

Classification:

ST18-005

Reference:

ITB18-043

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Date:

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## 2019 QX50; DIRECT ADAPTIVE STEERING PULL AND STEERING WHEEL OFF-CENTER AT ENGINE START

**APPLIED VEHICLES:** 2019 QX50 (J55)  
**APPLIED SYSTEM:** Direct Adaptive Steering (DAST)

### IF YOU CONFIRM

While driving in a straight line on a smooth and flat road:

- The steering wheel is off-center,

**And**

- The steering wheel returns to center and the vehicle begins to pull, when the driver's grip on the steering wheel is relaxed.

### ACTION

1. Confirm that the steering wheel is indexed correctly.
2. Confirm that the steering shaft is indexed correctly.
3. Perform Direct Adaptive Steering (DAST) Calibration.

**IMPORTANT:** The purpose of ACTION (above) is to give you a quick idea of the work you will be performing. You **MUST** closely follow the entire SERVICE PROCEDURE as it contains information that is essential to successfully completing this repair.

Infiniti Bulletins are intended for use by qualified technicians, not 'do-it-yourselfers'. Qualified technicians are properly trained individuals who have the equipment, tools, safety instruction, and know-how to do a job properly and safely. NOTE: If you believe that a described condition may apply to a particular vehicle, DO NOT assume that it does. See your Infiniti retailer to determine if this applies to your vehicle.

## SERVICE PROCEDURE

1. Record (write down) any customer settings that will be lost when the battery is disconnected.
  - For a listing of the systems that may lose settings or memory when disconnecting the 12V battery, refer to the Electronic Service Manual (ESM) Section **ELECTRICAL POWER CONTROL > POWER SUPPLY, GROUND CIRCUIT ELEMENTS > BASIC INSPECTION > INSPECTION AND ADJUSTMENT > ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL.**
    - This list often includes items such as HVAC, power windows, clock, etc.
2. Turn the ignition OFF.
3. Disconnect the negative terminal of the vehicle 12V battery.
  - For the procedure to disconnect the battery, refer to the ESM section **ELECTRICAL POWER CONTROL > POWER SUPPLY, GROUND CIRCUIT ELEMENTS > REMOVAL AND INSTALLATION > BATTERY > Removal and Installation.**
4. Wait at least 3 minutes.

### Confirm that the Steering Wheel is Indexed Correctly

**IMPORTANT:** Follow all cautions, warnings, and notes in the ESM when working on or near a Supplemental Restraint System (SRS), such as an air bag.

**CAUTION:** Handle interior trim carefully to avoid damage. Work with clean hands and clean tools to avoid dirt and stains. Use protective covers as needed.

5. Remove the driver air bag module (module) from the vehicle.
  - For module removal, refer to the ESM section **RESTRAINTS > SRS AIRBAG > REMOVAL AND INSTALLATION > DRIVER AIR BAG MODULE.**
6. Set the module in a clean working area.

7. Verify that the alignment index mark on the steering shaft is in line with the index mark on the steering wheel, as shown in Figure 2.
  - If the two (2) index marks are not in line, remove the steering wheel and realign as shown in Figure 2.
    - For steering wheel removal, refer to the ESM section **STEERING > STEERING SYSTEM > ELECTRIC POWER STEERING > REMOVAL AND INSTALLATION > STEERING WHEEL**.

