

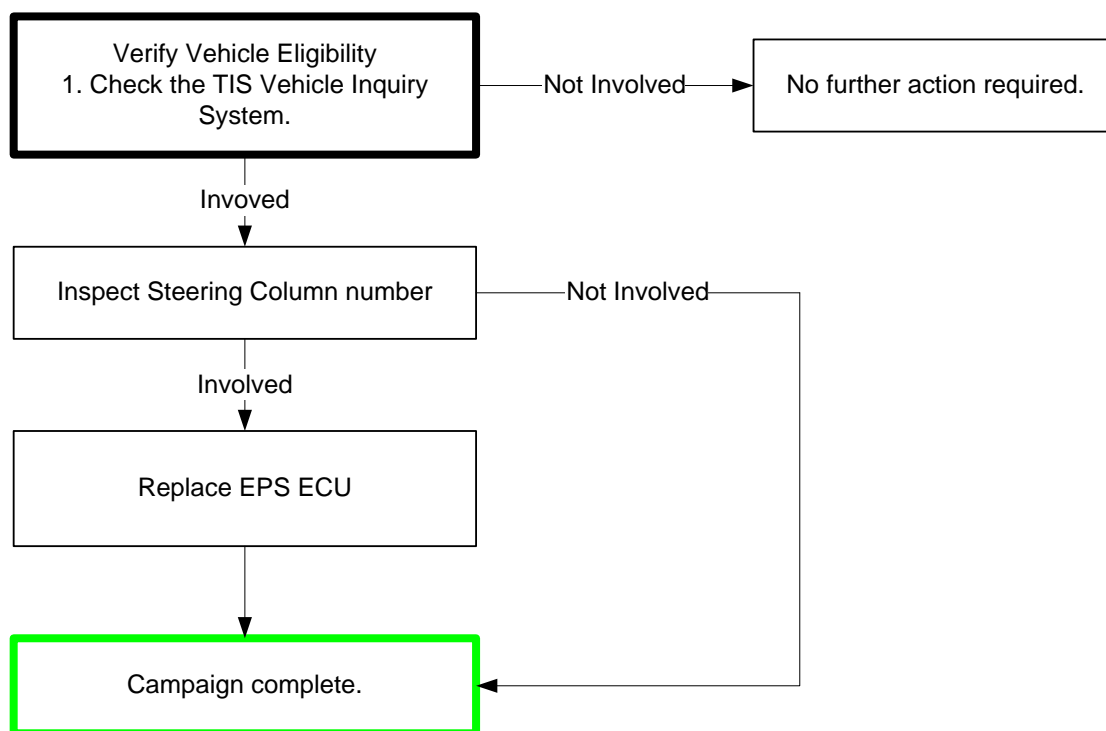
TECHNICAL INSTRUCTIONS
FOR
SAFETY RECALL F0J
POWER STEERING ECU INSPECTION
CERTAIN 2015 MODEL YEAR CAMRY & CAMRY HV

The repair quality of covered vehicles is extremely important to Toyota. 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:

- Toyota Certified Chassis
- Toyota Expert Chassis
- Master
- Master Diagnostic Technicians

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

A. COVERED VIN RANGE

- Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this Safety Recall, and that the campaign has not already been completed prior to dealer shipment or by another dealer.
- TMS warranty will not reimburse dealers for repairs conducted on vehicles that are not affected or were completed by another dealer.

III. PREPARATION

A. PARTS

Part Number	Part Description	Quantity
89650-06250	Camry XLE EPS ECU KIT (includes EPS ECU p/n 89650-06250, grease* and bolts)	1
89650-06370	Camry XSE EPS ECU KIT (includes EPS ECU p/n 89650-06370, grease* and bolts)	1
89650-06380	Camry HV LE & XLE EPS ECU KIT (includes EPS ECU p/n 89650-06380, grease* and bolts)	1
89650-06390	Camry HV SE EPS ECU KIT (includes EPS ECU p/n 89650-06390, grease* and bolts)	1

*The grease packet can be discarded it is not used in this application.

B. TOOLS & EQUIPMENT

- Standard hand tools
 - Techstream
 - Torque wrench
 - Bar Code Scanner* (Datalogic QD 2430)
- *Bar code scanners where sent each dealer at the launch of this program.

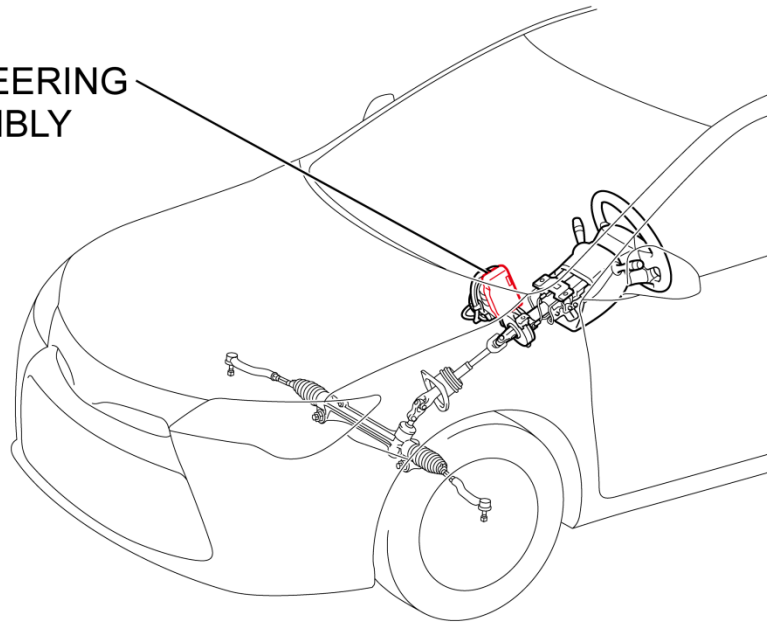
SST- These are essential special service tools that the dealership should have.

