TECHNICAL INSTRUCTIONS

FOR

SAFETY RECALL KLF

POTENTIAL LOSS OF POWER BRAKE ASSIST

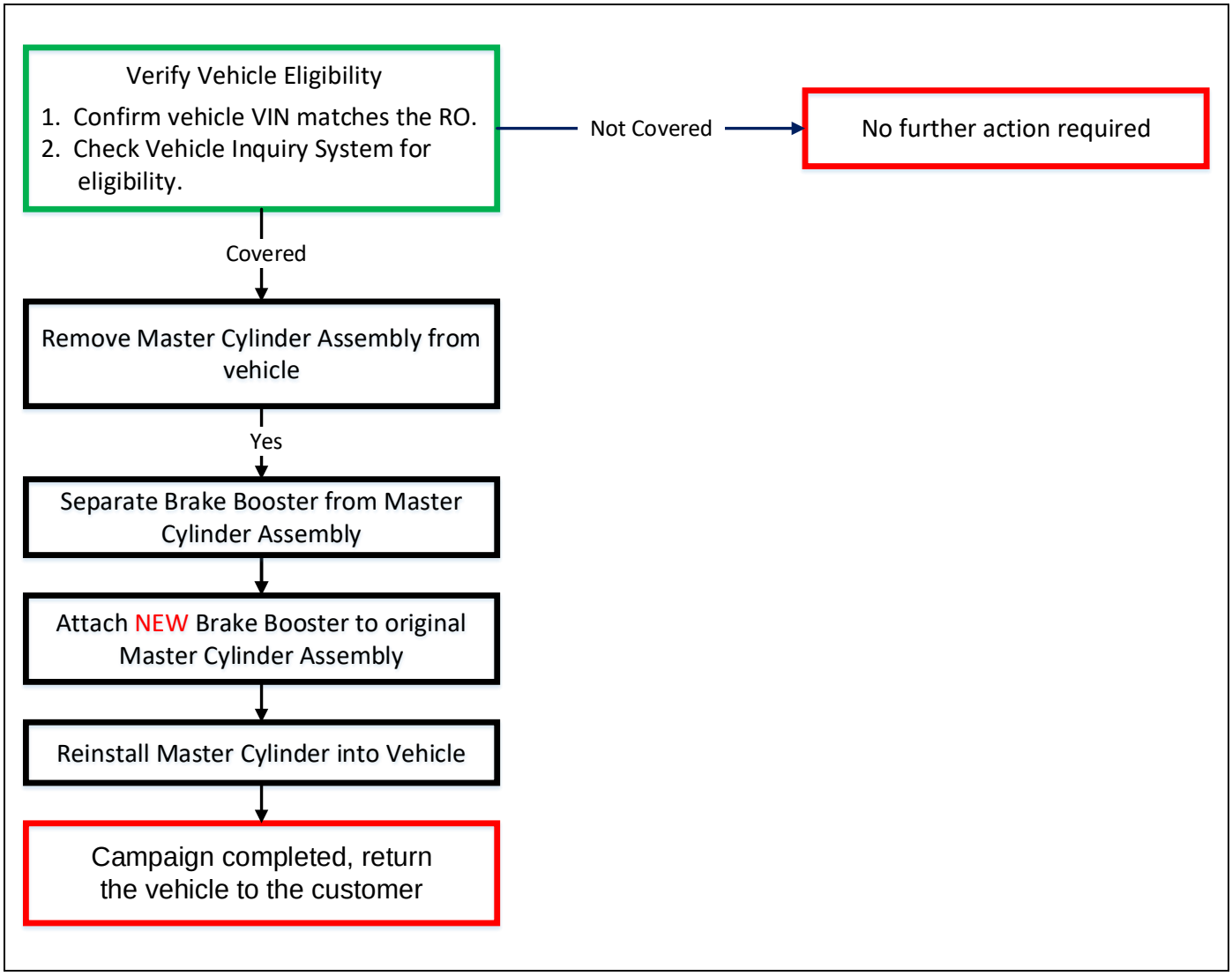
CERTAIN 2019 LS 500, LS 500h, LC 500

The repair quality of covered vehicles is extremely important to Lexus. All dealership technicians performing this recall are required to successfully complete the most current version of the E-Learning course "Safety Recall and Service Campaign Essentials". To ensure that all vehicles have the repair performed correctly; technicians performing this recall repair are required to currently hold at least one of the following certification levels:

- **Senior**
- **Master**

It is the dealership's responsibility to select technicians with the above certification level or greater to perform this recall repair. Carefully review your resources, the technician skill level, and ability before assigning technicians to this repair. It is important to consider technician days off and vacation schedules to ensure there are properly trained technicians available to perform this repair at all times.