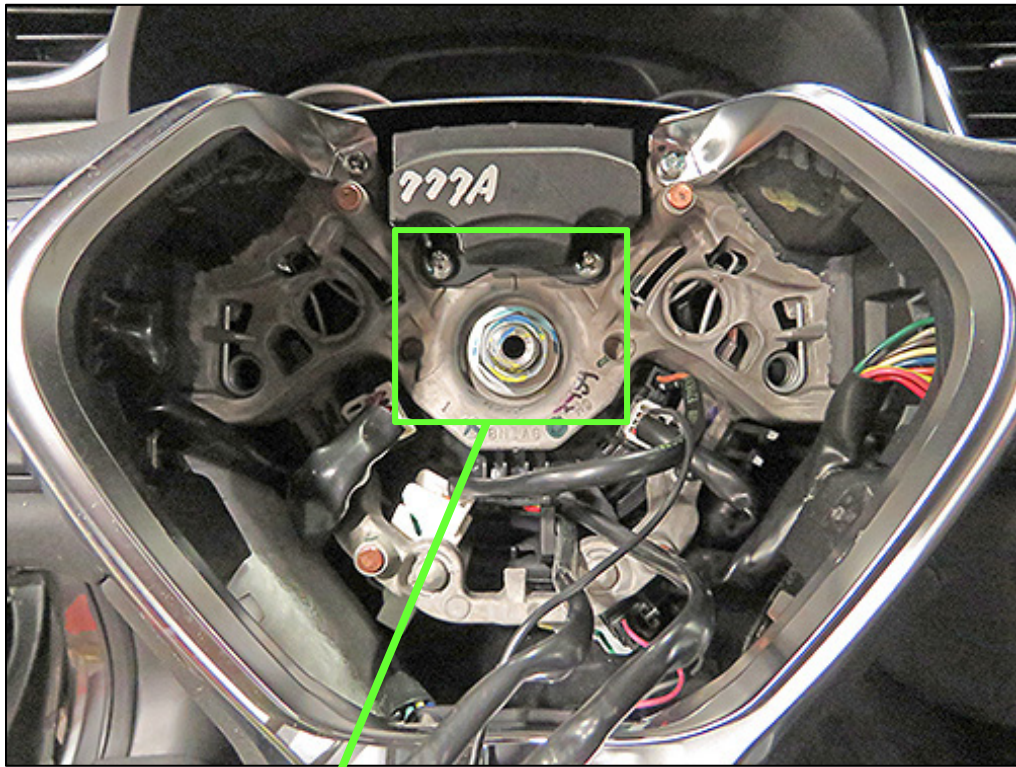


Figure 1

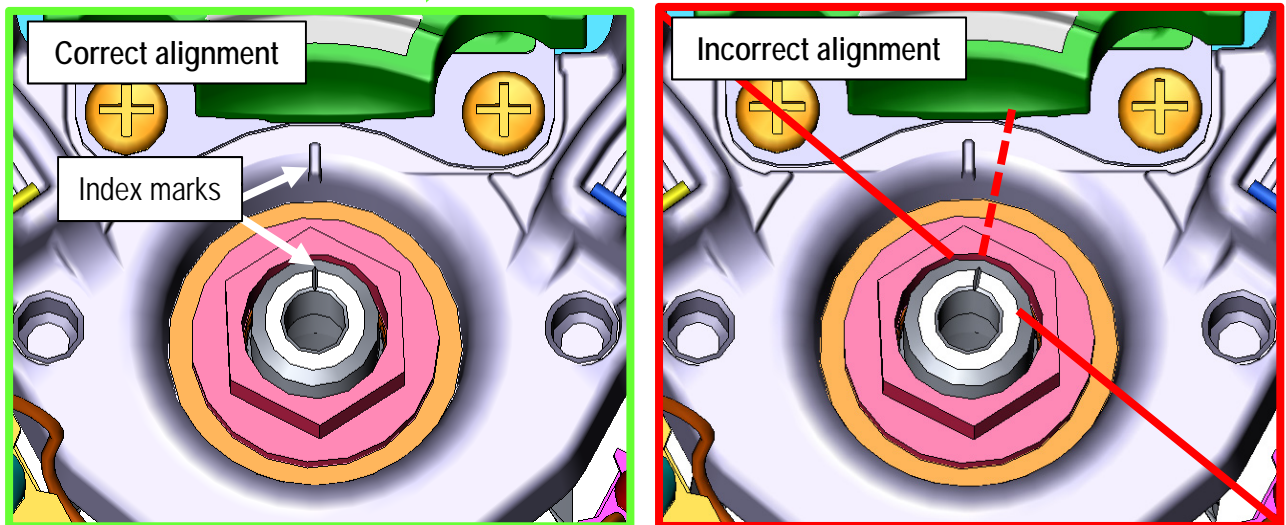


Figure 2

8. Reinstall the driver air bag module into the vehicle in reverse order of removal.
  
9. Connect both battery cables – positive cable first.
  
10. Reset/reinitialize systems as needed.
  - For a listing of the systems that may lose settings or memory when disconnecting the 12V battery, refer to the ESM Section **ELECTRICAL POWER CONTROL > POWER SUPPLY, GROUND CIRCUIT ELEMENTS > BASIC INSPECTION > INSPECTION AND ADJUSTMENT > ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL.**
    - This list often includes items such as, HVAC, power windows, clock, etc.
  