Part Number	Description	Quantity
00002-06000-01	Plastic Pry Tool Set	1
09950-50013	Puller Set C	1

IV. BACKGROUND

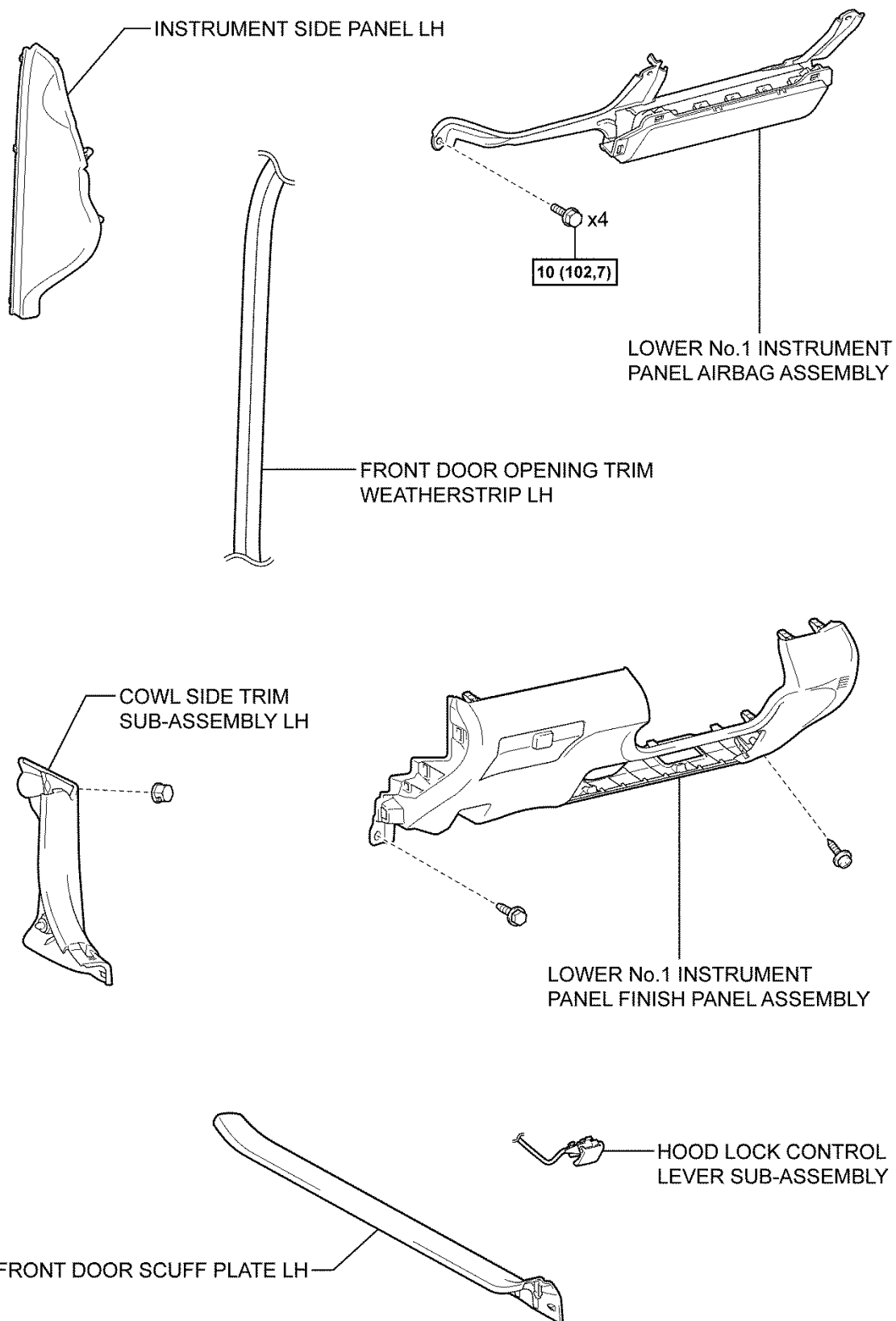
A circuit board for the electric power steering (EPS) in the subject vehicles may have been damaged during its manufacturing process. This can result in the loss of power steering assist. Manual steering is maintained, but the loss of power steering assist results in increase steering effort at low vehicle speeds and increases the risk of a crash.

POWER STEERING
ECU ASSEMBLY



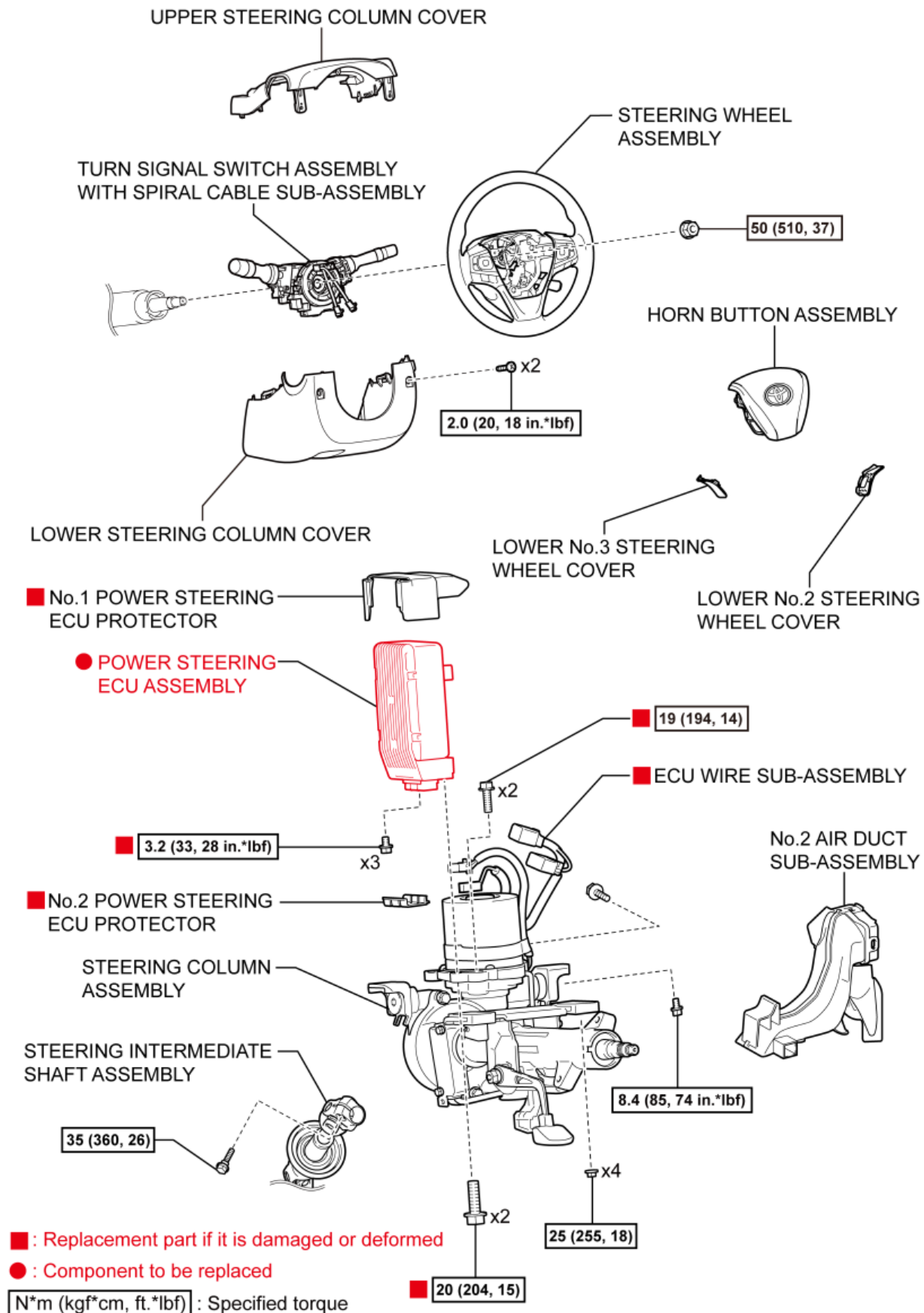
S13014aS

V. COMPONENTS



N*m (kgf*cm, ft.*lbf) : Specified torque

S13001aS



S13002bS

VI. WORK PROCEDURE

1. CHECK FOR DTCs



**This campaign only covers the inspection of the EPS ECU.
No other components in the steering system are covered by this campaign.**

- a) Using Techstream, perform a health check to confirm if there are any DTCs present in the system (current, history or pending).
- b) Record and clear any codes.

