

TECHNICAL INSTRUCTIONS

FOR

SAFETY RECALL 21TH01

Potentially Defective Power Steering Gear Assemblies

Certain 2007-2021 Model Year Tundra
Certain 2008-2022 Model Year Sequoia

Updated: 3/2/2022

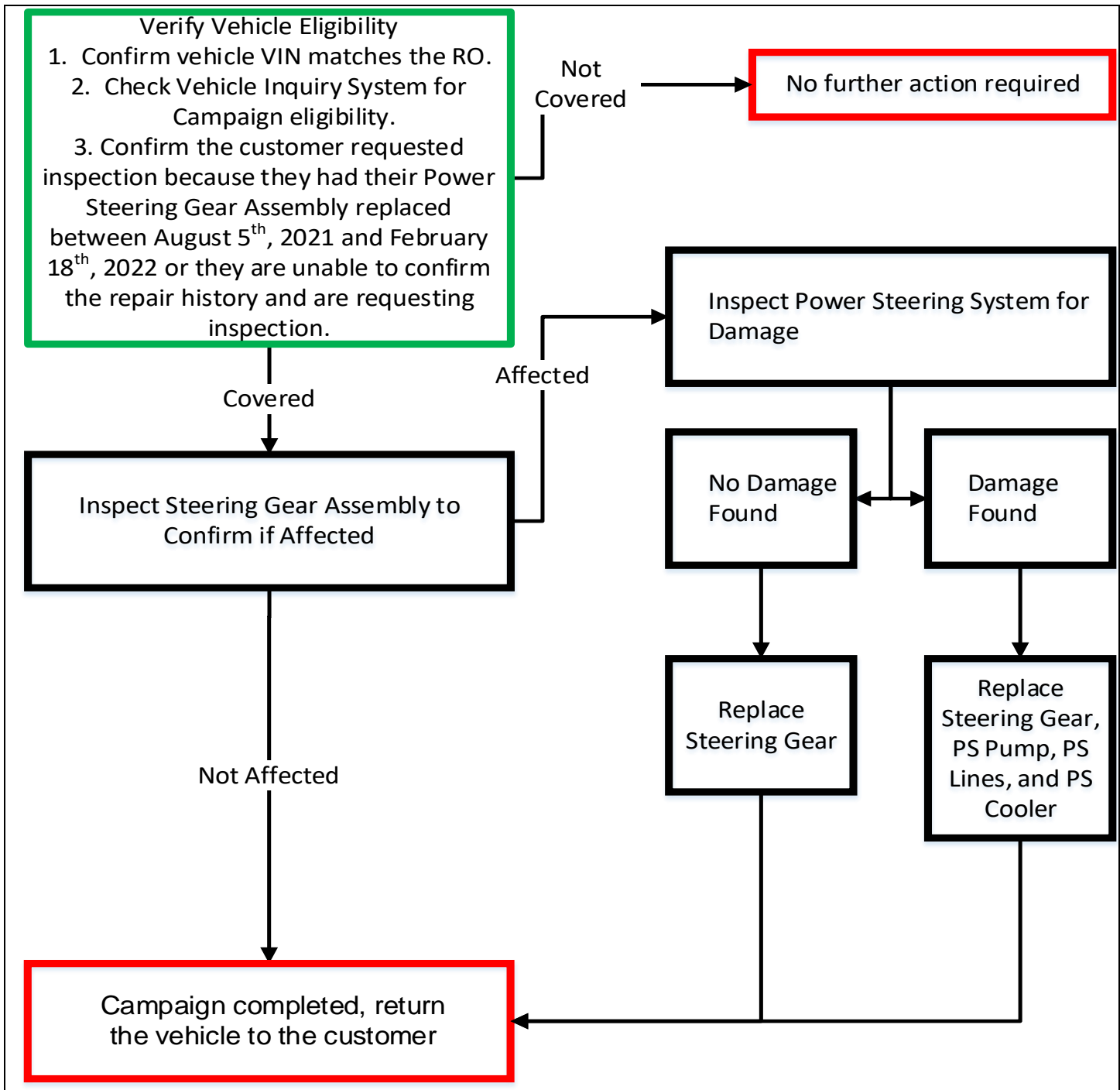
- **Update Steering Gear Inspection, Section VI, for additional detail and clarity.**

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 repair are required to currently have completed all of the following courses:

- T453 Toyota Suspension, Steering, and Handling

It is the dealership's responsibility to select technicians that have completed the above courses to perform this 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

- Compare the vehicle's VIN to the VIN listed on the Repair Order to ensure they match.
- 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

NOTE: PARTS ARE NEEDED BASED ON VEHICLE INSPECTION

Part Number	Part Description	Quantity
The parts below are only needed if the Steering Gear Assembly was found to be affected during inspection.		
Use EPC for Exact Part	Power Steering Gear Assembly (New, Not Remanufactured)	1
	Cotter pin	2
	Cotter pin (Front Axle, 4WD Only)	2
	Ring, Shaft Snap (for front drive innter shaft outer, 4WD Only)	2
	Gasket (for front differential drain plug, 4WD Only)	1
	Gasket (for front differential fill plug, 4WD Only)	1
	Power Steering Fluid (quarts)	3
	**Hardware Kit (Only if TRD Skid Plate Equipped)	1
The parts below are only needed if damage is found during inspection. (A photo of damage will be required)		
Use EPC for Exact Part	Reservoir Assy, Vane Pump Oil	1
	Cooler Sub-Assy, Power Steering oil, no.1	1
	Hose, Oil Reservoir to Pump, no.1	1
	Tube Assy, Pressure Feed	1
	Pump Assy, Vane	1
	O-Ring (for radiator drain cock)	1
	Gasket, Pressure Port, No 1	1
Tundra	Coolant	3 Gallons
Sequoia	Coolant	4 Gallons

*Parts only required for Four Wheel Drive

**Parts only required for TRD Skid Plate

B. TOOLS & EQUIPMENT

• Techstream	• Standard Hand Tools	• Torque Wrench	• Smart Phone with QR Code Reader
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SST – These Special Service Tools required for this repair:

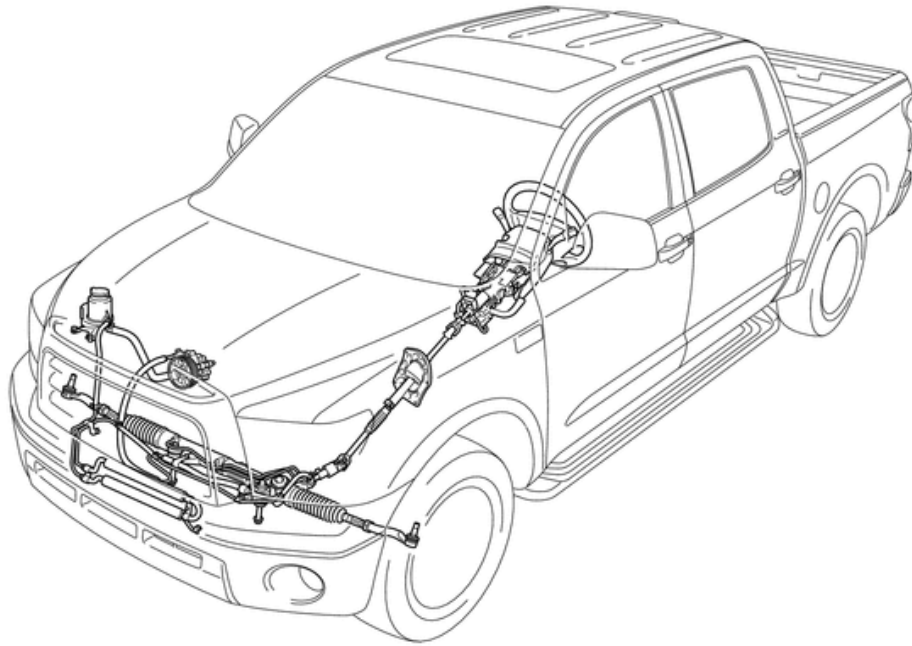
Part Number	Tool Name	Quantity
09610-20012	Pittman Arm Puller	1
09520-32040	Slide Hammer (5lb)	1
09520-01010	Drive Shaft Remover Attachment	1
09520-24010	Differential Side Gear Shaft Tool	1
09961-01270	Torque Wrench adapter	1

