

HVAC Servo Motor Malfunction

Service Category Vehicle Interior

Section Heating/Air Conditioning

Market USA

Toyota Supports
ASE Certification 

Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2018 - 2020	LC500, LC500H	

Introduction

Some 2018 – 2020 model year LC 500 and LC 500h vehicles may exhibit one of the following HVAC conditions:

- Uneven temperature or air flow between the vents.
- Little or no air flow from the vent(s).
- Improper MODE control function.

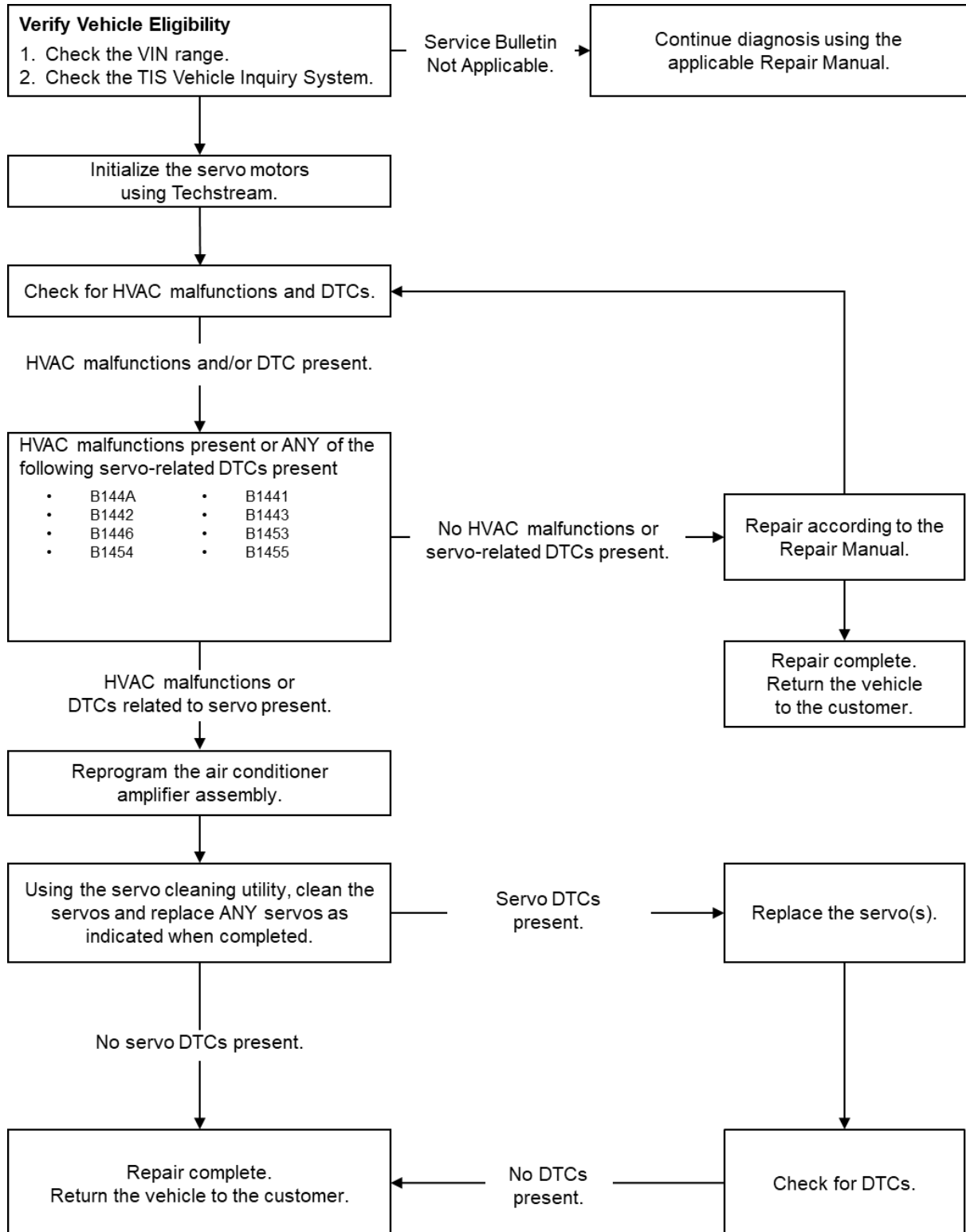
Additionally, some vehicles may store one or more of the following HVAC servo Diagnostic Trouble Codes (DTCs):

