TECHNICAL INSTRUCTIONS

FOR

SAFETY RECALL 20TA09

Potential Loss of Vehicle Control due to Tie Rod Assembly(s).

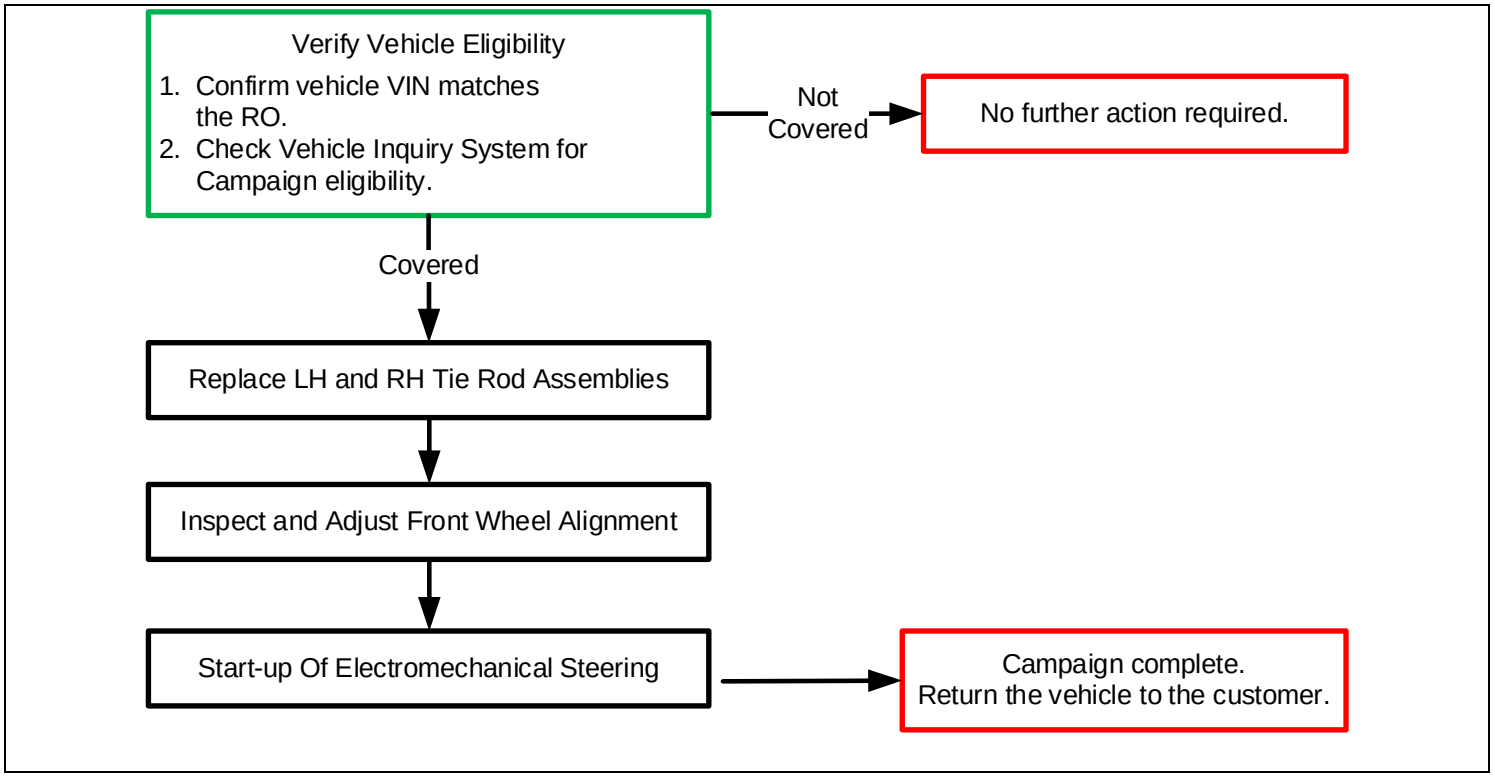
Three 2020 SUPRAS

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:

- **Expert (Chassis) + Instructor-Led TIN519B**
- **Master + Instructor-Led TIN519B**
- **Master Diagnostic Technician + Instructor-Led TIN519B**

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

1. PARTS

Part Number	Part Description	Quantity
90118-WA199	Castle Nut (For Tie Rod End)	2
45460-WAA02	Tie Rod Assembly Right Hand	1
45470-WAA02	Tie Rod Assembly Left Hand	1
45535-WAA01	Steering Rack Boot	2
90118-WA239	Front Suspension Member Lower Protector Bolt	12

2. TOOLS & EQUIPMENT

- Techstream with ISTA + Supra Diagnostic Cable
- Torque Wrench
- Diagonal Cutters
- Torx Socket T40
- Torx Socket T50
- Standard Hand Tools