I. OPERATION FLOW CHART



II. IDENTIFICATION OF AFFECTED VEHICLES

1. CHECK VEHICLE FOR CAMPAIGN ELIGIBILITY

a. Compare the vehicles VIN to the VIN listed on the Repair Order to ensure they match.

b. Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this Campaign, and that it has not already been completed.

Note: TMNA warranty will not reimburse dealers for repairs completed on vehicles that are not affected or were previously completed, even by another dealer.

III. PREPARATION

A. PARTS

Model	Part Number	Part Description	Quantity
LS 500 / LS 500h	04009-57350	Brake Pump Assy w/ Accumulator	1
LC 500	04009-57111	Brake Pump Assy w/ Accumulator	1

B. TOOLS & EQUIPMENT

- Techstream
- Standard Hand Tools
- Torque Wrench

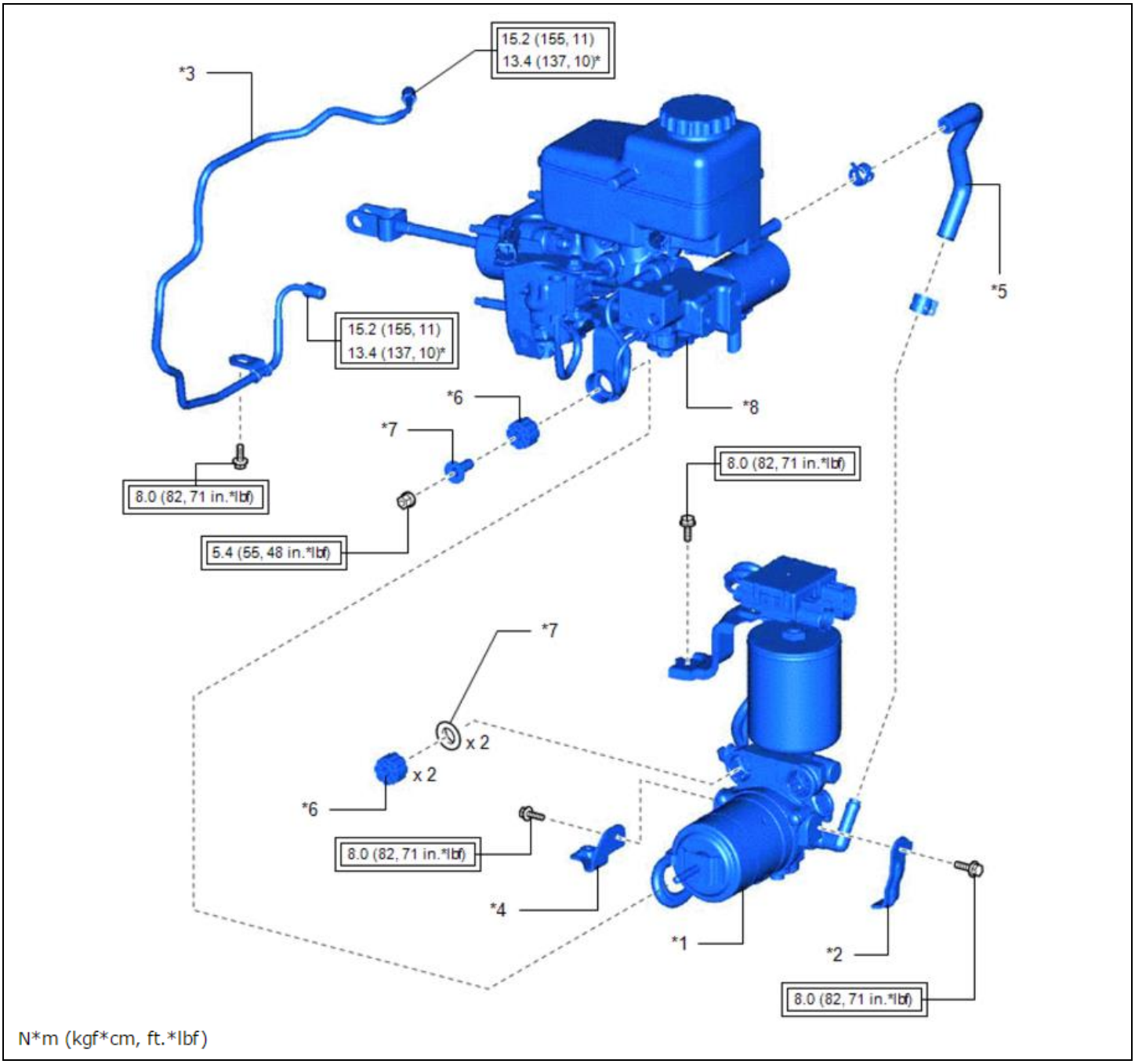
C. MATERIALS

- Brake Fluid: SAE J1703 or FMVSS No. 116 DOT 3; SAE J1704 or FMVSS No. 116 DOT 4