NOTES:

- Ensure that the Techstream software is 10.0 or higher.
- On the “connect to vehicle” screen, enter the VIN number to ensure that the vehicle information is uploaded to TIS.

2. PLACE THE FRONT WHEELS IN THE STRAIGHT AHEAD POSTION

3. MOVE THE DRIVER’S SEAT TO THE REARMOST POSITION AND TILT THE STEERING WHEEL UP

4. DISCONNECT THE NEGATIVE BATTERY TERMINAL

Non-Smart Key:

- a) Always disconnect the negative terminal before working with any SRS components in order to prevent unintentional deployment.
- b) Wait 90 seconds or more after disconnecting the negative terminal before performing any work due to the backup power supply equipped to the airbag system.

Smart Key:



Preforming the following operation will prevent the steering from being locked this also allows the axis of the steering motor to be adjusted if the EPS ECU needs repalcement.

- a) Open the left front window
- b) Turn of all electrical systems.
- c) Close all doors.
- d) Turn the power switch OFF to ON to OFF this will leave the steering in an unlocked postion.
- e) Disconnect the negative battery terminal.

NOTE: DO NOT open any doors until the the negative terminal is disconnected as the steering lock will engauge.

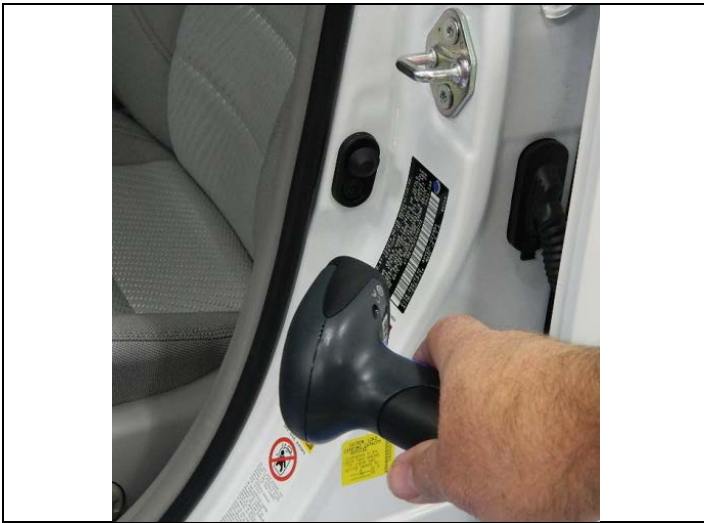
- f) Always disconnect the negative terminal before working with any SRS components in order to prevent unintentional deployment
- g) Wait 90 seconds or more after disconnecting the negative terminal before performing any work due to the backup power supply equipped to the airbag system

5. REMOVE THE LOWER No. 1 INSTRUMENT PANEL AIRBAG

Refer to the Technical Information System (TIS), using the applicable vehicle and model year.

Camry

Camry HV



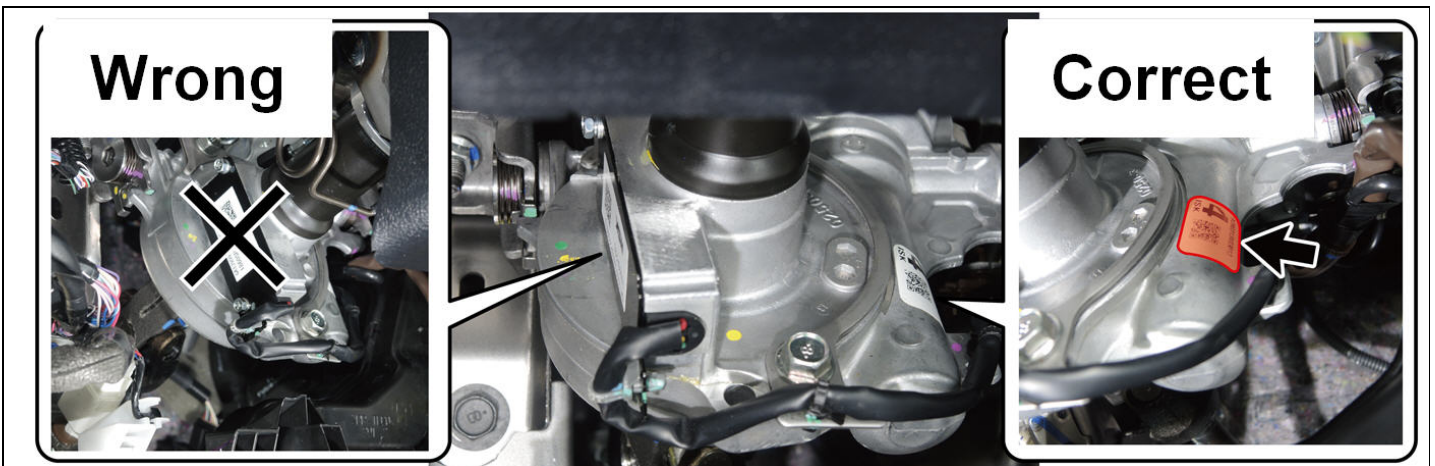
6. INSPECT STEERING COLUMN BAR CODE

- Go to <http://nds-f0j.imagespm.info/login.cfm>
- Scan the VIN on the certification label located in the left front door jam.

NOTE: All information must be scanned into the web site. Manual entry is not available.

Ensure that Datalogic scanner model # 2430 is used for this recall.

- Locate the label on the steering column.

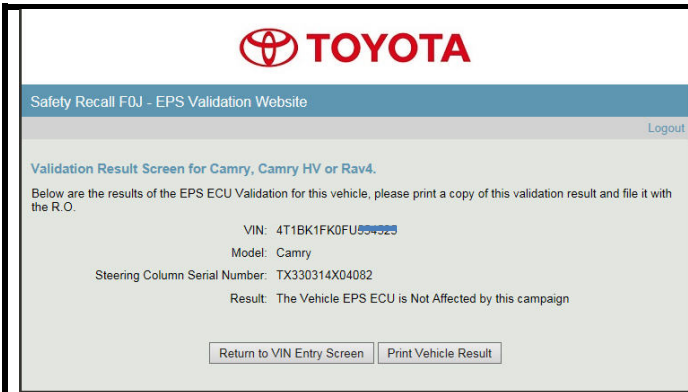


Sample Label



- Scan the bar code on the steering column label.
- The web site will provide the results of the bar code scan.