C. MATERIALS

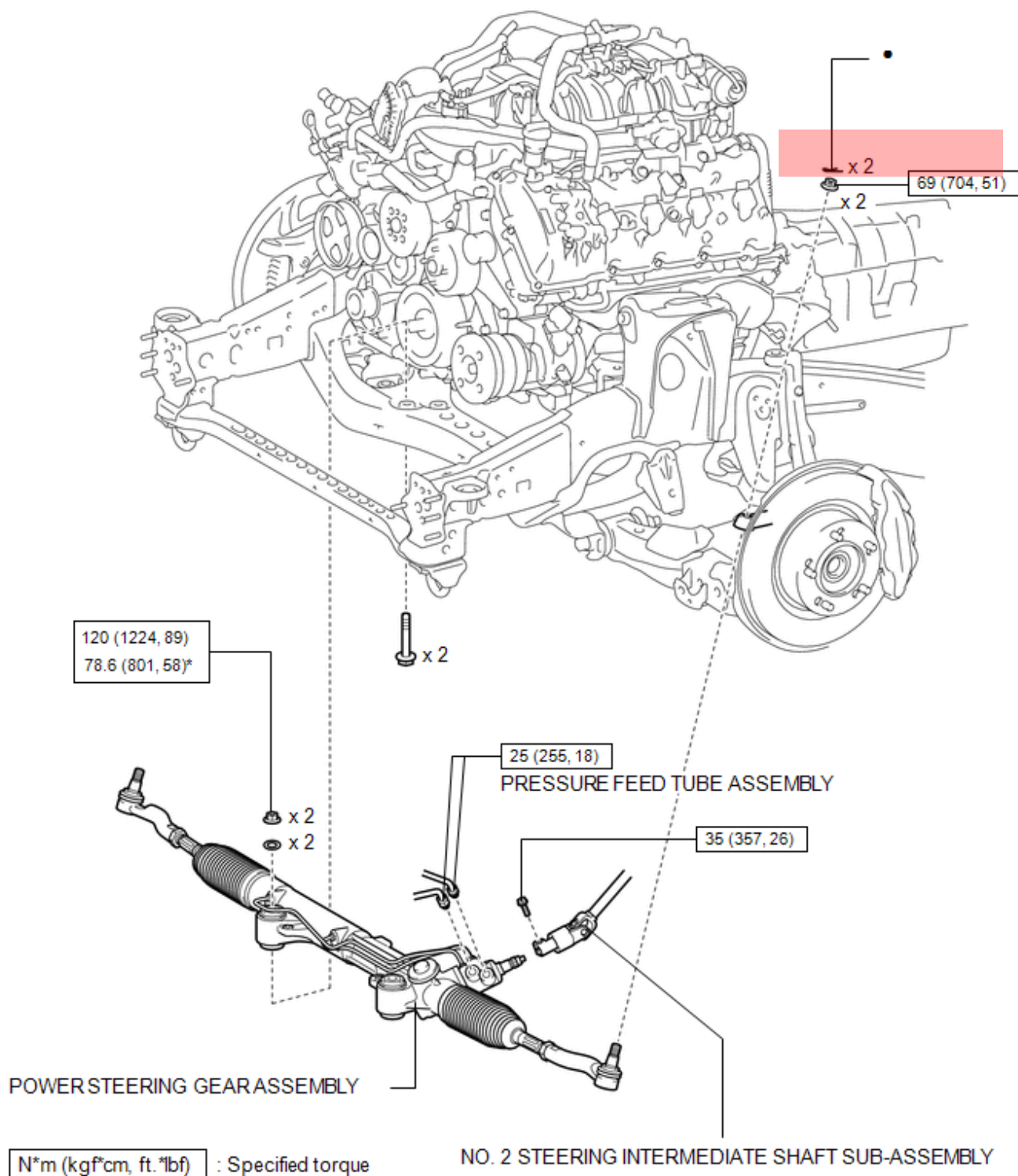
• Toyota Genuine Differential Gear Oil (08885-02506) LT SAE 75W-85 GL-5 or equivalent
• Power Steering Fluid (00718-ATF00)