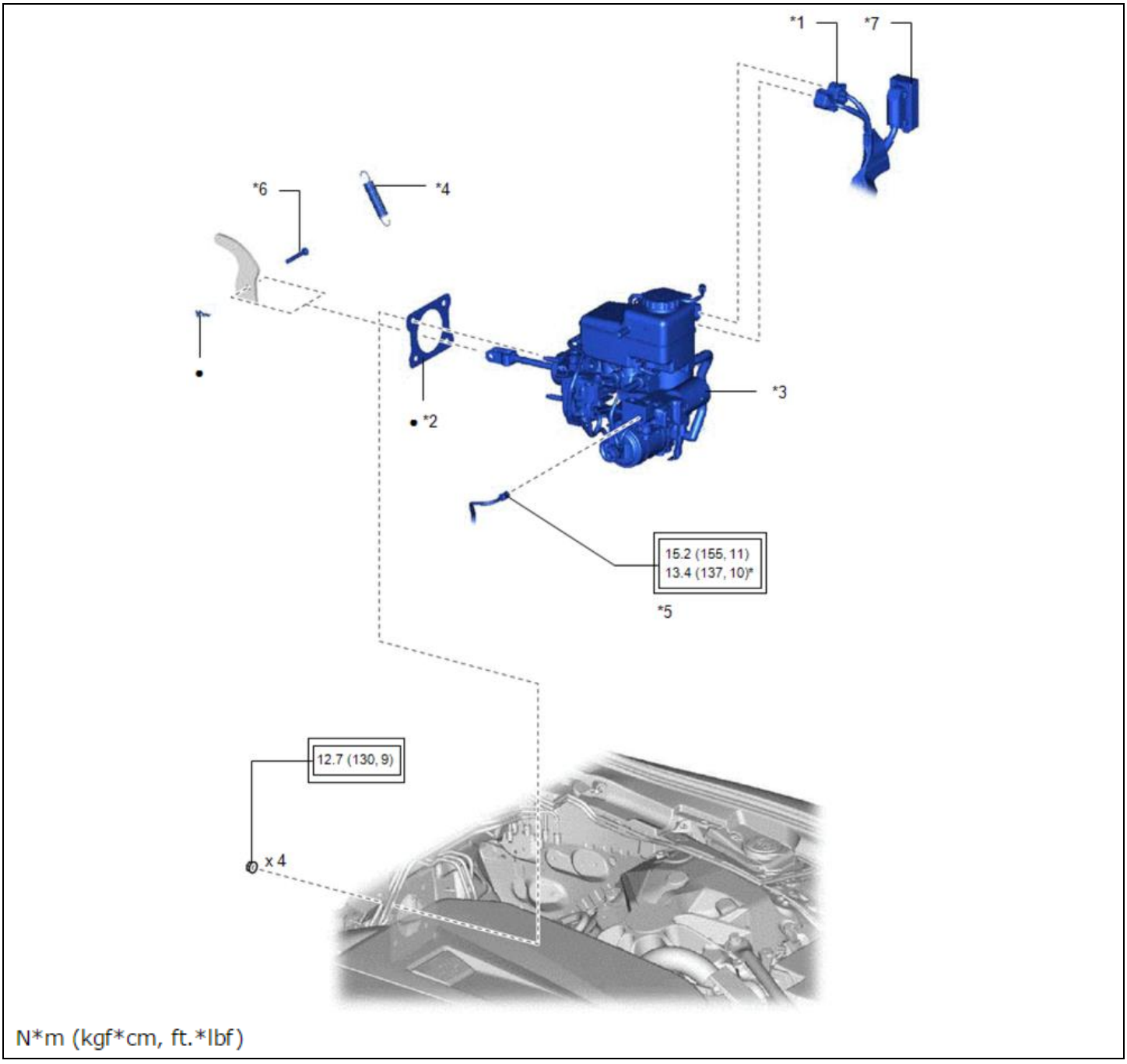
IV. BACKGROUND

In the subject vehicles, there is a possibility the brake booster pump may have been manufactured improperly, and in some cases, it may stop operating. If the brake booster pump stops operating, multiple warning lights and messages will illuminate, and/or audible chimes will sound. In this condition, braking assist could be lost completely after several brake pedal applications, resulting in increased stopping distance. In addition, the Vehicle Stability Control will become deactivated, and other vehicle features could be affected. Deactivating the Vehicle Stability Control system may cause the subject vehicles to not meet the certain requirements of FMVSS No. 126. A deactivated Vehicle Stability Control or a sudden and complete loss of braking assist while driving could increase the risk of a crash.

V. COMPONENTS



*1	BRAKE BOOSTER WITH ACCUMULATOR PUMP ASSEMBLY	*2	NO. 1 BRAKE ACTUATOR BRACKET
*3	NO. 2 BRAKE ACTUATOR TUBE	*4	TUBE CLAMP BRACKET
*5	RESERVOIR HOSE	*6	BRAKE BOOSTER PUMP BUSH
*7	BRAKE BOOSTER PUMP COLLAR	*8	BRAKE MASTER WITH STROKE SIMULATOR CYLINDER ASSEMBLY



N*m (kgf*cm, ft.*lbf)

