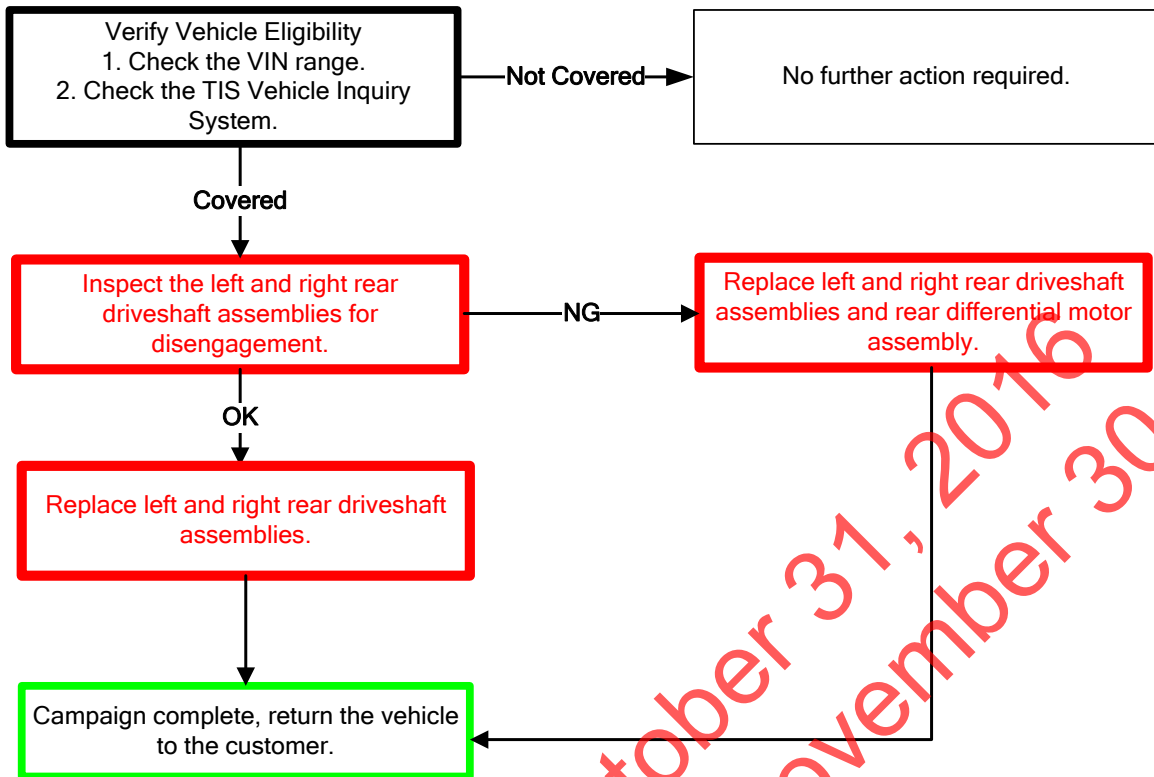


**TECHNICAL INSTRUCTIONS
FOR
LIMITED SERVICE CAMPAIGN D0N
REAR DRIVESHAFT ASSEMBLY REPLACEMENT
CERTAIN 2011-2012 MODEL YEAR HIGHLANDER HV**

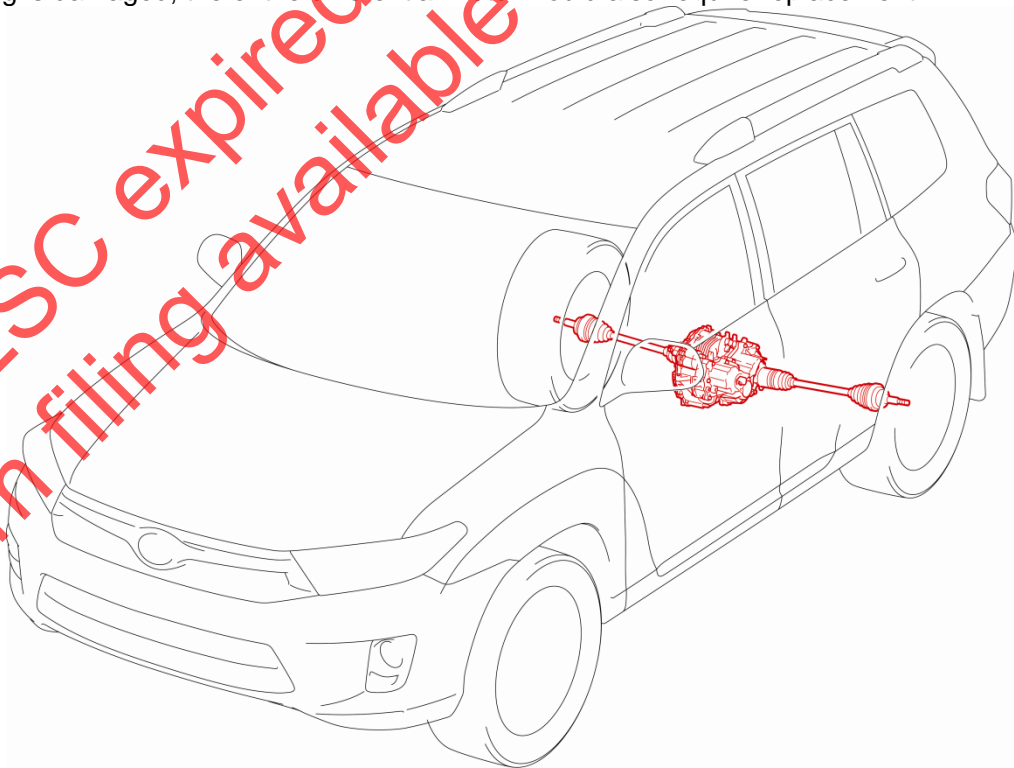
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Claim filing available until November 30, 2016**

I. OPERATION FLOW CHART



II. BACKGROUND

Due to an assembly error during manufacturing, the Rear Driveshaft in certain 2011-2012 Model Year Highlander Hybrid vehicles can disengage from its inboard joint assembly. If this occurs, the driveshaft could vibrate and rattle inside the inboard joint, causing a loud noise from the rear of the vehicle while driving. Continuing to drive the vehicle can damage the housing of the Rear Differential Motor. If the housing is damaged, the entire differential motor would also require replacement.



III. IDENTIFICATION OF AFFECTED VEHICLES

A. COVERED VIN RANGE

WMI	Year	VIN Range	
		VDS	Range
JTE	2011	BC3EH	2003742 - 2003975
		DC3EH	2003733 - 2003980
	2012	BC3EH	2003982 - 2008657
		DC3EH	2003983 - 2008658

NOTE:

- Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this Limited Service Campaign, 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.

IV. PREPARATION

A. PARTS

All covered vehicles will require the replacement of the rear driveshaft assemblies.

Part Number	Part Description	Quantity
04003-34148	Shaft Kit Rr Drive	2
The kit above includes the following parts.		
42340-48081	Shaft Assembly, Rear Drive	1
90177-22001	Nut	1

Only a very small number of vehicles will require the replacement of this part, follow the inspection procedure in these instructions to determine if replacement is required. Parts will be on Manual Allocation Control (MAC), refer to the dealer letter for details.