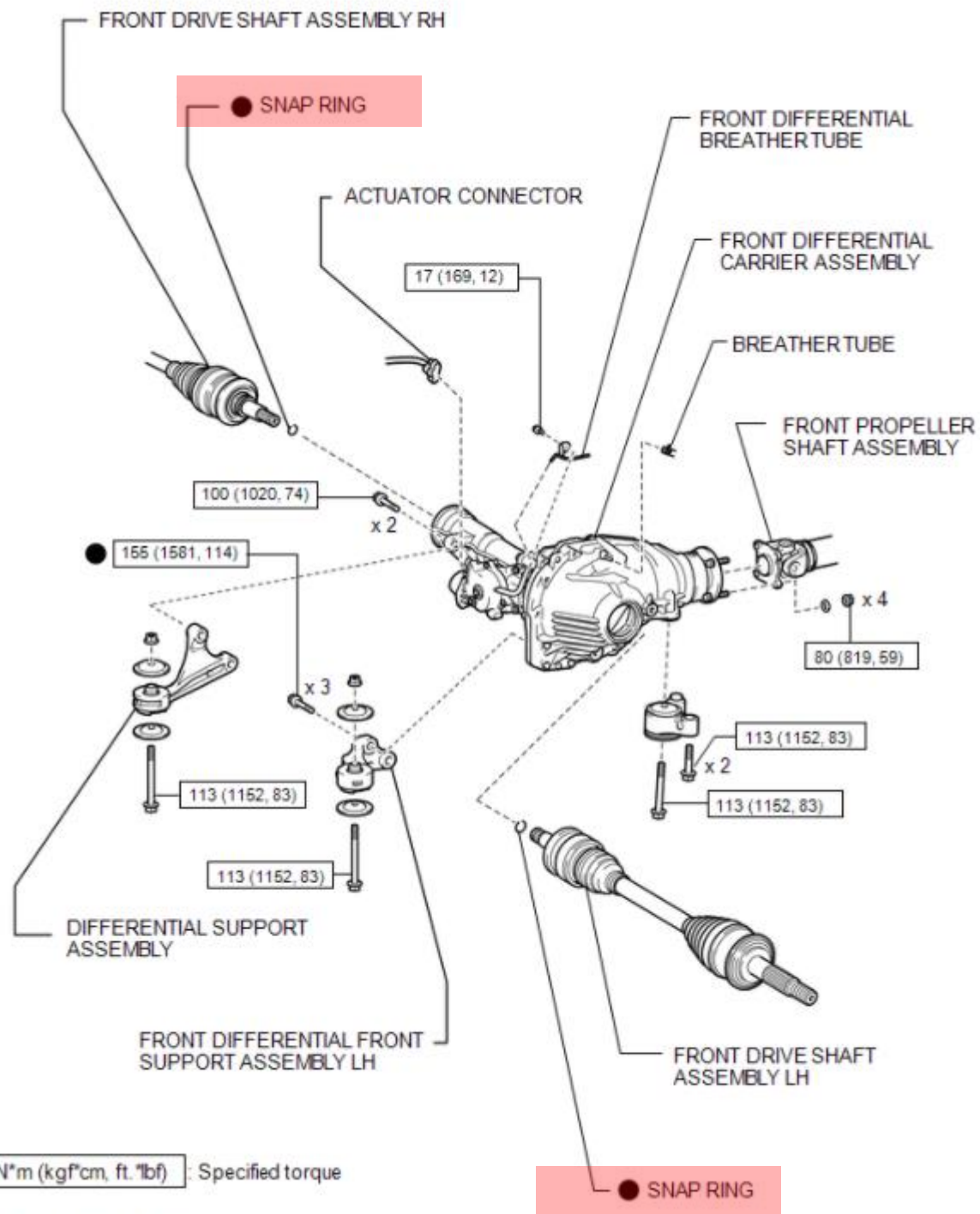
IV. BACKGROUND

If an involved service replacement part is installed in a vehicle, it can leak power steering fluid due to a manufacturing error. If a sufficient amount leaks, power steering assist can be suddenly lost. While manual steering remains functional, the loss of power steering assist may increase the steering effort needed and can increase the risk of a crash.



V. COMPONENTS





POWER STEERING OIL PRESSURE
SENSOR CONNECTOR



V-BANK COVER
SUB-ASSEMBLY

51 (520,
38)

● GASKET

PRESSURE
FEED TUBE

5.0 (51, 44 in.*lbf)

x 2

AIR CLEANER ASSEMBLY

4.0 (41, 35 in.*lbf)



FAN AND GENERATOR
V BELT

28 (286,
21)