Special Service Tools:

- 09650-14010 - Wheel Guide Pin
- 00002-22610-01 – Clamp Band Tool
- 09900-WA280 – Wrench Adapter
- 01815-00102 – Digital Angle Gauge
- 09600-WA040 - Tie Rod Socket Wrench – Loan Tool Program

  Note: Loan tools can be rented from the following website: https://toyota.service-solutions.com/en-US/Pages/Home.aspx#

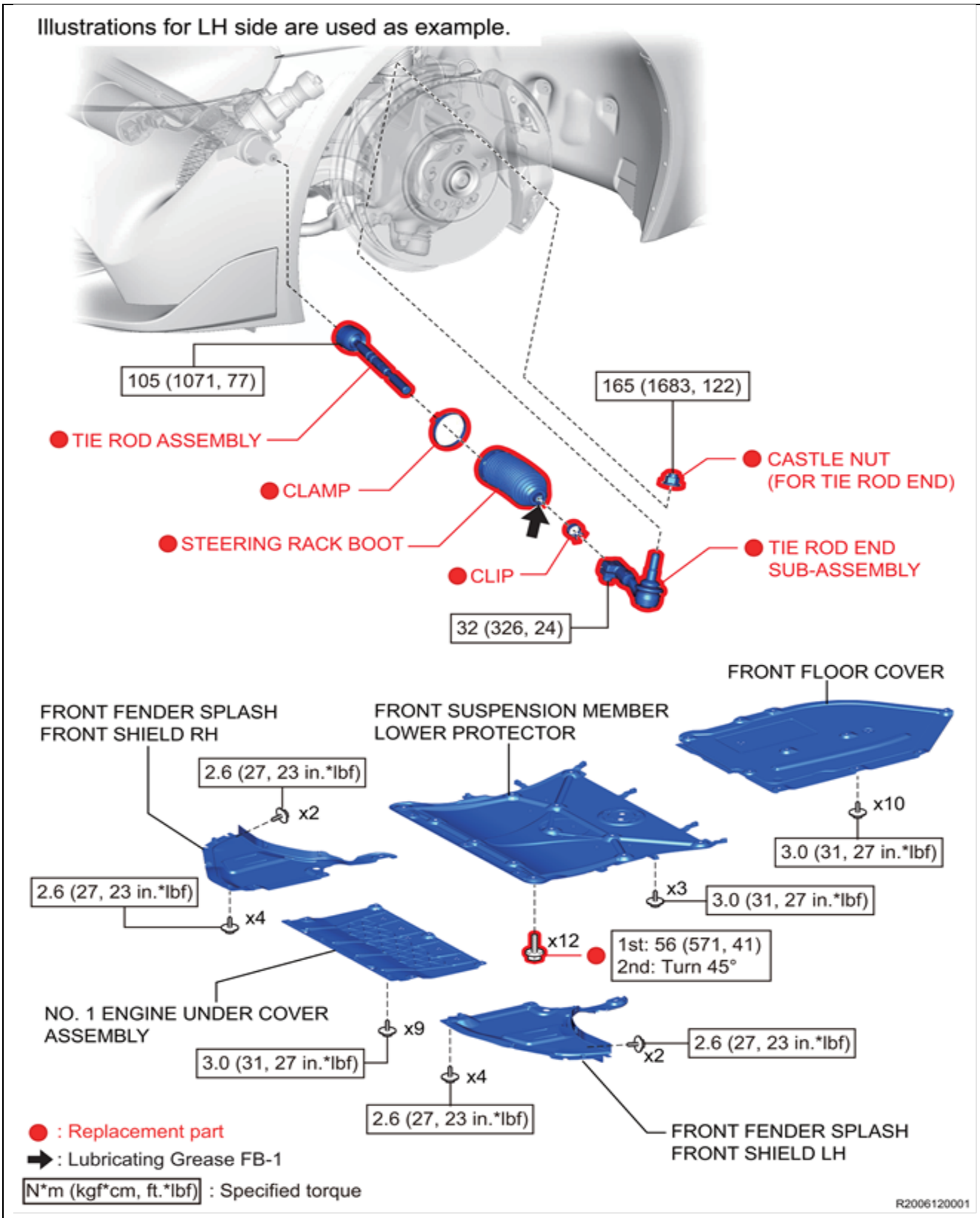
Materials & Supplied

- Brake Pad Grease
- Lubricating Grease 08887-WA290 or equivalent White Lithium Lubricating Grease