11. Turn the ignition ON and observe the air bag warning light.
  - The light should illuminate for 7 seconds and then go out.  
**NOTE:** If the air bag warning light does not operate as described above there may be an issue not covered by this bulletin. Refer to ASIST and the appropriate ESM for additional diagnostic and repair information.

## Confirm that the Steering Shaft is Indexed Correctly

12. Remove the lower joint cover on the drivers floor.

- Unscrew the two (2) plastic clips.

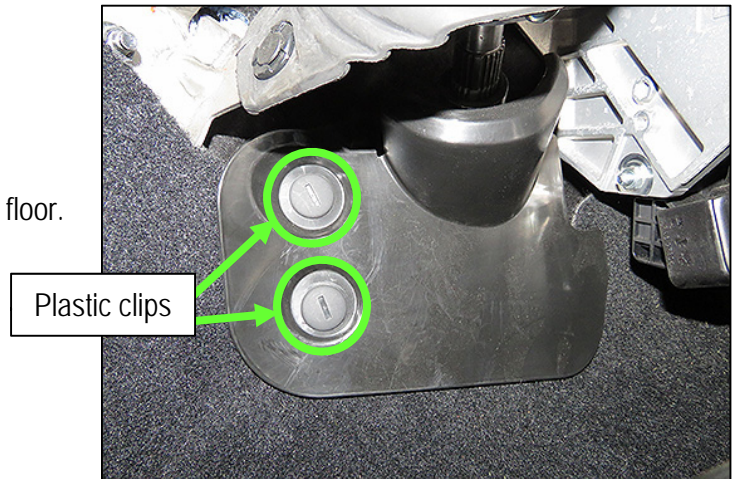


Figure 3



Figure 4

13. Verify that the lower joint is correctly aligned as shown in Figure 5.

- The plastic guide should be parallel with the sides of the metal clamp of the lower joint.
- If the plastic guide is not parallel with the sides of the metal clamp of the lower joint, disconnect the metal clamp from the steering gear and realign as shown in Figure 5.
  - For lower joint removal, refer to the ESM section **STEERING > STEERING SYSTEM > DIRECT ADAPTIVE STEERING > REMOVAL AND INSTALLATION > LOWER JOINT.**

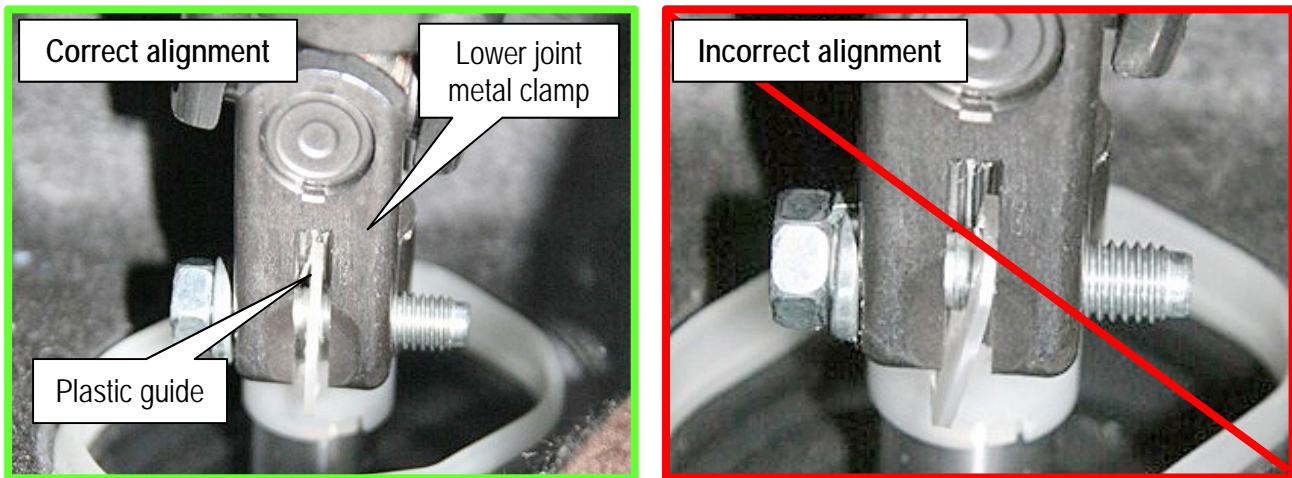


Figure 5

14. Reinstall the lower joint cover to the drivers floor.

- Attach with two (2) plastic clips.