- B144A – Air Outlet DEF Damper Control Servo Motor Circuit
- B1441 – Air Mix Damper Control Servo Motor Circuit (Passenger Side)
- B1442 – Air Inlet Damper Control Servo Motor Circuit
- B1443 – Air Outlet Damper Control Servo Motor Circuit
- B1446 – Air Mix Damper Control Servo Motor Circuit (Driver Side)
- B1453 – Air Outlet Damper Cool Control Servo Motor Circuit (Driver Side)
- B1454 – Air Outlet Damper Cool Control Servo Motor Circuit (Passenger Side)
- B1455 – Air Outlet Damper FOOT/DEF Control Servo Motor Circuit (Driver Side)

Follow the procedures in this bulletin to address this condition.

HVAC Servo Motor Malfunction

Operation Flowchart



HVAC Servo Motor Malfunction

Production Change Information

This bulletin applies to vehicles produced **BEFORE** the Production Change Effective VINs shown below.

MODEL	PLANT	DRIVETRAIN	PRODUCTION CHANGE EFFECTIVE VIN
LC 500	Motomachi	2WD	JTHBP5AY#LA007552
			JTHHP5AY#LA007552
			JTHAP5AY#LA007552
			JTHCP5AY#LA007552
			JTHDP5AY#LA007552
JTHEP5AY#LA007552			
LC 500h			JTHAY5AY#LA001834
			JTHEY5AY#LA001834
			JTHDY5AY#LA001834
			JTHHY5AY#LA001834
	JTHBY5AY#LA001834		

Warranty Information

Table 1. Inspection and Reprogramming

OP CODE	MODEL	DESCRIPTION	TIME	OFP	T1	T2
AC2040	LC 500	Reprogram and Redistribute Grease	0.7	88650-#####*	72	41
	LC 500h		0.7			

*Warranty claim MUST be submitted with the correct 10-digit OFP. Choose the correct OFP for the vehicle being repaired by searching Air Conditioning, Amplifier (88650) and Servo Sub-assy, Damper (87106) in the Electronic Parts Catalog using the VIN filter.

HVAC Servo Motor Malfunction

Warranty Information (continued)

Table 2. Reprogram, Redistribution of Grease, and Servo Replacement From the Air Conditioning Unit Removed From the Vehicle

OP CODE	MODEL	DESCRIPTION	TIME	OFFP	T1	T2
AC2041	LC 500	Reprogram and Redistribute Grease, Air Conditioner Box Removal, and R & R One Servo / Module	8.0	87106-#####*	72	41
	LC 500h		8.6			
AC2042	LC 500	Reprogram and Redistribute Grease, Air Conditioner Box Removal, and R & R Two Servos / Modules	8.1			
	LC 500h		8.7			
AC2043	LC 500	Reprogram and Redistribute Grease, Air Conditioner Box Removal, and R & R Three Servos / Modules	8.2			
	LC 500h		8.8			
AC2044	LC 500	Reprogram and Redistribute Grease, Air Conditioner Box Removal, and R & R Four Servos / Modules	8.3			
	LC 500h		8.9			
AC2045	LC 500	Reprogram and Redistribute Grease, Air Conditioner Box Removal, and R & R Five Servos / Modules	8.4			
	LC 500h		9.0			

*Warranty claim MUST be submitted with the correct 10-digit OFFP. Choose the correct OFFP for the vehicle being repaired by searching Air Conditioning, Amplifier (88650) and Servo Sub-Assy, Damper (87106) in the Electronic Parts Catalog using the VIN filter.

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.