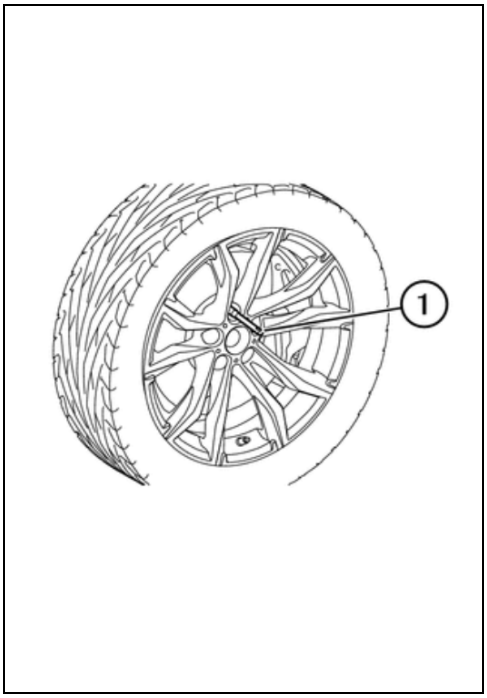
IV. BACKGROUND

According to BMW, who manufactures the 2020 Supra, the steering gear tie rod are an earlier design configuration. It is possible that over time, the tie rod could become damaged and break, affecting vehicle handling and control, and increasing the risk of a crash.

V. COMPONENTS



VI. REMOVE LEFT and RIGHT FRONT WHEEL ASSEMBLY



1. REMOVE FRONT WHEEL ASSEMBLY LH & RH

a. Loosen the axle hub bolts (wheel studs) approximately 90 degrees.

b. Remove one axle hub bolt (wheel stud) and install guide pin:

SST: 09650-14010

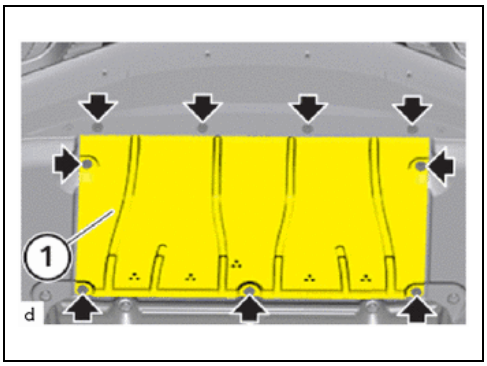
Note: Orient guide pin in the top position as indicated in the image. Ensure to screw in threads of guide pin completely.

Because this vehicle does not have wheel studs, use the guide pin to assist with removal and installation of the wheel assembly to prevent damage.

c. Remove the remaining 4 axle hub bolts (wheel studs) and remove the wheel.

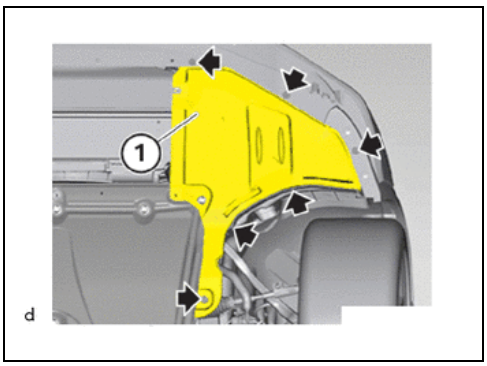
d. Remove guide pin.

VII. REMOVE FRONT SUSPENSION MEMBER LOWER PROTECTION



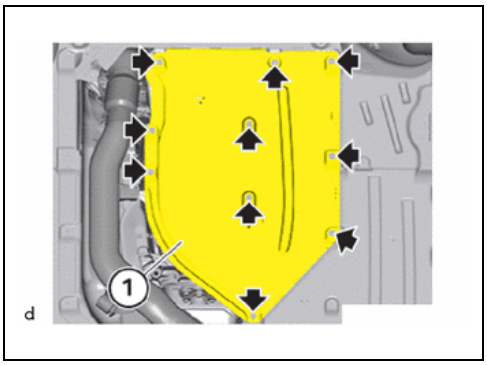
1. REMOVE FRONT SUSPENSION MEMBER LOWER PROTECTION

a. Remove screws as indicated by arrows.

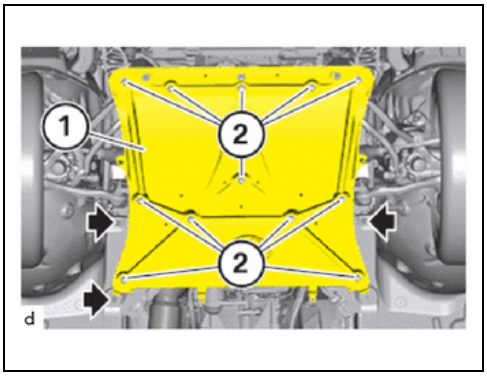


b. Remove front fender splash front shield LH side and RH side by removing screws as indicated by (arrows).

c. Feed out the front fender splash front shield to the side and remove.