Part Number	Part Description	Quantity	
16492-21050	Packing (For Radiator Drain Cock)	1	
G1050-48010	Motor Assembly, Rr Traction W/ Transaxle	1	
04003-36148	Bolt & Gasket Kit:		
	17451-28040	Gasket Exhaust Pipe	2
	90109-12082	Bolt	2
	90119-14099	Bolt, W/ Washer	2
	91552-81265	Bolt, Flange	2

B. MATERIALS

ONLY use Toyota Super Long Life Coolant and Hybrid transaxle fluid if replacement of the rear differential motor assembly is required. Refer to the inspection in these instructions for details.

- Hybrid Transaxle Fluid (ATF WS)=1.8 liters (1.9 US qts, 1.6 Imp. qts)*
- Toyota Genuine 50/50 Pre-Diluted SLLC = Approximately 1quart*
- Shop Cloth
- Brake Cleaner

NOTE:

- The coolant drained from the radiator must be reused.
- Because some coolant will be lost when disconnecting the hoses by the exhaust pipe, a small amount of coolant will be needed.

C. TOOLS & EQUIPMENT

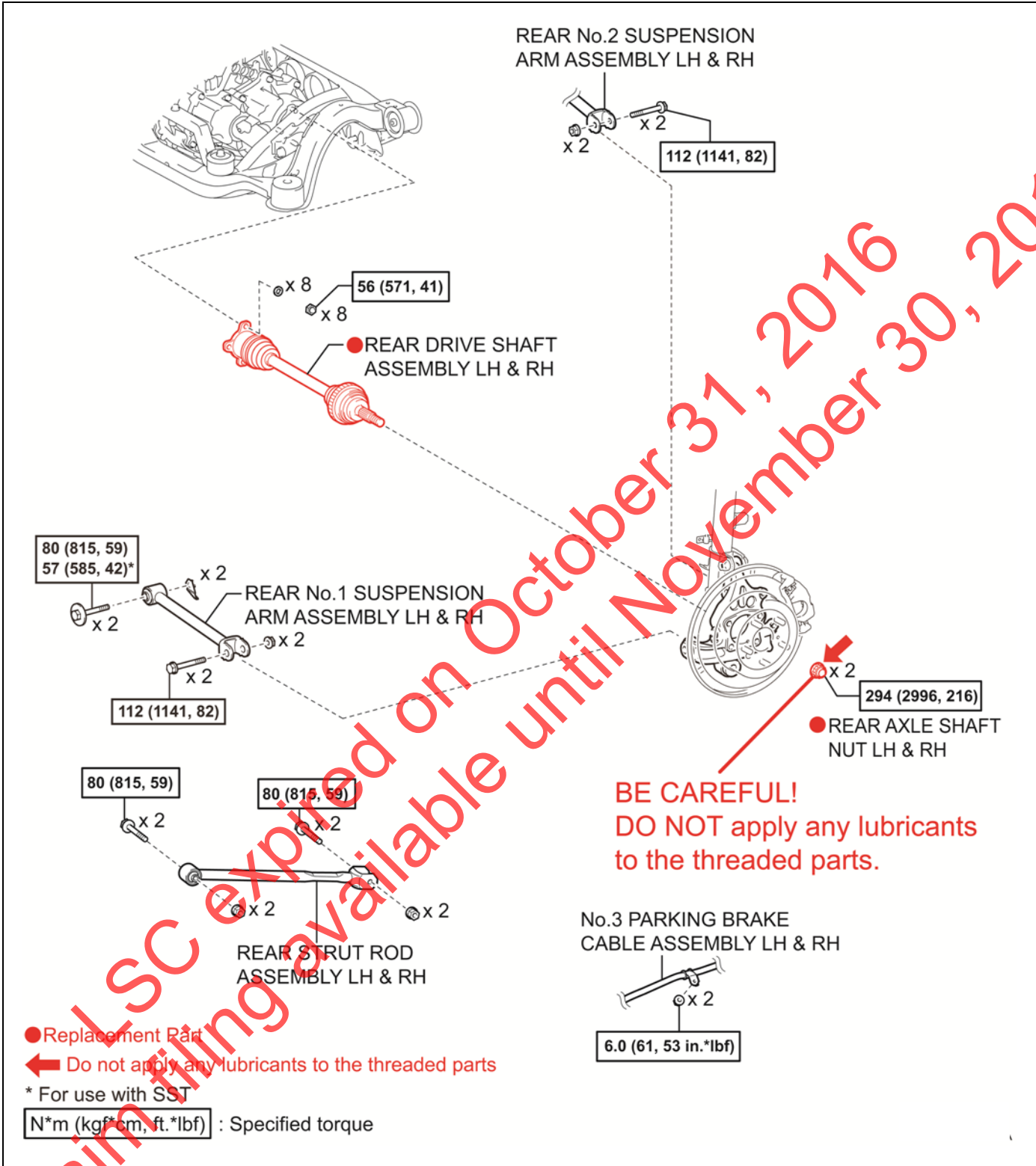
- Standard Hand Tools
- Techstream
- Wooden Block
- Protective Eye Wear
- 4 Wheel Alignment machine

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

Part Number	Part Name	Quantity
00002-03100-S	Electrical Insulating Gloves (Small)	1
00002-03200-M	Electrical Insulating Gloves (Medium)	
00002-03300-L	Electrical Insulating Gloves (Large)	
09930-00010	DriveShaft Nut Chisel	1
09961-00950	Torque Wrench Adaptor	1

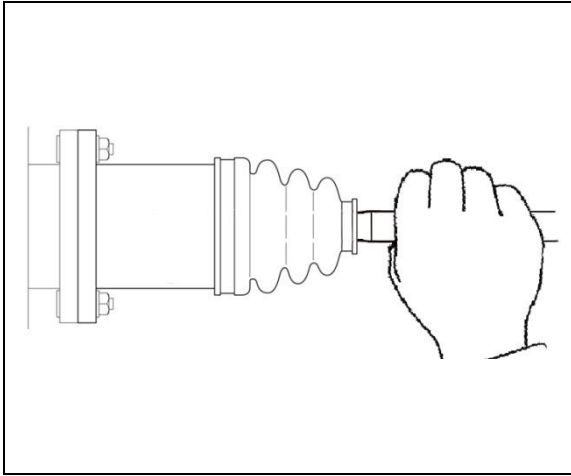
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V. COMPONENTS



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VI. INSPECT THE REAR DRIVESHAFT ASSEMBLY