## Direct Adaptive Steering (DAST) Calibration

### IMPORTANT:

When performing Direct Adaptive Steering (DAST) Calibration (Mode 1):

- **Always use an alignment rack** with the front wheels positioned on the turn tables and the pins removed. The front wheels must be allowed to move freely.
- **DO NOT** perform DAST Calibration (MODE 1) with the front wheels in any other position than listed above.

After performing DAST Calibration (MODE 1), if there is a steering wheel off-center or a vehicle pull condition, perform DAST Calibration (MODE 1) again, making sure to use an alignment rack.

**NOTE: Do not perform a wheel alignment for a steering wheel off-center or pull condition.**

The following service procedures include:

- DAST CALIBRATION (MODE1)
- ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION
- Self-Diagnosis Check
- Confirmation of EPS/DAST 3 ANGLE 1

### DAST CALIBRATION (MODE1)

#### CAUTION:

- Never move the vehicle during **DAST CALIBRATION (MODE1)** because the steering gear is held in a neutral position until the ignition switch is turned OFF.
- Never rotate the steering wheel more than 120 degrees just after **DAST CALIBRATION (MODE1)** has been completed because the spiral cable will be damaged.

#### WARNING:

- Be careful of moving parts. The steering wheel and front wheels will move automatically by themselves after starting DAST CALIBRATION (MODE1).

**Before starting Calibration Mode1:**

- 15. Place the vehicle on an alignment rack and then remove the pins from the turn tables so they are allowed to move freely.
- 16. Place the steering wheel tilt to the highest position.
- 17. Connect a battery charger to the vehicle battery and set it to a low charge rate.

**NOTE:** This calibration procedure will be performed twice completely through.

**IMPORTANT:** Do Not turn the ignition OFF at the end of the second time through.

- 18. Connect the plus VI to the vehicle.

**NOTE:** Make sure the AC adapter is connected to the CONSULT PC.

- 19. Turn the ignition ON (engine OFF).

**IMPORTANT:** Do Not start the engine.

- 20. Turn ON the CONSULT PC, and then open CONSULT-III plus (C-III plus).

**IMPORTANT:** Before starting, make sure:

- ASSIST on the CONSULT PC has been synchronized (updated) to the current date.
- All C-III plus software updates (if any) have been installed.
- The CONSULT PC is connected to the Internet (WiFi or cable).

- 21. On the C-III plus screen, select **Diagnosis (All Systems)**. After system call has completed, select **EPS/DAST 3 > Work support > DAST CALIBRATION (MODE1)**. See Figure 6.

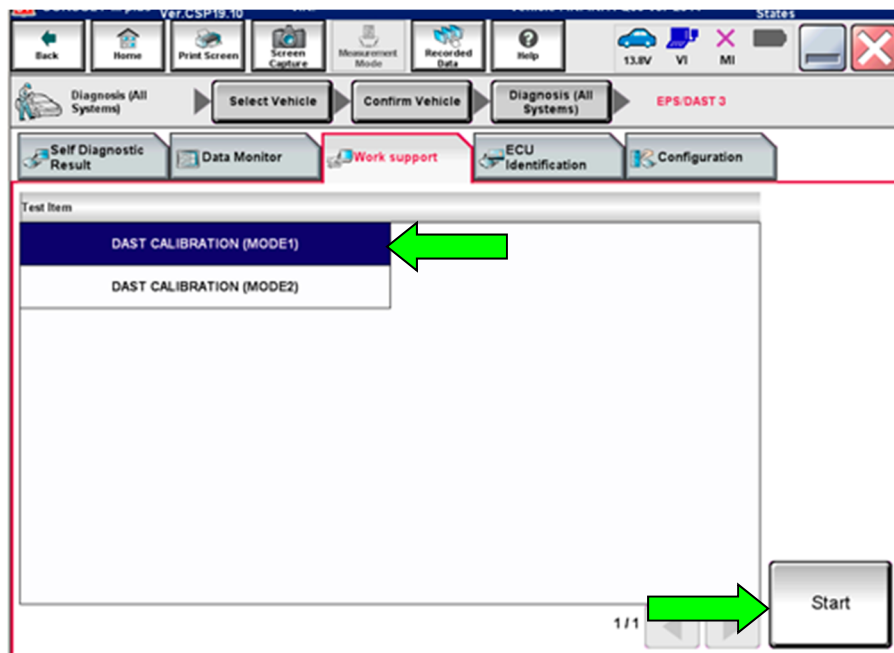


Figure 6



22. Select **START**, and then **START** a second time to begin **DAST CALIBRATION (MODE1)**.
- Do not rotate the road wheels during the DAST calibration.