HVAC Servo Motor Malfunction

Parts Information

SERVO NAME / DTC	PART NUMBER	PART NAME	QTY
Air Mix Damper Control Servo Motor Circuit (Driver Side) / B1446	87106-11010	Damper Servo Sub-assy, Air Conditioning Radiator, No. 2	0 – 1
Air Outlet Damper Cool Control Servo Motor Circuit (Driver Side) / B1453			
Air Outlet Damper Control Servo Motor Circuit / B1443	87106-11060	Damper Servo Sub-assy, Air Conditioning Radiator, No. 1	0 – 1
Air Outlet Damper FOOT/DEF Control Servo Motor Circuit (Driver Side) / B1455			
Air Mix Damper Control Servo Motor Circuit (Passenger Side) / B1441	87106-11020	Damper Servo Sub-assy, Air Conditioning Radiator, No. 4	0 – 1
Air Outlet Damper Cool Control Servo Motor Circuit (Passenger Side) / B1454			
Air Outlet DEF Damper Control Servo Motor Circuit / B144A	87106-11090	Damper Servo Sub-assy, Air Conditioning Radiator, No. 3	0 – 1
Air Inlet Damper Control Servo Motor Circuit / B1442	87106-11100	Damper Servo Sub-assy, Blower, No. 1	0 – 1

HVAC Servo Motor Malfunction

Required Tools & Equipment

SPECIAL SERVICE TOOLS (SST)	PART NUMBER	QTY
Plastic Pry Tool Kit*	00002-06020-02	1
DCA-8000 Battery Diagnostic Tool*	DCA-8000P T	1

*Essential SST.

NOTE

Additional SSTs may be ordered by calling 1-800-933-8335.

REQUIRED EQUIPMENT	SUPPLIER	PART NUMBER	QTY
Techstream ADVI*	ADE	TSADVUNIT	1
Techstream 2.0		TS2UNIT	
Techstream Lite		TSLITEPDLR01	
Techstream Lite (Green Cable)		TSLP2DLR01	
Robinair R1234YF A/C Machine		ROB118150008	1

*Essential SST.

NOTE

- Only ONE of the Techstream units listed above is required.
- Software version 17.00.020 or later is required.
- Additional Techstream units may be ordered by calling Approved Dealer Equipment (ADE) at 1-800-368-6787.

HVAC Servo Motor Malfunction

Calibration Information

MODEL	MODEL YEAR	CALIBRATION ID	
		PREVIOUS	NEW
LC 500, LC 500h	2018	886501101003	8865F1101001
	2019	886501101101	8865F1102001
	2020	886501101201	

Confirmation Procedure

1. Confirm the condition exists.
 Does the vehicle exhibit one or more of the following conditions?
 - Uneven temperature or air flow between the vents.
 - Little or no air flow from vent(s).
 - Improper MODE control function.
 - **YES** — Continue to the Flash Reprogramming Procedure section.
 - **NO** — Continue to step 2.

2. Using Techstream, check for the following stored DTCs:
 - B144A – Air Outlet DEF Damper Control Servo Motor Circuit
 - B1441 – Air Mix Damper Control Servo Motor Circuit (Passenger Side)
 - B1442 – Air Inlet Damper Control Servo Motor Circuit
 - B1443 – Air Outlet Damper Control Servo Motor Circuit
 - B1446 – Air Mix Damper Control Servo Motor Circuit (Driver Side)
 - B1453 – Air Outlet Damper Cool Control Servo Motor Circuit (Driver Side)
 - B1454 – Air Outlet Damper Cool Control Servo Motor Circuit (Passenger Side)
 - B1455 – Air Outlet Damper FOOT/DEF Control Servo Motor Circuit (Driver Side)
 Are ANY of the DTCs listed above present?
 - **YES** — Continue to the Flash Reprogram Procedure section.
 - **NO** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.

HVAC Servo Motor Malfunction

Flash Reprogramming Procedure

1. Flash Reprogram the air conditioning amplifier assembly.

NOTE

The air conditioning amplifier flash reprogram is only performed one time if the air conditioning amplifier has NOT been flash reprogrammed previously.

Follow the procedure outlined in [L-SB-0001-18](#), *Techstream ECU Flash Reprogramming Procedure*, and flash the air conditioning amplifier with the NEW calibration file update.

NOTICE

- Damage to the air conditioning amplifier may occur if the correct battery charge mode setting is NOT used.
- Power Supply Mode is used to maintain battery voltage at 13.5V while flash reprogramming.
- For details on how to use the battery diagnostic tool, refer to the [DCA-8000 Battery Diagnostic Tool Instruction Manual](#) located in *TIS – Diagnostics – Tools & Equipment – Battery Diagnostics*.