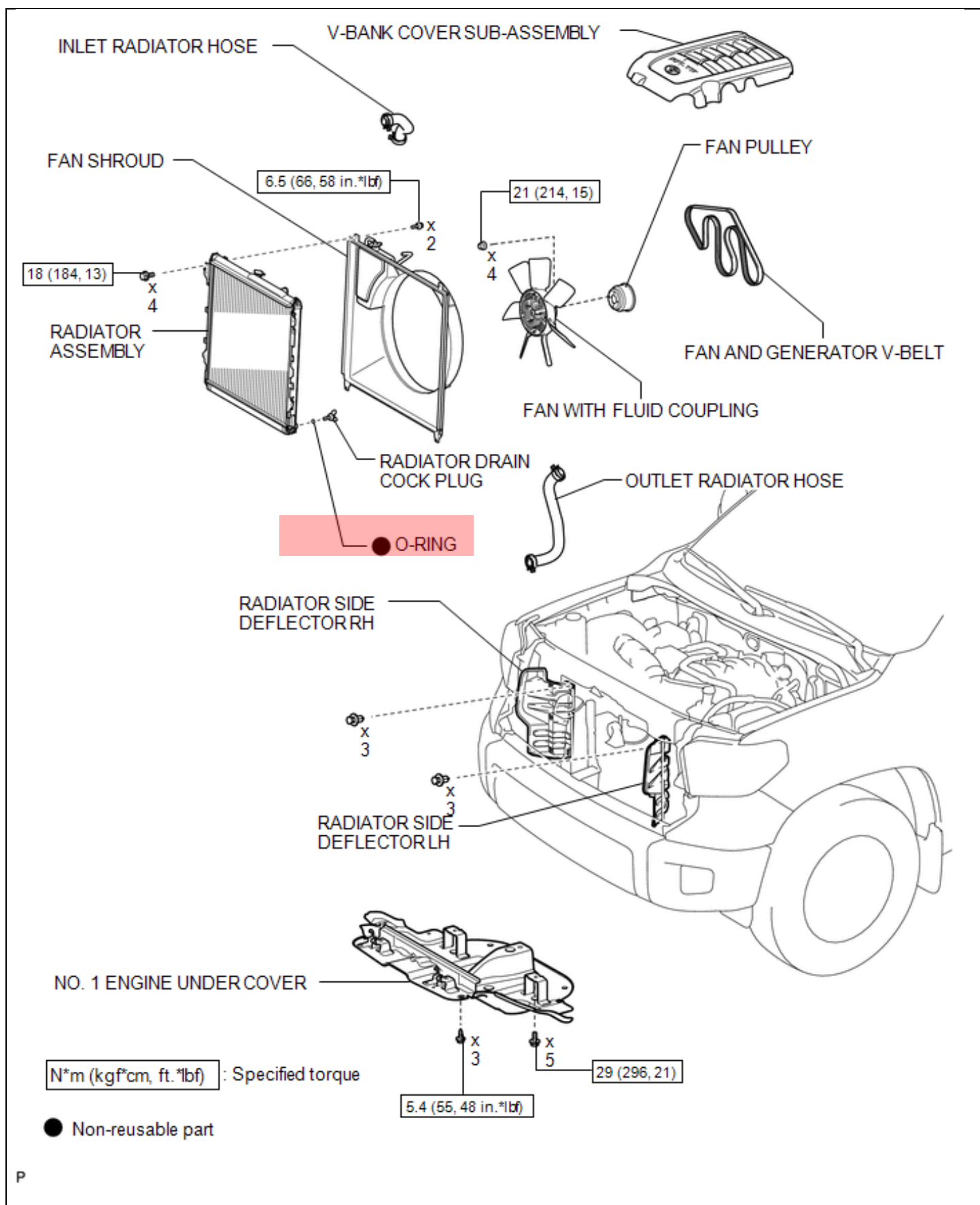
NO. 1 OIL RESERVOIR
TO PUMP HOSE

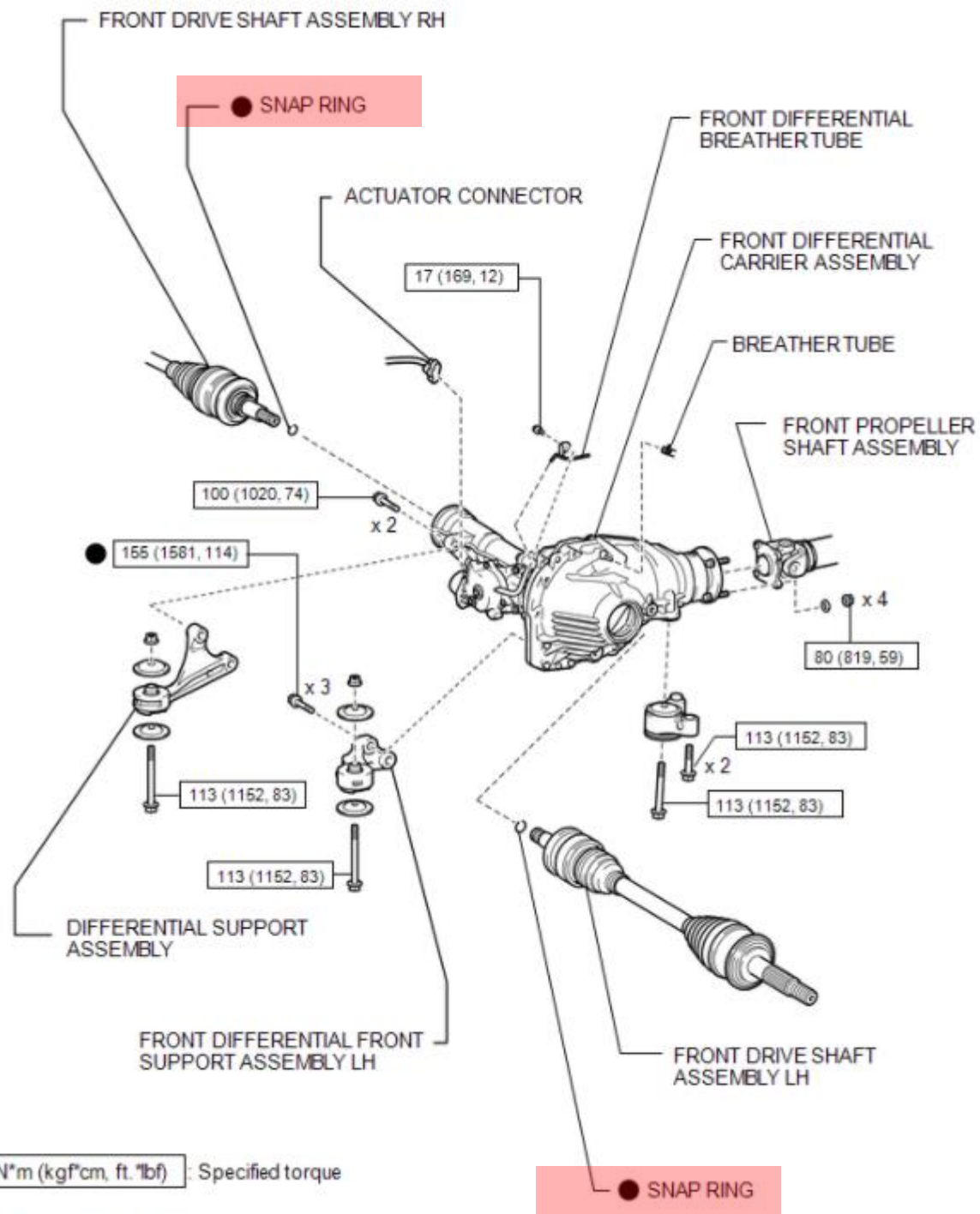
VANE PUMP ASSEMBLY

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

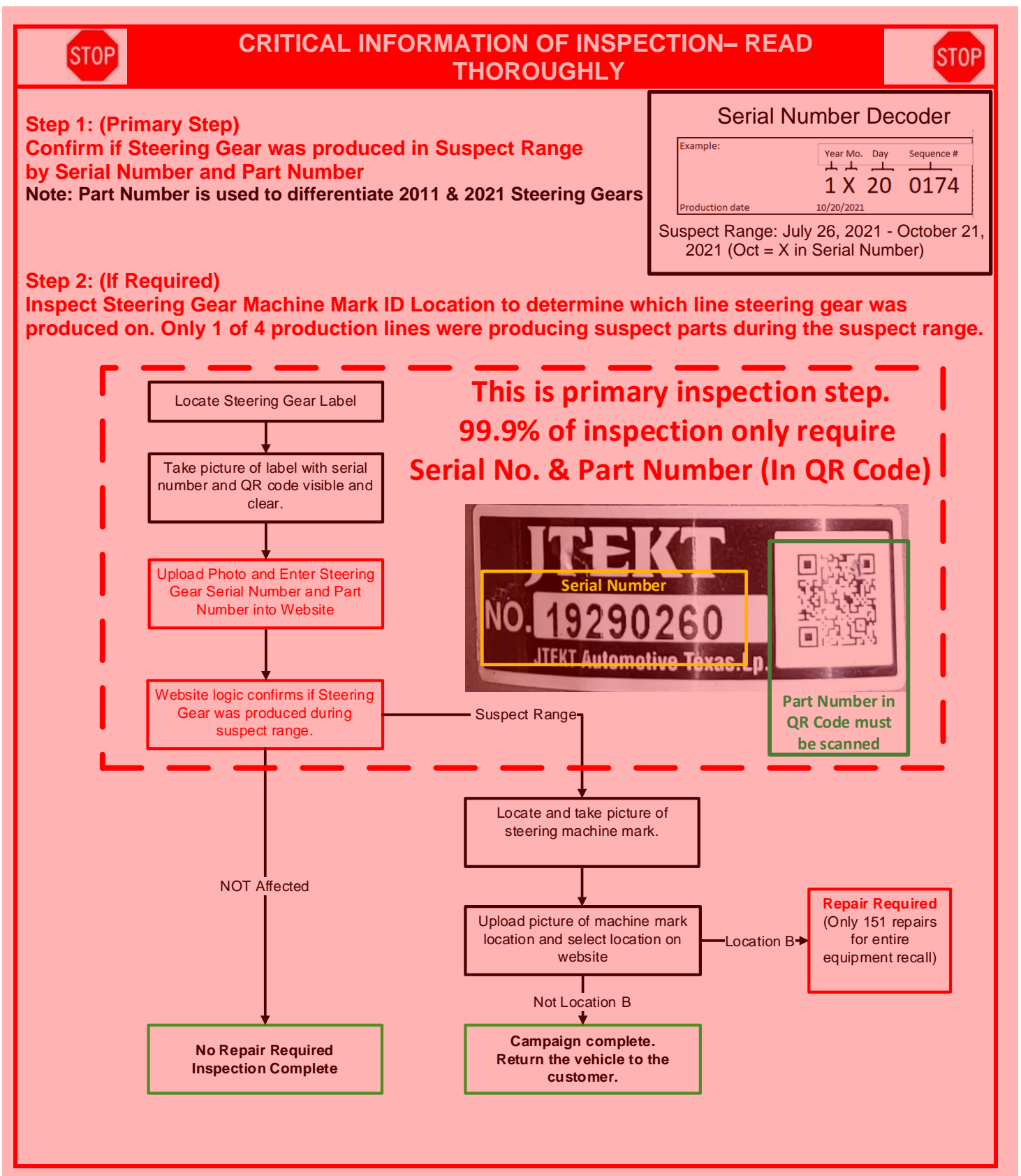
● Non-reusable part

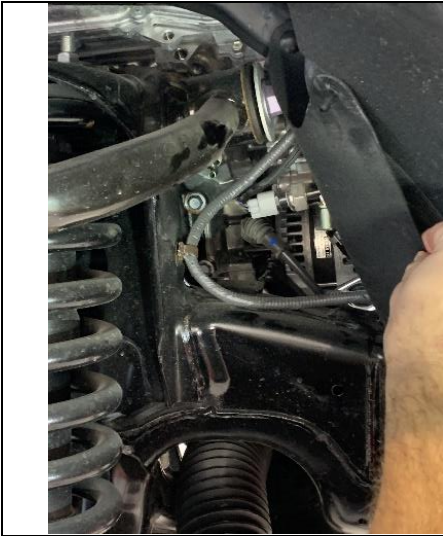
P





VI. STEERING GEAR INSPECTION (Finding 151 Steering Gears)

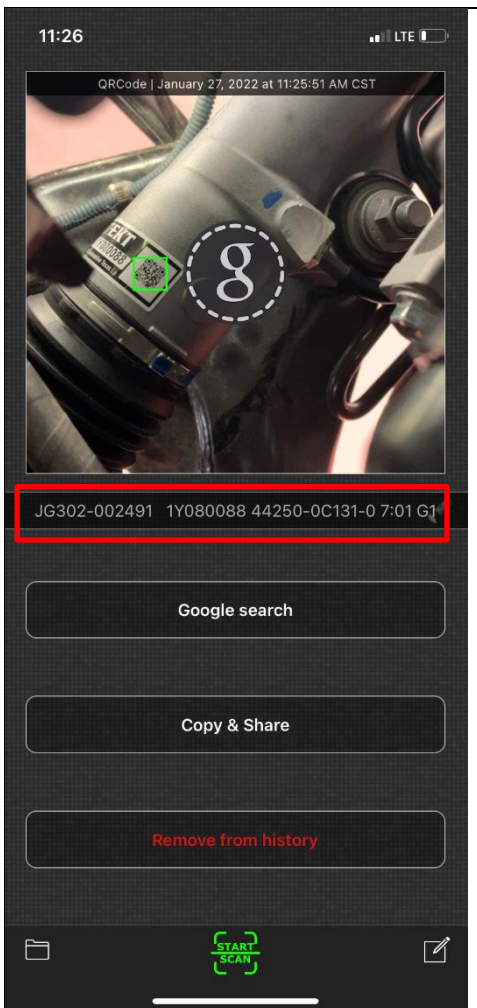




1. LOCATE STEERING GEAR LABEL AND SERIAL NUMBER

- Lift vehicle
- Remove the front passenger side tire.
- Remove the clips (2) of the front fender apron on the passenger side to gain access to the top of the steering gear.
- Locate the steering gear label on top of the steering rack looking through the fender apron access window created.
- If the label is dirty, clean the label with a rag so that the QR code and printed serial number can be clearly read.

Hint: Dirty labels can affect a scanner ability to read the QR code. Ensure it is clean before taking picture.



2. TAKE PICTURE OF LABEL AND QR CODE

- Reaching through the fender apron opening take a clear picture of the serial number label and QR code with smart phone.
- It is ideal the picture shows both the label, QR code and scanned data (data shown in red box of image) in one image as shown.

If this cannot be performed based on your phone's ability a clear picture with QR code and serial is ok.



It is critical that the QR code data is read because you will be required to input the information into the website to determine if steering gear is affected.

Example of Serial Number Photos		
Example A	Example B	Example C

Remedy Inspection Website

<https://21th01.imagespm.info/>

Username: 5-digit Dealer Code

Default Password: XXXXX

Each dealer only has a single account, please ensure that the reset password is communicated to all technicians and dealer associates that will be utilizing this website.

3. Log into Remedy Inspection Website

- Enter all requested information along with VIN

4. Upload photo and enter steering gear information

- Upload photo to website with the label, QR code, and information



- If you are unable to get all info in one screen shot upload clear picture of QR code and label.
- If the label is missing and not on steering gear you must upload a picture of where the label should be.

