TEEBRO TOYOTA
GVM SERVICE GUIDE

3800 / 4200 / 4495kg GVM

LC300 SERIES

5 SEAT
(VTA-061244 / 5 SEAT)

7 SEAT VARIANT
(VAT-063552 / 7 SEAT)

DUAL CAB
(VTA-063130 / DC)

JMAC X Off Road Solutions

REV.5

TEEBRO TOYOTA

Congratulations on the purchase of your TEEBRO Toyota GVM Upgrade. This document contains details for the proper use and servicing of your vehicle. Due to specific differences among GVM upgrades, you may find that some information may not be applicable to your vehicle. For questions regarding your TEEBRO Toyota please contact the JMACX approved installation facility that completed the installation of your GVM upgrade or contact JMACX Head Office at sales@jmacx.com.au.

GVM SPECIFICATIONS

View your Gross Vehicle Mass (GVM), Second Stage Manufacturer (SSM) approval, brake towing capacity (BTC), and axle load ratings on your Secure Vehicle Identification (SVI) and GVM stickers fitted to your vehicle.

TYRE LOADING

View your Tyre Loading information on your Tyre Placard fitted to your vehicle. This includes your cold tyre inflation pressures and load capacity per axle.

WARRANTY / TERMS & CONDITIONS

TEEBRO GVM upgrades include standard manufacturer warranty. Normal driving use/conditions does not include driveline abuse, excessive power upgrades, excessive speed/driving style, larger than recommended tyres or excessive loads. Extreme driving conditions ie. Cape York / Simpson Desert travel will require a major service on the vehicle upon return of travel.

Exposure of the Goods to aggressive corrosive environments such as salt water without sufficient cleaning and rock damage, will void the warranty. Where there is an alleged warranty issue, the Customer must obtain advice and approval in writing by JMACX prior to carrying out any repairs. Warranty does not cover product used in any type of racing or Motorsport competition, custom or modified applications under JMACX range of product, any illegal highway, marine, industrial or commercial use. JMACX does not accept liability for the voiding of a vehicle's manufacturer's warranty or part thereof subsequent to the fitting of the Goods to the Customer's vehicle.

For full Warranty information see the full JMACX Off Road Solutions Terms & Conditions available at www.jmacx.com.au. After reading these conditions in full and a warranty claim meets these conditions please complete the online Warranty Request Form.

WARNINGS

PRODUCT SAFETY WARNING:

⚠ JMACX suspension products are intended to improve on and off road performance of your vehicle. Modifying your vehicle may result in vehicle handling differently than a factory equipped vehicle. Extreme care must be used to prevent loss of control or vehicle rollover. Failure to drive your modified vehicle safely may result in serious injury or death. JMACX does not recommend the combined use of suspension lifts, body lifts or other lifting devices. Always drive your modified vehicle at reduced speeds to ensure your ability to control your vehicle under all driving conditions.

GVM AND AXLE OVERLOADING WARNING:

⚠ Overloading of GVM on front or rear axle loads will void your warranty and may cause serious injury or death.

ESSENTIAL MAINTENANCE AND SERVICING

WHEEL NUT CHECK:

All Vehicles with a GVM upgrade will require load rated wheels to be fitted to the vehicle. You MUST arrange for your wheel nuts to be torqued to specifications at 50-100km by a competent person.

500KM SERVICE CHECK:

After initial installation of any JMACX GVM the customer is required to have their vehicle checked at a JMACX authorised facility as soon as the vehicle has reach 500KM. If you do not return the vehicle to the JMACX facility that completed the original GVM works, an additional cost may occur as this service is part of the original fitting price.

This is a mandatory check to ensure all componentry is settled and compliant with all torque specifications. Failure to do this check will void all warranty.

RECOMMENDED SERVICING:

All JMACX products should be serviced at regular intervals as per installation guidelines and original equipment manufacturer (OEM) standards. It is the responsibility of the Customer to maintain servicing of the Goods. Vehicle servicing standards are based on the normal driving use of the vehicle.

Extreme driving conditions, increased load and stress on the vehicle will require more regular service intervals and major servicing. Failure to meet stated service requirements will void warranty coverage.

PRODUCT INSTALLATION

Installation must be completed by a qualified service person. The qualified service person has an obligation to obtain and follow the correct product installation specifications. JMACX will not be held liable for inadequate installation. Detailed installation instructions are provided to JMACX Authorised Installation Facilities or by request by email to sales@jmacx.com.au. These installation instructions are in addition to the original equipment manufacturer (OEM) manual.

INSTALLATION INSTRUCTIONS:

Refer to Original Equipment Manufacturer (OEM) service manual for model/year of vehicle for correct disassembly/reassembly procedures of all OEM components. Secure and properly block vehicle prior to installation of JMACX suspension products. Adhere to recommendations when replacement fasteners, retainers and keepers as stated in the OEM manual. Larger rim and tyre combinations may increase leverage on suspension, steering and related components. When selecting combinations larger than OEM, consider the additional stress you could be including on the OEM and related components. Post suspension system vehicles may experience driveline vibrations. Angles may require tuning, slip joints on shaft may require replacement, shafts may need to be lengthened or trued, and universal joints may need to be replaced.

COIL SPRINGS:

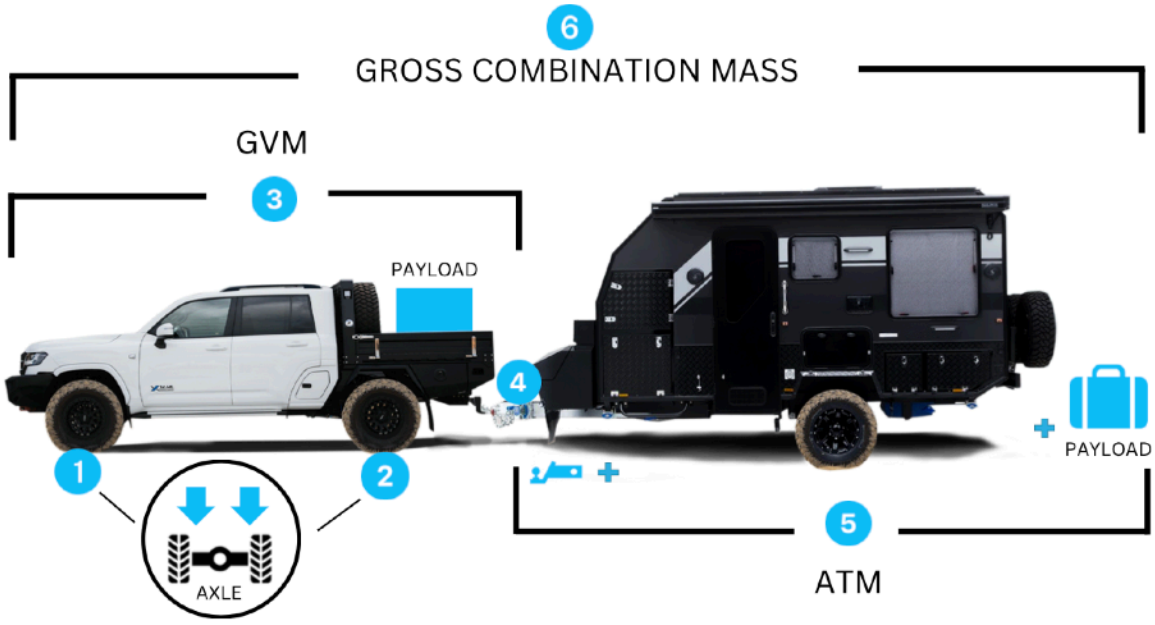
Install new springs in the correct orientation and mounting position as the old springs. Be sure to re-install the original rubber insulators if fitted, or replace them if damaged. Please note if springs are marked N/S that they are to be fitted to the near side (Passenger side), springs marked D/S are fitted to the drivers side. Variations to this can occur between left and right hand vehicles, or vehicles with modified weight distribution. Once installation is complete and the vehicle has settled if the vehicle seems to lean to a certain side, consider swapping the coils from side to side to resolve the issue. As some coil springs are of progressive rate design, the progressive portion (closer coils) should be fitted to the top. If in some cases the new coil spring installed may be shorter than the original spring ensure that the coil spring remains captive upon full articulation.

MODIFICATION CERTIFICATION:

After fitment to any road registered vehicle, engineer modification certification is required as per law applicable in state of registration.

POST-INSTALLATION WARNINGS:

Ensure all fasteners are checked and torqued to correct specifications. Check all steering components for clearance. Verify clearance between exhaust and brake lines, fuel lines, fuel tank, floor boards and wiring harness. Check steering components for clearance. Test and inspect brake system. Inspect brake hoses and breathers at full extension for adequate slack. Failure to carry out this check may result in component failure. If there is an issue with hose length the correct length hose should be sourced and replaced before completion of the vehicle. Longer replacement hoses, if needed should be purchased. All fasteners must be checked and torqued to specification after 500km. Fasteners and components should be inspected during regular servicing.



DEFINITIONS

1 & 2 GROSS VEHICLE AXLE MASS

The maximum load on either the Front or Rear axle resulting from the distribution of the GVM.

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3 GROSS VEHICLE MASS (GVM)

GVM is the maximum allowable laden weight of a vehicle, as set by the manufacturer/GVM Provider. The vehicle, including its passengers, luggage, fuel, and weight on the tow ball can not exceed these figures.

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4 TOW BALL WEIGHT

The proportion of the trailer weight that is applied to the rear of the tow vehicle. Most trailer mass is on wheels when you tow a caravan/trailer. However a small amount of the towing weight passes to the vehicle via the tow bar and ball. It is recommended to take your vehicle to a weigh bridge for an accurate calculation of tow ball weight.

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5 AGGREGATED TRAILER MASS

The maximum that the trailer may weigh when its fully loaded, including tow ball weight.

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6 GROSS COMBINATION MASS

The maximum total combined mass of a vehicle, its load including fuel, accessories, passengers, their gear and the total weight of any trailer it's towing.

The maximum laden mass of the vehicle combination (tow vehicle and caravan) is not permitted to exceed the GCM rating. It is important to note that even if the tow vehicle and trailer are individually within their respective maximum ratings, the combination may not necessarily be within the GCM rating of the tow vehicle.

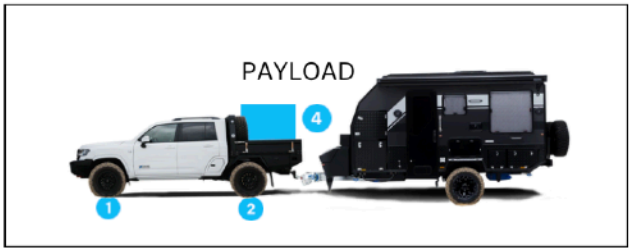
BRAKE TOW CAPACITY

The maximum weight that a vehicle will be able to tow when the trailer being towed is equipped with its own braking system, this includes ball weight.

GROSS VEHICLE MASS (GVM) - SPECIFIED BY THE VEHICLE MANUFACTURER/ GVM PROVIDER

GVM LOADING EXAMPLES

GVM TOWING

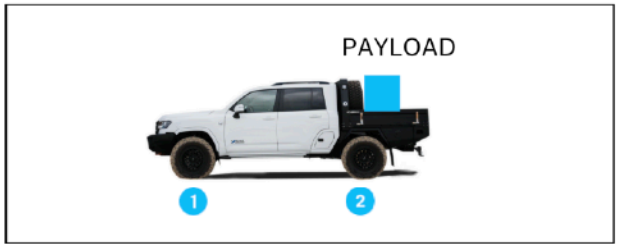


Example:
Use scales to measure front & rear axles with vehicle fully loaded then add Tow ball down weight.

Figures 1 & 2 CAN NOT be individually exceeded regardless of vehicle total weight.

The maximum load on either the Front or Rear axle resulting from the distribution of the GVM.

GVM **NOT** TOWING



Example:
Use scales to measure front & rear axles with vehicle fully loaded.

Figures 1 & 2 CAN NOT be individually exceeded regardless of vehicle total weight.

GROSS COMBINATION MASS (GCM) - SPECIFIED BY THE VEHICLE MANUFACTURER/ GVM PROVIDER

MAXIMUM VEHICLE GCM

Under Second stage manufacture:

3800kg GVM
3800 GVM + 3500 BTC = 7300 GCM

4200 GVM
4200 GVM + 3500 BTC = 7700 GCM

4495 GVM
4495 GVM + 4500 BTC = 8995 GCM

The maximum total combined mass of a vehicle, its load including fuel, accessories, passengers, their gear and the total weight of any trailer it's towing.

The maximum laden mass of the vehicle combination (tow vehicle and caravan) is not permitted to exceed the GCM rating. It is important to note that even if the tow vehicle and trailer are individually within their respective maximum ratings, the combination may not necessarily be within the GCM rating of the tow vehicle.

*Dependant on GVM type eg. 3800KG, 4200KG or 4495KG
GCM conditions apply Pre registration
Post registered vehilces may vary as this is State & engineer dependant.

BRAKE TOW CAPACITY (BTC) - SPECIFIED BY THE VEHICLE MANUFACTURER/ GVM PROVIDER

MAXIMUM VEHICLE BTC

3500 - 4500 KG BTC*

- Vehicle maintains full brake capacity.

*Dependant on GVM type eg. 3800KG, 4200KG or 4495KG

SERVICE ADVICE

- For full service advice see following pages

ENGINE OIL

OIL	APPLICATION
0W- 20W	-4° SNOW
5W- 40W	FOR HOTTER TEMPS.

For vehicles driven in hotter climates/carrying heavier loads the ENGINE oil must be changed out to 5W-40W grade as per the OEM handbook advice.

DIFFERENTIAL OIL

For vehicles fitted with a JMACX upgraded differential rear housing the oil type is as per OEM recommendation.