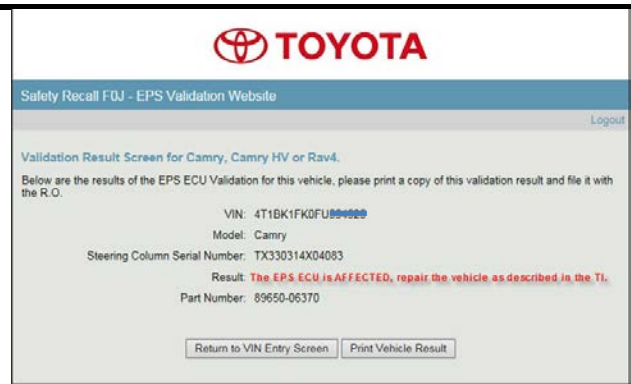
Website result



OK

Print website results and attach to repair order

Preform Steps: 10-12, and 15

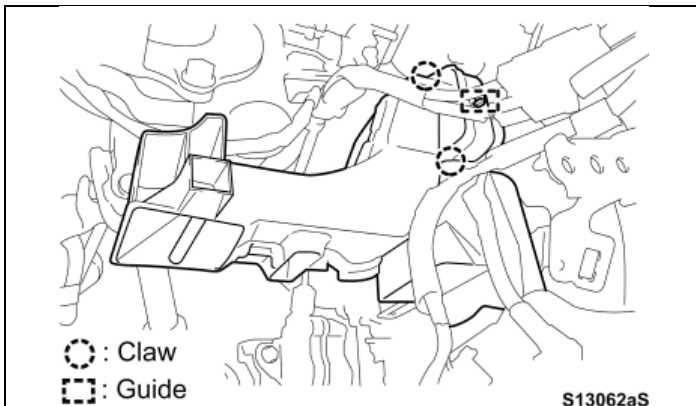


NG

Print website results and attach to repair order

Replace the EPS ECU

Preform Steps 7 - 15



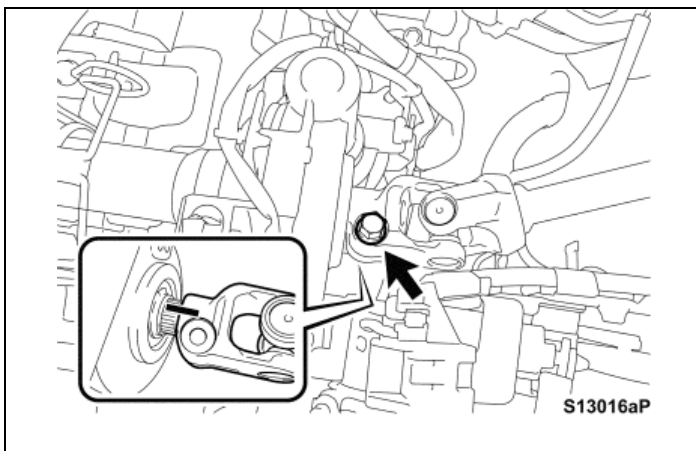
7. REMOVE THE No. 2 AIR DUCT

- a) Using a screwdriver gently disengage the 2 claws and guide to remove the duct.

NOTE: DO NOT lift the claw excessively. Carefully insert the screwdriver when lifting the claw.



DO NOT separate the intermediate steering shaft from the steering link. Ensure to separate the shaft from the steering column.



8. SEPARATE THE INTERMEDIATE STEERING SHAFT

- a) Remove the bolt and slide the intermediate steering shaft.



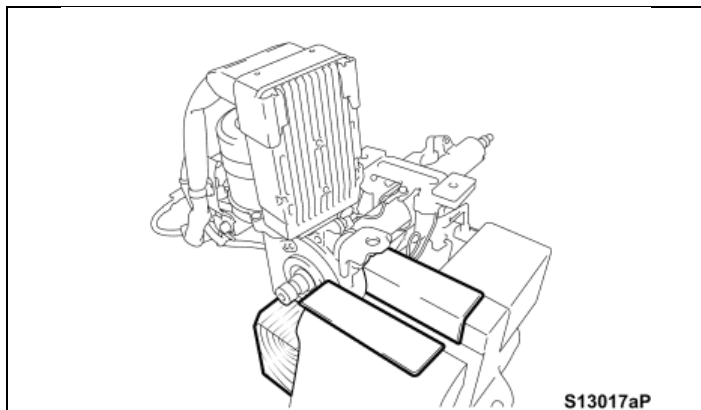
DO NOT separate the steering shaft from the column.

- b) Place match marks on the intermediate shaft and the column.
- c) Separate the intermediate shaft from the column.

9. REMOVE STEERING COLUMN

Refer to the Technical Information System (TIS), using the applicable vehicle and model year.

Camry



Camry HV

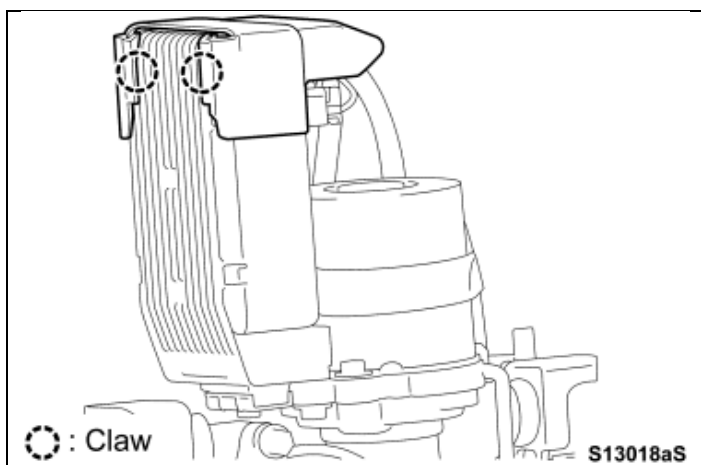
10. REMOVE EPS ECU

- a) Using protective plates place the steering column in a vise as shown.



DO NOT overtighten the vise as it could warp the column.