Take a picture of QR code and serial number label through the passenger side front fender apron with smart phone. Ensure the picture shows both the label, QR code and scanned data in one image as shown.

Note: Several free QR code scanner apps are available for iPhone and Android devices that can simplify this process.



A photo must be uploaded even if label is damaged or missing. If label is missing take a picture of where the label is located. Ensure to clean the area because it can appear to be missing due to dirt and debris.

Upload Your Photo:
(Choose File) No file chosen

Note: The serial number is the number printed on the label next to QR code. If you cannot scan QR code use this number to fill serial number field.

Note: PIN is only available by scanning QR code.

Serial Number (Red Box):
Serial Number Not Available: ☐

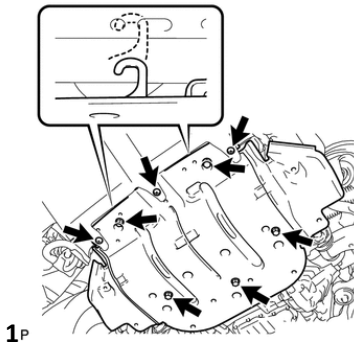
Part Number (Blue Box):
PIN cannot be read off QR: ☐
Code/QR code missing: ☐



Hint:

- The serial number and part number information will be used by the website to confirm if the steering gear is potentially affected.
- If unable to read QR code due to damage enter serial number as it is printed on label shown in red box

Factory Skid Plate Remove



TRD Skid Plate Only Open Access Door



5. **IF REQUIRED BY WEBSITE** Inspect the machine mark location.

- Remove the #1 Engine Cover by removing the 3 screws and 5 bolts

NOTE (Fig1): For TRD Skid plates **ONLY** remove oil access door for inspection.

6. **LOCATE STEERING GEAR MACHINE ID MARK**

- Locate the cast circle on top of the steering gear housing as shown in the picture below
- Take a picture of the machine ID mark

Note: For picture you can use cell phone, borescope, camera. It can be difficult to get phones to proper angle, so the use of a mirror is permissible. Ensure picture is clear.



Fig 1

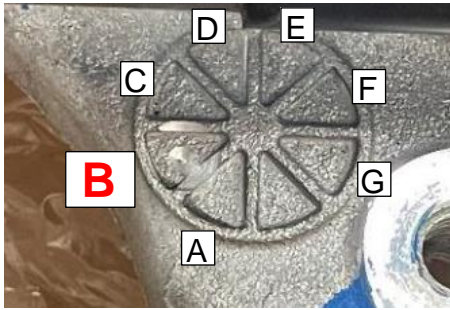
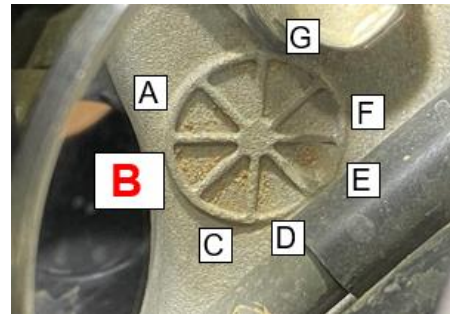


Fig 2



7. INSPECT THE MACHINE ID MARK

- a. Inspect the machine ID mark and inspect punch mark location

NOTE:

Fig 1. Shows an image without the use of a mirror.

Fig 2 Shows an image with a mirror. Also note if you take picture in selfie mode it will be a mirrored image.