Park on level ground & fill to filler neck.
APPROX. 3.5Ltrs

TEEBRO Toyota J30T LC300 SSM

Vehicle Torque Specifications

Document Reference	**TEEBRO300-SPC-001**
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Section 1 Differentials

SPECIFICATIONS AXLE AND DIFFERENTIAL TORQUE SPECIFICATIONS

Front Axle Hub Bolt

Part Tightened	N*m	kgf*cm	ft.*lbf
Front disc brake cylinder assembly x Steering knuckle	205	2090	151
Front flexible hose x Steering knuckle	28	286	21

Front Axle Hub

Part Tightened	N*m	kgf*cm	ft.*lbf
Steering knuckle x Front axle hub sub-assembly	120	1224	89

Steering Knuckle

Part Tightened	N*m	kgf*cm	ft.*lbf	in.*lbf
Steering knuckle x Front axle hub sub-assembly	120	1224	89	
Tie rod end sub-assembly x Steering knuckle	120	1224	89	
Front flexible hose x Steering knuckle	28	286	21	
Front disc brake cylinder assembly x Steering knuckle	205	2090	151	
Steering knuckle x Front lower ball joint attachment	300	3059	221	
Front speed sensor x Steering knuckle	8.5	87		75
Front speed sensor harness x Steering knuckle	12.5	127	9	
Front suspension upper arm x Steering knuckle	125	1275	92	
Front axle shaft x Front axle shaft nut	340	3467	251	

Rear Axle Hub Bolt

Part Tightened	N*m	kgf*cm	ft.*lbf
Parking brake actuator protector assembly x Rear brake cylinder assembly	20	204	15
Rear brake cylinder assembly x Rear axle housing	205	2090	151

Rear Axle Shaft

Part Tightened		N*m	kgf*cm	ft.*lbf	in.*lbf
Rear brake cylinder assembly x Rear axle housing		205	2090	151	
Rear speed sensor x Rear axle housing		8.3	85		73
Rear flexible hose x Brake tube	w/o union nut wrench	15.2	155	11	
	w/ union nut wrench	13.4	137	10	
Rear axle shaft x Rear axle housing		60	612	44	
Parking brake actuator protector assembly x Rear brake cylinder assembly		20	204	15	

Front Differential Carrier Oil Seal

Part Tightened	N*m	kgf*cm	ft.*lbf	in.*lbf
Front differential carrier assembly x Differential extension flange tube	73	744	54	
Front differential cross shaft bearing retainer bolt (A)	71.5	729	53	
Front differential cross shaft bearing retainer bolt (B)	130	1326	96	
front differential support assembly x Front differential cross shaft bearing retainer	145	1479	107	
Wiring harness connector x Front differential carrier assembly	9.0	92		80
No. 1 4 wheel drive position switch x Front differential carrier assembly	9.0	92		80

Front Differential Carrier Assembly (w/ Differential Lock)

Part Tightened	N*m	kgf*cm	ft.*lbf	in.*lbf
Differential support assembly (LH side) x Differential mount nut	100	1020	74	
Differential support assembly (LH side) x Differential mount bolt	180	1835	133	
Front differential carrier assembly x Body	125	1275	92	
Differential support assembly (RH side) x Body	125	1275	92	
Front differential carrier assembly x Wire harness	14.5	148	11	
Front differential carrier assembly x Differential extension flange tube	73	744	54	
Front differential cross shaft bearing retainer bolt (A)	71.5	729	53	
Front differential cross shaft bearing retainer bolt (B)	130	1326	96	
front No. 1 differential case sub-assembly set bolt	137	1397	101	
front differential support assembly x Front differential cross shaft bearing retainer	145	1479	107	
Differential lock position plate x front No. 1 differential case sub-assembly	6.9	70		61
front differential breather plug oil deflector x Front differential carrier assembly	6.0	61		53
Wiring harness connector x Front differential carrier assembly	9.0	92		80
No. 1 4 wheel drive position switch x Front differential carrier assembly	9.0	92		80

Front Differential Carrier Assembly (w/o Differential Lock)

Part Tightened	N*m	kgf*cm	ft.*lbf	in.*lbf
Differential support assembly (LH side) x Differential mount nut	100	1020	74	
Differential support assembly (LH side) x Differential mount bolt	180	1835	133	
Front differential carrier assembly x Body	125	1275	92	
Differential support assembly (RH side) x Body	125	1275	92	
Front differential carrier assembly x Differential extension flange tube	73	744	54	
Front differential cross shaft bearing retainer bolt (A)	71.5	729	53	
Front differential cross shaft bearing retainer bolt (B)	130	1326	96	
front No. 1 differential case sub-assembly set bolt	137	1397	101	
front differential support assembly x Front differential cross shaft bearing retainer	145	1479	107	
front differential breather plug oil deflector x Front differential carrier assembly	6.0	61		53

Rear Differential Carrier Oil Seal

Part Tightened	N*m	kgf*cm	ft.*lbf	in.*lbf
Wiring harness connector x Rear differential carrier assembly	9.0	92		80
No. 1 transfer indicator switch x Rear differential carrier assembly	9.0	92		80
Rear drive pinion nut x Rear drive pinion companion flange sub-assembly	457	4660	337	
Differential bearing cap x Rear differential carrier assembly	113	1152	83	

Rear Differential Carrier Assembly (for LSD)

Part Tightened	N*m	kgf*cm	ft.*lbf
Axle housing x Axle housing drain plug	49	500	36
Axle housing x Axle housing filler plug	49	500	36
Axle housing x Rear differential carrier assembly	87	887	64
Rear drive pinion nut x Rear drive pinion companion flange sub-assembly with dust deflector	457	4660	337
Differential bearing cap x Rear differential carrier assembly	113	1152	83
Differential ring gear x Differential case	137	1397	101

Rear Differential Carrier Assembly (w/ Differential Lock)

Part Tightened	N*m	kgf*cm	ft.*lbf	in.*lbf
Axle housing x Axle housing drain plug	49	500	36	
Axle housing x Axle housing filler plug	49	500	36	
Axle housing x Rear differential carrier assembly	45	459	33	
Axle housing x Rear differential protector	18.5	189	14	
Wiring harness connector x Rear differential carrier assembly	9.0	92		80
No. 1 transfer indicator switch x Rear differential carrier assembly	9.0	92		80
Rear drive pinion nut x Rear drive pinion companion flange sub-assembly with dust deflector	457	4660	337	
differential lock position plate x Differential case	6.9	70		61
Differential bearing cap x Rear differential carrier assembly	113	1152	83	
Differential ring gear x Differential case	137	1397	101	

Rear Differential Carrier Assembly (w/o Differential Lock)

Part Tightened	N*m	kgf*cm	ft.*lbf
Axle housing x Axle housing drain plug	49	500	36
Axle housing x Axle housing filler plug	49	500	36
Axle housing x Rear differential carrier assembly	45	459	33
Rear drive pinion nut x Rear drive pinion companion flange sub-assembly with dust deflector	457	4660	337
Differential bearing cap x Rear differential carrier assembly	113	1152	83
Differential ring gear x Differential case	137	1397	101

Front Differential Lock Position Switch

Part Tightened	N*m	kgf*cm	in.*lbf
No. 1 4 wheel drive position switch x Rear differential carrier assembly	9.0	92	80

Rear differential lock position switch

Part Tightened	N*m	kgf*cm	ft.*lbf	in.*lbf
Wiring harness connector x Rear differential carrier assembly	9.0	92		80
No. 1 transfer indicator switch x Rear differential carrier assembly	9.0	92		80
Differential bearing cap x Rear differential carrier assembly	113	1152	83	

SPECIFICATIONS DRIVE SHAFT / PROPELLER SHAFT TORQUE SPECIFICATIONS

Front Drive Shaft Assembly

Part Tightened		N*m	kgf*cm	ft.*lbf	in.*lbf
No. 1 engine under cover x Body	for M6 bolt	11.5	117	8	
	for M8 bolt	28	286	21	
No. 2 engine under cover x Body		28	286	21	
Front axle shaft nut x Front drive shaft assembly		235	2396	173	
Front speed sensor harness clamp x Steering knuckle		32	326	24	
Front speed sensor x Steering knuckle		8.5	87		75
Front lower No. 1 suspension arm sub-assembly x Steering knuckle		160	1632	118	
Tie rod end sub-assembly x Steering knuckle		91	928	67	

Front Propeller Shaft Assembly

Part Tightened	N*m	kgf*cm	ft.*lbf
Front propeller shaft assembly x Front differential carrier assembly	88.3	900	65
Urea tank protector x Body	14.3	146	11
No. 3 frame cross member assembly x Rear engine mounting insulator	42	428	31
No. 3 frame cross member assembly x Body	37	377	27
Transfer case lower protector x Transfer assembly	13.6	139	10
Urea tank sub-assembly x Body	14.3	146	11
Front propeller shaft assembly x Transfer assembly	88.3	900	65
No. 2 propeller shaft heat insulator x Body	15.7	160	12
No. 2 engine under cover assembly x Vehicle	29	296	21
No. 1 engine under cover assembly x Vehicle	29	296	21
Frame under cover assembly LH x Vehicle	29	296	21
Frame under cover assembly RH x Vehicle	29	296	21
Oil pan protector assembly x Vehicle	50	510	37
Transmmision under cover assembly x Vehicle	29	296	21

Propeller Shaft Assembly

Part Tightened	N*m	kgf*cm	ft.*lbf
No. 3 propeller shaft heat insulator x Body	10	102	7
Propeller shaft assembly x Rear differential carrier assembly	88.3	900	65
propeller shaft assembly x Transfer assembly	90	918	66

SPECIFICATIONS BRAKE CONTROL / DYNAMIC CONTROL SYSTEMS TORQUE SPECIFICATIONS

BRAKE ACTUATOR (for RHD)

Part Tightened		N*m	kgf*cm	ft.*lbf	in.*lbf
Brake tube flare nut (10 mm)	without union nut wrench	15.2	155	11	
	with union nut wrench	13.4	137	10	
Brake tube flare nut (12 mm)	without union nut wrench	19.5	199	14	
	with union nut wrench	17.4	177	13	
No. 3 brake actuator bracket x Body		19	194	14	
Brake actuator with bracket x Body		19	194	14	
No. 1 brake actuator bracket x Brake actuator assembly		6.5	66		58
No. 1 brake actuator case collar x No. 2 brake actuator bracket		19	194	14	

FRONT SPEED SENSOR

Part Tightened		N*m	kgf*cm	ft.*lbf	in.*lbf
Front speed sensor LH set bolt	Bolt A	8.5	87		75
	Bolt B	12.5	127	9	
Front speed sensor RH set bolt	Bolt A	8.5	87		75
	Bolt B	12.5	127	9	

REAR SPEED SENSOR

Part Tightened	N*m	kgf*cm	in.*lbf
Rear speed sensor set nut	8.3	85	73

BRAKE PEDAL STROKE SENSOR (for LHD)

Part Tightened	N*m	kgf*cm	in.*lbf
Brake pedal stroke sensor assembly x Brake pedal support assembly	8.5	87	75

BRAKE PEDAL STROKE SENSOR (for RHD)

Part Tightened	N*m	kgf*cm	in.*lbf
Brake pedal stroke sensor assembly x Brake pedal support assembly	8.5	87	75

SPECIFICATIONS BRAKE (FRONT) TORQUE SPECIFICATIONS

Front Brake

Part Tightened	N*m	kgf*cm	ft.*lbf
Disc brake cylinder assembly set bolt	205	2090	151
Front flexible hose x Disc brake cylinder assembly LH	30	306	22
Front disc brake bleeder plug	10.8	110	8

SPECIFICATIONS BRAKE (REAR) TORQUE SPECIFICATIONS

Rear Brake

Part Tightened		N*m	kgf*cm	ft.*lbf	in.*lbf
Rear disc brake cylinder mounting x Rear axle housing assembly		205	2090	151	
Rear disc brake cylinder assembly x Rear disc brake cylinder mounting		55	561	41	
Rear disc brake dust boot protector x Rear disc brake cylinder assembly		7.9	81		70
Parking brake actuator protector assembly x Rear disc brake cylinder assembly	w/ Parking brake actuator protector assembly	20	204	15	
Parking brake actuator assembly x Rear disc brake cylinder assembly		8.4	86		74
Rear flexible hose x Rear disc brake cylinder assembly		30	306	22	
Rear disc brake bleeder plug		10.8	110	8	

SPECIFICATIONS BRAKE SYSTEM (OTHER) TORQUE SPECIFICATIONS

BRAKE FLUID

Part Tightened	N*m	kgf*cm	ft.*lbf
Front disc brake bleeder plug	10.8	110	8
Rear disc brake bleeder plug	10.8	110	8

BRAKE PEDAL (for LHD)

Part Tightened	N*m	kgf*cm	ft.*lbf
Brake pedal support reinforcement x Brake pedal support assembly	15	153	11

BRAKE PEDAL (for RHD)

Part Tightened	N*m	kgf*cm	ft.*lbf
Brake pedal support reinforcement x Brake pedal support assembly	15	153	11

BRAKE BOOSTER (for LHD)

Part Tightened		N*m	kgf*cm	ft.*lbf	in.*lbf
Brake booster with master cylinder assembly x Brake pedal support assembly		14.7	150	11	
Brake tube flare nut (12 mm)	Specified tightening torque	19.5	199	14	
	For use with a union nut wrench	17.4	177	13	
No. 1 wire clamp bracket x Brake booster with master cylinder assembly		6.6	67		58

BRAKE BOOSTER (for RHD)

Part Tightened		N*m	kgf*cm	ft.*lbf	in.*lbf
Brake booster with master cylinder assembly x Brake pedal support assembly		14.7	150	11	
Brake tube flare nut (12 mm)	Specified tightening torque	19.5	199	14	
	For use with a union nut wrench	17.4	177	13	
No. 1 wire clamp bracket x Brake booster with master cylinder assembly		6.6	67		58

BRAKE BOOSTER PUMP

Part Tightened		N*m	kgf*cm	ft.*lbf	in.*lbf
Brake tube flare nut (10 mm)	without union nut wrench	15.2	155	11	
	with union nut wrench	13.4	137	10	
brake booster pump with accumulator assembly x Brake booster with master cylinder assembly		5.4	55		48
No. 2 wire clamp bracket x Brake booster with master cylinder assembly		6.6	67		58
No. 2 brake power supply bracket x Brake booster with master cylinder assembly		6.6	67		58
No. 1 brake power supply bracket x Brake booster with master cylinder assembly		6.6	67		58

VACUUM PUMP (for F33A-FTV)

Part Tightened	N*m	kgf*cm	ft.*lbf	in.*lbf
End cover set screw	7.5	76		66
Vacuum pump assembly set bolt	21	214	15	
Plate insulator set bolt	21	214	15	
No. 2 idler pulley sub-assembly set bolt	44	449	32	
No. 2 idler pulley assembly set bolt	24.5	250	18	

SPECIFICATIONS FRONT SUSPENSION TORQUE SPECIFICATIONS

FRONT SHOCK ABSORBER

Part Tightened		N*m	kgf*cm	ft.*lbf	in.*lbf
front speed sensor LH x Body		12.5	127	9	
front speed sensor LH x Steering knuckle		8.5	87		75
Front flexible hose x Steering knuckle		28	286	21	
front disc brake caliper assembly LH x Steering knuckle		205	2090	151	
Tie rod end sub-assembly LH x Steering knuckle		120	1224	89	
Shock absorber with coil spring lock nut	w/o AVS	65	663	48	
	w/ AVS	65	663	48	
	w/ AVS (For use with union nut wrench)	58.2	593	43	
Shock absorber with coil spring x Body (Lower side)		250	2549	184	
Upper arm x Steering knuckle		125	1275	92	
Shock absorber with coil spring x Body (Upper side)	without union nut wrench	45	459	33	
	with union nut wrench	41	418	30	

FRONT UPPER SUSPENSION ARM

Part Tightened	N*m	kgf*cm	ft.*lbf	in.*lbf
front speed sensor LH x Body	12.5	127	9	
front speed sensor LH x Steering knuckle	8.5	87		75
Upper arm x Steering knuckle	125	1275	92	
Upper arm x Body	185	1886	136	

FRONT LOWER SUSPENSION ARM

Part Tightened		N*m	kgf*cm	ft.*lbf	in.*lbf
front speed sensor LH x Body		12.5	127	9	
front speed sensor LH x Steering knuckle		8.5	87		75
Front lower ball joint attachment LH x Lower arm		167	1703	123	
Front lower ball joint attachment LH x Steering knuckle		300	3059	221	
front No. 1 spring bumper LH x Body	For not use with SST	31	316	23	
	For use with SST	18.7	191	14	

FRONT STABILIZER BAR (w/ Electronic-Kinetic Dynamic Suspension System)

Part Tightened		N*m	kgf*cm	ft.*lbf
front stabilizer bar x front stabilizer control cylinder		52	530	38
front stabilizer bar x front center stabilizar brace sub-assembly		52	530	38
front stabilizer bar x front stabilizer link assembly		190	1937	140
front stabilizer control cylinder x Body		86	877	63
front center stabilizar brace sub-assembly x Body		52	530	38
front stabilizer control cylinder LH x Union bolt		50	510	37
front stabilizer control cylinder x suspension control tube	For not use with a union nut wrench	44.1	450	33
	For use with a union nut wrench	39.5	403	29

FRONT STABILIZER BAR (w/o Electronic-Kinetic Dynamic Suspension System)

Part Tightened	N*m	kgf*cm	ft.*lbf
front stabilizer bar x body	87	887	64
front stabilizer link assembly x body	140	1428	103
front stabilizer bar x front stabilizer link assembly	128	1305	94

Rear shock absorber

Part Tightened		N*m	kgf*cm	ft.*lbf
Rear shock absorber assembly LH x Vehicle body	with SST	29.7	303	22
	without SST	53	540	39
Rear shock absorber assembly LH x Rear axle carrier		98	999	72
Rear shock absorber assembly RH x Rear axle carrier		98	999	72
Rear lateral control rod assembly x Axle housing		140	1428	103