HVAC Servo Motor Malfunction

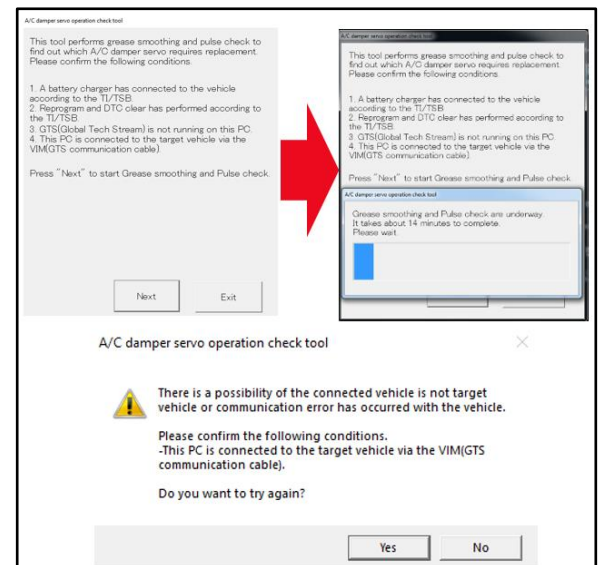
Servo Cleaning Procedure

1. Continue with the battery diagnostic tool connected using the “Power Supply Mode” ONLY.
2. Confirm flash reprogramming of the air conditioning amplifier is complete.
3. BEFORE using the AC damper servo operation check tool, manually set the front and rear air conditioning to the following settings:
 - MODE – Face
 - Temperature – Max Cold
 - Air Inlet – Recirculation
4. Select the following link to download the AC damper servo operation check tool onto the Techstream desktop: [AC damper servo operation check tool download](#).
5. Confirm the ignition is in the IG-ON position and the Techstream unit is connected to the DLC3 connector.
6. Confirm NO other programs on the Techstream unit are currently communicating with the vehicle.
7. Double-click on the AC damper servo operation check tool from the Techstream desktop.
8. Click on NEXT to start the AC damper servo operation check tool and the progress bar will show. It will take between 8 – 14 minutes to complete the cleaning process depending on the condition of the servos. The completion rate of the progress bar will show between 50% – 100%.

NOTE

If the connection between Techstream and the vehicle is interrupted during the cleaning process, the error message in Figure 1 will also display. To reconnect, turn OFF the Techstream unit and disconnect it from the DLC3 connector, reconnect Techstream and confirm connections, and turn ON the Techstream unit and restart the cleaning process.

Figure 1.



HVAC Servo Motor Malfunction

Servo Cleaning Procedure (continued)

9. When the cleaning process is completed, the DTC check result screen shown below will be displayed. If ANY DTC description is output, the servo related to it will require replacement.

Are ANY DTC descriptions output?

- **YES** — Check the DTC description and Servo Location Guide and replace the appropriate servo according to the displayed DTC description (Figure 2).
- **NO** — Complete steps 10 – 11 to complete the repair and return the vehicle to the customer (Figure 3).

Figure 2.

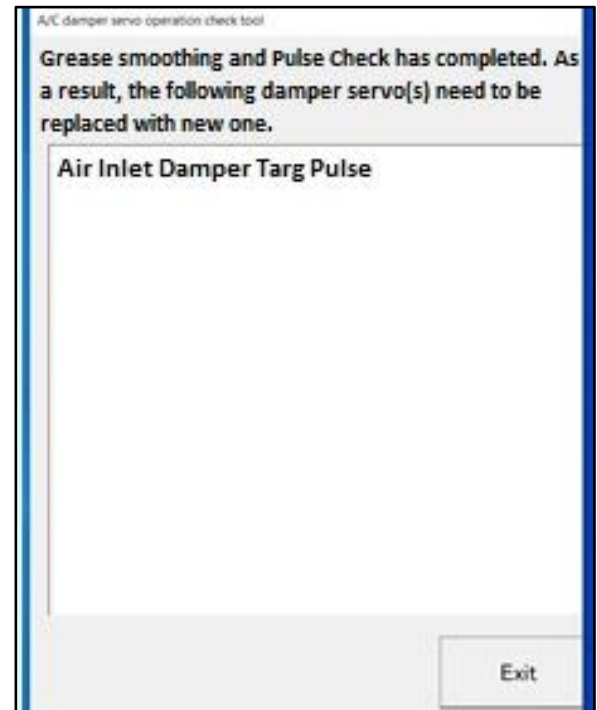
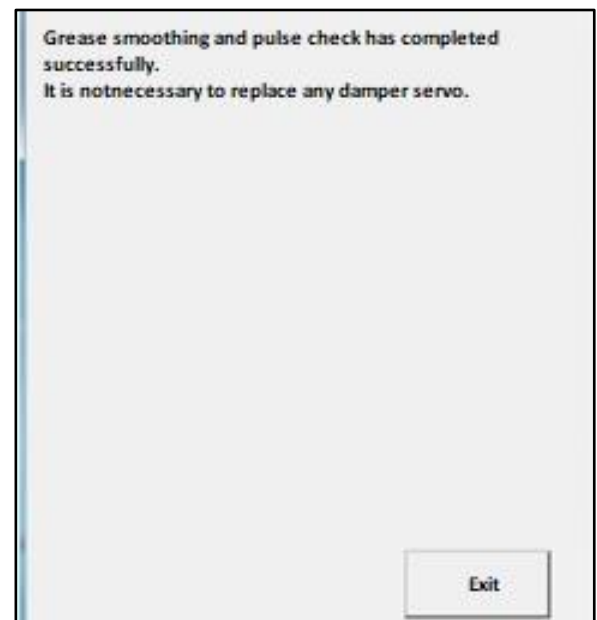