*1	BRAKE BOOSTER PUMP CONNECTOR	*2	BRAKE MASTER CYLINDER GASKET
*3	BRAKE MASTER WITH STROKE SIMULATOR CYLINDER ASSEMBLY	*4	BRAKE PEDAL RETURN SPRING
*5	BRAKE TUBE	*6	PUSH ROD PIN
*7	BRAKE ACTUATOR CONNECTOR	-	-

VI. REMOVE MASTER CYLINDER ASSEMBLY

1. CHECK FOR DTC'S

a. Using a Techstream, check for Diagnostic Trouble Codes.

Note: This Safety Recall covers only the replacement of the brake booster pump, as detailed in these instructions. It does not cover the diagnosis or replacement of any other parts on the vehicle, including the hybrid system.

2. REMOVE MASTER CYLINDER ASSEMBLY

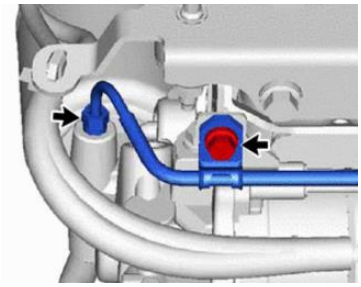
a. Follow the instructions detailed in the Repair Manual to remove the Master Cylinder Assembly from the vehicle.

LS 500: BRAKE SYSTEM: BRAKE MASTER CYLINDER: REMOVAL; 2019 - 2020
(RM100000001EVNV)

LS 500h: BRAKE SYSTEM: BRAKE MASTER CYLINDER: REMOVAL; 2019 - 2020
(RM100000001EVZL)

LC 500: BRAKE SYSTEM: BRAKE MASTER CYLINDER: REMOVAL; 2019 - 2020
(RM100000001408T)

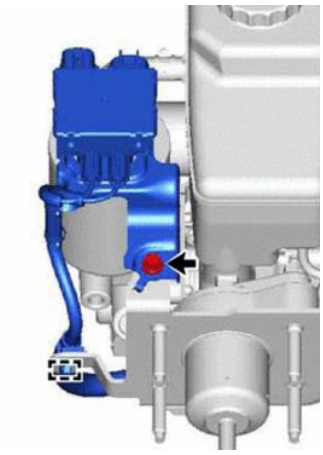
VII. SEPERATE BRAKE BOOSTER



1. REMOVE NO. 2 BRAKE ACTUATOR TUBE

a. Using a union wrench, disconnect the No.2 brake actuator tube. DELETE

b. Remove the bolt and No. 2 brake actuator tube.