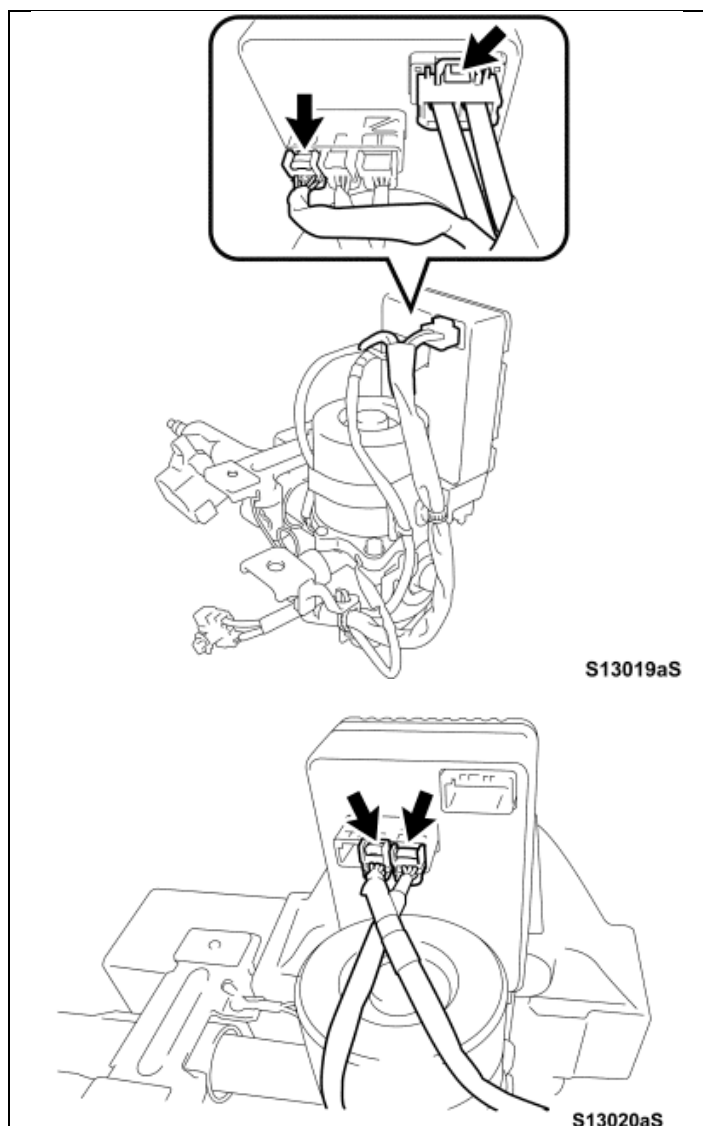
Support the column from underneath.



- b) Detach the 2 claws and remove the No. 1 protector from the ECU.

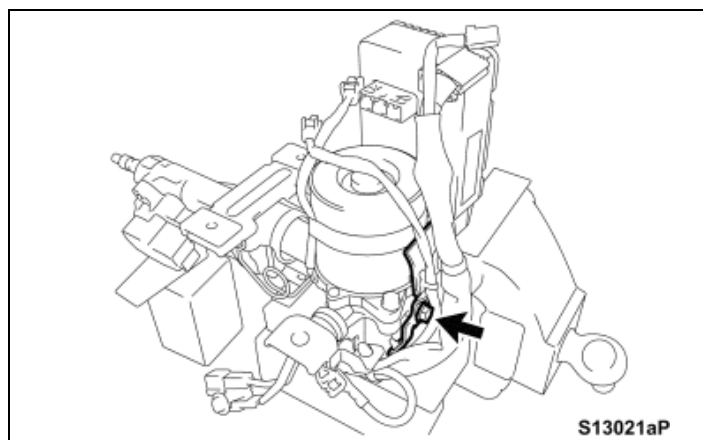


If the No.1 EPS ECU protector is damaged during removal, replace it with a *NEW* one.

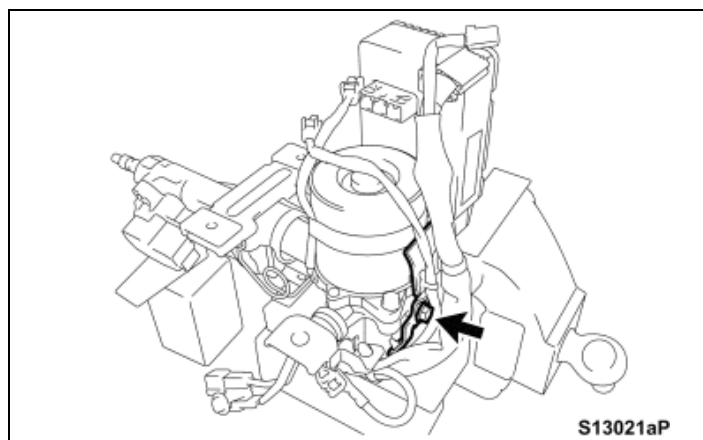


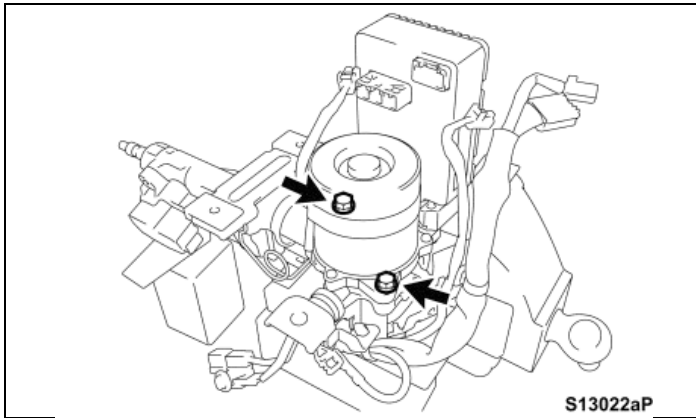
c) Disconnect the 4 connectors from the EPS ECU.

NOTE: If the ECU harness is damaged. Replace it with a new one.



d) Remove the bolt for the wire harness bracket.

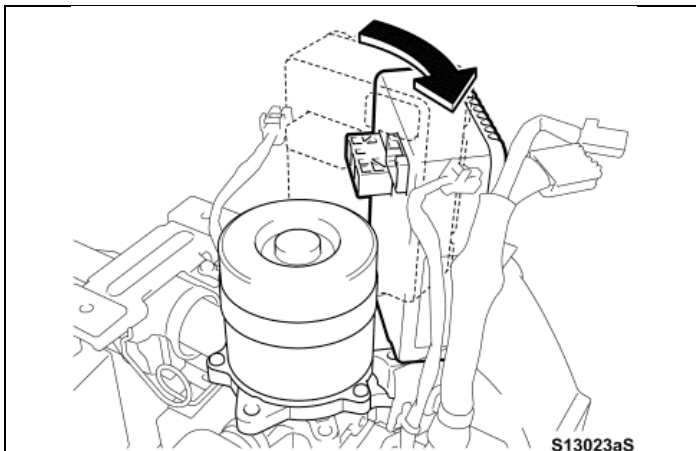




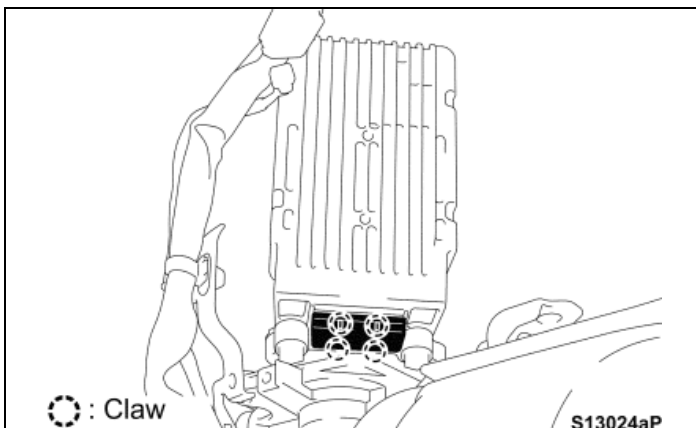
e) Remove the 2 EPS motor mounting bolts.