Rear coil spring

Part Tightened		N*m	kgf*cm	ft.*lbf
Rear shock absorber assembly LH x Rear axle carrier		98	999	72
Rear shock absorber assembly RH x Rear axle carrier		98	999	72
Brake tube x Rear flexible hose	with union nut wrench	13.4	137	10
	without union nut wrench	15.2	155	11
Rear stabilizer control arm assembly x Rear stabilizer bar sub-assembly	with Electronic-Kinetic Dynamic Suspension System	119	1213	88
Rear stabilizer link assembly x Vehicle body	with Electronic-Kinetic Dynamic Suspension System	52	530	38
Rear stabilizer link assembly LH x Rear stabilizer bar sub-assembly	without Electronic-Kinetic Dynamic Suspension System	75	765	55
Rear stabilizer link assembly RH x Rear stabilizer bar sub-assembly	without Electronic-Kinetic Dynamic Suspension System	75	765	55

Rear upper arm

Part Tightened	N*m	kgf*cm	ft.*lbf
Rear Upper Control Arm Assembly LH x Rear axle carrier	140	1428	103
Rear Upper Control Arm Assembly RH x Rear axle carrier	140	1428	103
Rear Upper Control Arm Assembly LH x Vehicle body	140	1428	103
Rear Upper Control Arm Assembly RH x Vehicle body	140	1428	103

Rear lower arm

Part Tightened		N*m	kgf*cm	ft.*lbf
Lower Control Arm Assembly LH x Rear axle carrier		140	1428	103
Lower Control Arm Assembly RH x Rear axle carrier		140	1428	103
Lower Control Arm Assembly LH x Vehicle body		140	1428	103
Lower Control Arm Assembly RH x Vehicle body	with union nut wrench	130.2	1328	96
	without union nut wrench	140	1428	103

Rear lateral control rod

Part Tightened	N*m	kgf*cm	ft.*lbf
Rear lateral control rod assembly x Vehicle body	140	1428	103
Rear lateral control rod assembly x Rear axle housing assembly	140	1428	103

Rear stabilizer bar (w/ Electronic-kinetic dynamic suspension system)

Part Tightened	N*m	kgf*cm	ft.*lbf
Rear stabilizer control cylinder x Rear stabilizer control arm assembly	208	2121	153
Rear No. 2 stabilizer control arm x Rear stabilizer control arm assembly	124	1264	91
Rear stabilizer control cylinder x Stabilizer control tube	56.3	574	42
Stabilizer link sub-assembly x Rear stabilizer bar sub-assembly	85	867	63
Stabilizer link sub-assembly x Stabilizer end bracket RH	34	347	25
Rear stabilizer bar sub-assembly x Rear axle carrier	88	897	65
Rear stabilizer control arm assembly x Rear stabilizer bar sub-assembly	119	1213	88
Stabilizer link sub-assembly x Vehicle body	52	530	38
Rear stabilizer control cylinder x Vehicle body	90	918	66

Rear stabilizer bar (w/o Electronic-kinetic dynamic suspension system)

Part Tightened	N*m	kgf*cm	ft.*lbf
Rear stabilizer bar sub-assembly x Rear axle carrier	88	897	65
Rear stabilizer end bracket LH x Vehicle body	96	979	71
Rear stabilizer end bracket RH x Vehicle body	96	979	71
Rear stabilizer link assembly LH x Rear stabilizer bar sub-assembly	75	765	55
Rear stabilizer link assembly RH x Rear stabilizer bar sub-assembly	75	765	55
Rear stabilizer link assembly LH x Rear stabilizer end bracket LH	75	765	55
Rear stabilizer link assembly RH x Rear stabilizer end bracket RH	75	765	55

SPECIFICATIONS STEERING GEAR / LINKAGE TORQUE SPECIFICATIONS

Steering Gear

Part Tightened		N*m	kgf*cm	ft.*lbf
Rack and pinion power steering gear assembly set bolt and nut		120	1224	89
Pressure feed tube assembly set bolt and nut		18	184	13
Motor compartment main wire x Rack and pinion power steering gear assembly	with union nut wrench	21.4	218	16
	without union nut wrench	25	255	18
Front bound stopper bracket sub-assembly LH x Vehicle body	Bolt (A), (B)	42	428	31
	Bolt (C), (D)	76	775	56
Front bound stopper bracket sub-assembly RH x Vehicle body	Bolt (A), (B)	42	428	31
	Bolt (C), (D)	76	775	56
Tie rod end sub-assembly LH x Steering knuckle		120	1224	89
No. 2 steering intermediate shaft sub-assembly x Rack and pinion power steering gear assembly		35	357	26
Tie rod end sub-assembly nuts	with SST	59.4	606	44
	without SST	90	918	66
Steering rack end sub-assembly x Power steering link assembly	with SST	177.5	1810	131
	without SST	135.9	1386	100

STABILIZER CONTROL VALVE (for Front Side)

Part Tightened		N*m	kgf*cm	ft.*lbf
Stabilizer control valve sub-assembly x Frame		32	326	24
Front stabilizer housing sub-assembly x Frame		32	326	24
Stabilizer control valve sub-assembly x Front stabilizer control tube assembly flare nut	without union nut wrench	15.2	155	11
	with union nut wrench	14.2	145	10
Front stabilizer housing sub-assembly x Front stabilizer control tube assembly flare nut (10 mm)	without union nut wrench	15.2	155	11
	with union nut wrench	13.4	137	10
Front stabilizer housing sub-assembly x Front stabilizer control tube assembly flare nut (17 mm)	without union nut wrench	44.1	450	33
	with union nut wrench	37.8	385	28
Front stabilizer control tube assembly union bolt		47.5	484	35

STABILIZER CONTROL VALVE (for Rear Side)

Part Tightened		N*m	kgf*cm	ft.*lbf
stabilizer control with accumulator housing assembly x Frame		32	326	24
Rear stabilizer control tube assembly flare nut (10 mm)	without union nut wrench	15.2	155	11
	with union nut wrench	13.4	137	10
Rear stabilizer control tube assembly flare nut (17 mm)	without union nut wrench	44.1	450	33
	with union nut wrench	37.8	385	28

SUSPENSION CONTROL ECU

Part Tightened	N*m	kgf*cm	ft.*lbf
Absorber control ECU x Vehicle body	12	122	9

STABILIZER CONTROL ECU

Part Tightened	N*m	kgf*cm	ft.*lbf
Stabilizer control ECU x Vehicle body	12	122	9

FRONT ACCELERATION SENSOR

Part Tightened	N*m	kgf*cm	ft.*lbf
Acceleration sensor x Vehicle body	12	122	9

TEEBRO Toyota J30T LC300 SSM

Front Suspension Work Instruction

Document Reference	**TEEBRO-PRO-001**
Issue Level	1.0
Issue Date	4 October 2022

Table 1 Document Version Control

Version	Description of Change	Changed By	Date
1.0	Initial Implementation	Brent Hawkins	12/09/2022

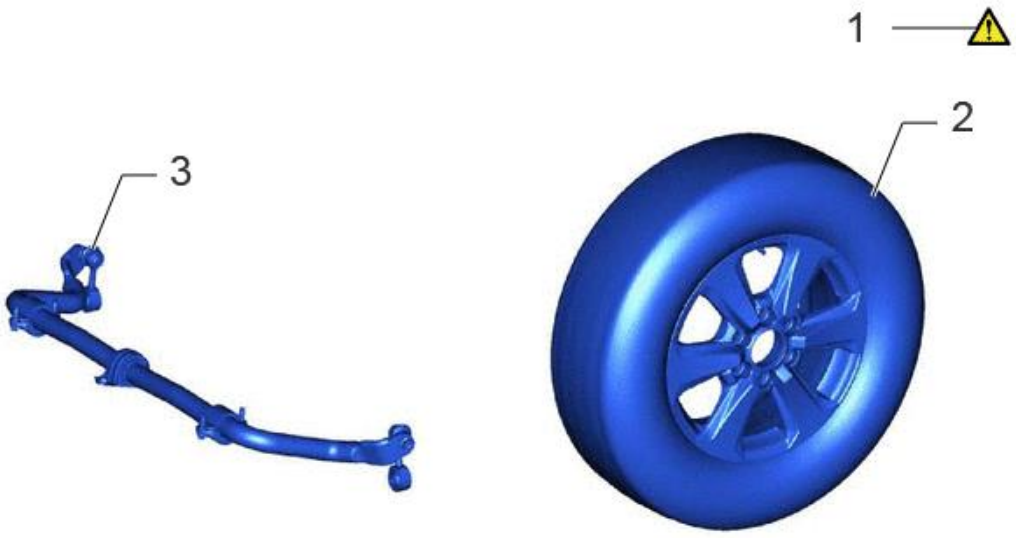
Table 2 Document Approvals

Version	Comments	Approved By	Date
1.0	Initial Implementation		

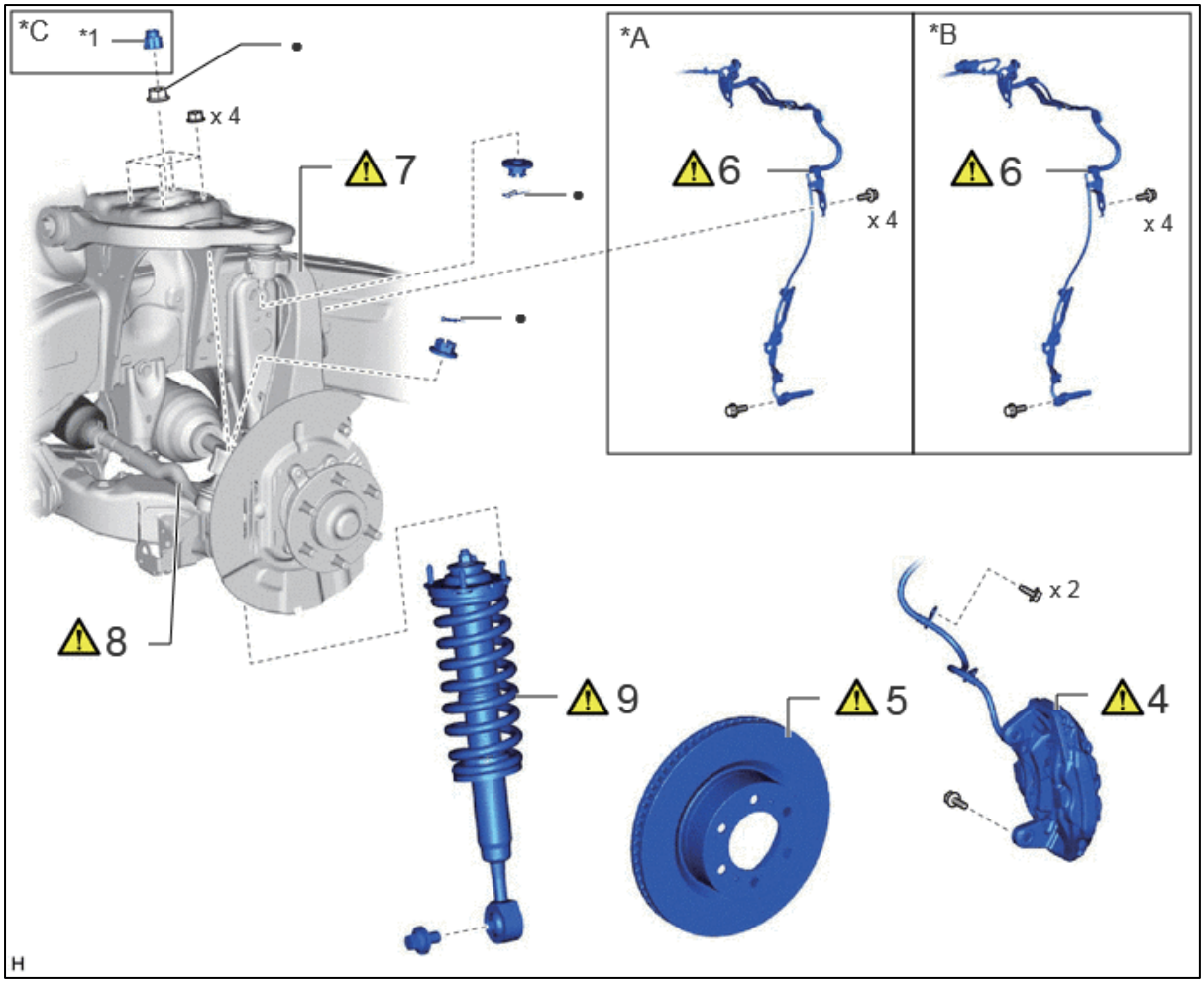
Table 3 Document Distribution Control

Version	Released To	Released By	Date
1.0	AEV Workshop	Brent Hawkins	12/09/2022
1.0	JMACX Offroad Solutions	Brent Hawkins	12/09/2022

1 FRONT SUSPENSION FRONT SHOCK ABSORBER - REMOVAL

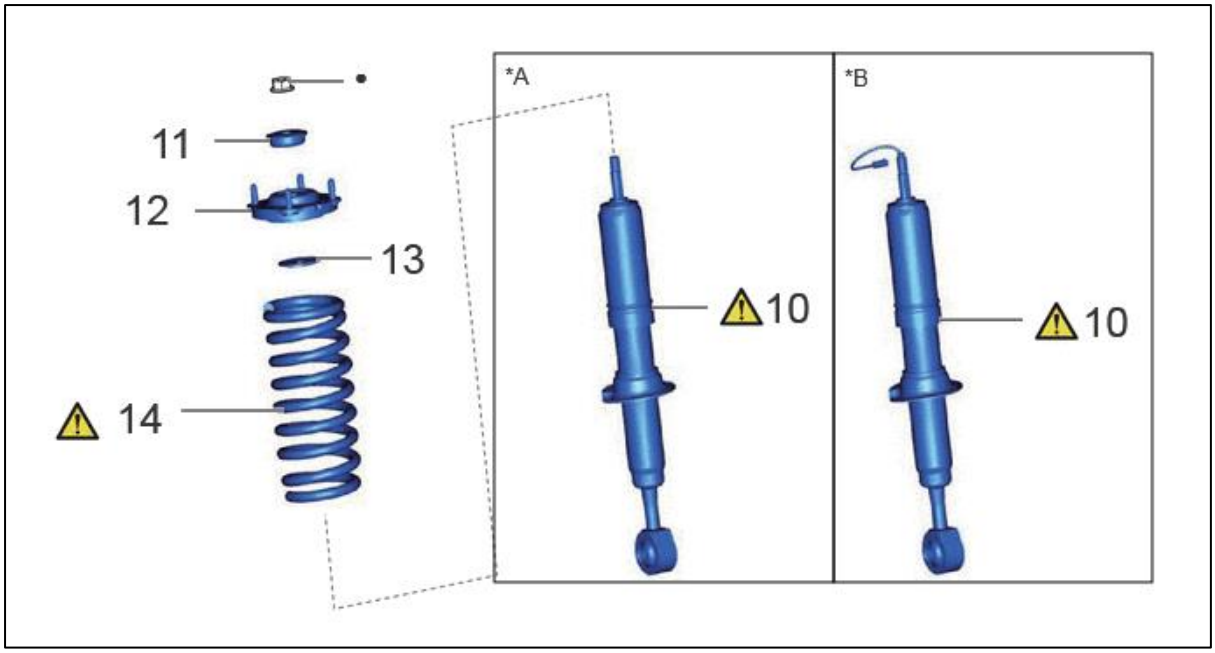


Procedure		Part Name Code
1	DISABLE BRAKE CONTROL	-
2	FRONT WHEEL	-
3	FRONT STABILIZER BAR	48811



Procedure		Part Name Code
4	FRONT DISC BRAKE CALIPER ASSEMBLY LH	-
5	FRONT DISC LH	43512
6	FRONT SPEED SENSOR LH	89543
7	STEERING KNUCKLE	-
8	TIE ROD END SUB-ASSEMBLY LH	45047
9	FRONT SHOCK ABSORBER WITH COIL SPRING	-

*1	Upper Shock Absorber Cap	-	-
*A	w/o AVS	*B	w/ AVS
*C	w/ Cap	-	-
●	Non-reusable part	-	-



Procedure		Part Name Code
10	FRONT SHOCK ABSORBER ASSEMBLY LH	A300-001
11	FRONT UPPER SHOCK ABSORBER BRACKET SUB- ASSEMBLY LH	48502
12	FRONT SUSPENSION SUPPORT SUB-ASSEMBLY	48609A
13	SHOCK ABSORBER CUSHION RETAINER	48597
14	FRONT COIL SPRING LH	KTFR-140

*A	w/o AVS	*B	w/ AVS
●	Non-reusable part	-	-

CAUTION / NOTICE / HINT

The necessary procedures (adjustment, calibration, initialization, or registration) that must be performed after parts are removed, installed, or replaced during the front shock absorber removal/installation are shown below.