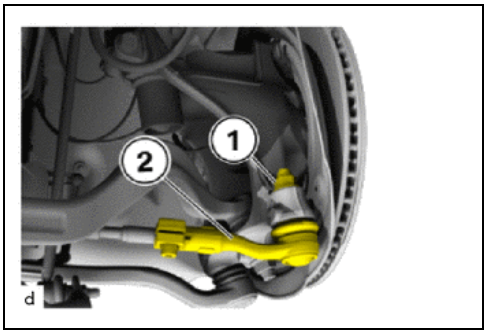


d. Remove front floor cover by removing screws as indicated by (arrows).



e. Remove front suspension member lower protector by removing the 16 mm bolts as indicated by number (2).

VIII. REMOVE TIE ROD ASSEMBLY

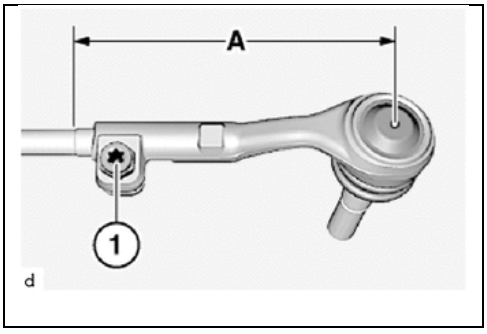


1. REMOVE OUTER TIE ROD ASSEMBLY LH & RH

a. Remove the nut as indicated by number (1).

Note: If necessary, counter-hold the T40 “TORX” tie rod end stud using a wrench.

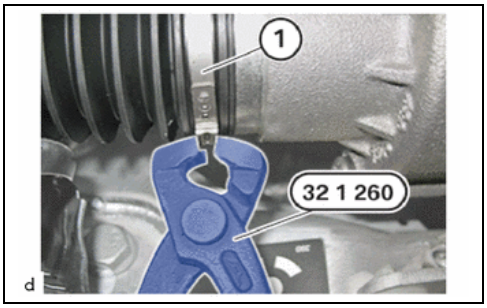
b. Pull the tie rod end sub-assembly (2) off the steering knuckle.



c. Determine and write down the dimension of (A).

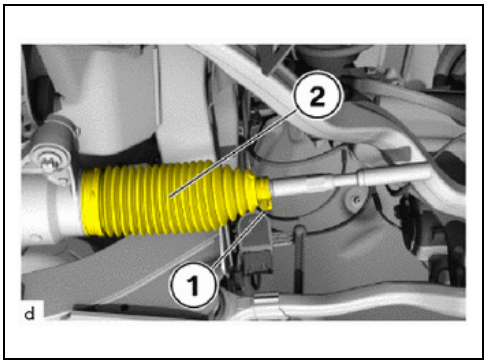
Note: The dimension of (A) is needed to simplify the toe adjustment at the front axle.

d. Loosen the T50 bolt as indicated by (1).
e. Unscrew the tie rod end sub-assembly.

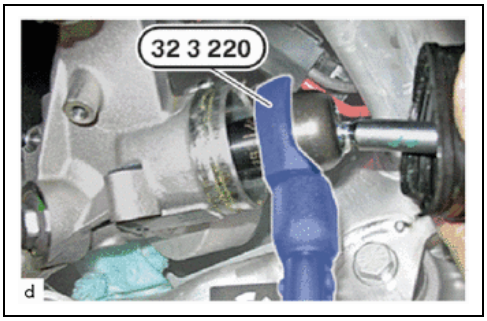


2. REMOVE INNER TIE ROD ASSEMBLY LH & RH

a. Cut diagonally across the clamp securing the steering rack boot to the steering rack using diagonal cutters.



b. Remove clip number (1).
c. Pull steering rack boot (2) off the steering gear assembly.

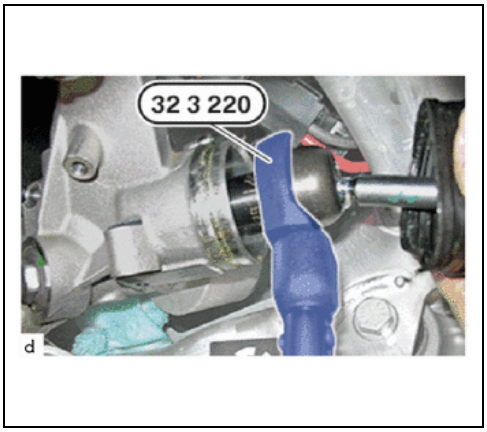


e. Remove the tie rod assembly from the steering shaft of the steering gear assembly using SST.

SST: 09600-WA040

In order to avoid damage of the steering shaft and it's bearing; the steering shaft must be positioned in the steering gear assembly as far as possible.

