Technical Service Information Bulletin

Air Suspension Lean

Service Category Suspension

Section Suspension Control System **Market** USA

Lexus Supports ASE Certification

Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2018	LS500, LS500H	

Introduction

Some 2018 model year LS500 and LS500h vehicles equipped with air suspension may exhibit an uneven ride height appearance (lean) after parked on an uneven road surface. This condition can be observed when viewed from the rear of the vehicle or while driving from behind. Follow the Repair Procedure in this bulletin to address this condition.

NOTE

It is recommended to print this Service Bulletin to record the requested measurement data points.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
EL1906	Calibrate Height Control Neutral Position	1.2	89293-50320 89293-50340	87	99
Combo A	Height Offset Repair Confirmation	0.2			

APPLICABLE WARRANTY

- **This repair is covered under the Lexus Basic Warranty. This warranty is in effect for 48 months or 50,000 miles, whichever occurs first, from the vehicle's in-service date.**
- **Warranty application is limited to occurrence of the specified condition described in this bulletin.**

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Parts Information

PART NUMBER		PART NAME	QTY
PREVIOUS	NEW		
89293-50320 89293-50340		Computer, Suspension Control	–

Repair Procedure

NOTE
- ALL measurements MUST be performed on an alignment rack.
- Use the provided tables in this Service Bulletin to record measurements.

Tension Removal in Vehicle Stabilizer

1. Turn the vehicle ON.

2. In the multi-information display under Settings, turn Access Mode OFF.

3. Operate the vehicle height control switch to the “N” position.

   NOTE
   “N” position is blank on the display.

Figure 1. “N” Position

4. With ONLY the driver seat occupied, drive the vehicle above 13 mph while holding the steering wheel straight, then come to a complete stop.

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Repair Procedure (continued)

Tension Removal in Vehicle Stabilizer (continued)

5. Operate the vehicle height control switch to the “HI” position.

Figure 2. “HI” Position

6. Operate the vehicle height control switch to the “N” position.

7. With ONLY the driver seat occupied, drive the vehicle above 13 mph while holding the steering wheel straight, then come to a complete stop.

8. In a controlled manner, drive the vehicle above 13 mph and make three left and three right turns while holding speed.

NOTE
- The steering wheel MUST be rotated 90 degrees or greater to complete the turns in this step.
- If driving conditions do NOT permit, performing turns consecutively is NOT required.

9. Pull onto an alignment rack (hold the steering wheel straight and stop the vehicle), place the vehicle in Park, and leave the engine ON.

10. With the engine running, exit the vehicle.

11. While outside the vehicle, reach through the window and operate the vehicle height control switch to the “HI” position.

12. While outside the vehicle, reach through the window and operate the vehicle height control switch to the “N” position.

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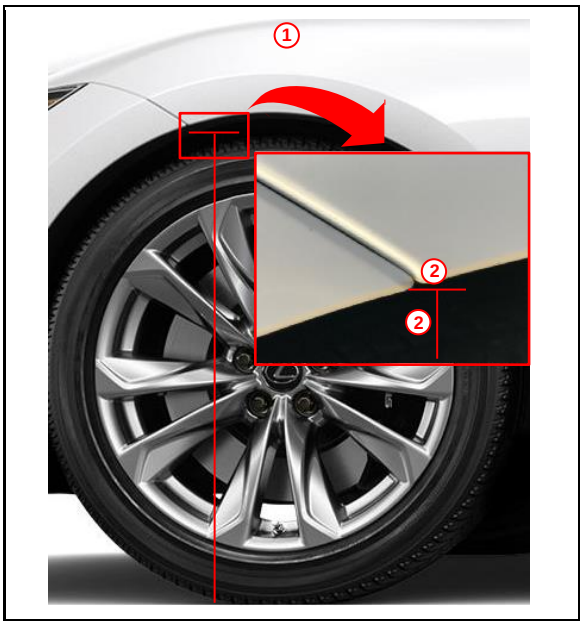
Repair Procedure (continued)

Tension Removal in Vehicle Stabilizer (continued)

13. In Normal mode, measure the fender height of four wheels on an alignment rack. Record the measurements in Table 1 below.