Necessary Procedure After Parts Removed/Installed/Replaced:

Replacement Part or Procedure	Necessary Procedures	Effects/Inoperative when not Performed
Suspension, tires, etc.	**w/ Parking Support Brake System:** • Ultrasonic sensor detection angle • Ultrasonic sensor detection angle registration	Parking support brake system
	Rear television camera assembly optical axis (Back camera position setting)	Parking assist monitor system
	• Parking assist ECU initialization • Adjust steering angle	Panoramic view monitor system

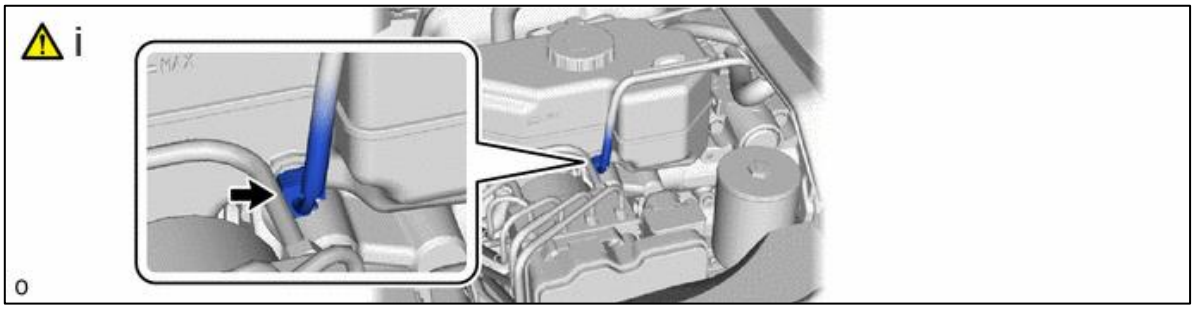
Replacement Part or Procedure	Necessary Procedures	Effects/Inoperative when not Performed
	• Rear television camera view adjustment (for Rear camera detection system)	
Replacement of the rear height control sensor sub-assembly LH, removal and reinstallation of the rear height control sensor sub-assembly LH, replacement of the suspension, etc. have been performed.	Perform headlight ECU sub-assembly LH initialization	Automatic headlight beam level control system
Wheel alignment adjustment	Perform "Calibration"	• DTCs are stored • ABS warning light illuminates • Brake system warning light (yellow indicator) illuminates • Slip indicator light illuminates • Electronically controlled brake system does not operate correctly

HINT:

- **Use the same procedure for the RH and LH sides.**
- **The procedure listed below is for the LH side.**

1.1 PROCEDURE

1.1.1 DISABLE BRAKE CONTROL



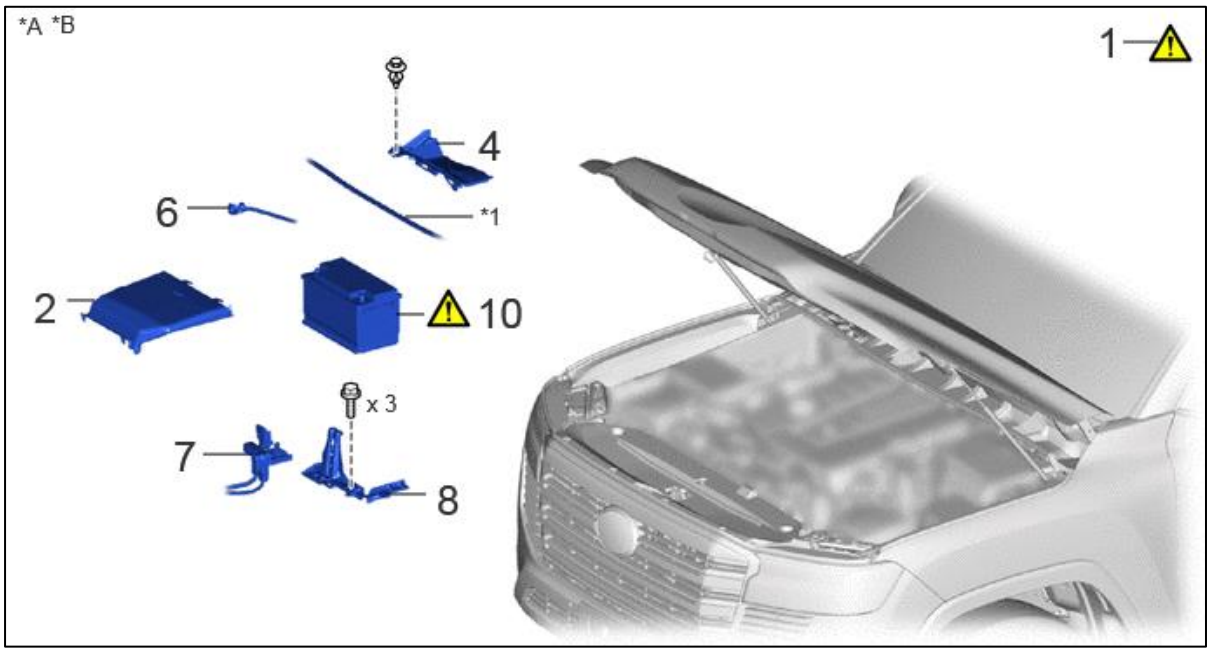
a. Wait 2 minutes after turning the ignition switch off to ensure that the skid control ECU is in sleep mode.

NOTICE:

- When the brake pedal is depressed or the door courtesy switch is turned on even if the ignition switch is off, the brake control system activates. Therefore, do not depress the brake pedal or open/close the doors until the reservoir level switch connector is disconnected.
- Do not operate the electric parking brake switch assembly when the electric parking brake system is in rear brake pad replacement mode.

b. Disconnect the connector from the brake master cylinder reservoir assembly.
c. Disconnect the cable from the negative (-) battery terminal.

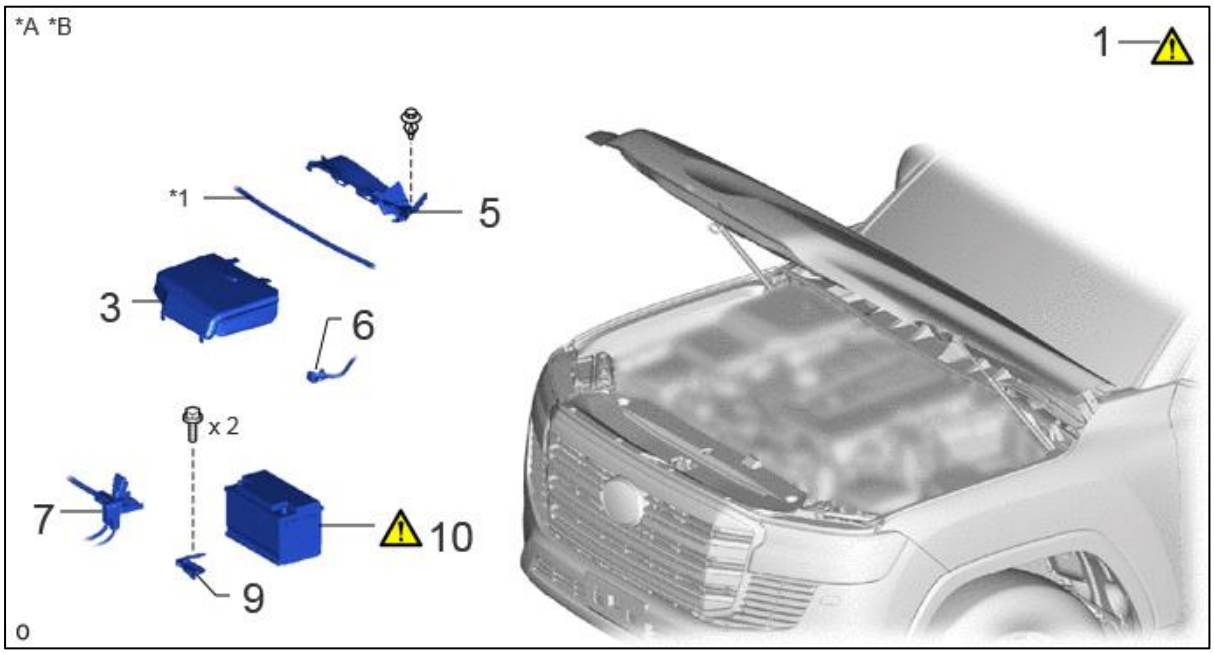
Perform the following Procedure:



Procedure	Part Name Code

1	PRECAUTION	-
2	ENGINE SIDE COVER RH	51473C
4	COWL TOP VENTILATOR LOUVER RH	55781D
6	CABLE FROM NEGATIVE BATTERY TERMINAL	-
7	CABLE FROM POSITIVE BATTERY TERMINAL	-
8	NO. 2 BATTERY CLAMP SUB-ASSEMBLY	74405
10	BATTERY	28800

*A	for RHD	-	-
*1	HOOD TO COWL TOP SEAL	-	-



Procedure		Part Name Code
1	PRECAUTION	-
3	ENGINE SIDE COVER LH	51474B
5	COWL TOP VENTILATOR LOUVER LH	55782D
6	CABLE FROM NEGATIVE BATTERY TERMINAL	-
7	CABLE FROM POSITIVE BATTERY TERMINAL	-
9	NO. 2 BATTERY CLAMP	74482
10	BATTERY	28800

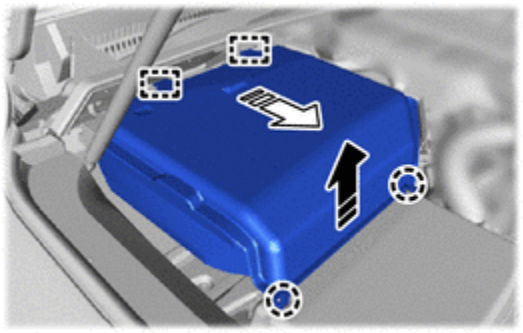
*A	for RHD	-	-
*1	HOOD TO COWL TOP SEAL	-	-

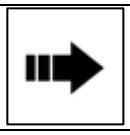
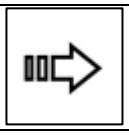
1. PRECAUTION

NOTICE:

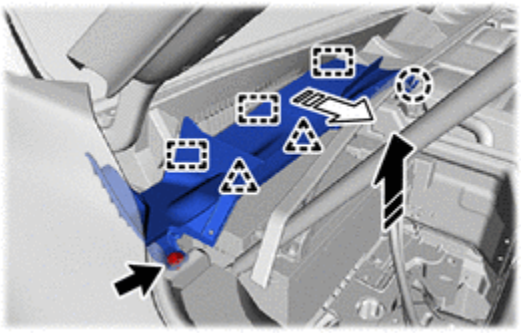
- After the ignition switch is turned off, the radio receiver assembly records various types of memory and settings. As a result, after turning the ignition switch off, make sure to wait at least 120 seconds before disconnecting the cable from the negative (-) auxiliary battery terminal.
- When replacing the battery, use a new battery of the same dimensions and same capacity or more from the same class at a 20-hour rate.

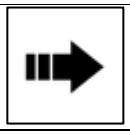
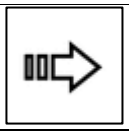
2. REMOVE ENGINE SIDE COVER LH (for RHD)



	Remove in this Direction (1)		Remove in this Direction (2)

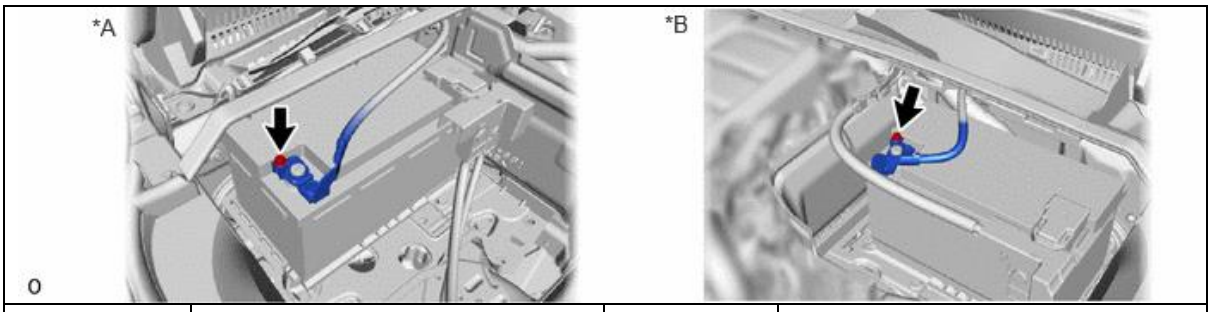
3. DISCONNECT COWL TOP VENTILATOR LOUVER LH (for RHD)



	Remove in this Direction (1)		Remove in this Direction (2)

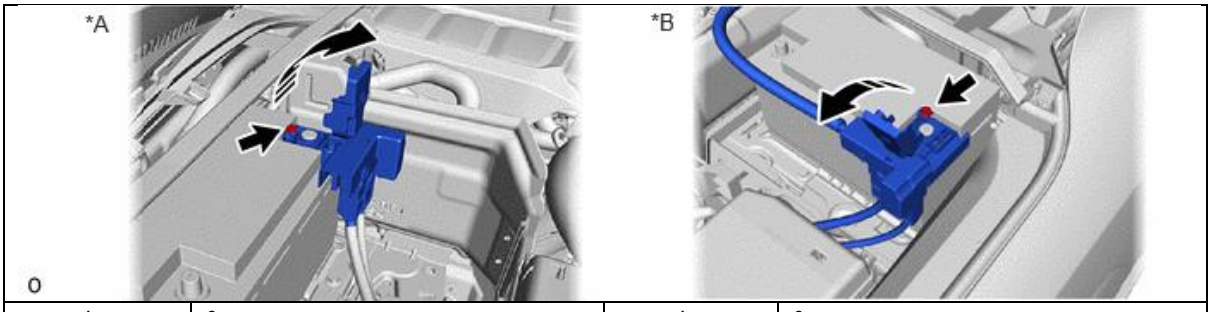
4. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