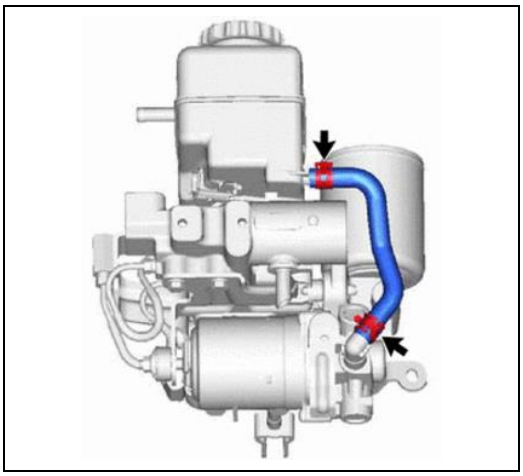


2. REMOVE BRAKE BOOSTER PUMP

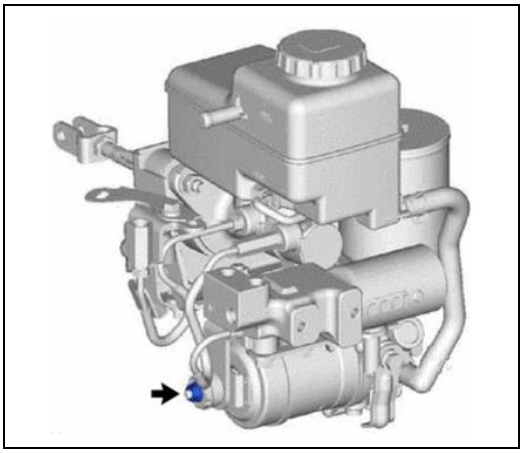
a. Detach the clip from the bracket.

b. Remove the bolt.

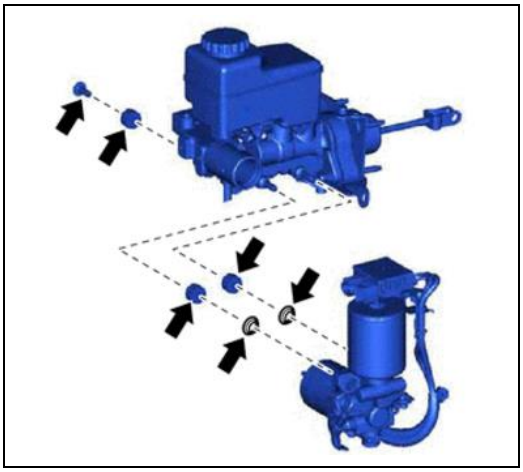
c. Separate the case from the master cylinder bracket.



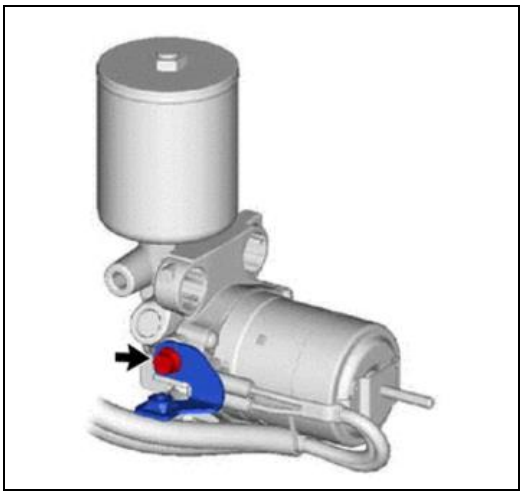
d. Slide the clamps and disconnect the reservoir hose.



e. Remove the nut.
f. Separate the brake booster from the master cylinder assembly.



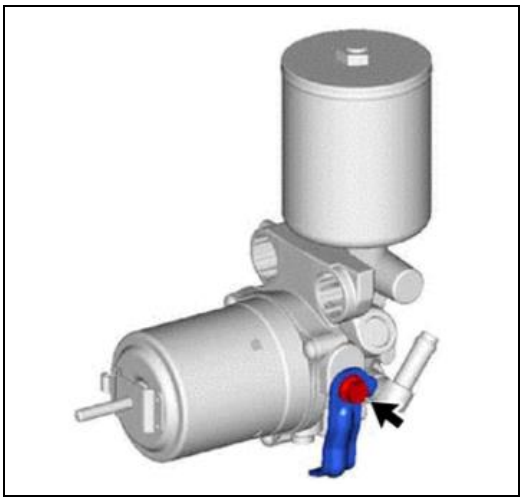
g. Remove the 2 bushings and collars from the brake booster assembly.



3. REMOVE THE TUBE CLAMP BRACKET

a. Remove the bolt.

b. Separate the tube clamp bracket.