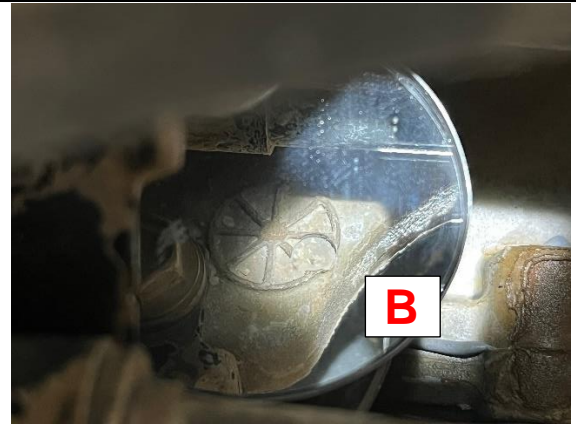
Location "B" is located next to the steering gear radius edge shown. This is critical for inspection; ensure you make correct judgement.

Examples of NG Location B (Replacement required)

Location B top view

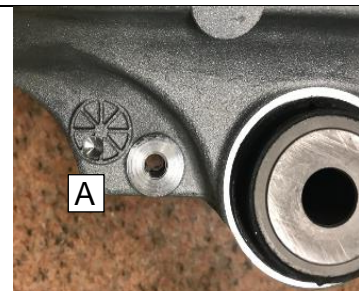


Location B with Mirror



Example of Ok Locations (No Replacement needed)

Location "A" top view



Location E Borescope view



Location with Mirror

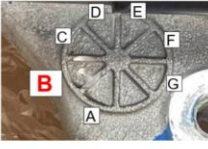


TOYOTA 21T81 - Potentially Defective Power Steering Gear Service Replacement Assistance


New Submission | Reset Password | Sign Out

Upload a photo of the machine ID mark on the steering gear.

Sample Photo:



Minored Sample Photo:



Upload Your Photo:

Choose File | No file chosen

Select the Machine ID Mark Location from Drop Down Menu


Select Location

Submit

Cancel

8. Upload the Picture of the Machine Mark Location

Upload Your Photo:



Choose File | Location 8 with minor.jpg

Select the Machine ID Mark Location from Drop Down Menu

Select Location

Select Location

Location A

Location B

Location C

Location D

Location E

Location F

Location G


9. **Select** the Machine ID Mark Location from Drop Down Menu and Press Submit

TOYOTA 21T81 - Potential Sudden Loss of Power Steering Assist Inspection Website

New Submission | Reset Password | Sign Out

Replacement Required

If there are questions or problems with this submission, please contact support@quality.compliance@toyota.com



Original technician photo upload

VIN: 5TFV18UJ028483

Dealer Code: 82482

Dealer Name: Test Dealer

SPIN ID: XXXXXXXX2222

Technician Name: Joe White

Repair Record Number: wq1h4y6t

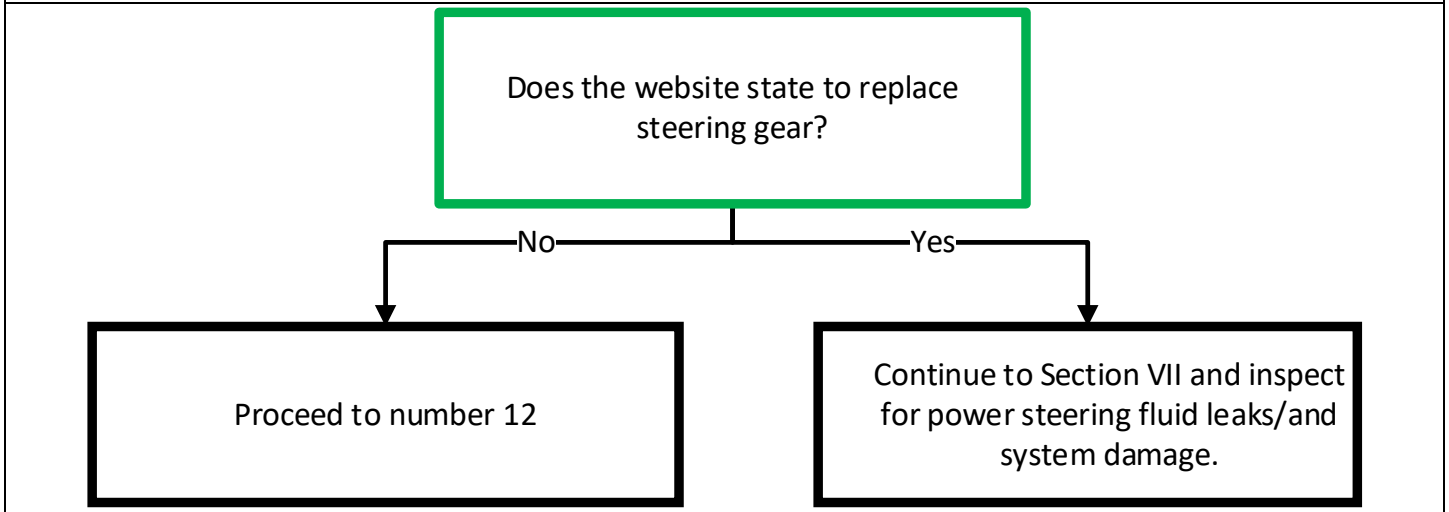
Submit

Cancel

10. Print and Save Inspection Result and Attach to R.O.

M

11. Post Inspection Flow Chart



12. REINSTALL NO. 1 ENGINE COVER

- Hook the engine under cover onto the body
- Install the 5 bolts
- Install the 3 screws

Note (Fig1): For TRD Skid plates shut and secure oil access door.

Bolt Torque Spec: 21 ft*lbs. (29 N*m)

Screw Torque Spec: 48 in *lbs. (5.4 N*m)

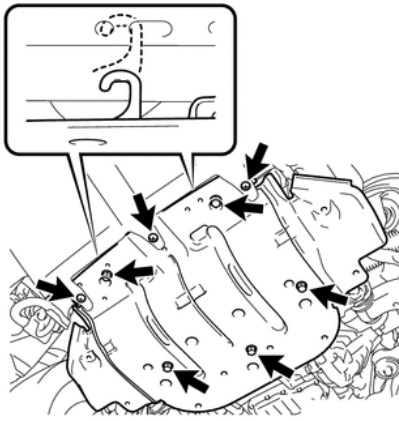
13. Reinstall apron with 2 clips

14. Reinstall Passenger Side Tire and Wheel

Wheel Lug Nut Torque Spec:

Aluminum: 97 Ft*lbs. (131 N*m)

Steel: 154 ft*lbs. (209 N*m)



VII. POWER STEERING SYSTEM INSPECTION

Fig 1

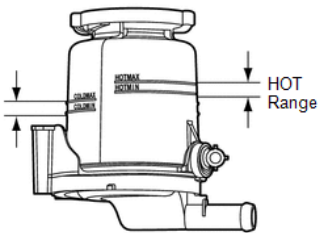


1. INSPECT POWER STEERING SYSTEM FOR DAMAGE

- Inspect the steering gear for signs of leaks and power steering fluid.
- Inspect the steering gear boots for swelling or signs of fluid inside the boot.

NOTE: The issue can cause steering fluid to leak into the steering gear boots. Fig 1. Shows steering fluid leaking into the boots.