Figure 3.



HVAC Servo Motor Malfunction

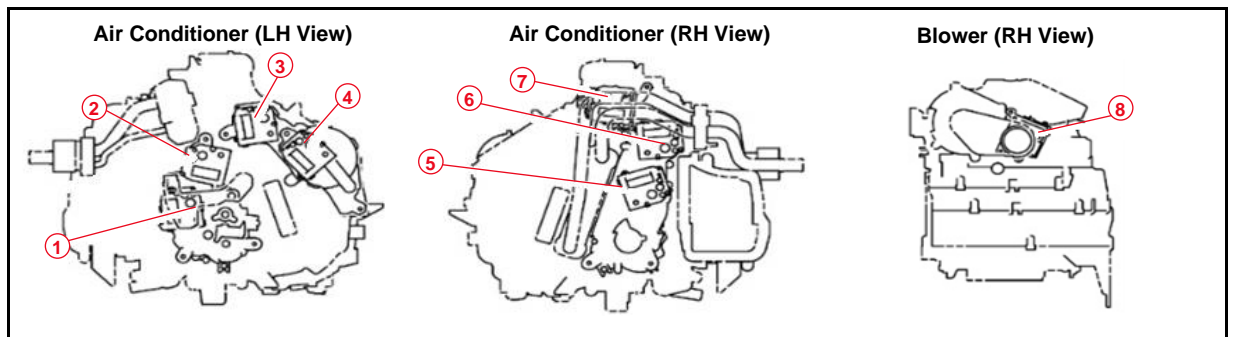
Servo Cleaning Procedure (continued)

10. The Servo Cleaning Operation is complete. Turn OFF the ignition and click “EXIT”.
11. Turn OFF and disconnect the DCA-8000 battery diagnostic tool from the battery.

Servo Location Guide

If there were any DTC descriptions output in step 9 in the Servo Cleaning Procedure, replace the servo(s) per the replacement steps in the Servo Sub-assembly Replacement Procedure section for the appropriate servo requiring replacement.

Figure 4.



SERVO LOCATION	AC DAMPER OPERATION CHECK TOOL DTC DESCRIPTION OUTPUT	RELATED DTC(S)	SERVO PART NO.	SERVO/MODULE CONFIGURATION
1	Air Mix Servo Targ Pulse (D)	B1446 / B1453	87106-11010	Two Servos / One Module
2	Cool A/M Servo Targ Pls (D)			
3	A/O FACE Targ Pulse (D)	B1443 / B1455	87106-11060	
4	A/O FOOT/DEF Targ Pulse (D)			
5	Air Mix Servo Targ Pulse (P)	B1441 / B1454	87106-11020	
6	Cool A/M Servo Targ Pls (P)			
7	A/O Damper DEF Pos (D Side)	B144A	87106-11090	One Servo / One Module
8	Air Inlet Damper Targ Pulse	B1442	87106-11100	