**WARNING:** Be careful of moving parts. The steering wheel and front wheels will move automatically by themselves after starting DAST CALIBRATION (MODE1).

23. When Auto steering has completed, center the steering wheel to the neutral (straight ahead) position, and then select **Start** again (see Figure 7).

**IMPORTANT:** The steering wheel must be positioned in the neutral (straight ahead) position, for step 23 above, to ensure that the steering wheel will be centered when driving straight.

**CAUTION:** When DAST CALIBRATION (MODE1) has completed, the steering wheel is disconnected from the steering gear and the force feedback of the steering is reduced. **Never turn the steering wheel beyond 120 degrees otherwise the spiral cable will be damaged.**

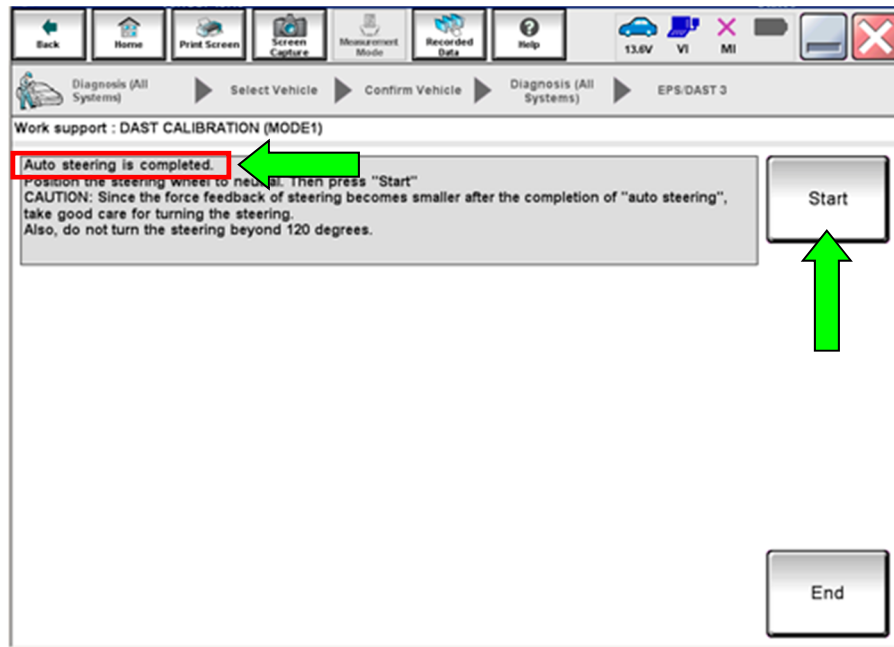


Figure 7

24. Select End.

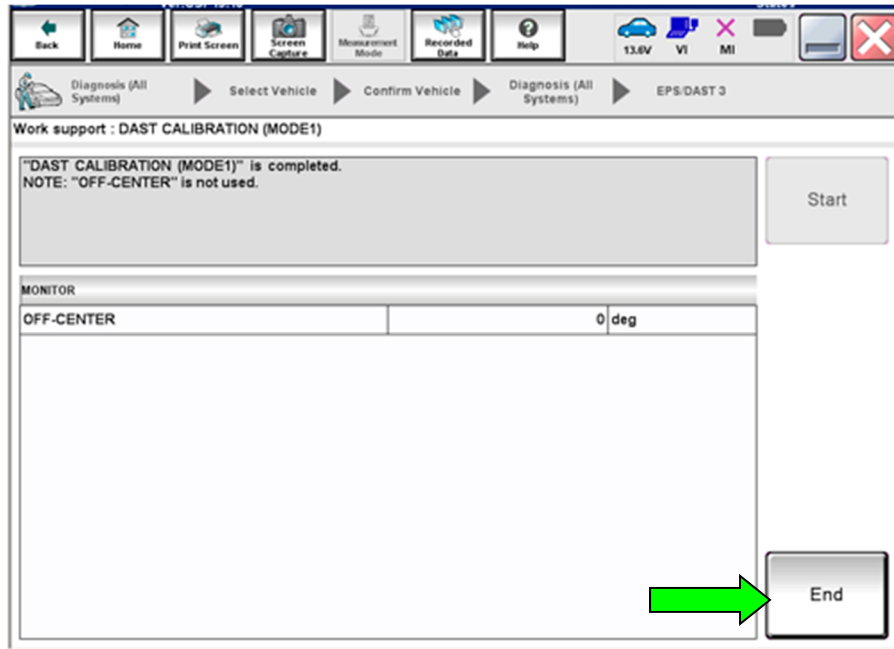


Figure 8

25. Turn the ignition switch OFF.

### 2<sup>nd</sup> DAST CALIBRATION (MODE1)

26. With the C-III plus still connected, turn the ignition ON (engine OFF) and repeat steps 21-24 a second time, **but Do Not turn the ignition OFF** after step 24, and then proceed to step 27.

27. Select the **BACK** button twice, and then select **Yes** to "Delete results".

- After system call completes, proceed to **ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION** on the next page.