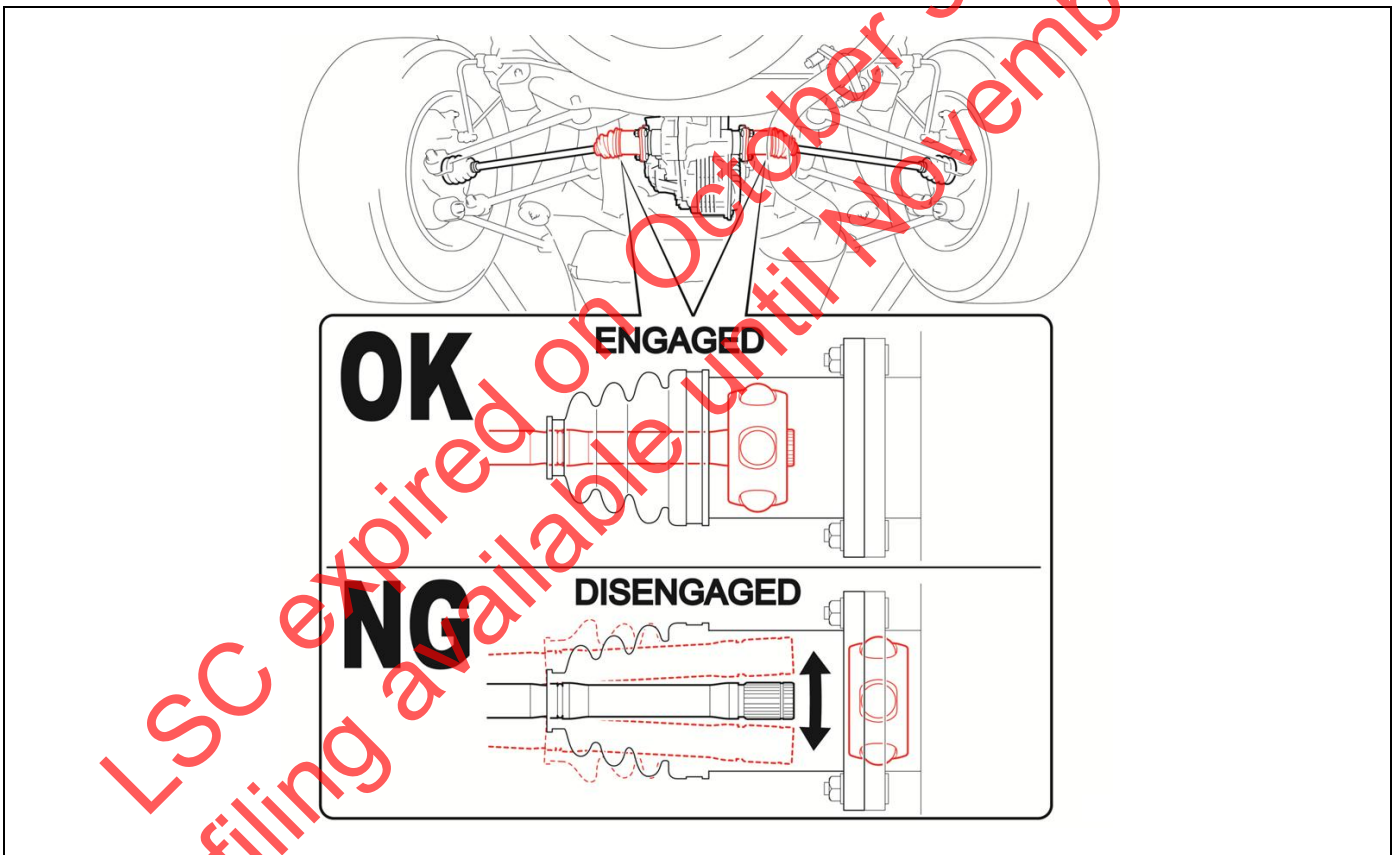
1. INSPECT THE REAR DRIVESHAFT ASSEMBLY FOR DISENGAGEMENT

- a) Approximately one inch from the inner rubber boot, firmly grab the metal portion of the driveshaft.
- b) Move the driveshaft assembly from side to side and up-and-down. If the driveshaft moves excessively, the inner bearing has disengaged from the shaft.

Note: The driveshaft has some slight backlash by design.

- c) Check both driveshafts in the same manner.

NOTE: Disengagement of the driveshaft may cause damage to the inside of the rear differential motor. If either driveshaft is found to be disengaged, replacement of the rear differential motor is required.

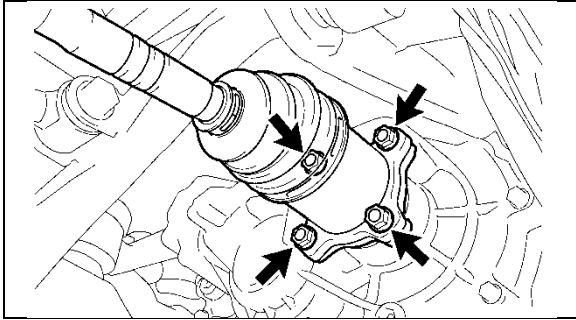


Results	ACTION REQUIRED
BOTH Driveshafts Engaged OK	REPLACE THE REAR DRIVESHAFT ASSEMBLY Both drive shafts must be replaced. Proceed to section VII
One or both shafts disengaged NG	REPLACE THE REAR DIFFERENTIAL MOTOR ASSEMBLY AND REAR DRIVESHAFT ASSEMBLY. The rear differential motor assembly AND both driveshafts must be replaced. Proceed to Section VIII

VII. REPLACE THE REAR DRIVESHAFT ASSEMBLY



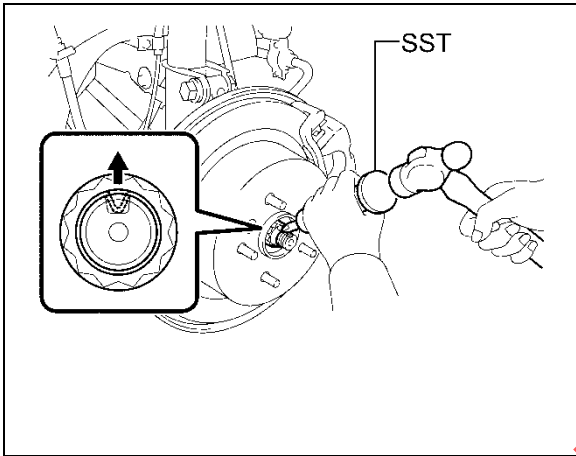
The work procedures are performed on both the right and left sides. These instructions use the left side in explaining the procedures. Always be sure to perform the same procedures on both the left and right sides.



1. LOOSEN THE 4 DRIVE SHAFT NUTS

- Loosen the 4 nuts. DO NOT remove them at this time.

NOTE: If the nuts cannot be loosened due to the driveshaft spinning, apply the parking brake to hold the rear tire.

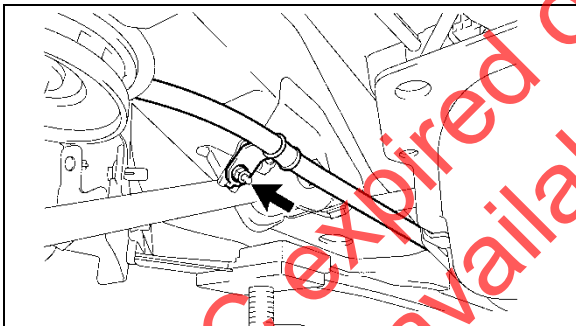


2. REMOVE THE AXLE NUT

- Remove the rear wheels.
- Using the SST and a hammer, release the staked part of the rear axle shaft nut.