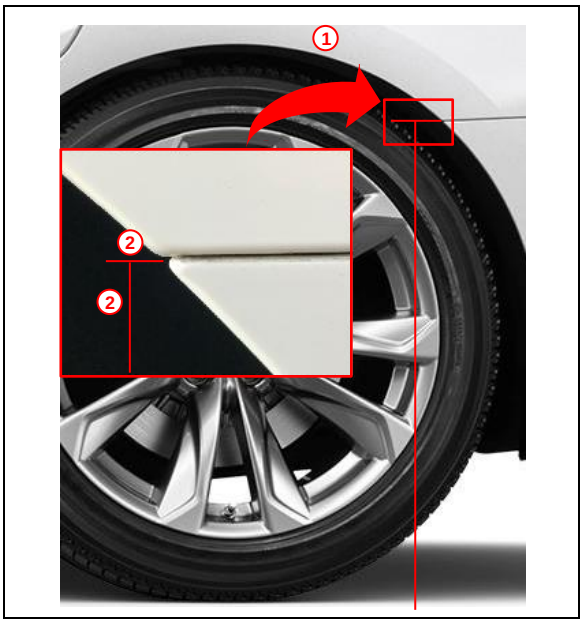
NOTE (See Table 1)
- 2WD Fender Position (A and B): See Figures 3 and 4 (left- and right-hand)
- AWD Fender Position (A and B): See Figures 5 and 6 (left- and right-hand)

Figure 3. "A" Front Position (2WD)



1	Front
2	X: 739 mm (Ground Clearance of Front Fender)

Figure 4. "B" Rear Position (2WD)



1	Rear
2	Y: 650 mm (Ground Clearance of Rear Fender)

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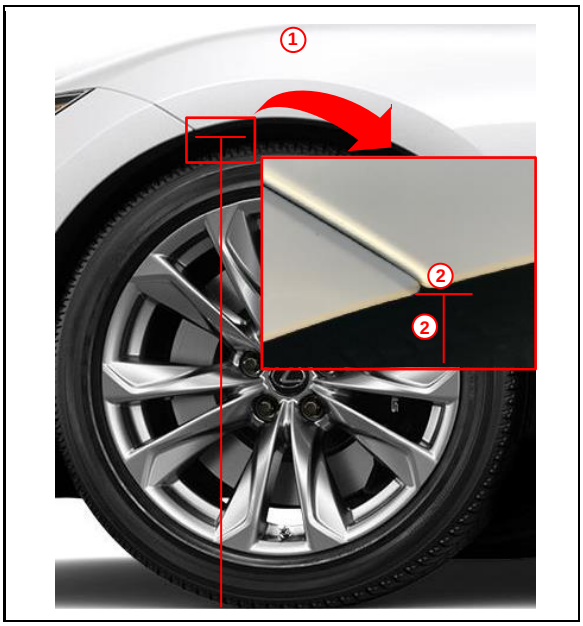
Repair Procedure (continued)

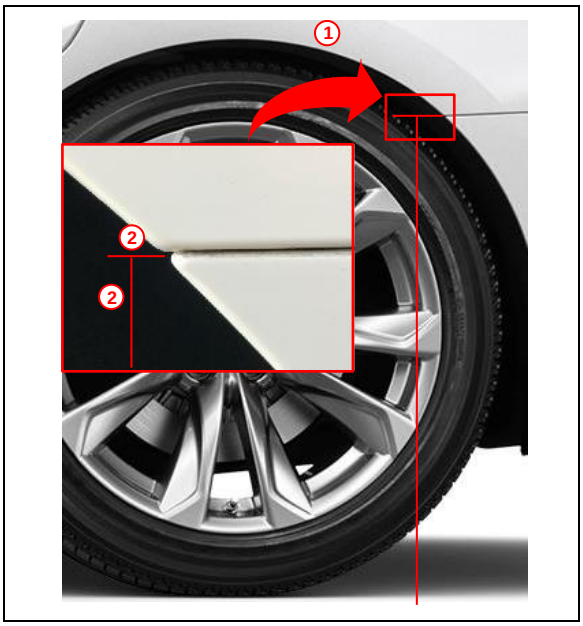
Tension Removal in Vehicle Stabilizer (continued)

Figure 5. "A" Front Position (AWD)



1	Front
2	X: 748 mm (Ground Clearance of Front Fender)

Figure 6. "B" Rear Position (AWD)



1	Rear
2	Y: 660 mm (Ground Clearance of Rear Fender)

Table 1. Fender Height

FRONT LEFT (FL)	FRONT RIGHT (FR)	REAR LEFT (RL)	REAR RIGHT (RR)
_____ mm	_____ mm	_____ mm	_____ mm
(FL – FR) mm = _____ mm		(RL – RR) mm = _____ mm	

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Repair Procedure (continued)

Tension Removal in Vehicle Stabilizer (continued)

14. Measure the suspension height of the four wheels (Points A, B, C, and D) using the Repair Manual link below.

    Record the measurements in Table 2.