IX. INSTALL TIE ROD ASSEMBLY

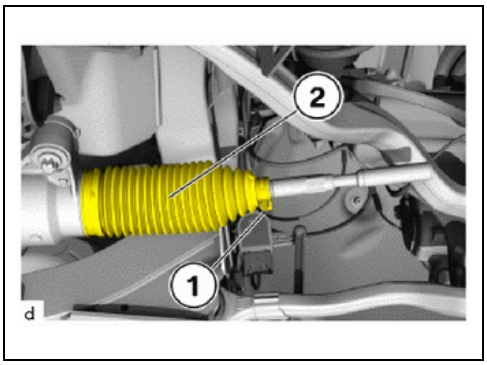


1. INSTALL INNER TIE ROD ASSEMBLY LH & RH

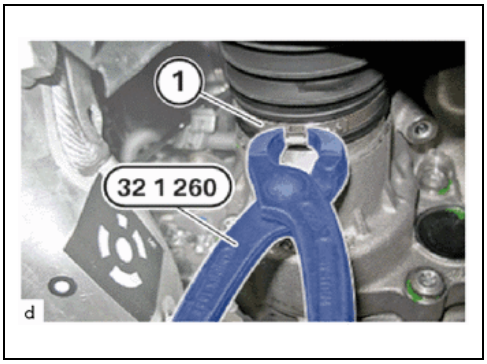
a. Install the tie rod assembly to the steering shaft of the steering gear assembly using SST.

SST: 09600-WA040
SST: 09900-WA280
Torque: 105 N.m {1071 kgf.com, 77 ft.lbf}

In order to avoid damage of the steering shaft and it's bearing; the steering shaft must be positioned in the steering gear assembly as far as possible.

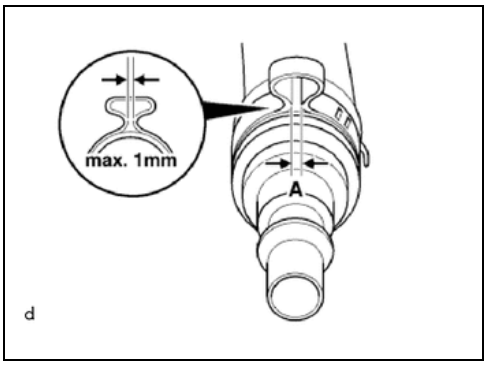


b. Coat the tie rod assembly at the taper with lubricating grease 08887-WA290 or equivalent white lithium lubricating grease
c. Push on steering rack boot (2).
d. Install clip (1).



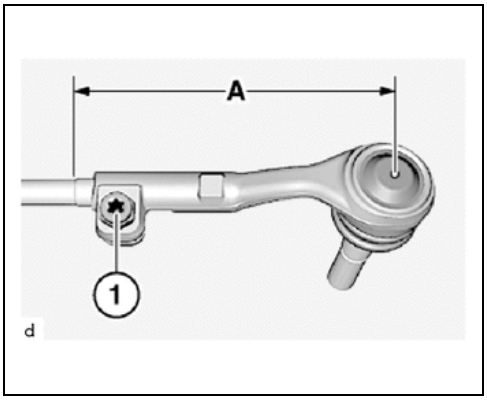
e. Replace clamp (1).
f. Attach the hook lock and press the clamp together. Use SST or equivalent clamp band tool.

SST: 00002-22610-01



g. Check the clearance of point (A).

Area A: Maximum 1mm (0.0393”)



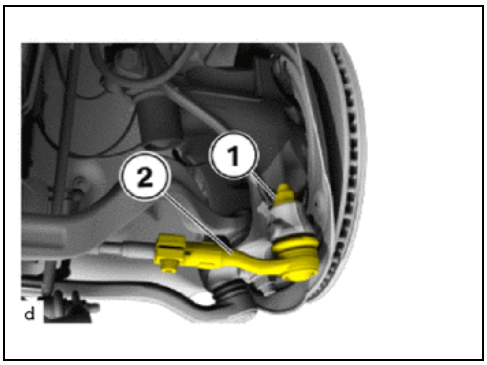
2. INSTALL OUTER TIE ROD ASSEMBLY LH & RH

a. Install the tie rod end to the tie rod assembly until dimension (A) are reached.

Note: Dimension (A) was determined during the removal process.

b. Tighten down T50 bolt (1).