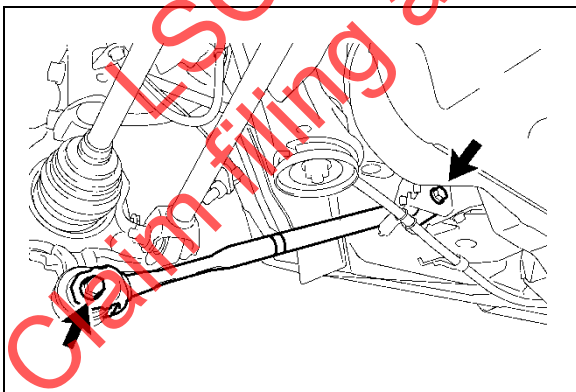
SST 09930-00010

- While applying the brakes, remove the rear axle shaft nut.
- Put a mark on the removed nut to identify it cannot be reused.



3. REMOVE PARKING BRAKE CABLE AND SUSPENSION COMPONENTS

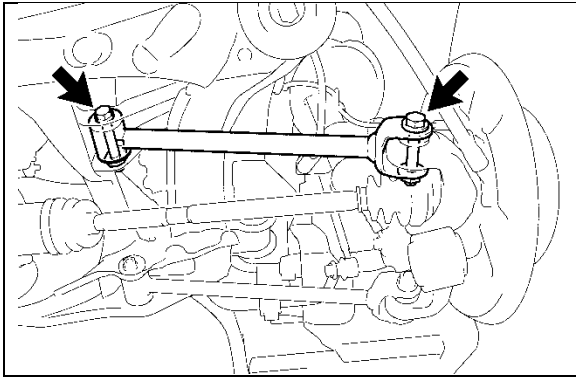
- Remove the nut and separate the No.3 parking brake cable assembly.



- Remove the 2 bolts, the 2 nuts, and the rear strut rod assembly.

NOTE:

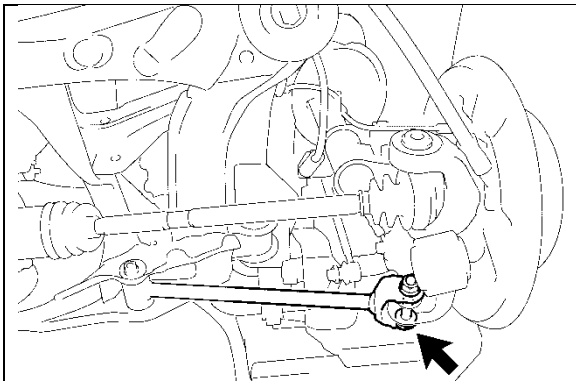
- Since lock nuts are used, loosen the bolts.
- If difficult to remove the bolts, use a wooden block and a jack to slightly lift up the axle carrier and remove the bolts.



- c) Remove the 2 bolts, the 2 nuts, and the rear No.1 suspension arm assembly.

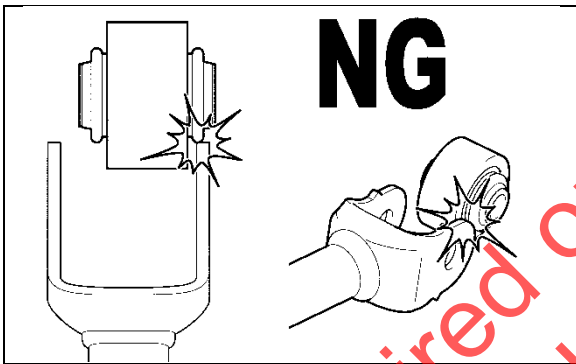
NOTE:

- Since lock nuts are used, loosen the bolts.
- Before removing the driveshaft, be sure to remove the rear No.1 suspension arm assembly, otherwise it may be damaged by interference with the boot of the axle carrier.

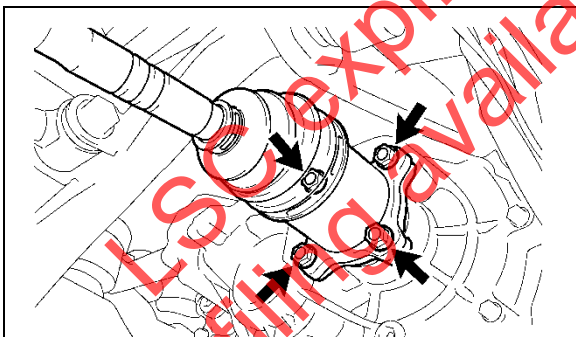


- d) Remove the bolt and the nut, and separate the rear No.2 suspension arm assembly.

NOTE: Since lock nuts are used, loosen the bolts.



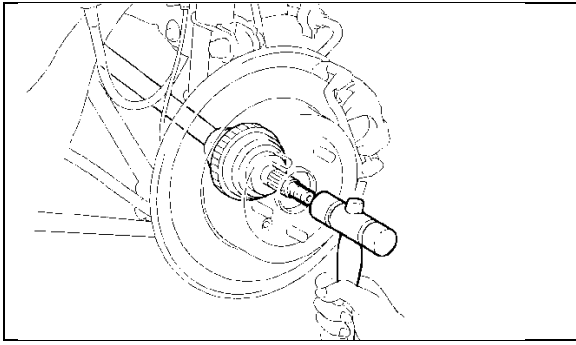
STOP DO NOT allow the rear No.2 suspension arm assembly to strike the boot of the wheel hub assembly as it will damage it.



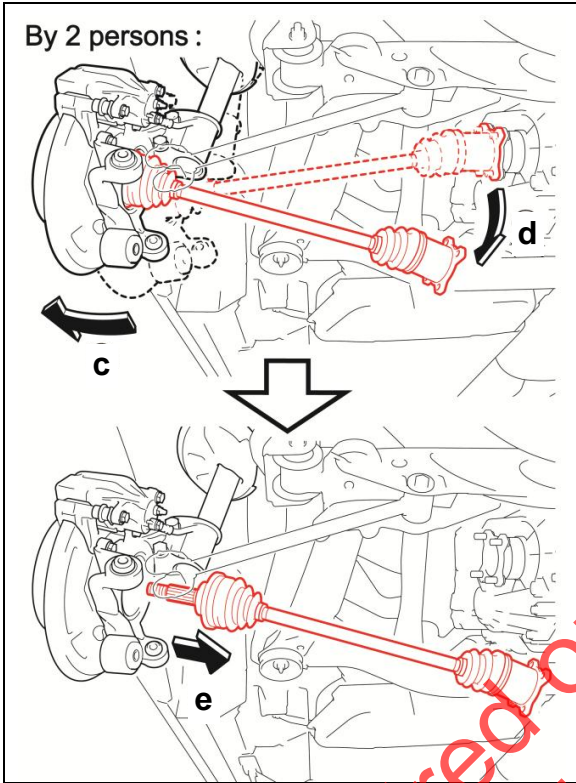
4. REMOVE THE REAR DRIVESHAFT

- a) Remove the 4 nuts and washers.


Claim filing available until November 30, 2016



- b) Using the plastic hammer, disengage the driveshaft.



- c) Move the wheel hub assembly towards the outside of the vehicle and hold it in place.



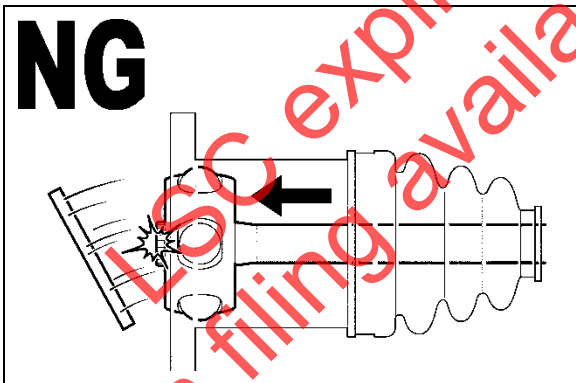
- Move the wheel hub assembly only far enough to allow the inboard side of the axle shaft to be cleanly removed from the motor side flange.
- DO NOT excessively move the wheel hub assembly, as it may stress the upper support of the suspension strut.