I. except Cold Area Specification Vehicles:



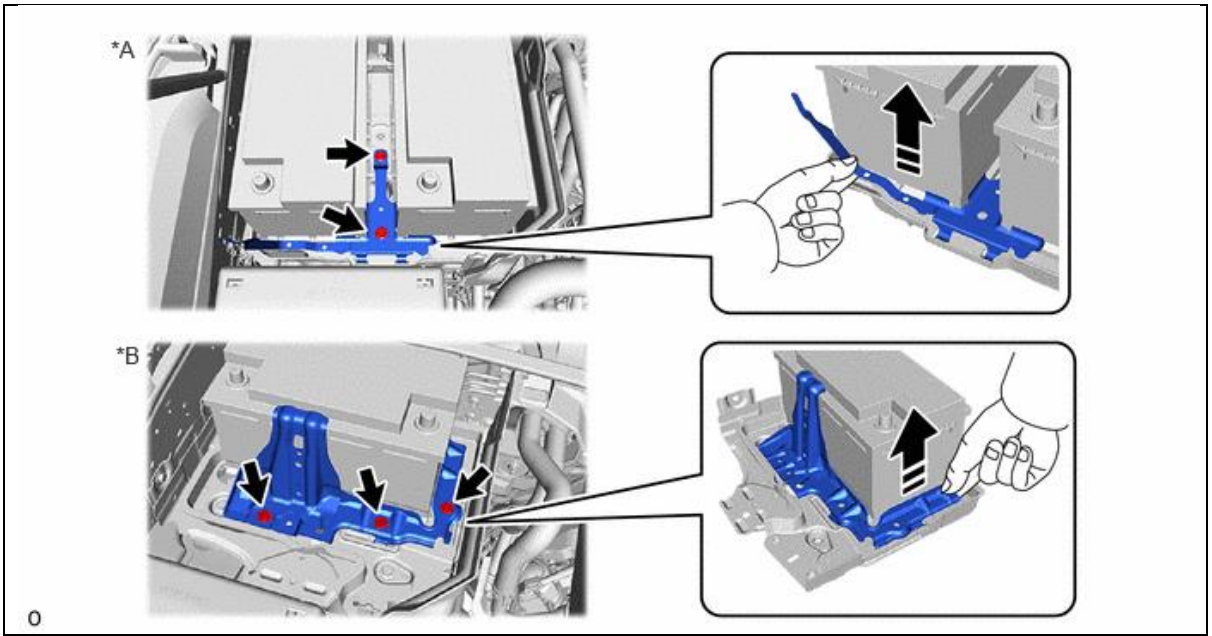
*A	for LHD	*B	for RHD

5. DISCONNECT CABLE FROM POSITIVE BATTERY TERMINAL



*A	for LHD	*B	for RHD

6. REMOVE NO. 2 BATTERY CLAMP SUB-ASSEMBLY (for RHD)



*A	for Cold Area Specification Vehicles	*B	except Cold Area Specification Vehicles

7. REMOVE BATTERY

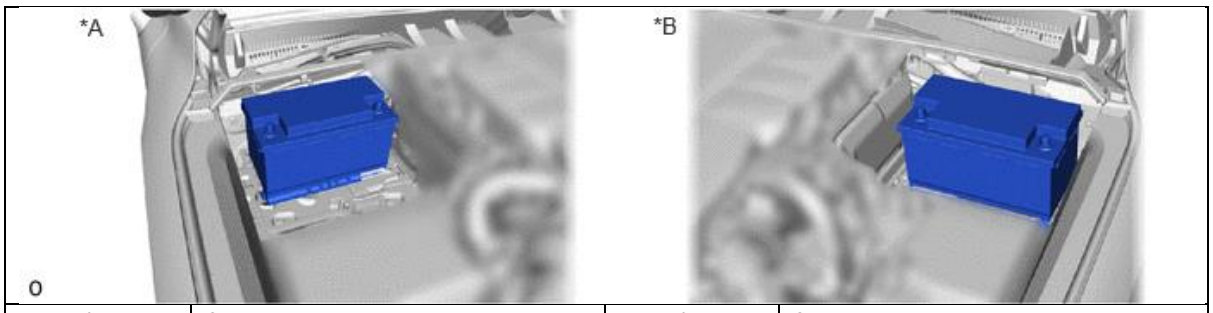
HINT:

- When removing the battery, it can be temporarily placed on top of the No. 3 engine room relay block and junction block assembly.

NOTICE:

..

- Protect the No. 3 engine room relay block and junction block assembly and air cleaner cap sub-assembly to prevent damage.

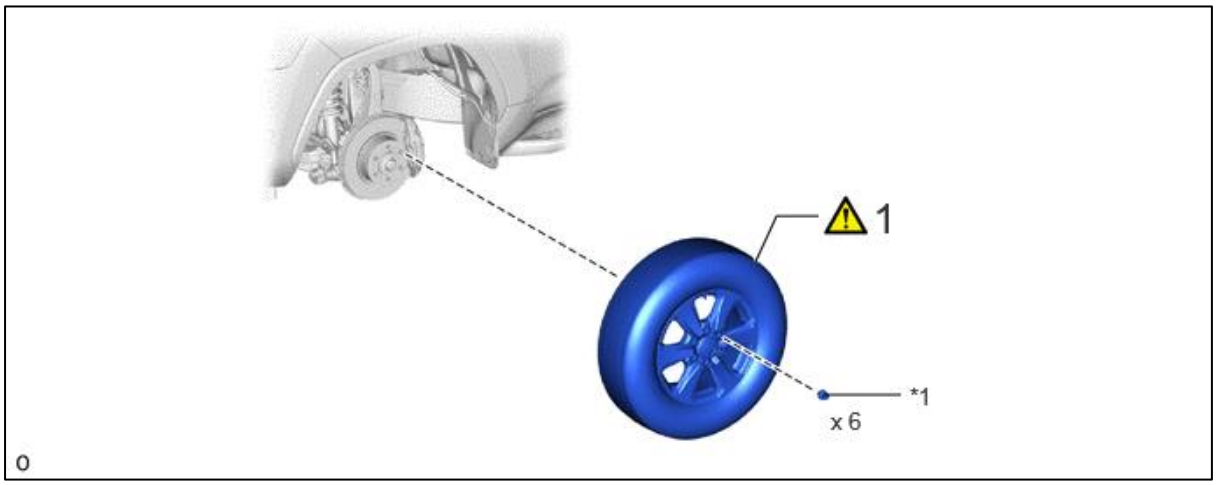


*A	for LHD	*B	for RHD

d. In order to prevent pressurized brake fluid in the accumulator from being applied to the brake calipers, depress the brake pedal 40 times or more to return the pressurized brake fluid in the accumulator back to the brake master cylinder reservoir assembly.

e. Check that the brake pedal cannot be further depressed.

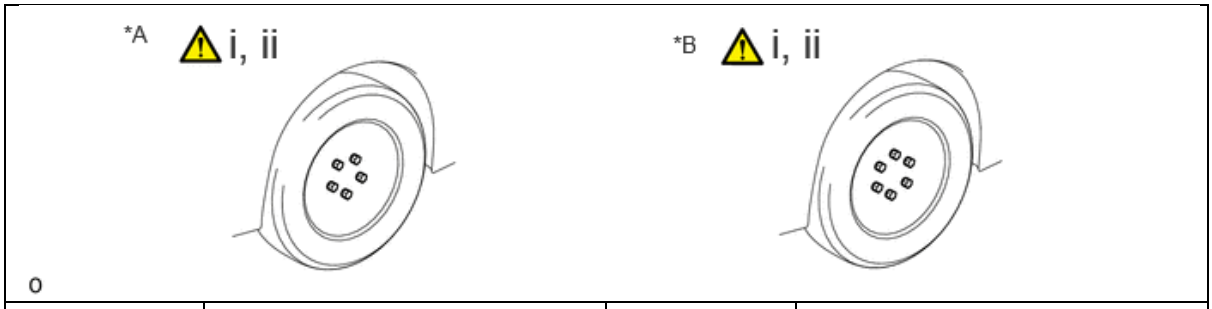
1.1.2 REMOVE FRONT WHEEL



Procedure		Part Name Code
1	WHEEL ASSEMBLY	-

*1	AXLE HUB NUT	-

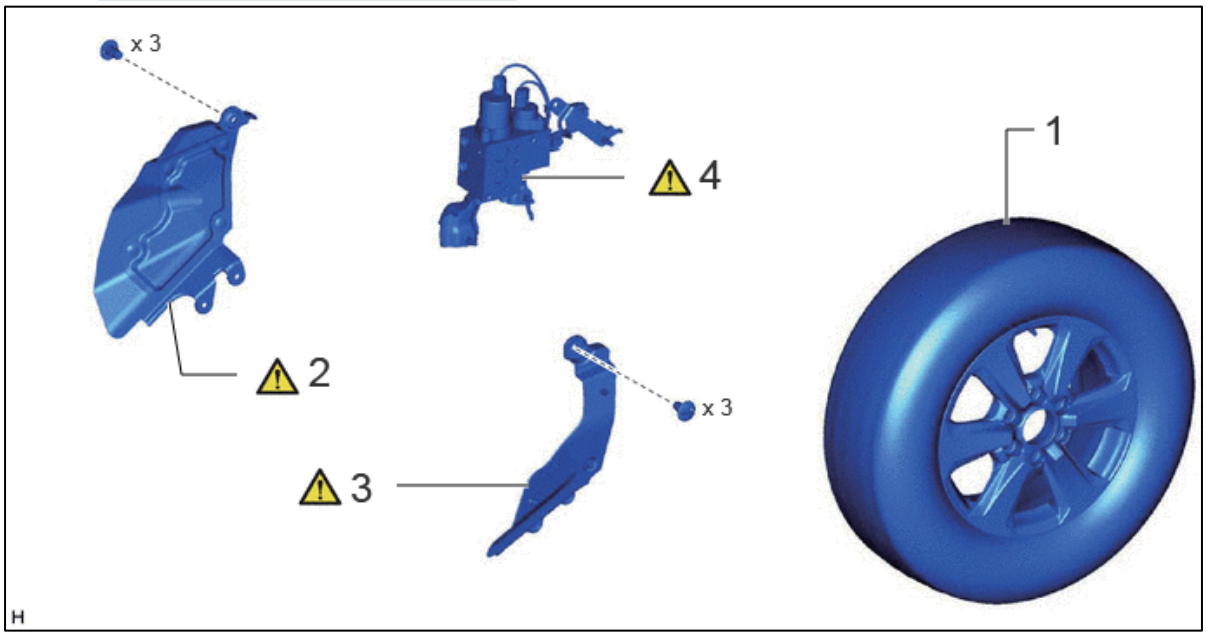
REMOVE WHEEL ASSEMBLY



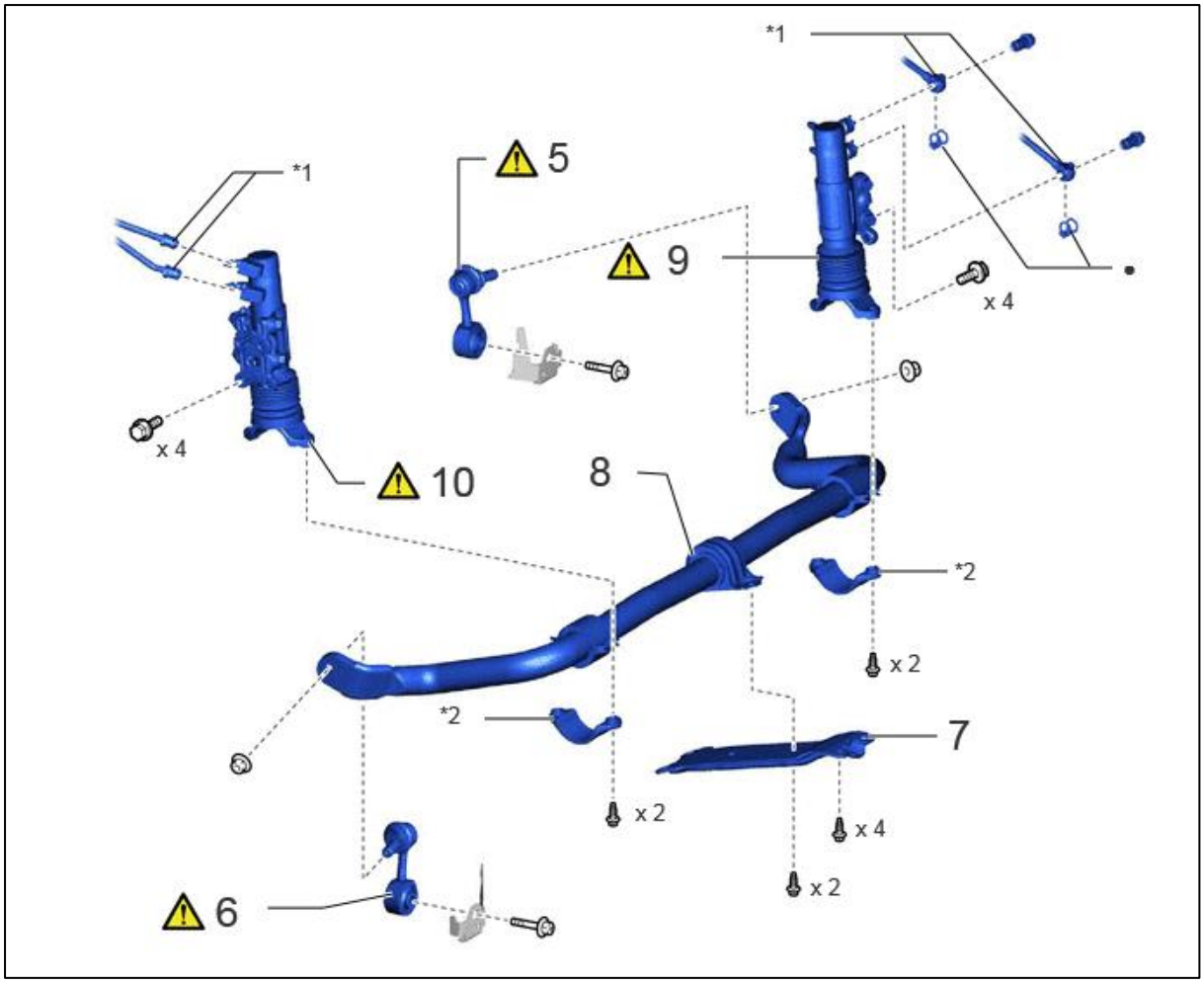
*A	for 5 Bolt Axle Hub	*B	for 6 Bolt Axle Hub

I. Loosen the axle hub nuts approximately 90°.
II. Lift up the vehicle and remove the axle hub nuts and wheel assembly.

1.1.3 REMOVE FRONT STABILIZER BAR



Procedure		Part Name Code
1	FRONT WHEEL	-
2	FRONT FENDER APROM TRIM PACKING A	53782
3	FRONT FENDER APROM TRIM PACKING C	53784
4	FRONT STABILIZER HOUSING SUB-ASSEMBLY	48006



Procedure		Part Name Code
5	FRONT STABILIZER LINK ASSEMBLY LH	48810
6	FRONT STABILIZER LINK ASSEMBLY RH	48820B
7	FRONT CENTER STABILIZAR BRACE SUB-ASSEMBLY	48806C
8	FRONT STABILIZER BAR	48811
9	FRONT STABILIZER CONTROL CYLINDER LH	48878
10	FRONT STABILIZER CONTROL CYLINDER	48876

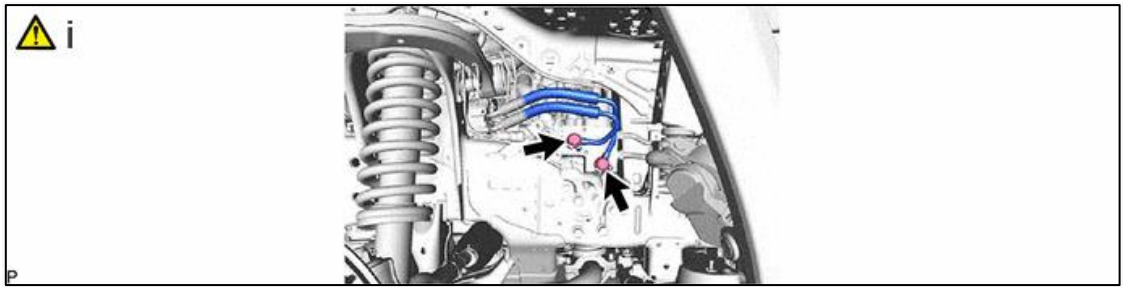
*1	SUSPENSION CONTROL TUBE	*2	FRONT STABILIZER BRACKET
-	-	-	-
●	Non-reusable part	-	-

1. REMOVE FRONT FENDER APRON TRIM PACKING A

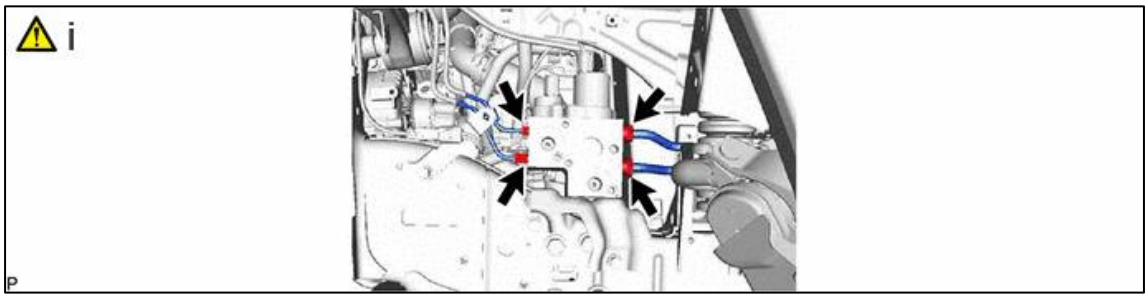
HINT:

Perform this procedure only when replacement of the front stabilizer control cylinder or front stabilizer control cylinder LH are necessary

2. DISCONNECT FRONT STABILIZER CONTROL TUBE ASSEMBLY



i. Remove the 2 union bolts and 2 gaskets, and disconnect the front stabilizer control tube assembly.