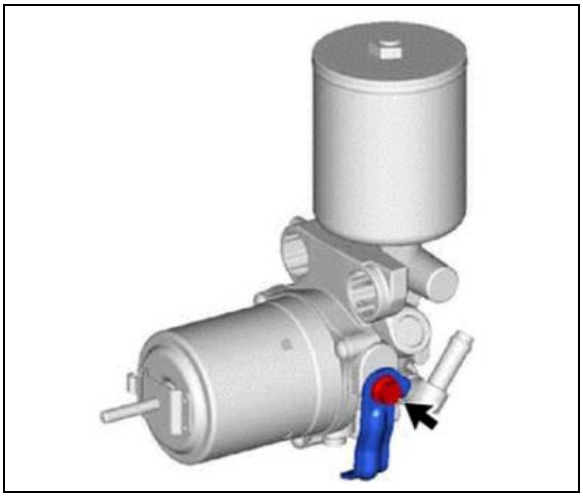


4. REMOVE NO.1 BRAKE ACTUATOR BRACKET

a. Remove the bolt.

b. Separate the No. 1 brake actuator bracket.

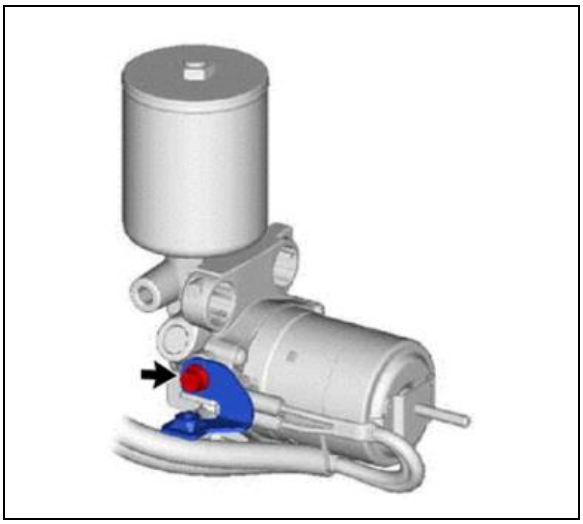
VIII. ATTACH NEW BRAKE BOOSTER



1. INSTALL NO.1 BRAKE ACTUATOR BRACKET

a. Install the No. 1 brake actuator bracket with the bolt onto the **NEW** Brake Booster.

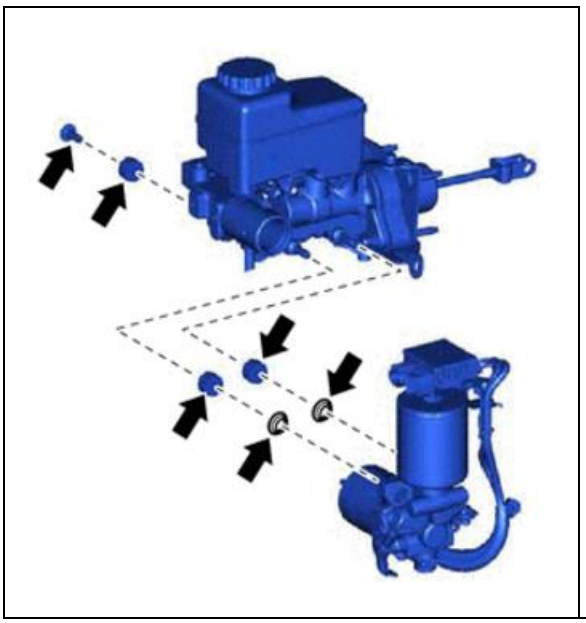
Torque: 8.0 N·m {82 kgf·cm, 71 in.lbs}



2. INSTALL NO.1 BRAKE ACTUATOR BRACKET

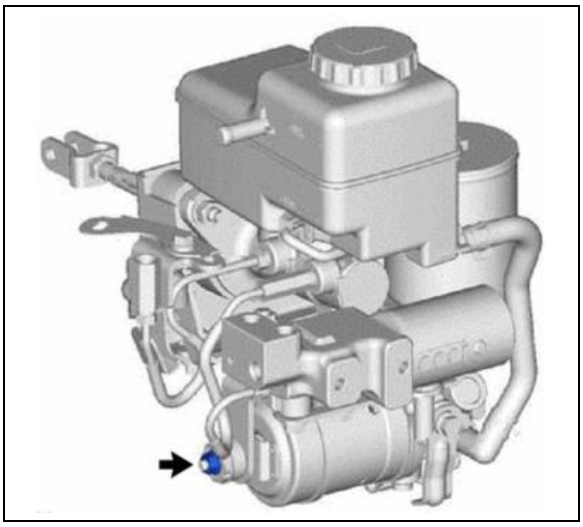
a. Install the tube clamp bracket with the bolt.