- d) Separate the inboard side of the driveshaft, and remove the driveshaft from the wheel hub assembly.


NOTE: Two people may be needed.

- e) Put a mark on the removed driveshaft to identify it cannot be reused.

NOTE: The parts return instructions must be followed as 100% of axle shaft will be recovered for this activity.

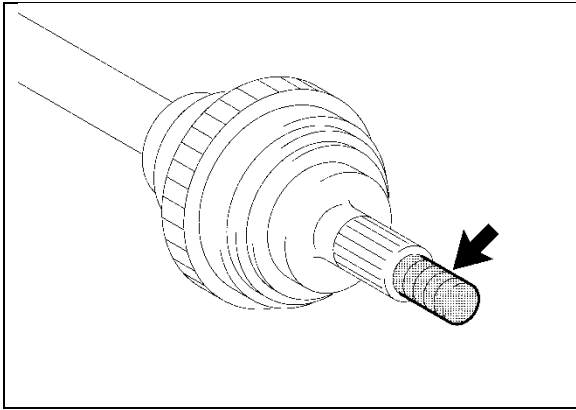


5. **INSTALL THE NEW REAR DRIVESHAFT**



DO NOT apply excessive force to the rear driveshaft to prevent the end cover from being removed.

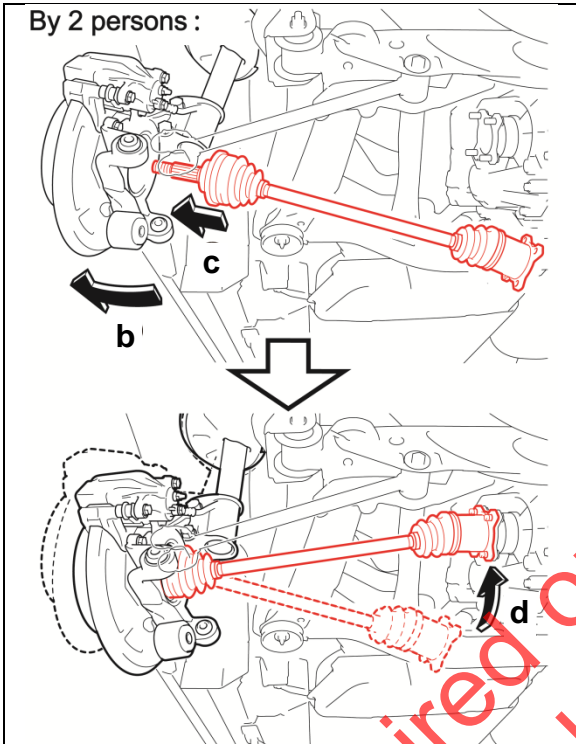
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- a) Using brake cleaner, remove the corrosion inhibitor on the tip of the **NEW** driveshaft.



- The corrosion inhibitor is colorless and transparent.
- If the rear driveshaft is installed without removal of the corrosion inhibitor, it may cause an over-torqued rear axle shaft nut and damage the driveshaft.
- **DO NOT** apply oils or fats after cleaning of the tip.



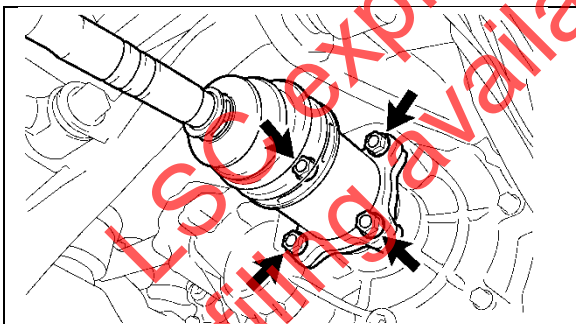
- b) Move the axle carrier towards the outside of the vehicle and hold it in place.
- c) Insert the **NEW** driveshaft into the wheel hub assembly.



Move the rear wheel hub assembly until the inner driveshaft flange does not interfere with the motor side mounting flange.

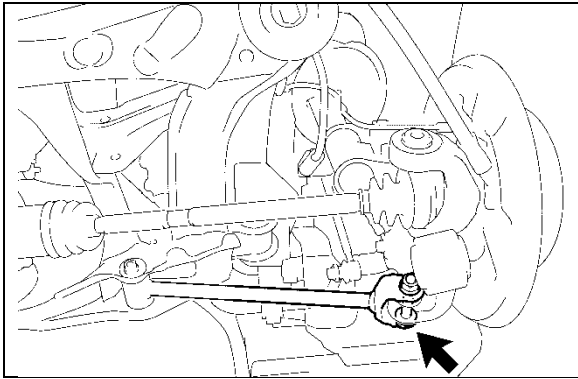
- d) Install the inboard side of the driveshaft.

NOTE: Two people may be needed.



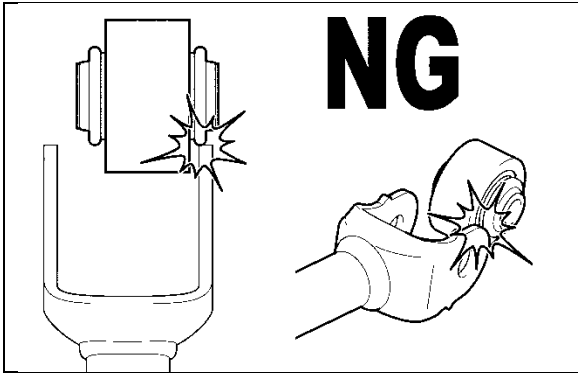
- e) Loosely install the 4 nuts and the 4 washers.

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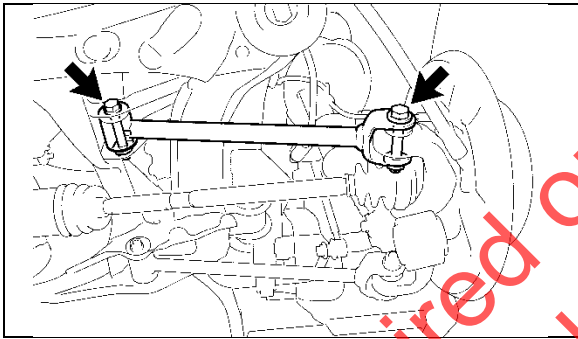


6. INSTALL THE SUSPENSION COMPONENTS AND THE PARKING BRAKE CABLE

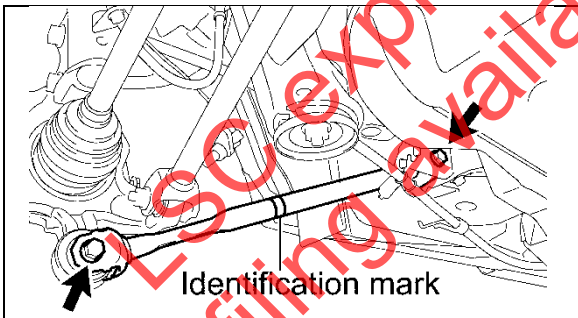
- a) Temporarily install the rear No.2 suspension arm assembly with the bolt and nut.