**IMPORTANT:** Do Not turn the ignition OFF.

- If the ignition is turned OFF between the DAST CALIBRATION (MODE1) and ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION, the procedure for DAST CALIBRATION (MODE1) must be repeated (steps 19-26).

## ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION

28. With C-III plus in **Diagnosis (All Systems)**, select **ABS > Work support > ST ANGLE SENSOR ADJUSTMENT**, and then select **START**.

29. When the message "Waiting for your operation..." is displayed, select **Start**.

**IMPORTANT:** Do Not touch the steering wheel while adjusting steering angle sensor.

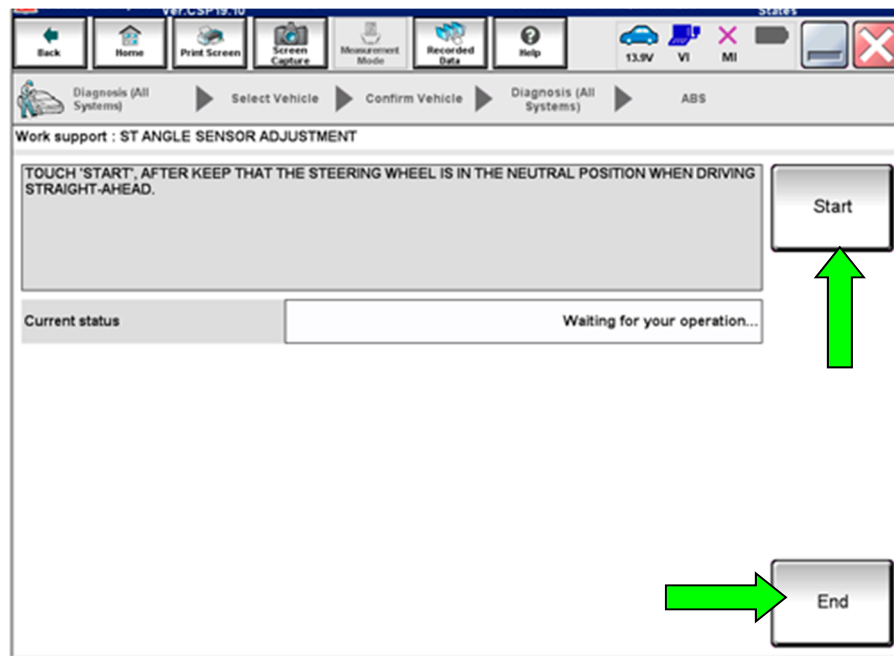


Figure 9

30. When the message **COMPLETE** is shown (after approximately 5 seconds), select **End**.

31. Turn the ignition switch OFF and wait at least 10 seconds.

32. Disconnect the battery charger from the vehicle 12V battery.

33. Go to **Self-Diagnosis Check** on the next page.

## SELF-DIAGNOSIS Check

34. Start the engine (turn ignition ON with brake pressed).

**IMPORTANT:** Do Not drive the vehicle while performing the SELF-DIAGNOSIS Check.

35. Check for DTCs in DAST 1, DAST 2, and EPS/DAST 3 as follows:

- A. In C-III plus, return to the Home screen.
- B. Select **Diagnosis (All Systems)**, and then select **Confirm**.
- C. Wait for system call to complete.
- D. Check for stored DTCs.
  - If no DTCs are stored, go to CONFIRMATION of EPS/DAST 3 ANGLE 1 on the next page.
  - If DTCs are stored, refer to the ESM for diagnosis and repair.