Torque: 32 N.M {326 Kgf.cm, 24 ft.lbf}

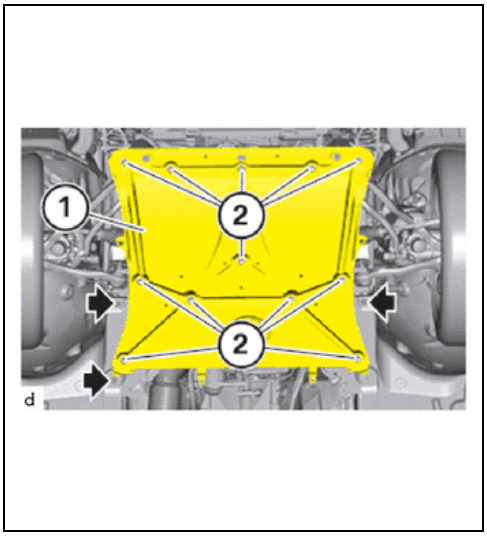


c. Install the tie rod end sub-assembly on the steering knuckle.
d. Replace nut (1) and tighten.

Torque: 165 N.m {1683 kgf.cm, 122 ft.lbf}

Note: If necessary, counter-hold the T40 "TORX" tie rod end stud using a wrench.

X. INSTALL FRONT SUSPENSION MEMBER LOWER PROTECTION



1. INSTALL FRONT SUSPENSION MEMBER LOWER PROTECTION

a. Position front suspension member lower protector (1).
b. Install 16mm bolts as indicated by (2).

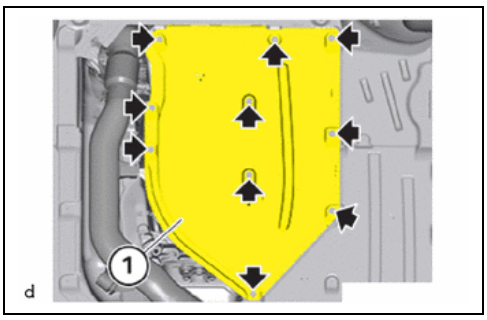
Torque: 56 N.m {571 kgf.cm, 41 ft.lbf}

c. Tighten the 16mm bolts (2) and additional 45 degrees using SST.

SST: 01815-00102

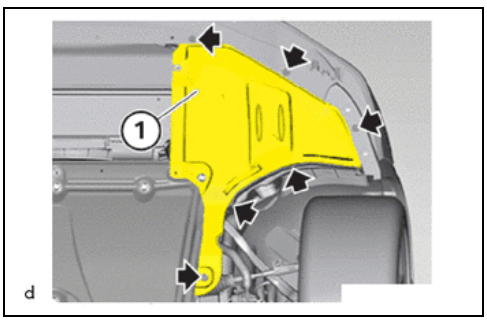
Install screws as indicated by (arrows).

Torque: 3.0 N.m {31kgf.cm, 27 in.lbf}



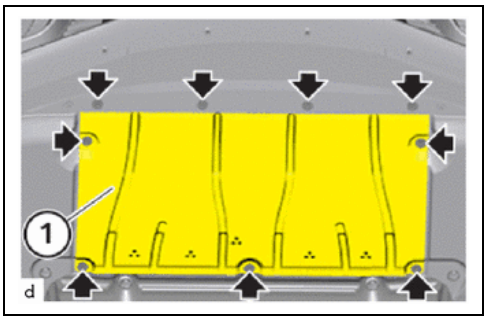
e. Position front floor cover (1)
f. Tighten screws as indicated by (arrows).

Torque: 3.0 N.m {31kgf.cm, 27 in.lbf}



g. Install front fender splash front shield LH side and RH side
h. Tighten screws as indicated by (arrows).

Torque: 3.0 N.m {31kgf.cm, 27 in.lbf}



i. Guide the No. 1 engine under cover assembly (1) into position.
j. Tighten screws as indicated by (arrows).

Torque: 3.0 N.m {31kgf.cm, 27 in.lbf}

XI. INSTALL LEFT and RIGHT FRONT WHEEL ASSEMBLY

a. Follow the Repair Manual procedure to install the left and right front wheel assembly.

MAINTENANCE: TIRE AND WHEEL: INSTALLATION; 2020 - 2021 MY Supra (RM100000001JCAC)