> **CAUTION**
>
> **For this procedure ONLY, do NOT adjust the height sensor brackets as indicated in the Repair Manual.**

Refer to TIS, applicable model and model year Repair Manual:

- 2018 LS500:

  Suspension – Alignment/Handling Diagnoses – "Alignment / Handling Diagnosis: Front Wheel Alignment(for 2WD) / (for AWD): Adjustment"

Table 2. Suspension Height

LOCATION	FRONT LEFT (FL)	FRONT RIGHT (FR)	REAR LEFT (RL)	REAR RIGHT (RR)
Point	A = _____ mm	A = _____ mm	C = _____ mm	C = _____ mm
	B = _____ mm	B = _____ mm	D = _____ mm	D = _____ mm

15. Record the air suspension ECU sensor height of ALL four wheels.

> NOTE
>
> In Techstream, "FL, FR, RL, and RR Height After Adjustment."

Table 3. Data List (Height After Adjustment)

FRONT LEFT (FL)	FRONT RIGHT (FR)	REAR LEFT (RL)	REAR RIGHT (RR)
_____ mm	_____ mm	_____ mm	_____ mm

16. Is the fender height greater than 10 mm left-to-right in the front or rear?

Table 4. Fender Height (Refer to Table 1 in this section.)

FRONT LEFT (FL)	FRONT RIGHT (FR)	REAR LEFT (RL)	REAR RIGHT (RR)
_____ mm	_____ mm	_____ mm	_____ mm
(FL – FR) mm = _____ mm		(RL – RR) mm = _____ mm	

- **YES —** Continue to the Confirmation section.
- **NO —** The procedure is complete.

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Repair Procedure (continued)

Confirmation

NOTE
- ALL measurements MUST be performed on an alignment rack.
- Use the provided tables in this Service Bulletin to record measurements.

1. Using Techstream, adjust the suspension height.
   Enter the following menus: *Chassis – Air Suspension – Utility – Height Offset*

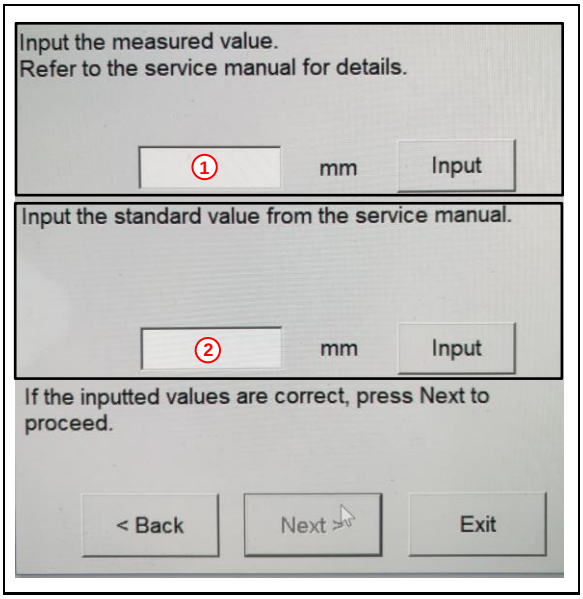
CAUTION
For this procedure ONLY, do NOT adjust the height sensor brackets as indicated in the Repair Manual.

2. Input the measured and standard values of the suspension height.
   A. In the first box (as shown), enter the measured value of the suspension height for each wheel.

NOTE
Use the values found in the Repair Manual during step 14 of this Service Bulletin.

   B. In the second box (as shown), enter the standard value of the suspension height for each drive type.
   - **2WD:**
     FR A – B = 132 mm
     RR C – D = 88 mm
   - **AWD:**
     FR A – B = 152 mm
     RR C – D = 78 mm

Figure 7. Example of Input Values



1	Measured Value of Suspension Height
2	Standard Value of Suspension Height

Table 5. Suspension Height Adjustment

LOCATION	FRONT LEFT (FL)	FRONT RIGHT (FR)	REAR LEFT (RL)	REAR RIGHT (RR)
Point * - *	(A - B) = mm	(A - B) = mm	(C - D) = mm	(C - D) = mm
Use Table 2 Data	(___- ___) = _____ mm	(___- ___) = _____ mm	(___- ___) = _____ mm	(___- ___) = _____ mm

Air Suspension Lean

Repair Procedure (continued)

Confirmation (continued)

3. In a controlled manner, drive above 13 mph and make three left and three right turns while holding speed.

NOTE
- The steering wheel MUST be rotated 90 degrees or greater to complete the turns in this step.
- If driving conditions do NOT permit, performing turns consecutively is NOT required.

4. Pull onto an alignment rack (hold the steering wheel straight and stop the vehicle), place the vehicle in Park, and leave the engine ON.

5. With the engine running, exit the vehicle.

6. While outside the vehicle, reach through the window and operate the vehicle height control switch to the “HI” position.

7. While outside the vehicle, reach through the window and operate the vehicle height control switch to the “N” position.