COLD
Range

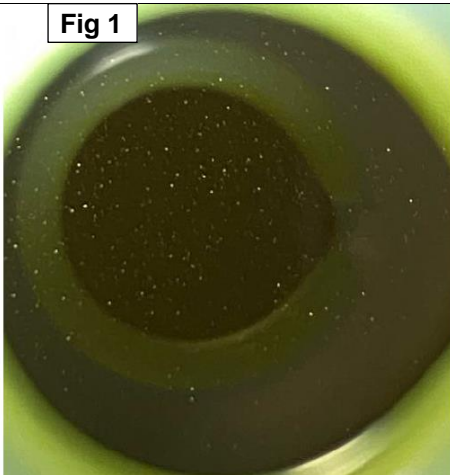


2. INSPECT POWER STEERING RESERVOIR

- Inspect fluid level with the engine on and off

HINT: ENSURE VEHICLE IS ON A LEVEL SURFACE

Fig 1



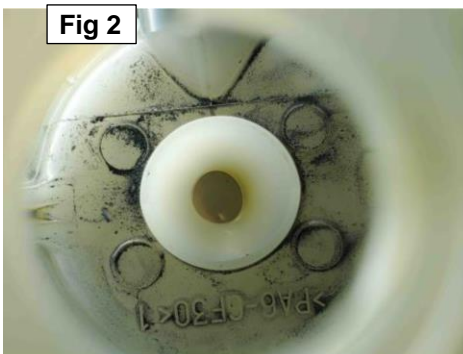
- Remove reservoir cap and inspect reservoir for signs of metallic debris.

NOTE:

Fig 1 shows fluid with metallic debris

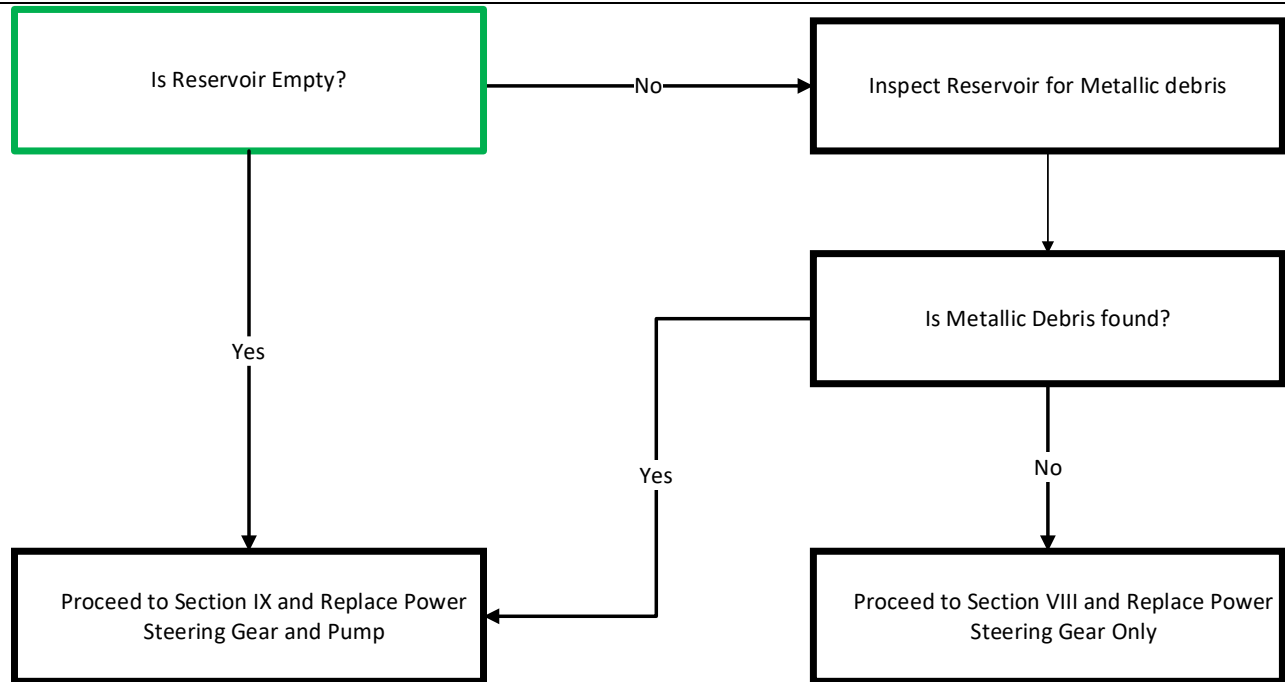
Fig 2 shows an empty reservoir with metallic debris.

Fig 2



- If reservoir is found empty or metallic debris is found take picture of condition. It will be required for parts release.

3. Post Inspection Flow Chart



VIII. REPAIR DISASSEMBLY

1. REMOVE STEERING GEAR ASSEMBLY

Tundra (2007-2015)

POWER STEERING: POWER STEERING GEAR: REMOVAL; 2007 MY Tundra [11/2006 -] (RM000002H5R001X)

Tundra (2016-2021)

POWER STEERING: STEERING GEAR: REMOVAL; 2016 - 2021 MY Tundra [08/2015 -]

(RM100000000S475)

Sequoia (2008-2015)

STEERING GEAR / LINKAGE: STEERING GEAR: REMOVAL; 2008 MY Sequoia [11/2007 -] (RM000002H5R003X)

Sequoia (2016-2022)

STEERING GEAR / LINKAGE: STEERING GEAR: REMOVAL; 2016 - 2022 MY Sequoia [08/2015 -] (RM100000000SBUV)

NOTE: (IF EQUIPPED) REMOVE TRD SKID PLATE

2014-2019 Tundra TRD SKID PLATE PT938-341410 REMOVAL (T-AI-1011-D)

2. REMOVE RADIATOR AND POWER STEERING COOLER (Only required if system damage is found during inspection.)

Tundra (2007-)

1GR-FE COOLING: RADIATOR: REMOVAL; 2007 MY Tundra [11/2006 -]

(RM000002BGI009X)

Tundra (2007-)

[2UZ-FE COOLING: RADIATOR: REMOVAL; 2007 MY Tundra \[11/2006 - \]](#)
(RM000002BGI00AX)

Tundra (2007-)

[3UR-FE COOLING: RADIATOR: REMOVAL; 2007 MY Tundra \[11/2006 - \]](#)
(RM000002BGI00EX)

[Tundra \(2016-2019\)](#)

[1UR-FE \(COOLING\): RADIATOR: REMOVAL; 2016 - 2019 MY Tundra \[08/2015 - 08/2019\]](#) (RM100000000S3MF)

[Tundra \(2016-2019\)](#)

[3UR-FBE \(COOLING\): RADIATOR: REMOVAL; 2016 - 2018 MY Tundra \[08/2015 - 08/2018\]](#) (RM100000000S3LB)

[Tundra \(2020-2021\)](#)

[3UR-FE \(COOLING\): RADIATOR: REMOVAL; 2019 - 2021 MY Tundra \[08/2018 - \]](#) (RM100000000S3LV)

[Sequoia \(2008-\)](#)

[2UZ-FE COOLING: RADIATOR: REMOVAL; 2008 MY Sequoia \[11/2007 - \]](#)
(RM000002BGI00RX)

[Sequoia \(2008-\)](#)

[3UR-FE COOLING: RADIATOR: REMOVAL; 2008 MY Sequoia \[11/2007 - \]](#)
(RM000002BGI00SX)

[Sequoia \(2020-2022\)](#)

[3UR-FE \(COOLING\): RADIATOR: REMOVAL; 2016 - 2022 MY Sequoia \[08/2015 - \]- \]](#) (RM100000000SB8A)