Torque: 140 N.m {1428 kgf.cm, 103 ft.lbf}

XII. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT

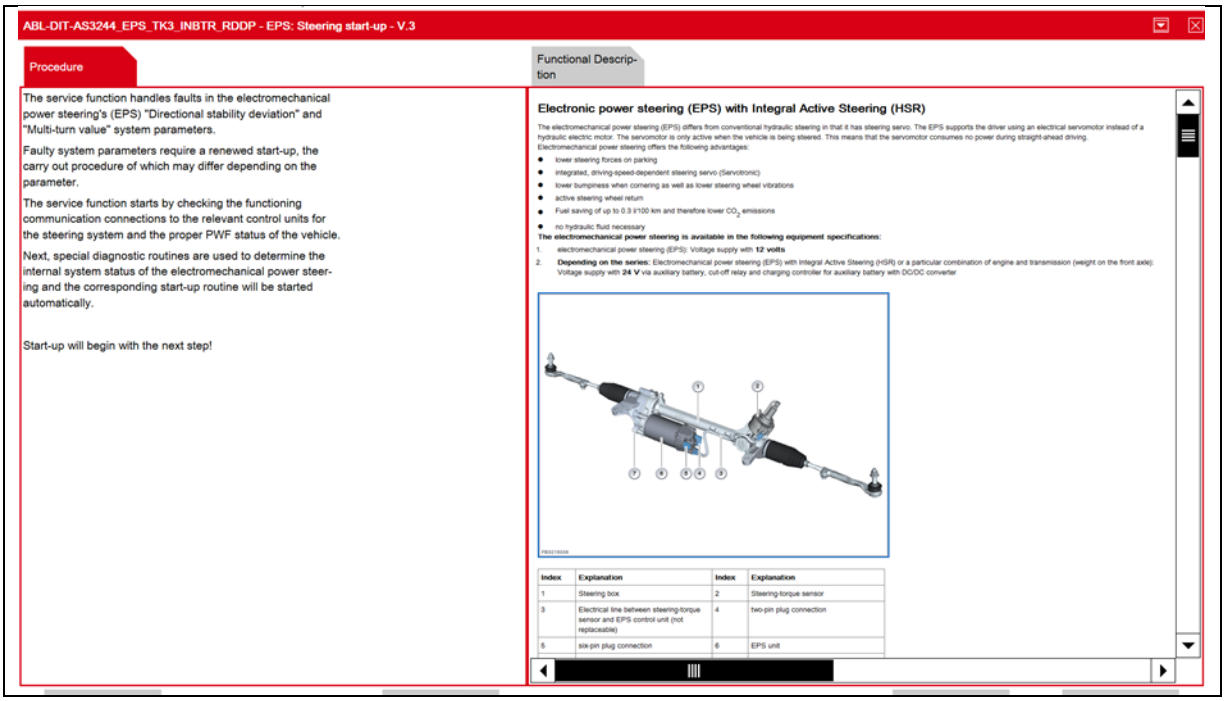
a. Follow the Repair Manual procedure to inspect and adjust the front wheel alignment.

ALIGNMENT / HANDLING DIAGNOSIS: FRONT WHEEL ALIGNMENT: ADJUSTMENT; 2020 - 2021 MY Supra (RM100000001JD0O)

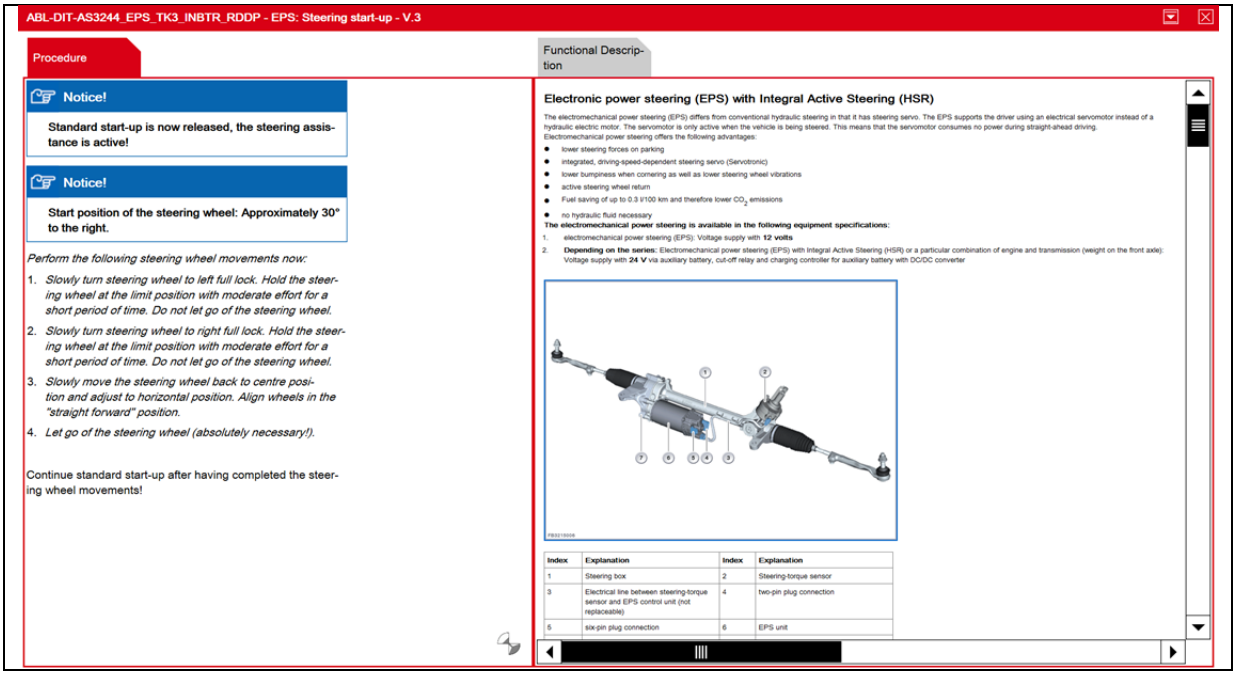
XIII. START-UP OF ELECTROMECHANICAL STEERING