STOP DO NOT allow the rear No.2 suspension arm assembly to strike the boot of the wheel hub assembly as it will damage it.

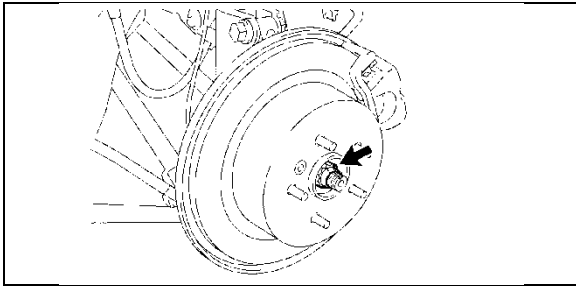


- b) Loosely install the rear No.1 suspension arm assembly with the 2 bolts and the 2 nuts.

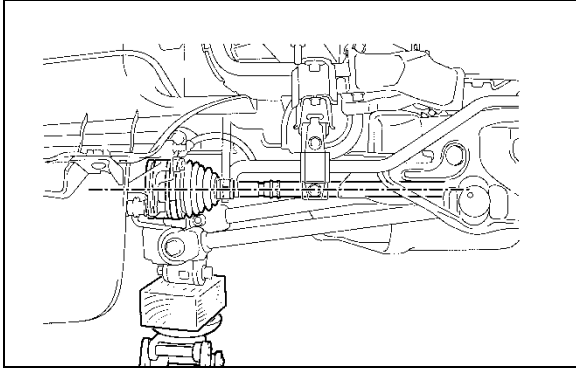


- c) Check that the identification mark of the rear strut rod assembly is positioned on the inner side of the vehicle.
- d) Loosely install the rear strut rod assembly with the 2 bolts and the 2 nuts.

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7. LOOSELY INSTALL A NEW REAR AXLE SHAFT NUT.



8. JACK UP THE REAR AXLE SUB-ASSEMBLY

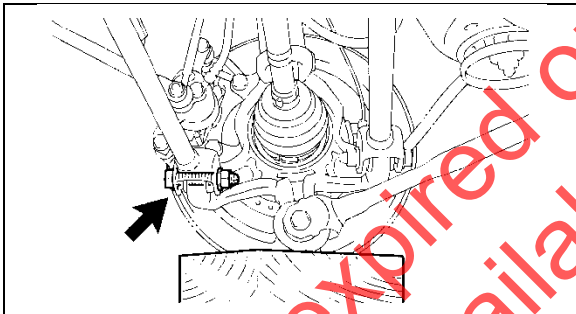
- a) Jack up the rear axle sub-assembly, placing a wooden block underneath to avoid damage. Apply load to the suspension so that the rear driveshaft assembly is positioned horizontally.



- DO NOT jack up the rear axle sub-assembly too high as the vehicle may fall off of the lift.
- DO NOT bend the brake dust cover.

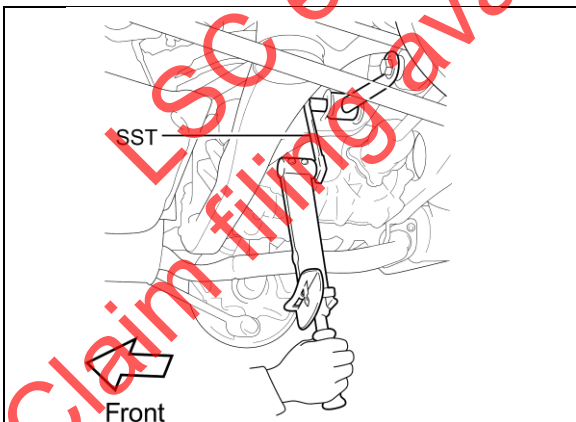
NOTE:

- If the rear driveshaft assembly cannot be positioned horizontally as shown in the illustration even when the rear wheel hub assembly is jacked up, apply additional load to the vehicle such as by having a person sit in the rear seat.
- Use the same procedure for the RH and LH side.



9. TORQUE THE REAR NO. 2 SUSPENSION ARM ASSEMBLY BOLT AND NUT.


Torque: 82 ft. lbf (112 N m)



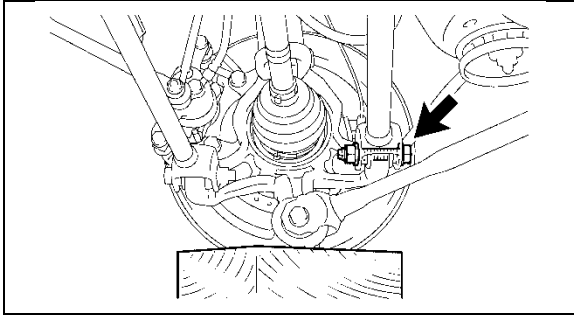
10. TORQUE THE NO. 1 SUSPENSION ARM ASSEMBLY

- a) Using a torque wrench that is 14.96 in (380mm) long with SST 09961-00950, torque the bolt and nut on the inside of the No.1 suspension arm assembly.

Torque:
with SST: 42 ft lbf (57 N m)

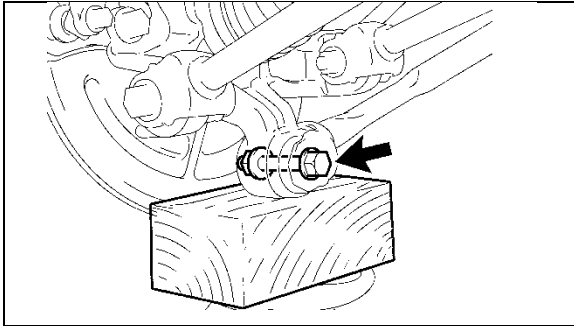


- If you are not using the exact tools described in step b) you must refer to the repair manual for torque specifications. (Link)
- Since a lock nut is used, torque the bolt.
- The final torque must be applied under standard vehicle height conditions.



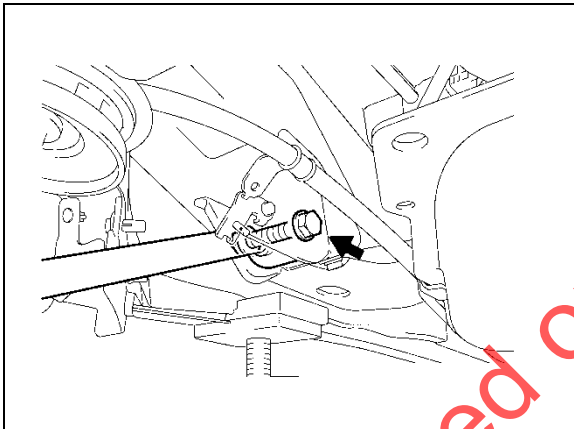
11. Torque the bolt and nut on the outside of the No.1 suspension arm assembly.