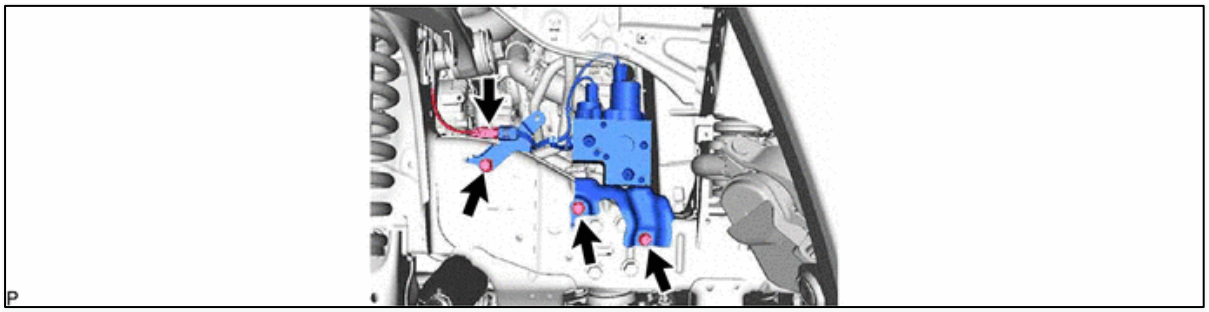


ii. Using a union nut wrench, disconnect the front stabilizer control tube assembly.

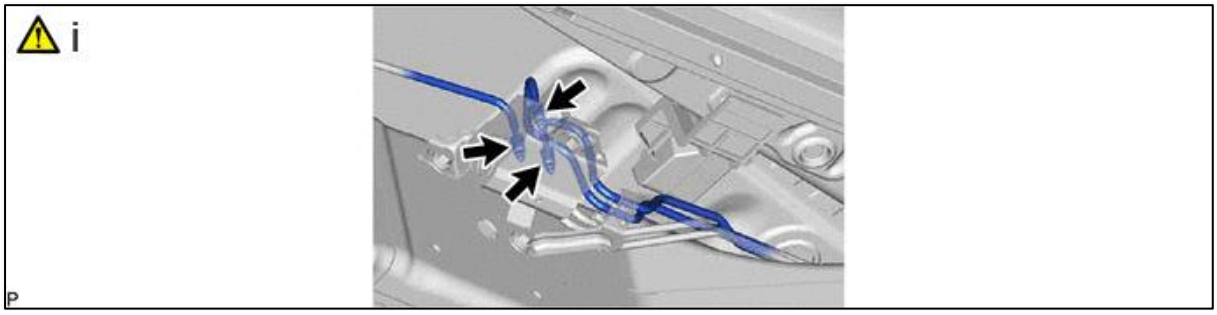
NOTICE:

- Do not kink or damage the front stabilizer control tube assembly.
- Do not allow any foreign matter such as dirt or dust to enter the front stabilizer control tube assembly from the connecting parts

3. REMOVE FRONT STABILIZER HOUSING SUB-ASSEMBLY

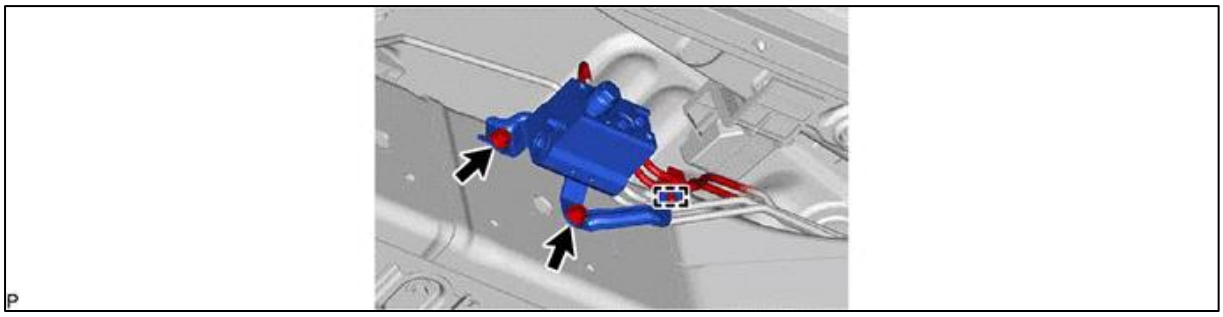


4. DISCONNECT FRONT STABILIZER CONTROL TUBE ASSEMBLY



i. Using a union nut wrench, disconnect the front stabilizer control tube assembly.

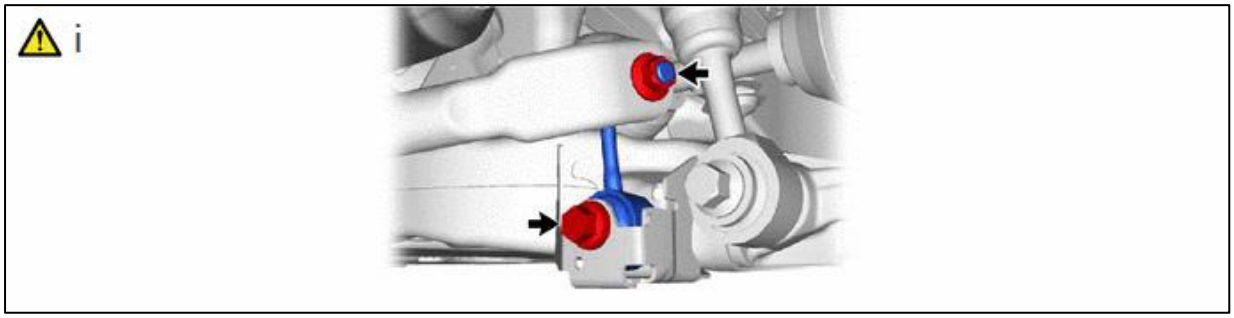
5. REMOVE STABILIZER CONTROL VALVE SUB-ASSEMBLY



NOTICE:

- Be careful not to allow any suspension fluid to enter the connector.
- Do not apply excessive force to the front stabilizer control tube assembly.

6. REMOVE FRONT STABILIZER LINK ASSEMBLY LH



i. Remove the 2 nuts and front stabilizer link assembly LH.

HINT:

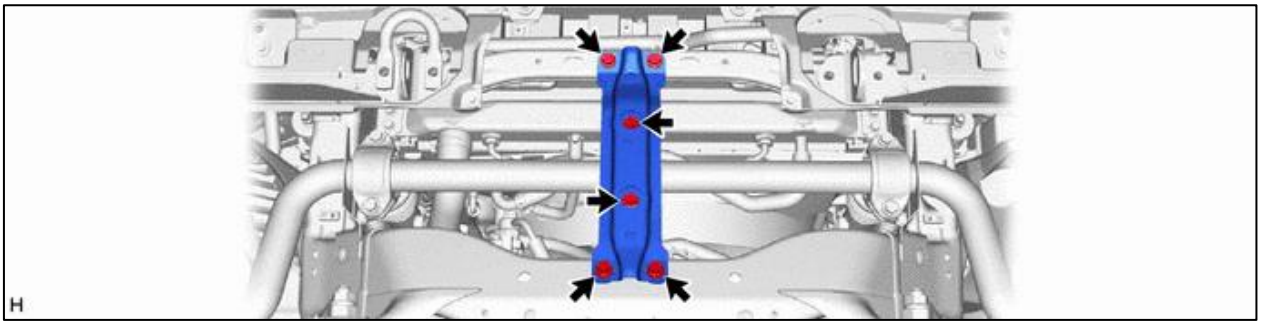
If the ball joint turns together with the nut, use a 8 mm hexagon wrench to hold the stud in place.

7. REMOVE FRONT STABILIZER LINK ASSEMBLY RH

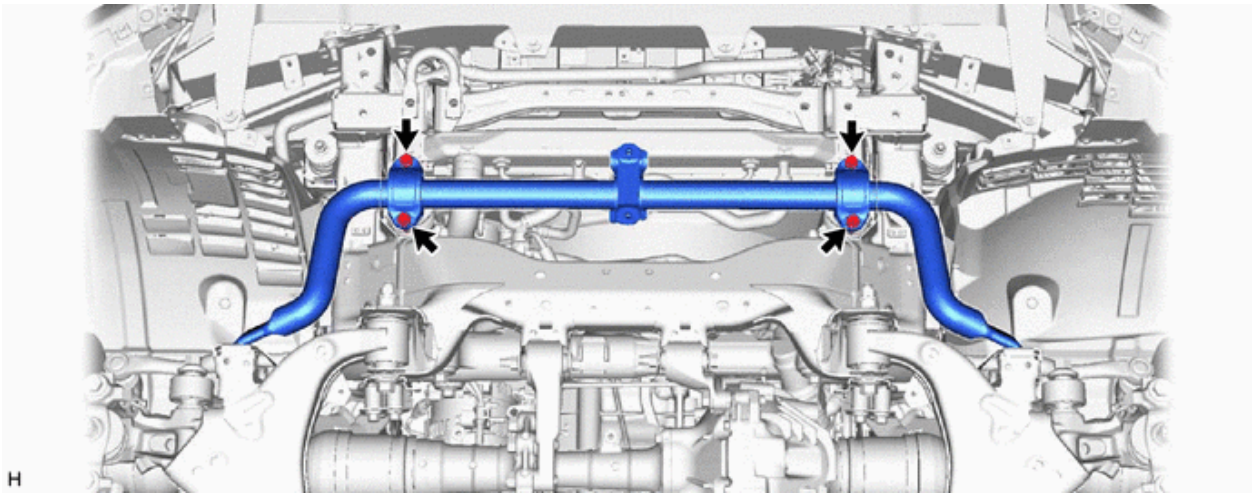
HINT:

Use the same procedure described for the LH side.

8. REMOVE FRONT CENTER STABILIZAR BRACE SUB-ASSEMBLY



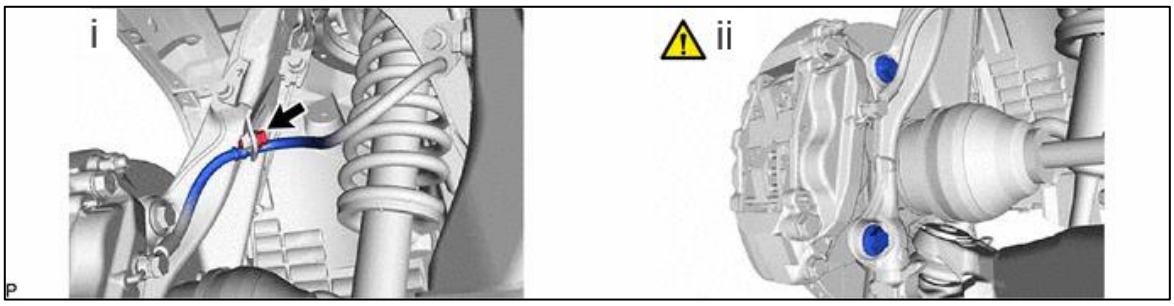
9. REMOVE FRONT STABILIZER BAR



NOTICE:

- Refer to Toyota Service & Workshop manual for removal of front stabilizer control cylinder. Perform this procedure only when replacement of the front stabilizer control cylinder is necessary.

1.1.4 DISCONNECT FRONT DISC BRAKE CALIPER ASSEMBLY LH



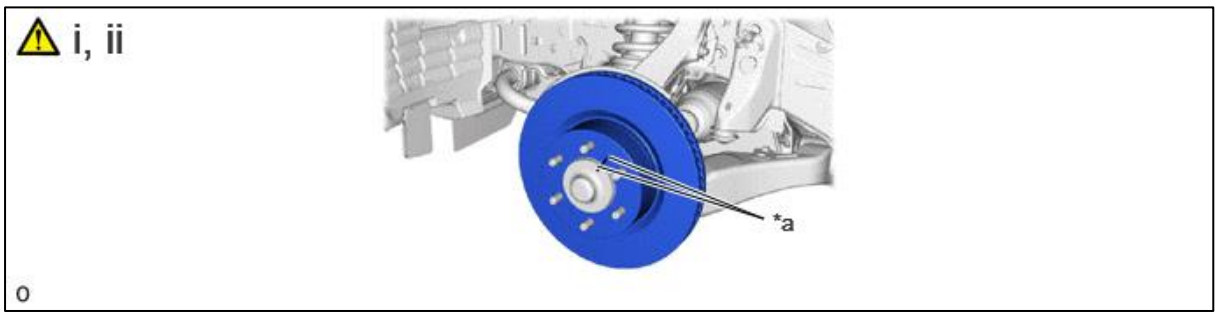
i. Remove the bolt and disconnect the front flexible hose from the steering knuckle LH.

ii. Remove the 2 bolts and disconnect the front disc brake cylinder assembly LH from the steering knuckle LH.

NOTICE:·

- Do not disconnect the .from the front disc brake cylinder assembly LH.
- Do not twist or bend the front flexible hose.

1.1.5 REMOVE FRONT DISC LH



*a	Matchmark	-	-

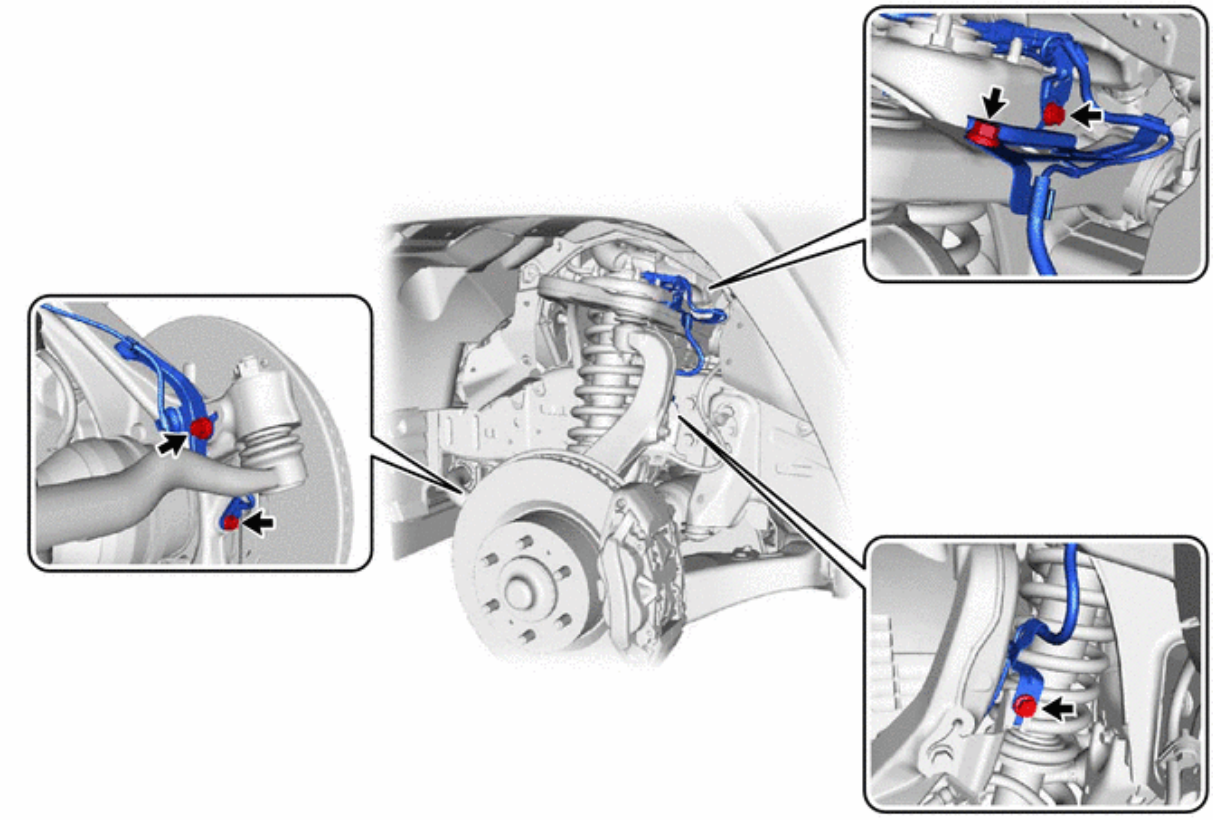
i. Put matchmarks on the front disc and the front axle hub sub-assembly.