3. REMOVE POWER STEERING VANE PUMP (Only required if system damage is found during inspection.)

[Tundra \(2007-\)](#)

[POWER STEERING: VANE PUMP \(for 3UR-FE\): REMOVAL; 2007 MY Tundra \[11/2006 - \]](#) (RM000002H5D003X)

Tundra (2007-)

[POWER STEERING: VANE PUMP \(for 2UZ-FE\): REMOVAL; 2007 MY Tundra \[11/2006 - \]](#) (RM000002H5K001X)

[Tundra \(2007-\)](#)

[POWER STEERING: VANE PUMP \(for 1GR-FE\): REMOVAL; 2007 MY Tundra \[11/2006 - \]](#)
(RM000002H5D001X)

[Tundra \(2020-2021\)](#)

[POWER STEERING: VANE PUMP \(for 3UR-FE\): REMOVAL; 2020 - 2021 MY Tundra \[08/2019 - \]](#) (RM100000001J76S)

[Sequoia \(2008-\)](#)

[POWER ASSIST SYSTEMS: VANE PUMP \(for 3UR-FE\): REMOVAL; 2008 MY Sequoia \[11/2007 - \]](#) (RM000002H5D00FX)

[Sequoia \(2008-\)](#)

[POWER ASSIST SYSTEMS: VANE PUMP \(for 2UZ-FE\): REMOVAL; 2008 MY Sequoia \[11/2007 - \]](#) (RM000002H5K003X)

[Sequoia \(2020-2022\)](#)

[POWER ASSIST SYSTEMS: VANE PUMP \(for 3UR-FE\): REMOVAL; 2020 - 2022 MY Sequoia \[08/2019 - \]](#)
(RM100000001J6K8)

IX. REPAIR REASSEMBLY

1. INSTALL POWER STEERING VANE PUMP

Tundra (2007-2019)

POWER STEERING: VANE PUMP (for 3UR-FE): INSTALLATION; 2007 MY Tundra [11/2006 -] (RM000002H5D003X)

Tundra (2007-2019)

POWER STEERING: VANE PUMP (for 2UZ-FE): INSTALLATION; 2007 MY Tundra [11/2006 -] (RM000002H5G001X)

Tundra (2007-2019)

POWER STEERING: VANE PUMP (for 1GR-FE): INSTALLATION; 2007 MY Tundra [11/2006 -]
(RM000002H59001X)

Tundra (2020-2021)

POWER STEERING: VANE PUMP (for 3UR-FE): INSTALLATION; 2020 - 2021 MY Tundra [08/2019 -]
(RM100000001J76W)

Tundra (2008-)

POWER ASSIST SYSTEMS: VANE PUMP (for 3UR-FE): REMOVAL; 2008 MY Sequoia [11/2007 -] (RM000002H5D00FX)

Sequoia (2008-)

POWER ASSIST SYSTEMS: VANE PUMP (for 2UZ-FE): INSTALLATION; 2008 MY Sequoia [11/2007 -]
(RM000002H5K003X)

Sequoia (2008-2015)

POWER ASSIST SYSTEMS: VANE PUMP (for 3UR-FE): INSTALLATION; 2008 MY Sequoia [11/2007 -]
(RM000002H5900FX)

Sequoia (2016-2022)

STEERING GEAR / LINKAGE: STEERING GEAR: INSTALLATION; 2016 - 2022 MY Sequoia [08/2015 -]
(RM100000000SBUS)

4. INSTALL POWER STEERING COOLER AND LINES

5. INSTALL RADIATOR

Tundra (2007-)

1GR-FE COOLING: RADIATOR: INSTALLATION; 2007 MY Tundra [11/2006 -]
(RM000001465006X)

Tundra (2007-)

2UZ-FE COOLING: RADIATOR: INSTALLATION; 2007 MY Tundra [11/2006 -]
(RM000002BGG00AX)

Tundra (2007-)

3UR-FE COOLING: RADIATOR: INSTALLATION; 2007 MY Tundra [11/2006 -]
(RM00000146500AX)

Tundra (2016-2019)

1UR-FE (COOLING): RADIATOR: INSTALLATION; 2016 - 2019 MY Tundra [08/2015 - 08/2019] (RM100000000S3MD)

Tundra (2016-2019)

3UR-FBE (COOLING): RADIATOR: INSTALLATION; 2016 - 2018 MY Tundra [08/2015 - 08/2018] (RM100000000S3L9)

Tundra (2020-2021)

3UR-FE (COOLING): RADIATOR: INSTALLATION; 2016 - 2018 MY Tundra [08/2015 - 08/2018] (RM100000000S3LT)

Sequoia (2008-)

2UZ-FE COOLING: RADIATOR: INSTALLATION; 2008 MY Sequoia [11/2007 -]

(RM000002BGG00GX)

Sequoia (2008-)

3UR-FE COOLING: RADIATOR: INSTALLATION; 2008 MY Sequoia [11/2007 -] (RM00000146500GX)

Sequoia (2020-2022)

3UR-FE (COOLING): RADIATOR: INSTALLATION; 2016 - 2022 MY Sequoia [08/2015 -] (RM100000000SB88)

6. INSTALL STEERING GEAR ASSEMBLY

Tundra (2007-2019)

POWER STEERING: POWER STEERING GEAR: INSTALLATION; 2007 MY Tundra [11/2006 -]

(RM000002H5N001X)

Tundra (2020-2021)

POWER STEERING: STEERING GEAR: INSTALLATION; 2020 - 2021 MY Tundra [08/2019 -] (RM100000001KZ2N)

Sequoia (2008-2015)

STEERING GEAR / LINKAGE: STEERING GEAR: INSTALLATION; 2008 MY Sequoia [11/2007 -]

(RM000002H5N003X)

Sequoia (2016-2022)

STEERING GEAR / LINKAGE: STEERING GEAR: INSTALLATION; 2016 - 2022 MY Sequoia [08/2015 -]

(RM100000000SBUS)

Assembly Installation: 2014-2019 Tundra TRD SKID PLATE PT938-341410 (T-AI-1011-D)

7. PERFORM VEHICLE ALIGNMENT

Tundra (2007-2019)

SUSPENSION: FRONT WHEEL ALIGNMENT: ADJUSTMENT; 2007 MY Tundra [11/2006 -]

(RM000001V4300CX)

Tundra (2020-2021)

SUSPENSION: FRONT WHEEL ALIGNMENT: ADJUSTMENT; 2020 - 2021 MY Tundra [08/2019 -] (RM100000001K1VU)

Sequoia (2008-2019)

ALIGNMENT / HANDLING DIAGNOSIS: FRONT WHEEL ALIGNMENT: ADJUSTMENT; 2008 MY Sequoia [11/2007 -]

(RM000001V4300JX)

Sequoia (2020-2022)

ALIGNMENT / HANDLING DIAGNOSIS: FRONT WHEEL ALIGNMENT: ADJUSTMENT; 2020 - 2022 MY Sequoia [08/2019 -]

(RM100000001K2NF)

◀ VERIFY REPAIR QUALITY ▶

- Confirm inspection was performed correctly
- Confirm no power steering system leaks
- Confirm proper power steering fluid level
- Confirm all bolts are torqued properly
- Confirm vehicle is aligned
- Confirm there are no DTC's present after repair

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

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