a. Connect the diagnosis system to the vehicle and enter the following menus:

Vehicle management / Service Functions / Chassis / Electromechanical power steering / EPS: Steering start-up



b. Run EPS: Steering Start-up procedure.



◄ VERIFY REPAIR QUALITY ►

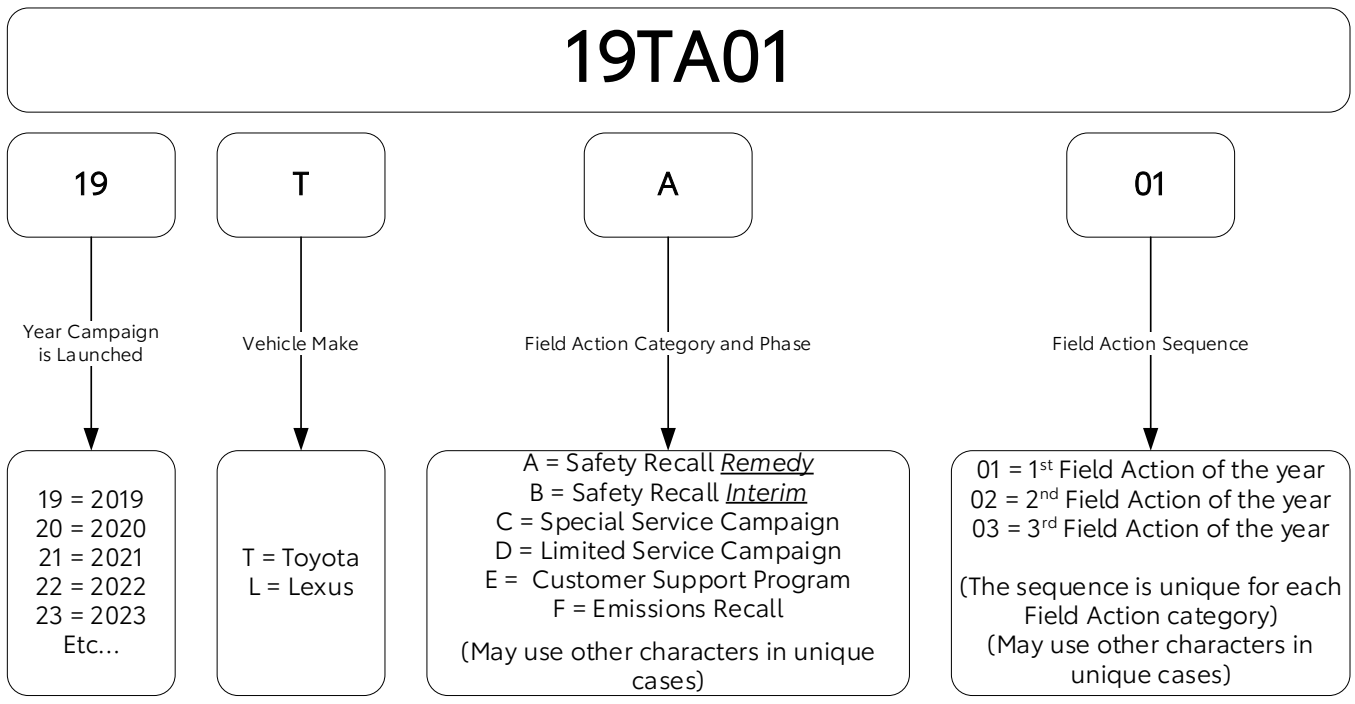
- **Confirm vehicle driving characteristics by performing road test.**
- **Confirm alignment is within specification**
- **Check for correct straight-ahead driving position of the steering wheel.**

10. APPENDIX

A. PARTS DISPOSAL

In accordance with Federal law, 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:

19TA01 = Launched in 2019, Toyota, Safety Recall Remedy Phase, 1st Safety Recall Launched in 2019

20TC02 = Launched in 2020, Special Service Campaign, 2nd Special Service Campaign Launched in 2020

21TE05 = Launched in 2021, Customer Support Program, 5th Customer Support Program Launched in 2021