Torque: 8.0 N·m {82 kgf·cm, 71 in.lbs}



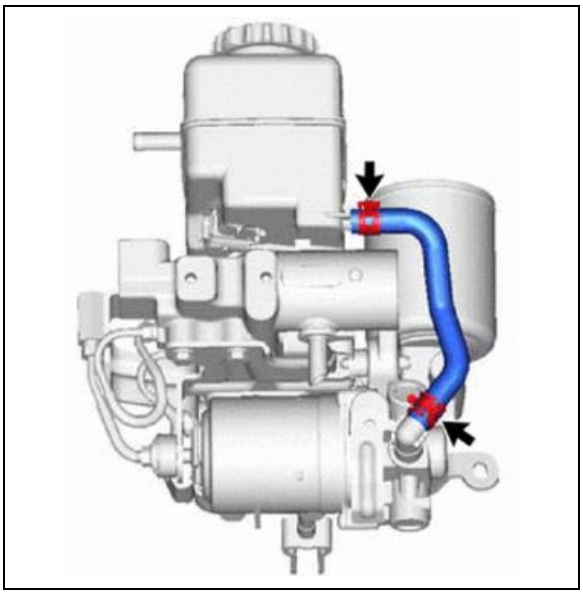
3. INSTALL BRAKE BOOSTER PUMP

a. Install the bushings and collars into the **NEW** Brake Booster Pump.

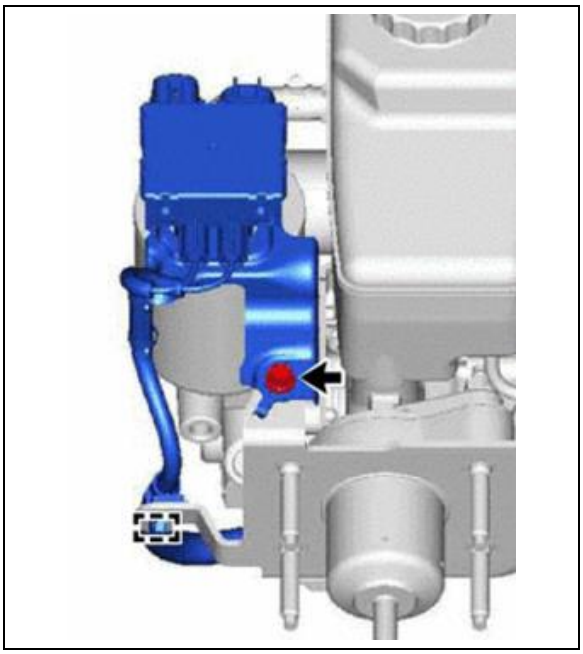


b. Install the **NEW** brake booster assembly to the master cylinder with the nut.

Torque: 5.4 N·m {55 kgf·cm, 48 in.lbs}

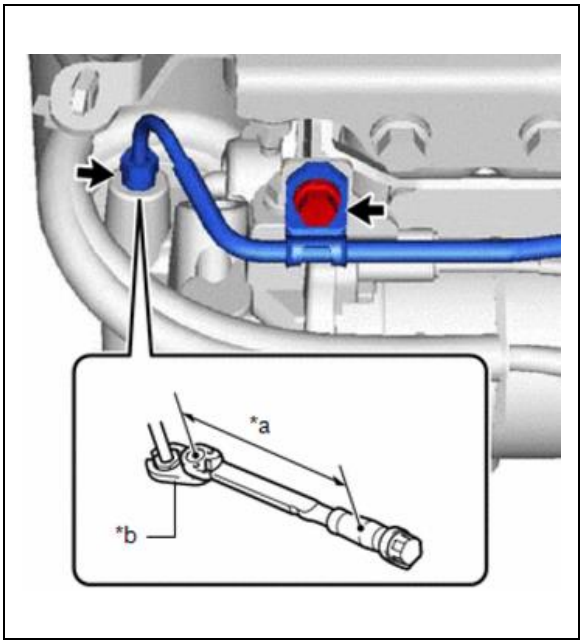


c. Connect the No. 2 brake actuator hose to the brake booster assembly.
d. Slide the clamps into place.



e. Install the brake actuator case with bolt.

