spills, reinstall wheels (Torque 76 ft-lb).

- Bed pads: 6-8 moderate stops (40 to 10 mph) plus 2-3 firm stops (60 to 20 mph); then drive to cool before parking.
- Inspect for leaks; re-torque bolts and lugs after about 100 miles.

## Cautions

- Bleeder screws must be at the top of each caliper, or air will be trapped.
- Confirm banjo line angle; no twist and no stretch through full steering lock.
- Clean hub faces thoroughly to prevent rotor runout.
- Always use new copper crush washers and fresh DOT 4 fluid.

## Pro Tips

- Tap calipers gently during bleeding to dislodge micro-bubbles.
- If pedal remains soft, trigger ABS once or twice on a safe loose surface, then re-bleed fronts.
- After bedding, drive several minutes before parking to avoid pad imprint.
- Use an IR thermometer to verify even rotor temperatures (+/- 15 percent).

## Bleed Sequence Diagram

[Rear Left] <-> [Rear Right] ^ ^ | | [Front Left] <-> [Front Right] Order: RR -> LR -> RF -> LF. Keep master cylinder full throughout.

## Post-Install Checks

- Inspect all banjo fittings, bleeders, and lines for leaks.
- Confirm hoses have slack and no contact through steering range.
- Verify firm pedal feel; if soft, re-bleed front calipers.
- After 100 miles, re-torque caliper bolts and lugs.
- Confirm even pad contact and wear patterns.