HVAC Servo Motor Malfunction

Damper Servo Sub-assy Replacement Procedure

1. Does the vehicle exhibit one or more of the following DTCs?
 - B144A – Air Outlet DEF Damper Control Servo Motor Circuit
 - B1441 – Air Mix Damper Control Servo Motor Circuit (Passenger Side)
 - B1443 – Air Outlet Damper Control Servo Motor Circuit
 - B1446 – Air Mix Damper Control Servo Motor Circuit (Driver Side)
 - B1453 – Air Outlet Damper Cool Control Servo Motor Circuit (Driver Side)
 - B1454 – Air Outlet Damper Cool Control Servo Motor Circuit (Passenger Side)
 - B1455 – Air Outlet Damper FOOT/DEF Control Servo Motor Circuit (Driver Side)
 - **YES** — Continue to step 2.
 - **NO** — Go to step 7.

2. Remove the air conditioning radiator assembly.
Refer to TIS, applicable model and model year Repair Manual:
 - [2018 – 2020](#) LC 500:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Front Air Conditioning Unit: Removal”
 - [2018 – 2020](#) LC 500h:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Front Air Conditioning Unit: Removal”

3. Replace the faulty servo(s).
Refer to TIS, applicable model and model year Repair Manual:
 - [2018 – 2020](#) LC 500:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Front Air Conditioning Unit: Disassembly”
 - [2018 – 2020](#) LC 500h:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Front Air Conditioning Unit: Disassembly”

4. Reassemble the air conditioning radiator assembly.
Refer to TIS, applicable model and model year Repair Manual:
 - [2018 – 2020](#) LC 500:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Front Air Conditioning Unit: Reassembly”
 - [2018 – 2020](#) LC 500h:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Front Air Conditioning Unit: Reassembly”

HVAC Servo Motor Malfunction

Damper Servo Sub-assy Replacement Procedure (continued)

5. Reinstall the air conditioning radiator assembly.
Refer to TIS, applicable model and model year Repair Manual:
 - [2018 – 2020](#) LC 500:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Front Air Conditioning Unit: Installation”
 - [2018 – 2020](#) LC 500h:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Front Air Conditioning Unit: Installation”

6. If ALL faulty servos have been replaced, go to the Completion Procedure section to initialize and check servo operation.

7. Does the vehicle exhibit the following DTC?
 - B1442 – Air Inlet Damper Control Servo Motor Circuit
 - **YES** — Continue to step 8.
 - **NO** — Go to the Completion Procedure section.

8. Remove the air conditioning radiator assembly.
Refer to TIS, applicable model and model year Repair Manual:
 - [2018 – 2020](#) LC 500:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Front Air Conditioning Unit: Removal”
 - [2018 – 2020](#) LC 500h:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Front Air Conditioning Unit: Removal”

9. Replace the air inlet damper control servo motor circuit.
Refer to TIS, applicable model and model year Repair Manual:
 - [2018 – 2020](#) LC 500:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Blower Unit: Disassembly”
 - [2018 – 2020](#) LC 500h:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Blower Unit: Disassembly”

HVAC Servo Motor Malfunction

Damper Servo Sub-assy Replacement Procedure (continued)

10. Reassemble the blower unit.
Refer to TIS, applicable model and model year Repair Manual:
 - [2018 – 2020](#) LC 500:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Blower Unit: Reassembly”
 - [2018 – 2020](#) LC 500h:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Blower Unit: Reassembly”
11. Reinstall the air conditioning radiator assembly/blower unit into the vehicle.
Refer to TIS, applicable model and model year Repair Manual:
 - [2018 – 2020](#) LC 500:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Front Air Conditioning Unit: Installation”
 - [2018 – 2020](#) LC 500h:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Front Air Conditioning Unit: Installation”
12. If all faulty servos have been replaced, initialize and check servo operation in the Completion Procedure on page 14.

Completion Procedure

1. Initialize the servo(s).
Refer to TIS, applicable model and model year Repair Manual
 - [2018 – 2020](#) LC 500:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Air Conditioning System: Initialization”
 - [2018 – 2020](#) LC 500h:
Vehicle Interior – Heating/Air Conditioning – “Heating / Air Conditioning: Air Conditioning System: Initialization”
2. Check for DTCs.
3. If the servo(s) does(do) NOT function correctly, replace it(them).
4. Restore the vehicle back to its assembled condition.
5. Confirm the condition no longer exists.