Torque: 8.0 N·m {82 kgf·cm, 71 in.lbs}



4. INSTALL BRAKE ACTUATOR TUBE

a. Temporarily install the No. 2 brake actuator tube to the brake booster.

b. Install the tube clamp with bolt.

Torque: 8.0 N·m {82 kgf·cm, 71 in.lbs}

c. Using a union nut wrench, tighten the No. 2 brake actuator tube.

Torque: 15.2 N·m {155 kgf·cm, 11 ft.lbs}

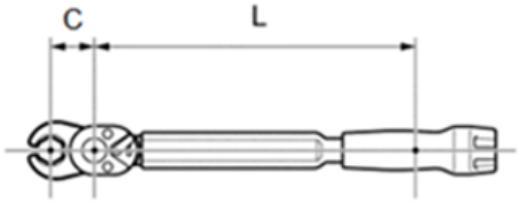
*a	Torque Wrench Fulcrum Length
*b	Union Nut Wrench

Note: Calculate the corrected Torque wrench setting using the following chart when using a union nut wrench on a torque wrench.

Torque Wrench Setting (in.lbs)

Torque Spec: 132 in.lbs

Length of Crowfoot (C): inches	Length of Torque Wrench (L): inches									
	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5
1.00	120.0	120.5	121.0	121.4	121.8	122.2	122.6	122.9	123.2	123.5
1.25	117.3	118.0	118.5	119.1	119.5	120.0	120.4	120.8	121.2	121.5
1.50	114.8	115.5	116.2	116.8	117.3	117.9	118.3	118.8	119.2	119.6
1.75	112.3	113.1	113.9	114.6	115.2	115.8	116.3	116.9	117.3	117.8
2.00	110.0	110.9	111.7	112.4	113.1	113.8	114.4	115.0	115.5	116.0
2.25	107.8	108.7	109.6	110.4	111.2	111.9	112.5	113.1	113.7	114.3



$$\text{Torque Setting} = \frac{\text{Torque Spec} \times L}{C + L}$$

L	Length of torque wrench (in.)
C	Length of crowfoot wrench (in.)

IX. INSTALL MASTER CYLINDER ASSEMBLY

1. INSTALL MASTER CYLINDER ASSEMBLY

a. Follow the instructions detailed in the Repair Manual to install the Master Cylinder Assembly from the vehicle.

LS500: BRAKE SYSTEM: BRAKE MASTER CYLINDER: INSTALLATION; 2019-2020 (RM1000000019WJH)

LS500H: BRAKE SYSTEM: BRAKE MASTER CYLINDER: INSTALLATION; 2019-2020 (RM10000000181HC)

LC500: BRAKE SYSTEM: BRAKE MASTER CYLINDER: INSTALLATION; 2019 – 2020 (RM100000001408S)

The Techstream must be used for brake fluid air bleeding. If the Techstream procedure is not followed, the air bleeding will be incomplete. Follow the directions in the Repair Manual to properly bleed air from the system.

◄ VERIFY REPAIR QUALITY ►

- **Confirm the braking performance is normal.**
- **Confirm the brake fluid level is correct.**
- **Confirm there are no DTC's present.**

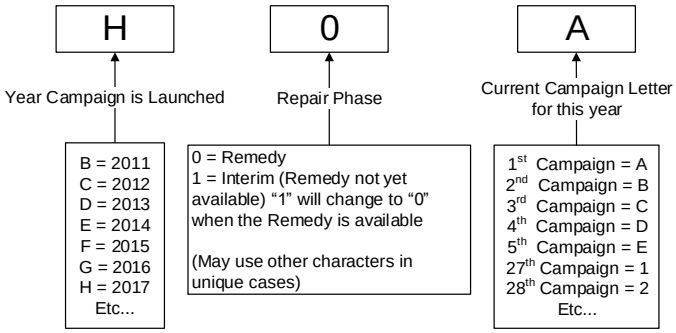
If you have any questions regarding this update, please contact your regional representative.

X. APPENDIX

A. PARTS DISPOSAL

As required by Federal Regulations, please make sure all recalled parts (original parts) removed from the vehicle are disposed of in a manner in which they will not be reused, ***unless requested for parts recovery return***.

B. CAMPAIGN DESIGNATION DECORDER



Examples:

C1B = Launched in 2012, Interim Phase, 2nd Campaign Launched in 2012

E0A = Launched in 2014, Remedy Phase, 1st Campaign Launched in 2014

H0A = Launched in 2017, Remedy Phase, 1st Campaign Launched in 2017.