DO NOT remove the motor and ECU assembly from the column.

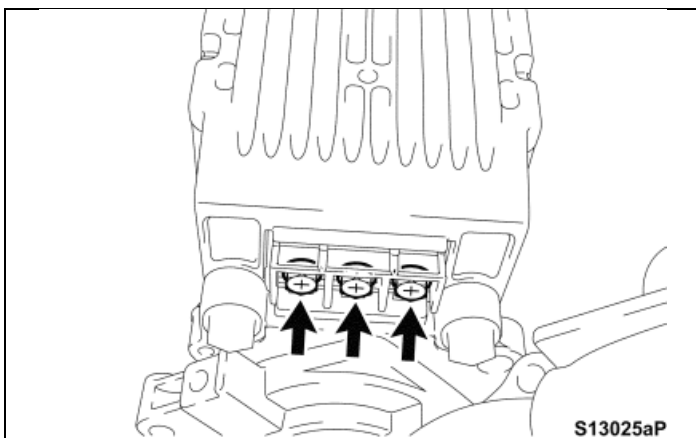


f) Rotate the EPS ECU with the motor as shown.

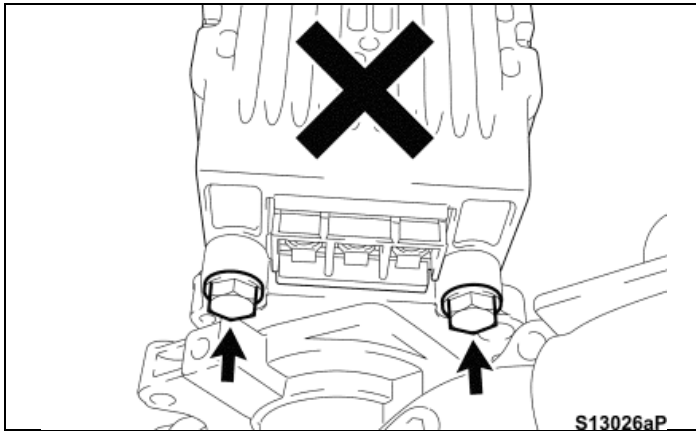


g) Disengage the 4 claws to remove the No. 2 power steering protector.

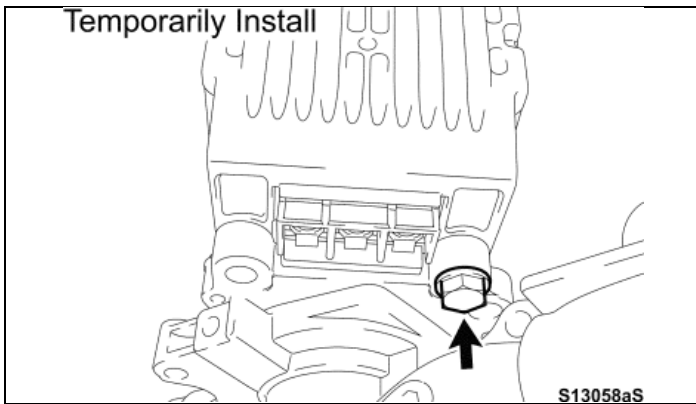
NOTE: If the No. 2 protector is damaged replace it with a new one.



h) Remove the 3 terminal bolts.



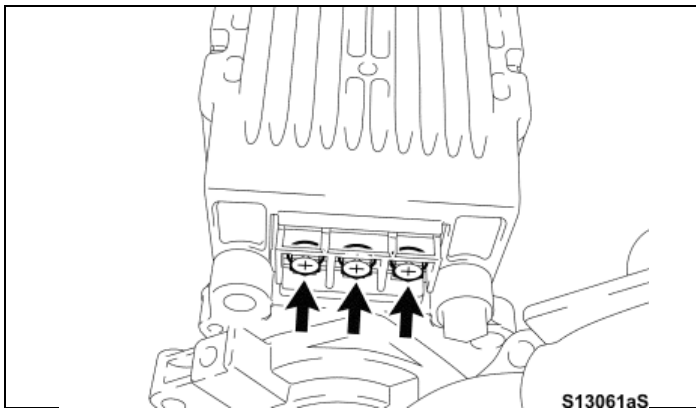
- i) Remove the 2 bolts for the EPS ECU.
- j) Remove the EPS ECU.
- k) Mark the old EPS ECU so it is not reused.



11. INSTALL THE NEW EPS ECU

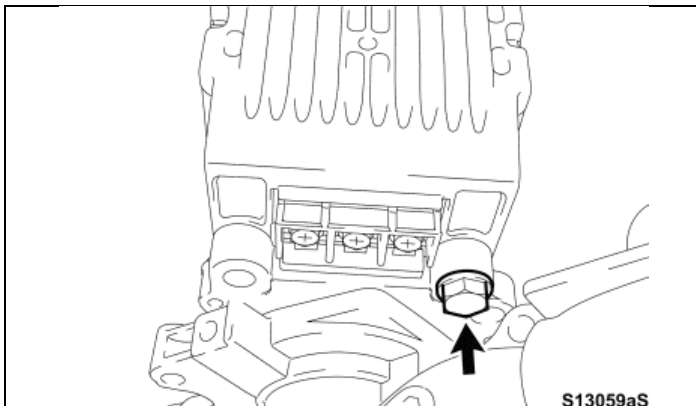
- a) Install the **new** EPS ECU.
- b) Temporarily install 1 **new** mounting bolt for the EPS ECU.

NOTE: The grease packet can be discarded it is not used in this application.



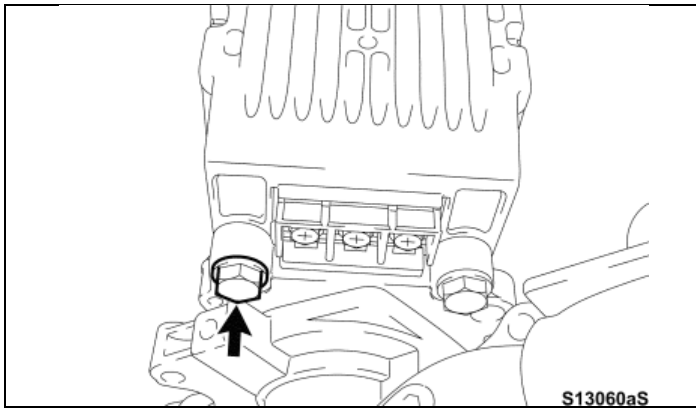
- c) Install the 3 **new** terminal bolts.