HINT:

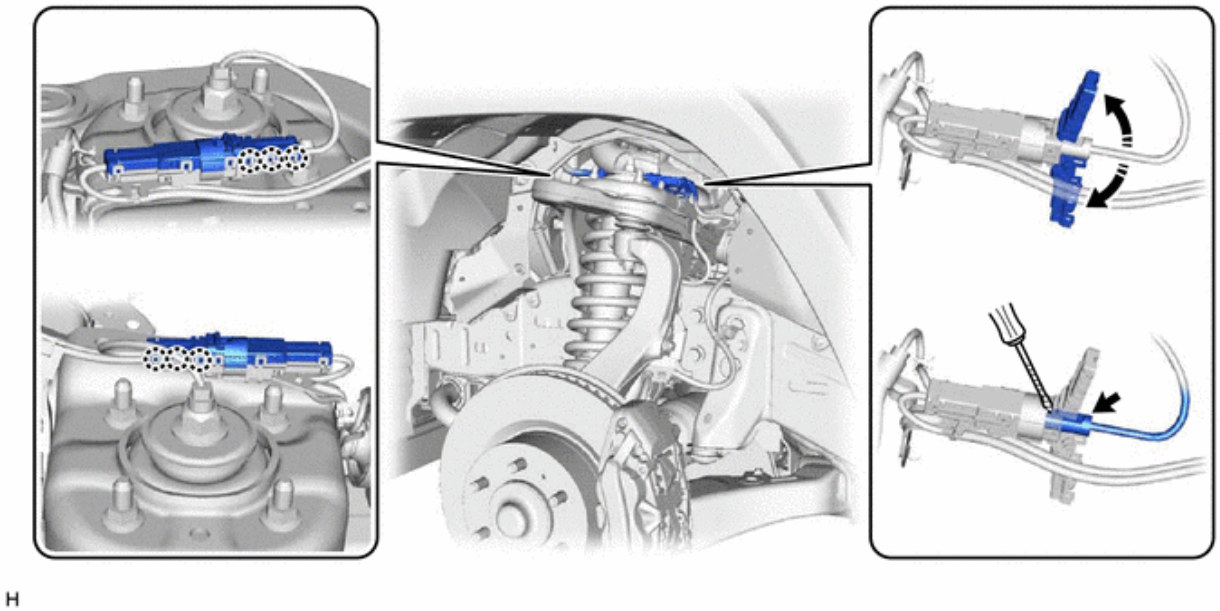
Not required when replacing the front disc.

ii. Remove the front disc.

1.1.6 DISCONNECT FRONT SPEED SENSOR LH



a. w/ AVS:



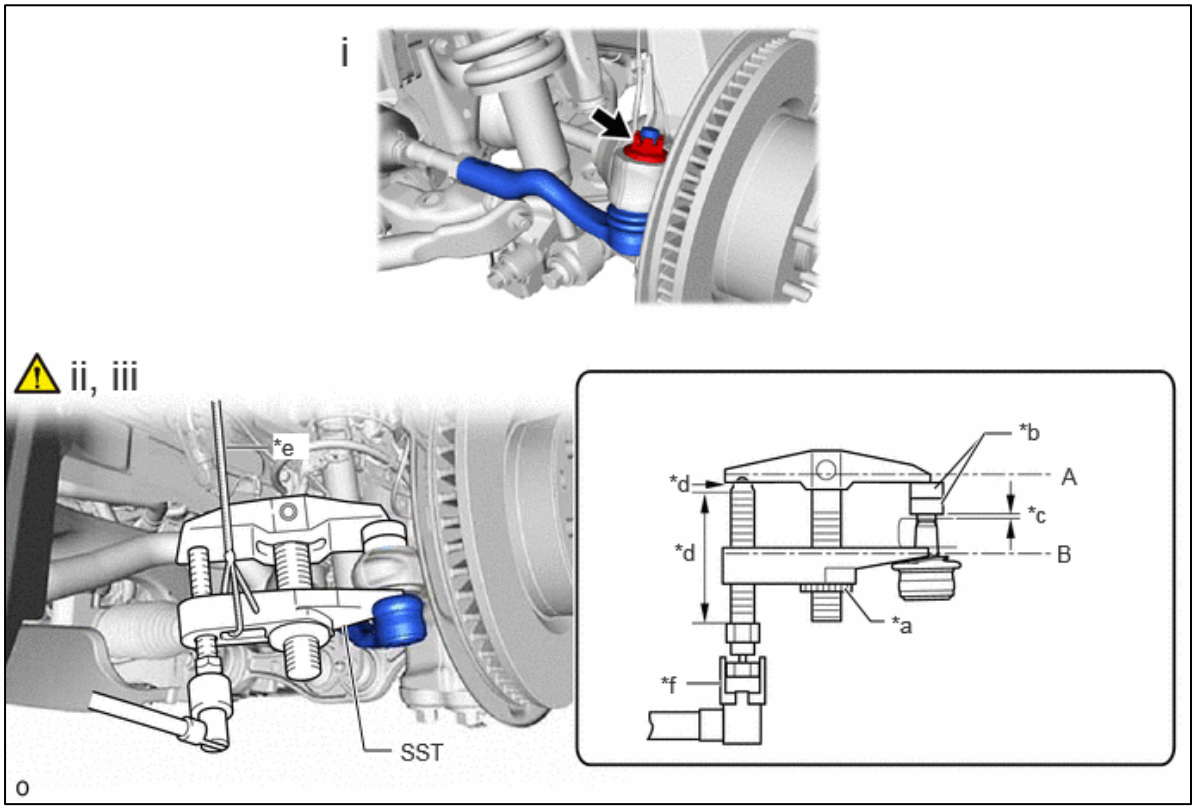
H

1.1.7 DISCONNECT STEERING KNUCKLE

*a	Hold	*b	Turn

i. Support the lower arm with a jack.
ii. Remove the clip and nut.
iii. Using SST, disconnect the front upper ball joint from the steering knuckle.
SST
09628-62011

1.1.8 DISCONNECT TIE ROD END SUB-ASSEMBLY LH



*a	Center Nut	*b	SST (Spacer B)
*c	1 mm (0.0394 in.)	*d	Molybdenum grease application area

*e	String	*f	Place wrench here

i. Remove the clip and nut.

ii. Install 2 spacers (SST spacer B) to the steering knuckle LH as shown in the illustration.

SST

09960-20010 (09961-02060)

NOTICE:

Make sure that the clearance between the tie rod assembly LH and spacers (SST spacer B) is 1 mm (0.0394 in.) or more to prevent damage to SST.

iii. Using SST, disconnect the tie rod end sub-assembly LH from the steering knuckle LH.

SST

09960-20010 (09961-02010)

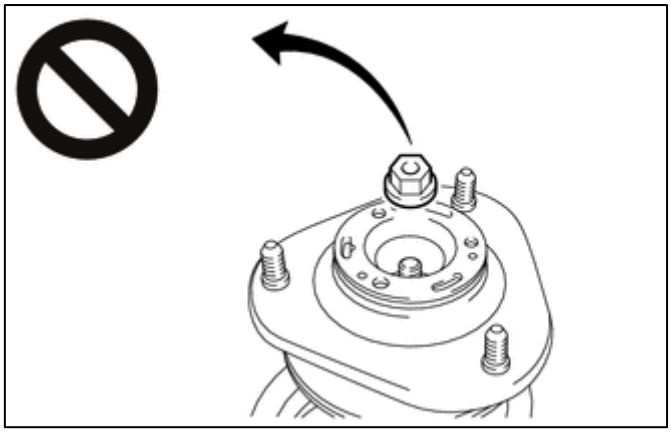
CAUTION:

Apply molybdenum grease to the bolt threads and the tip of SST.

NOTICE:

- Be sure to tighten the string firmly to secure SST to the steering knuckle to prevent SST from falling off.
- Install SST so that (A) and (B) shown in the illustration are parallel. Otherwise, the ball joint dust cover may be damaged.
- Be sure to place the wrench on the part shown in the illustration.
- Do not damage the ball joint dust cover.
- Do not damage the steering knuckle.
- Do not damage the front disc brake dust cover.

1.1.9 REMOVE FRONT SHOCK ABSORBER WITH COIL SPRING

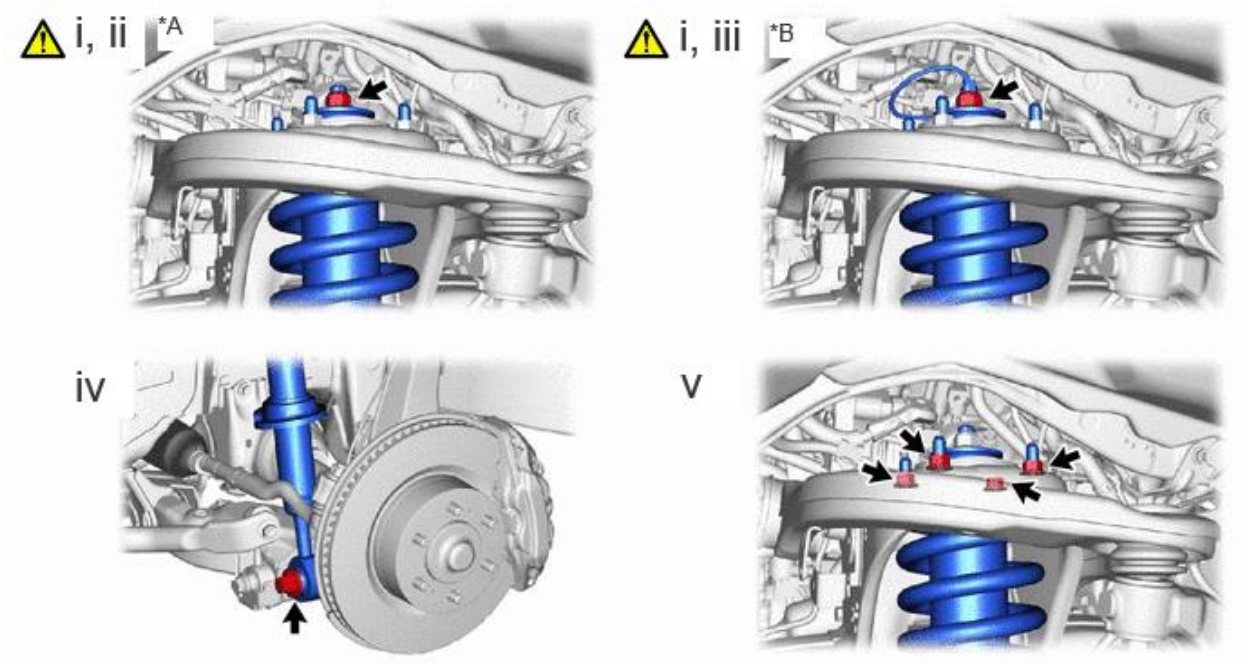


CAUTION:

- Only loosen the lock nut, do not remove it.
- If the lock nut is removed with the front coil spring under tension, components of the front shock absorber LH with coil spring may fly off.

NOTICE:

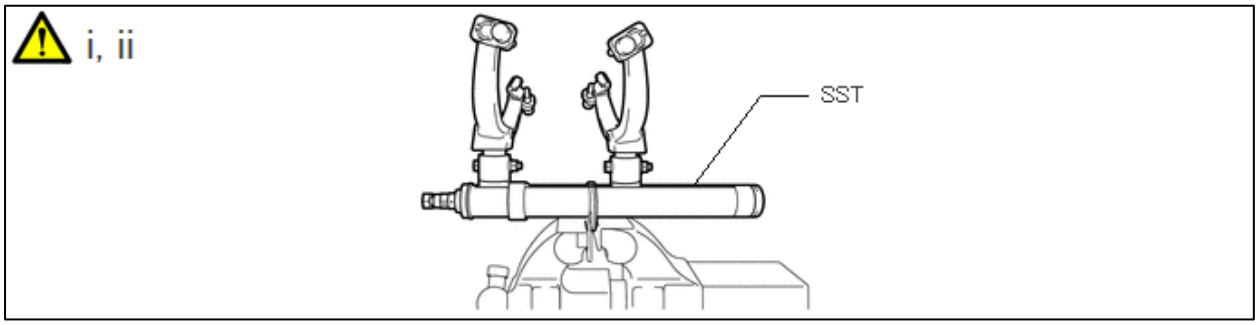
If the front shock absorber LH with coil spring will not be disassembled, do not loosen the lock nut.



*A	w/o AVS	*B	w/ AVS

i. w/ Cap:
Remove the upper shock absorber cap.
ii. w/o AVS:
Loosen the lock nut.
iii. w/ AVS:
Using a union nut wrench, Loosen the lock nut.
iv. Remove the bolt from the shock absorber lower side.
v. Remove the 4 nuts from the shock absorber upper side.

1.1.10 REMOVE FRONT SHOCK ABSORBER ASSEMBLY LH

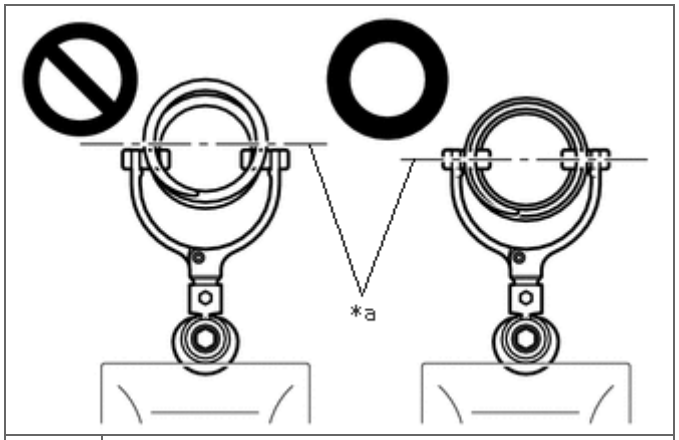


i. Secure SST in a vise.
SST
09727-30022 (09727-00010, 09727-00022, 09727-00031)

ii. Attach the hooks of each SST arm across the diameter of the coil spring.

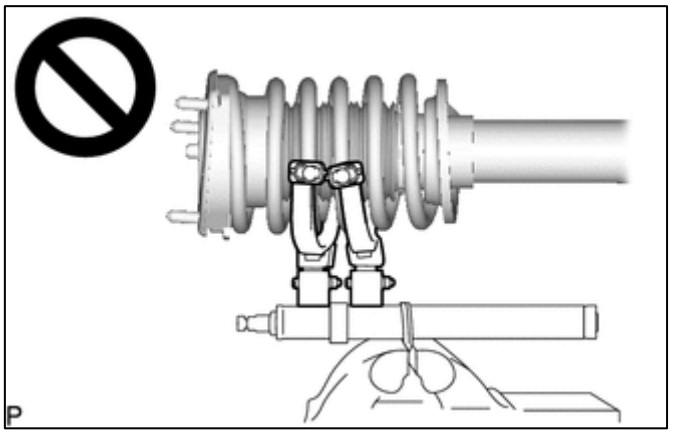
CAUTION:

- Do not perform the work without checking to make sure that the claws of the hooks are securely engaged.
- It could cause the hook to slip off and the spring to fly out, which could result in an injury.