Torque: 82 ft lbf(112 N m)



12. Torque the bolt and the rear strut rod assembly.

Torque: 59 ft lbf (80 N m)



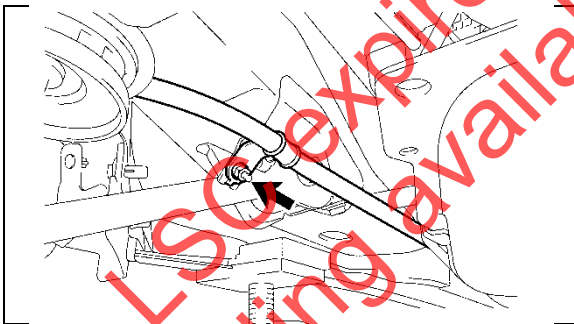
13. TORQUE THE BOLT AND THE REAR STRUT ROD ASSEMBLY.

Torque: 59 ft lbf (80 N m)

STOP NOTE: For steps "k" through "o"

- Since a lock nut is used, tighten the bolt.
- The final torque must be applied under standard vehicle height conditions.

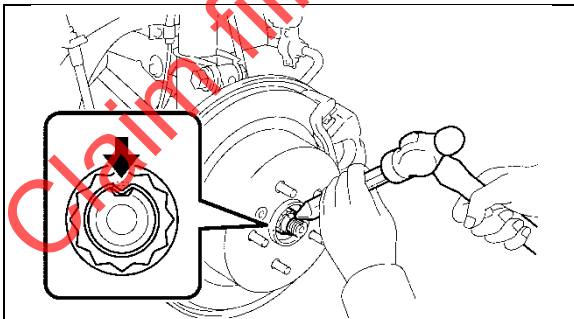
a) Remove the jack and the wooden block.



14. REINSTALL THE NO. 3 PARKING BRAKE CABLE ASSEMBLY WITH THE NUT.

Torque: 53 in lbf (6.0 N m)

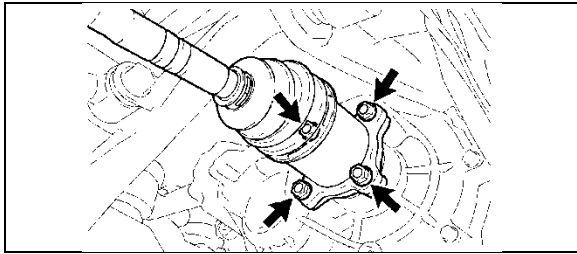
STOP DO NOT twist the No. 3 parking brake cable assembly when installing it.



15. TORQUE THE NEW AXLE SHAFT NUT.

Torque: 216 ft lbf (294 N m)

a) Using a chisel and a hammer, stake the rear axle shaft nut.



16. TORQUE THE NEW REAR DRIVESHAFT ASSEMBLY WITH THE 4 NUTS AND 4 WASHERS.

Torque: 41 ft lbf (56 N m)

17. REINSTALL THE REAR WHEEL.

Torque: 76 ft lbf (103 N m)

18. INSPECT AND ADJUST REAR WHEEL ALIGNMENT

- a) Inspect and adjust rear wheel alignment.
[Refer to TIS for instructions on inspect and adjust rear wheel alignment.](#)

19. CHECK FOR SPEED SENSOR SIGNAL

- a) Check for speed sensor signal.
[Refer to TIS for instructions on check for speed sensor signal.](#)

VIII.REPLACE THE REAR TRACTION W/ TRANSAXLE MOTOR ASSEMBLY AND REAR DRIVESHAFT ASSEMBLY



- When working with or around a high voltage circuit (in which wiring and connectors are orange), wear insulated gloves to prevent electric shock.
- Before working with a high voltage system, disconnect the negative terminal of the auxiliary battery and then the service plug grip. Then leave the vehicle for ten minutes and, after testing to verify that the capacitor has discharged, start working.

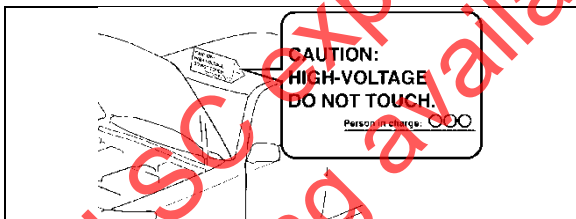
1. SAFETY PRECAUTIONS



CRITICAL INFORMATION – READ THOROUGHLY



These cautions should be observed when performing this campaign. Failure to follow these cautions could result in injury.



1. PLACE CAUTION SIGN ON ROOF OF VEHICLE

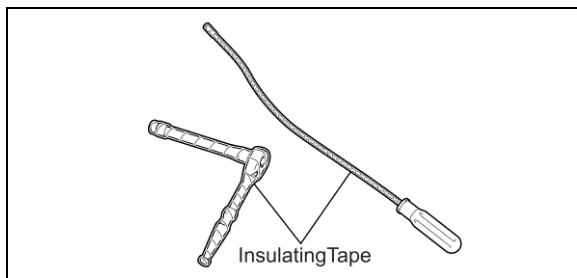
- a) Place the “Working High Voltage Sign” provided on the next page to warn others in the shop area.



2. REMOVE ALL PERSONAL JEWELRY AND BELONGINGS

- a) To prevent shock and short circuits remove all jewelry and personal belongings (i.e. watch, bracelet, pocket screw drivers, etc.)

(Safety Precautions Continued)



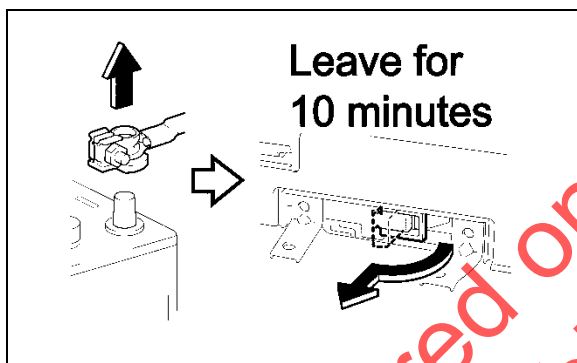
3. USE INSULATED TOOLS OR INSULATE TOOLS

- a) To prevent shock and short circuits use insulated tools. If insulated tools are not available insulate the tools being used with tape.



4. WEAR INSULATED GLOVES (INSULATED GLOVES ARE SSTs)

- a) When working around or with high voltage circuit use insulated gloves.
- b) DO NOT use damaged or wet insulated gloves.
- c) If gloves are dirty, clean them before use as directed by the glove instruction manual.



5. PROPERLY HANDLE SERVICE PLUG

- a) Disconnect the negative terminal of the auxiliary battery and remove the service plug.
- b) Place service plug in your pocket to ensure that it cannot be accidentally reinstalled by another technician.
- c) Wait ten minutes before working on any high voltage system.

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Person in charge:

**CAUTION:
HIGH-VOLTAGE
DO NOT TOUCH.**

**CAUTION:
HIGH-VOLTAGE
DO NOT TOUCH.**

Person in charge:

When performing work on the HV system, fold this sign and put it on the roof of the vehicle.