8. Is the fender height greater than 10 mm left-to-right in the front or rear?

Table 6. Fender Height (Refer to step 13 in Tension Removal in Vehicle Stabilizer section.)

FRONT LEFT (FL)	FRONT RIGHT (FR)	REAR LEFT (RL)	REAR RIGHT (RR)
_____ mm	_____ mm	_____ mm	_____ mm
(FL – FR) mm = _____ mm		(RL – RR) mm = _____ mm	

- **YES —** Continue to step 9.
- **NO —** The procedure is complete.

9. Using Techstream, adjust the fender height.

   Enter the following menus: *Chassis – Air Suspension – Utility – Height Offset*

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Repair Procedure (continued)

Confirmation (continued)

10. Input the measured and standard values of the fender height.
    A. In the first box (as shown), enter the measured value of the fender height using the following formula.

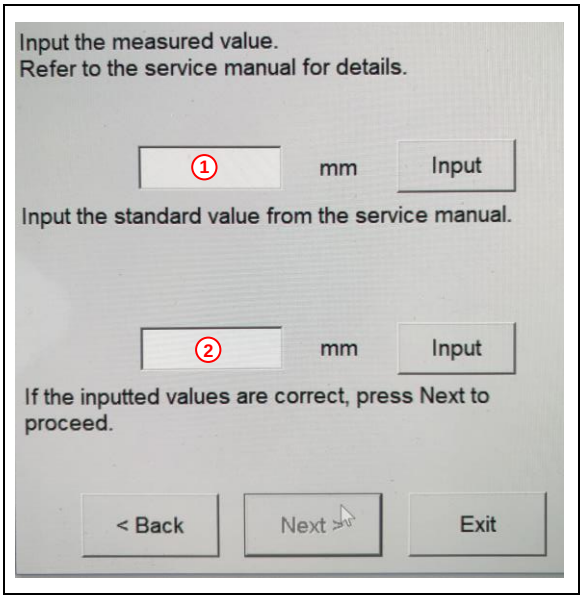
    (X and Y = Fender Height to Ground Measurement)

    (A and C = Center of Wheel to Ground Measurement)

    NOTE
    - A negative (–) value may be entered.
    - Use the measured fender height value for the X and Y values. Do NOT use the standard values from step 13 on pg. 4 of this Service Bulletin.
    - Use X and Y values from Table 6.
    - Use A and C values from Table 2.

    - **2WD FR: 392 mm – Measured Value (X - A) mm**
    - **2WD RR: 303 mm – Measured Value (Y - C) mm**
    - **AWD FR: 401 mm – Measured Value (X - A) mm**
    - **AWD RR: 311 mm – Measured Value (Y - C) mm**

Figure 8. Example of Input Values



1	Measured Value of Fender Height
2	Standard Value of Fender Height

Table 7. Fender Height Adjustment

LOCATION	FRONT LEFT (FL)	FRONT RIGHT (FR)	REAR LEFT (RL)	REAR RIGHT (RR)
Measured Value Calc.	(X - A) = mm	(X - A) = mm	(Y - C) = mm	(Y - C) = mm
Use Table 2 and Table 6 Data	(___- ___) = ____ mm	(___- ___) = ____ mm	(___- ___) = ____ mm	(___- ___) = ____ mm

Formula for Utility (Per Wheel)

(Drive Type Value in Step 10 Above) – (Measured Value Calc. in Table 7) = ____ mm

B. In the second box (as shown in Figure 8), enter the standard value of the fender height for each drive type.

2WD/AWD FR and RR: 0 mm

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Repair Procedure (continued)

Confirmation (continued)

11. In a controlled manner, drive above 13 mph and make three left and three right turns while holding speed.

> NOTE
> - The steering wheel MUST be rotated 90 degrees or greater to complete the turns in this step.
> - If driving conditions do NOT permit, performing turns consecutively is NOT required.

12. Pull onto an alignment rack (hold the steering wheel straight and stop the vehicle), place the vehicle in Park, and leave the engine ON.

13. With the engine running, exit the vehicle.

14. While outside the vehicle, reach through the window and operate the vehicle height control switch to the “HI” position.

15. While outside the vehicle, reach through the window and operate the vehicle height control switch to the “N” position.

16. Is the fender height greater than 10 mm left-to-right in the front or rear?

Table 8. Fender Height (Refer to step 13 in Tension Removal in Vehicle Stabilizer section.)

FRONT LEFT (FL)	FRONT RIGHT (FR)	REAR LEFT (RL)	REAR RIGHT (RR)
_____ mm	_____ mm	_____ mm	_____ mm
(FL – FR) mm = _____ mm		(RL – RR) mm = _____ mm	

- **YES —** Repeat step 10 as needed until fender variance is within 10 mm left-to-right.
- **NO —** The procedure is complete.