TORQUE:
3.2 N*m (33 kgf*cm, 28 in*lbf)



- d) Tighten the bolt indicated by the arrow.

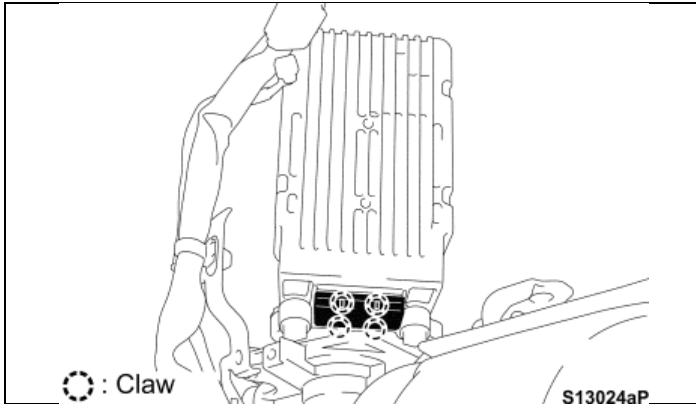
TORQUE:
20 N*m (204 kgf*cm, 15 ft*lbf)



- e) Install the other **new** EPS ECU mounting bolt.

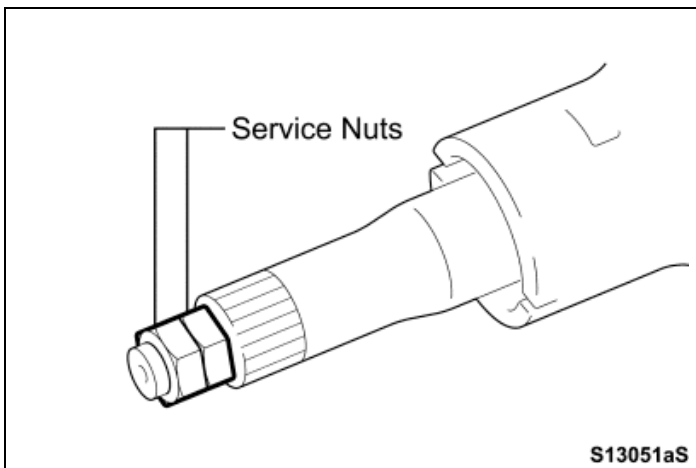
TORQUE:

20 N*m (204 kgf*cm, 15 ft*lbf)



- f) Reinstall the No.2 EPS ECU protector.

NOTE: If the No. 2 protector is damaged replace it with a new one.



- g) Install the 2 service nuts on to the main shaft.

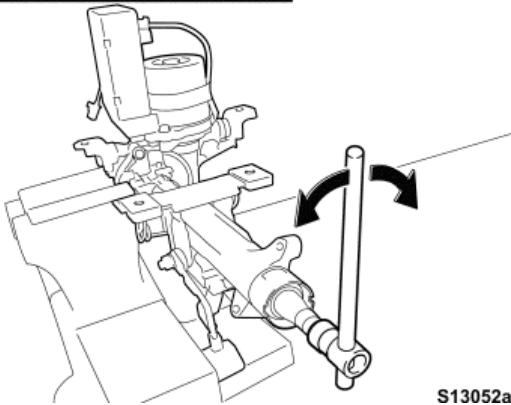
Recommended service nut thread diameter and pitch: 12mm x 1.25mm

- h) Tighten the inner nut against the outer nut so they lock together.

NOTE: DO NOT use power tools to tighten the nuts.

The nuts are installed to turn the steering shaft for checking the steering shaft rotating torque and will be removed afterward.

Requires 2 Workers



Non-Smart Key:

1. Insert the key into the cylinder and turn to ACC position.

NOTE: This will disengage the steering lock.

- i) While rotating the steering shaft at 4 RPM.
- j) Rotate the EPS motor and line up the mounting bolts.
- k) Temporarily install the 2 mounting bolts.

NOTE: If the mounting bolts are damaged install new ones.

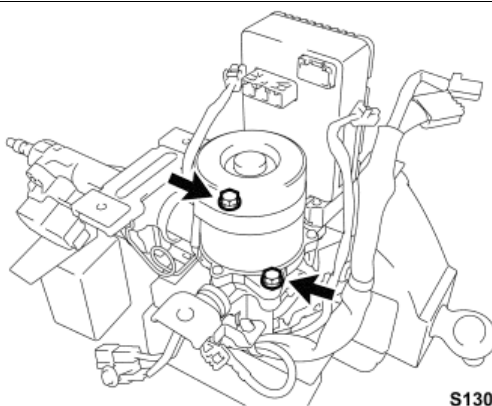
- l) Rotate the steering shaft 120 to 240 degrees at 4 RPM.
- m) Rotate the steering shaft 180 degrees clockwise then counterclockwise at 4 RPM. Repeat this procedure 2 to 3 times to align the EPS motor with the column.
- n) Tighten the 2 mounting bolts.



DO NOT move EPS the motor after adjusting the axis.

TORQUE:

19 N*m (194 kgf*cm, 14 ft*lbf)



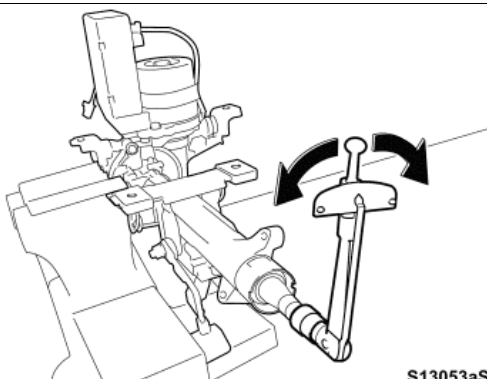
- o) Measure the turning torque of the steering shaft.

Turning Torque:

1.2 – 1.7 N*m (12 – 17 kgf*cm, 10 -15 in*lbf)

NOTE: While checking turning torque ensure there is no abnormal resistance.

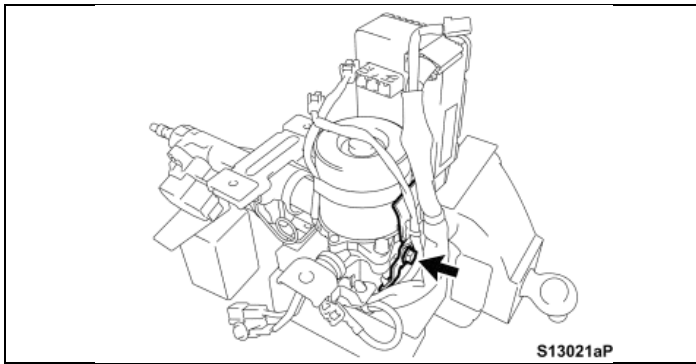
If the turning torque is not with in specifications readjust the axis of the EPS motor.