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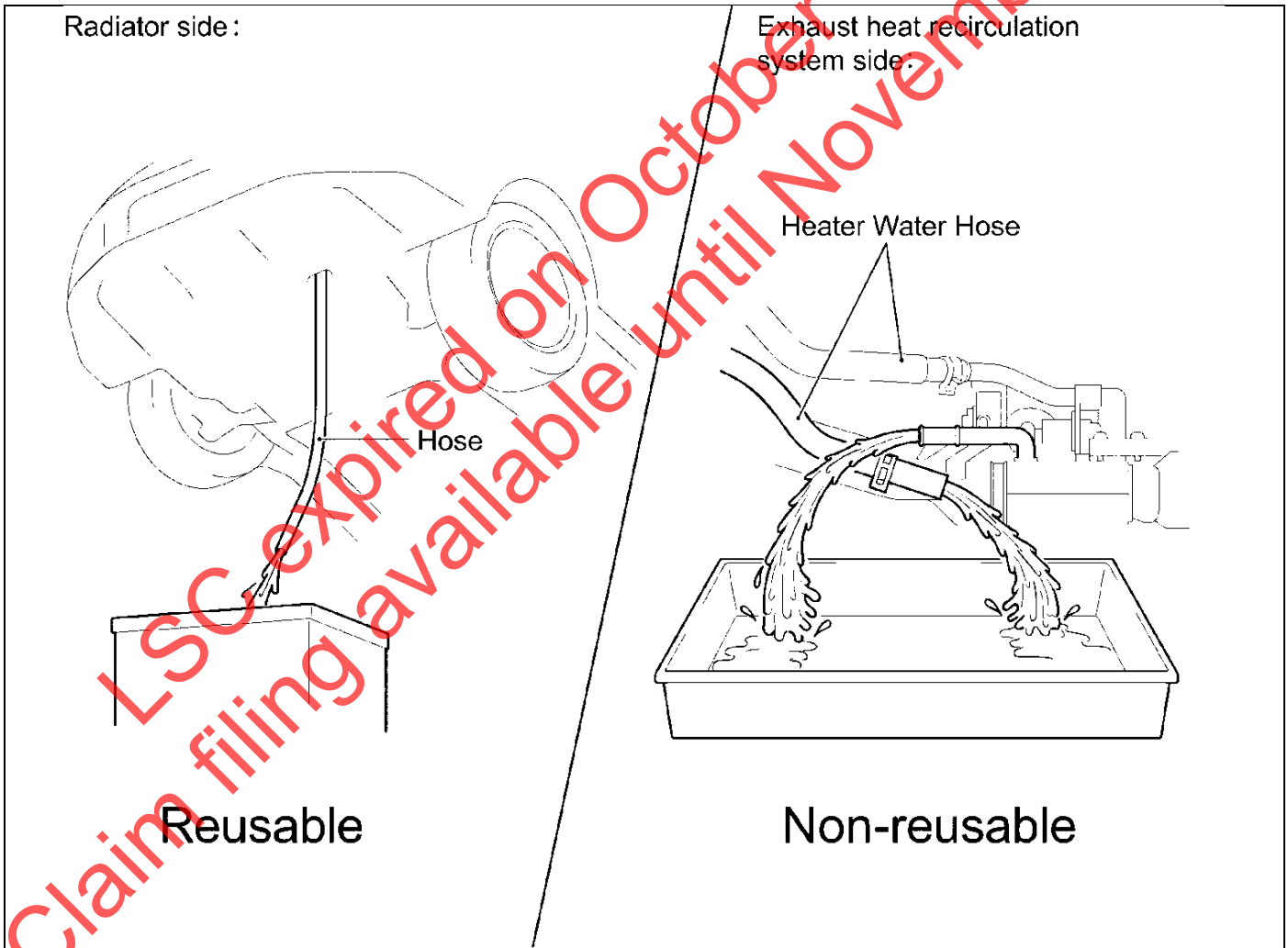
NOTE:

- See step VII. REPLACE THE REAR DRIVESHAFT ASSEMBLY for the detachment procedure of the driveshaft.
- DO NOT contaminate or damage the O-ring when the No.3 wire cable and extension wire assembly are removed.
- DO NOT disconnect the ground cable from a location other than what is shown in the technical instructions; otherwise it will be difficult to remove the rear differential motor assembly. Perform the work according to the procedure.

2. REMOVE THE REAR DIFFERENTIAL MOTOR ASSEMBLY AND REAR DRIVESHAFT ASSEMBLY



- Confirm the coolant is not hot before beginning any work.
- The coolant drained from the radiator must be reused, confirm that a clean container is used when draining the coolant.
- DO NOT reuse any coolant that is drained when disconnecting the coolant hoses by the exhaust gas control actuator, this coolant may be contaminated when drained.
- DO NOT mix the coolant drained from the radiator with the coolant drained from the hoses.



- a) Remove the rear differential motor assembly and rear driveshaft assembly.
[Refer to TIS for instructions on rear differential motor assembly removal.](#)

3. INSTALL NEW REAR DIFFERENTIAL MOTOR ASSEMBLY AND NEW REAR DRIVESHAFT ASSEMBLY

- a) Install the rear differential motor assembly and rear driveshaft assembly.
[Refer to TIS for instructions on rear differential motor assembly installation.](#)

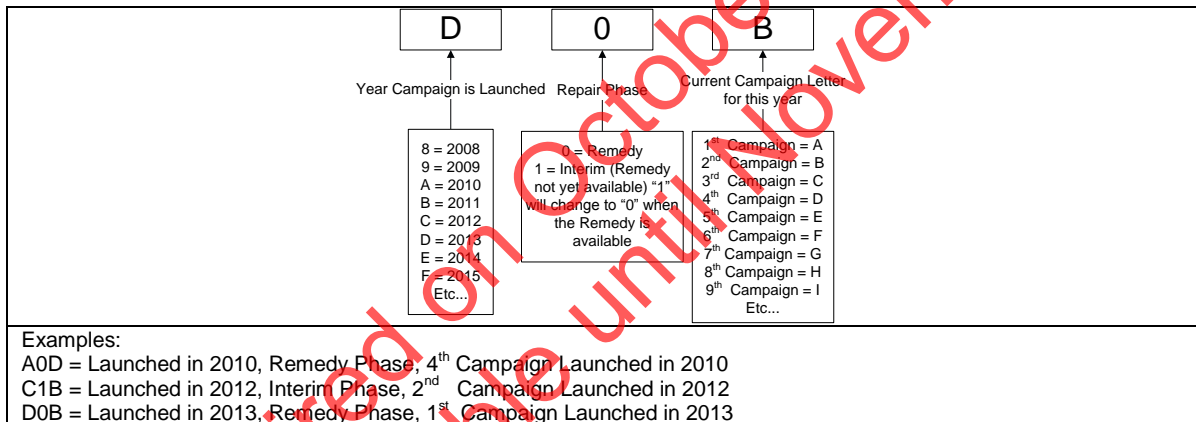
◀ VERIFY REPAIR QUALITY ▶

- Confirm the torque on all lock nuts.
- Confirm the rear axle shaft nut.
- Ensure all nuts and bolts are torqued to the specifications.
- Confirm the 4 nuts and washers are torqued on each inboard side of the driveshaft assemblies.
- Confirm the No. 2 suspension arm assembly bolts and nuts are torqued to specifications.
- Ensure the rear strut road assembly bolts and nuts are torqued (2 on each side).

If you have any questions regarding these technical instructions, please contact your regional representative.

IX. Appendix

A. CAMPAIGN DESIGNATION DECODER



B. CAMPAIGN PARTS RETURN

- a) All parts replaced under this campaign will be on 100% parts recovery. Failure to return the replaced parts will result in an immediate debit.