## CONFIRMATION of EPS/DAST 3 ANGLE 1

**NOTE:** At this point the ignition should still be ON with the engine running or the READY light ON.

36. With C-III plus in **Diagnosis (All Systems)**, select **EPS/DAST 3 > DATA MONITOR > ANGLE 1**, and then check the value of **ANGLE 1** (see Figure 10).

- ANGLE 1 should be within the standard value shown below.
- If ANGLE 1 is **not** within the standard value:
  - a. Change the steering wheel tilt to a slightly lower position.
  - b. Perform DAST CALIBRATION (MODE1) again.
  - c. Perform CONFIRMATION of EPS/DAST 3 ANGLE 1 again.
  - d. Repeat a – c above until ANGLE 1 is within the standard value.

Monitor item	Standard value
ANGLE 1	between -4.4 and 4.4

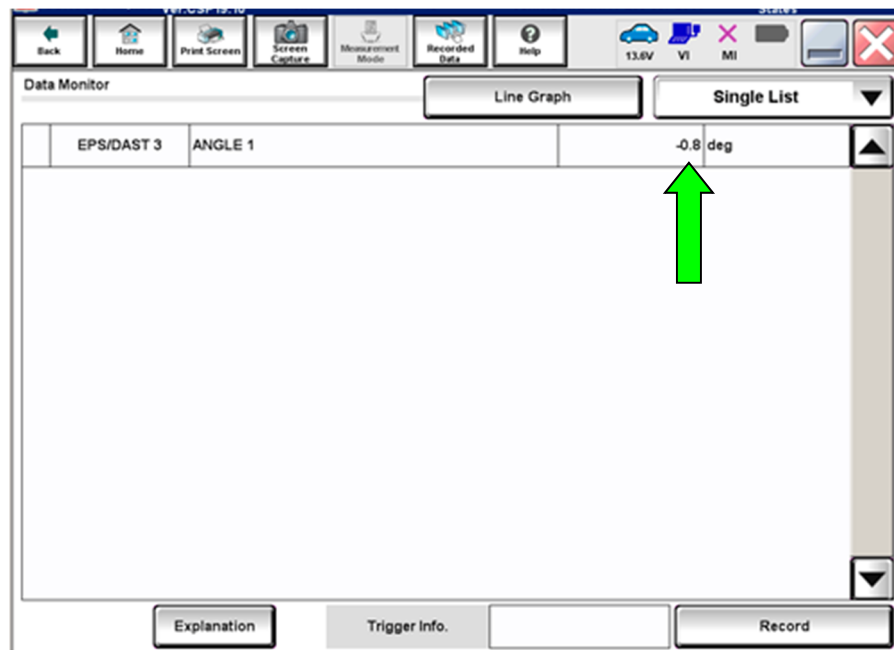


Figure 10

37. Disconnect C-III plus from the vehicle.

38. Procedure is complete.

## PARTS INFORMATION

DESCRIPTION	PART NUMBER	QUANTITY
Nut (Steering Wheel Lock Nut)	01223-00241	1

## CLAIMS INFORMATION

Submit a Primary Operation (PO) type line claim using the following claims coding:

DESCRIPTION	OP CODE	SYM	DIA	FRT
Adjust Steering Wheel Off Center	WD34AA	CA	32	(1)

(1) Reference the current Infiniti Warranty Flat Rate Manual and use the indicated Flat Rate Time (FRT).

On a separate line

DESCRIPTION	OP CODE	SYM	DIA	FRT
Adjust Steering Angle	WD36AA	CA	32	(1)

(1) Reference the current Infiniti Warranty Flat Rate Manual and use the indicated Flat Rate Time (FRT).

On a separate line

DESCRIPTION	OP CODE	SYM	DIA	FRT
Calibrate Direct Adaptive Steering	WD74AA	CA	32	(1)

(1) Reference the current Infiniti Warranty Flat Rate Manual and use the indicated Flat Rate Time (FRT).

## AMENDMENT HISTORY

PUBLISHED DATE	REFERENCE	DESCRIPTION
December 12, 2018	ITB18-043	Original bulletin published