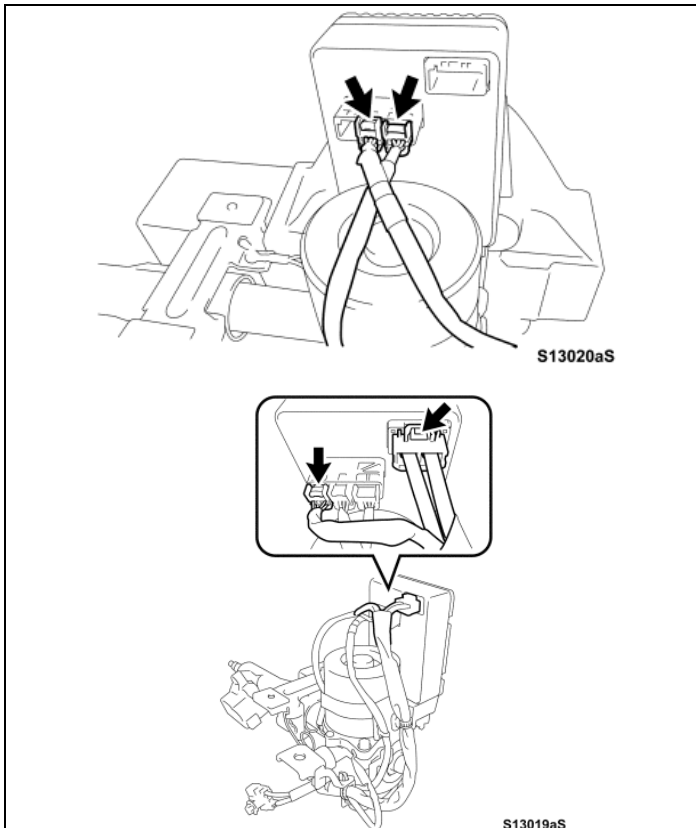
- p) Remove the 2 service nuts.

Non-Smart Key:

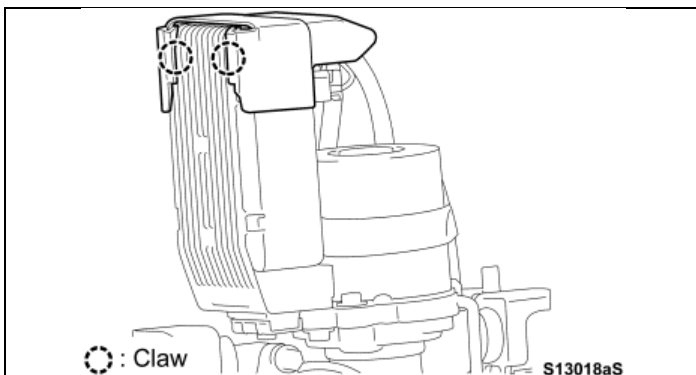
1. Remove the key from the cylinder.



q) Reinstall the wire harness bracket and bolt.



r) Reconnect the 4 connectors to the EPS ECU.



s) Reinstall the No. 1 EPS ECU protector by engaging the 2 claws.



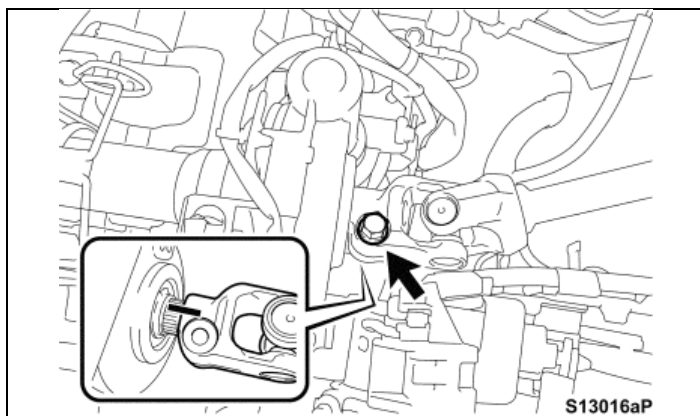
If the No.1 EPS ECU protector is damaged during removal, replace it with a *NEW* one.

12. REINSTALL THE STEERING COLUMN

Refer to the Technical Information System (TIS), using the applicable vehicle and model year.

[Camry](#)

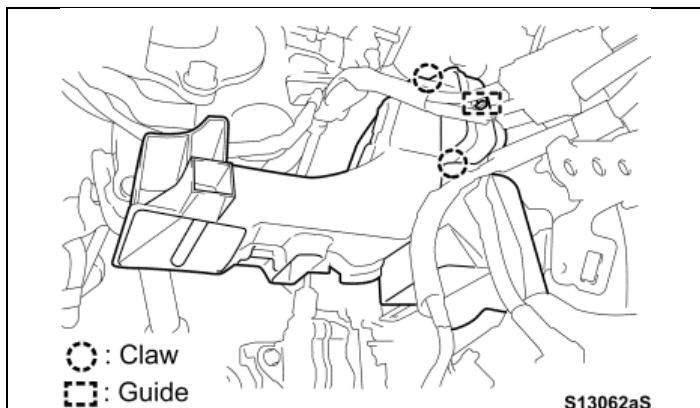
[Camry HV](#)



13. RECONNECT THE INTERMEDIATE STEERING SHAFT

- Align the match marks on the intermediate shaft and the column.
- Reinstall the bolt.

TORQUE:
35 N*m (360 kgf*cm, 26 ft*lbf)



14. REINSTALL THE No. 2 AIR DUCT

- Reengage the 2 claws and guide to reinstall the duct.

15. REINSTALL THE LOWER No. 1 INSTRUMENT PANEL AIRBAG

Refer to the Technical Information System (TIS), using the applicable vehicle and model year.

[Camry](#)

[Camry HV](#)

16. RECONNECT THE NEGATIVE BATTERY TERMINAL

- Perform any needed system initializations

17. ASSIST MAP WRITING (EPS ECU REPLACEMENT ONLY)

Refer to the Technical Information System (TIS), using the applicable vehicle and model year.

[Camry](#)

[Camry HV](#)

18. CHECK HORN OPERATION

19. CHECK AND CLEAR ANY DTC's

- If DTC's are present, diagnose and repair using the appropriate repair information located on TIS and file a separate Warranty claim.

◀ VERIFY REPAIR QUALITY ▶

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

VII. APPENDIX

A. CAMPAIGN DESIGNATION DECODER