*a	Front Coil Spring Diameter

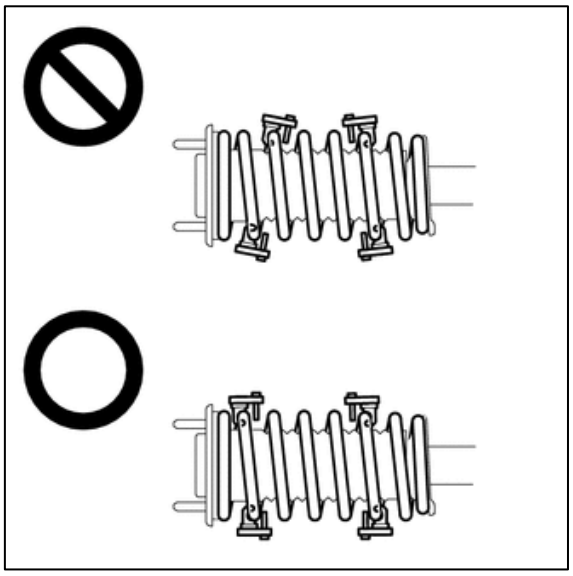
- Do not install SST to the front coil spring unless its top and bottom hook distance is set to the widest condition.
- It could cause the hook to slip off and the spring to fly out, which could result in an injury.

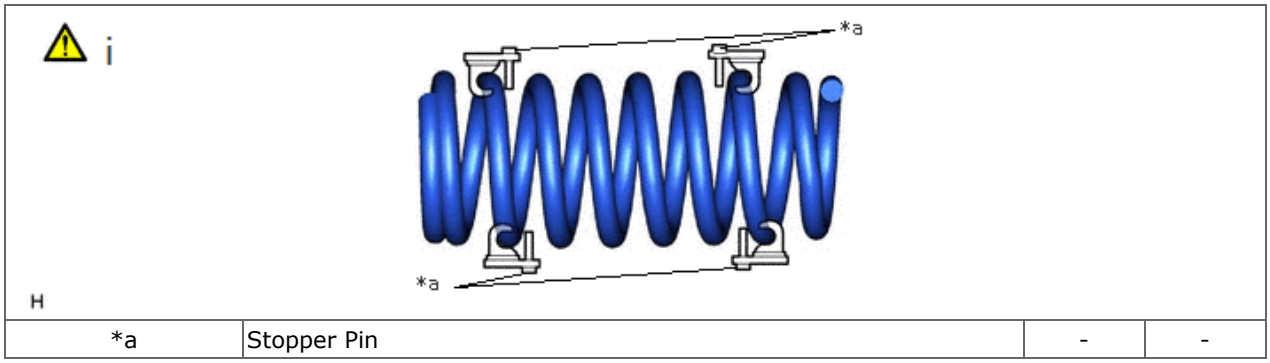


- Do not install SST when the distances between the SST arms or the number of coils of the coil spring between the hooks are not the same.

.

- It could cause the hook to slip off and the spring to fly out, which could result in an injury.

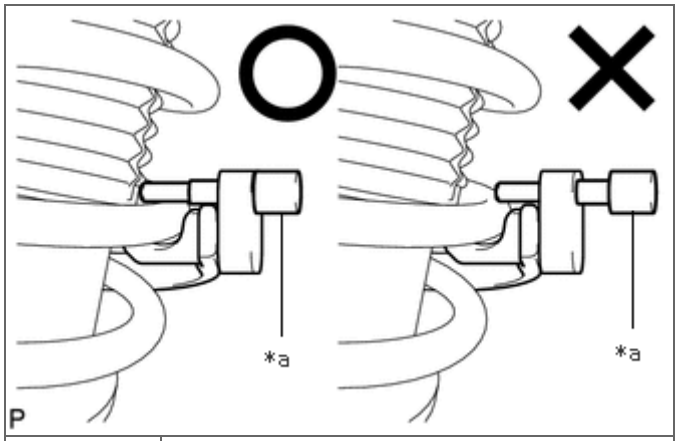




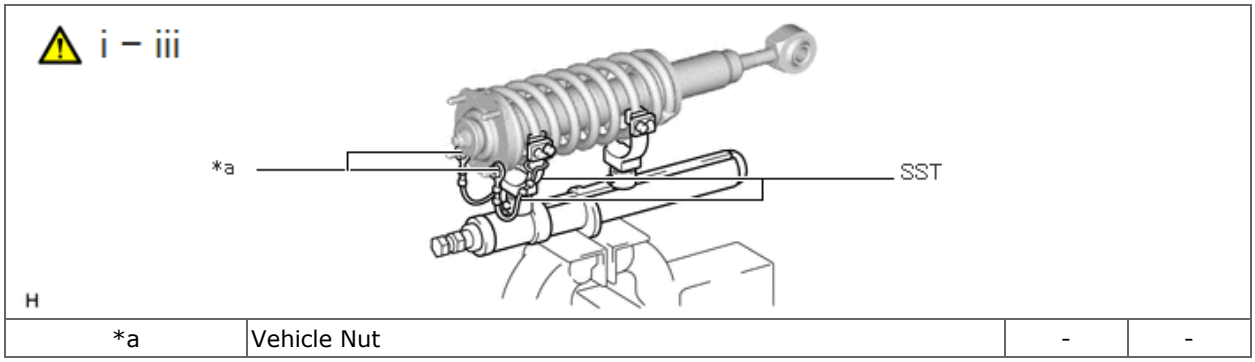
*a	Stopper Pin	-	-

iii. Install the stopper pins to the hooks of SST.

CAUTION:
Do not perform the work if the stopper pin is not securely installed.

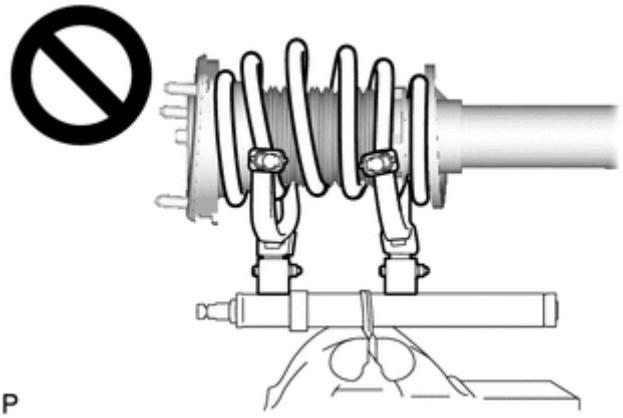


*a	Stopper pin



*a	Vehicle Nut	-	-

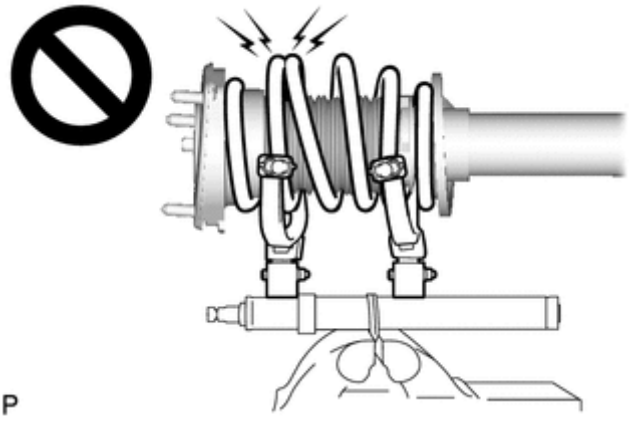
iv. Install SST and 2 vehicle nuts to the upper support as shown in the illustration.
SST
09727-30022 (09727-00090, 09727-00100)



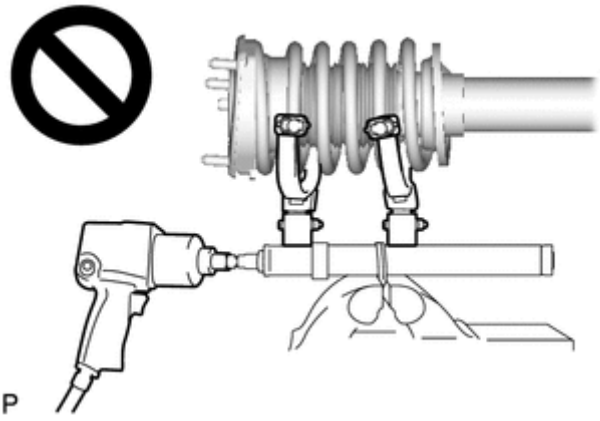
v. Using SST, compress the coil spring.

CAUTION:

- While compressing the spring, if the front coil spring starts to bend into a bow shape, do not continue the work.
- It could cause the hook to slip off and the spring to fly out, which could result in an injury.



- Do not compress the springs so far that the coils of the springs touch each other.
- It could cause the hook to slip off and the spring to fly out, which could result in an injury.

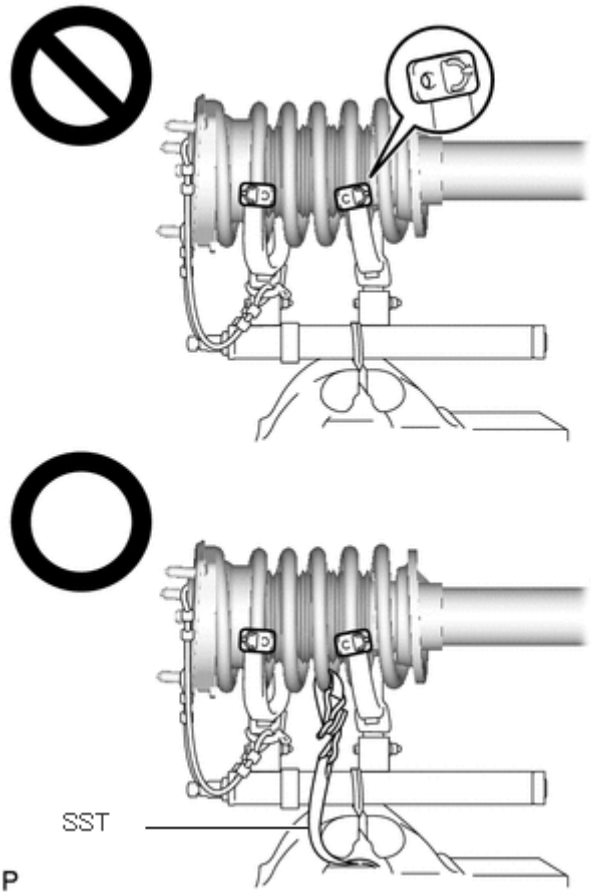


- Do not use an impact wrench.
- The threads may be stripped, or the sudden compression may result in slack that causes the hooks to slip off, causing the spring to fly out and possibly resulting in injury.

vi. Install SST as shown in the illustration.

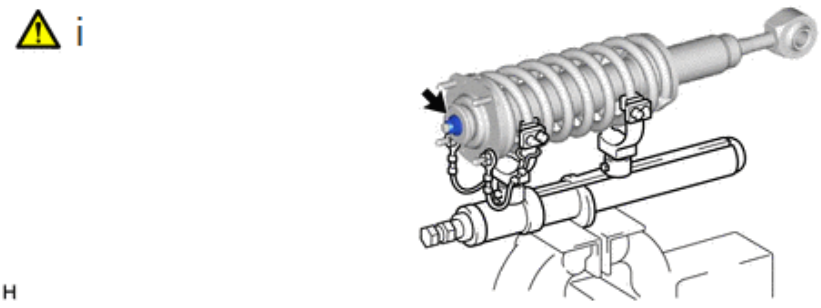
SST

09727-00110



CAUTION:

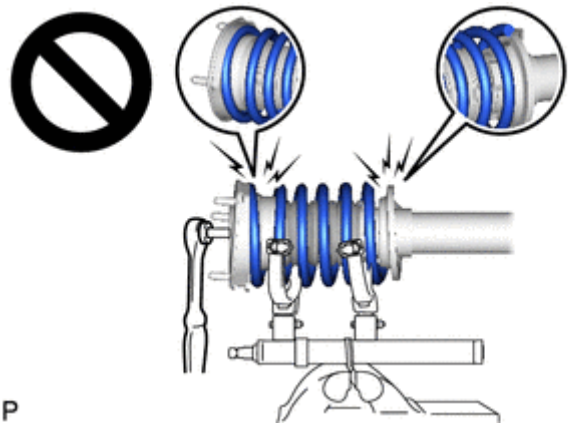
- If a stopper pin touches the coil spring while using SST, remove the stopper pin and continue with the procedure.
- If a stopper pin is removed, install a coil spring stopper belt as shown in the illustration.



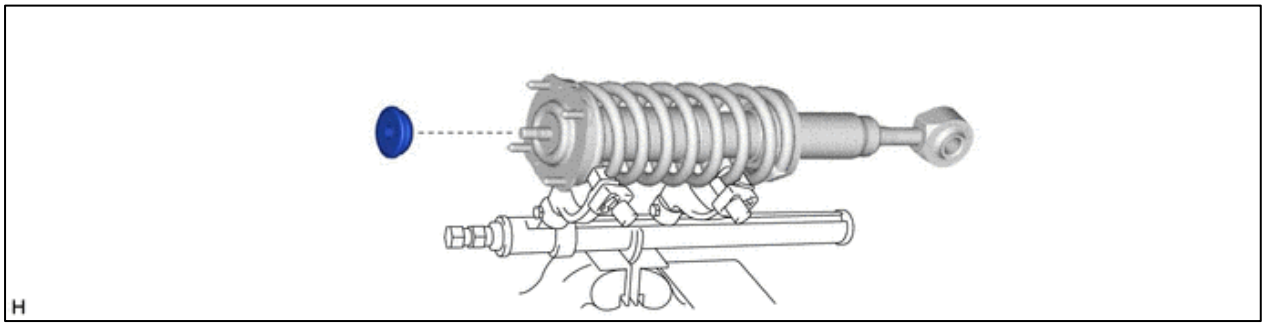
vii. Check that the front coil spring LH has become free, and remove the front support to front shock absorber lock nut.

CAUTION:

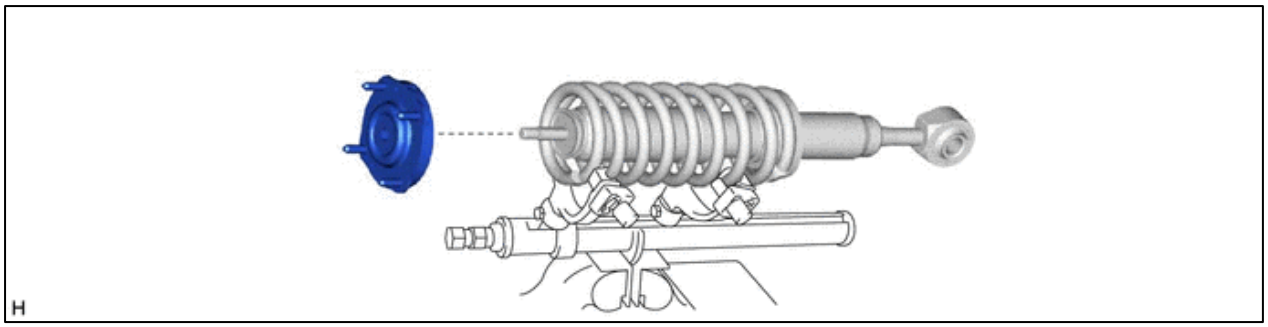
- If the front coil spring has not become free, do not remove the front support to front shock absorber lock nut.
- The spring force will cause the components to be scattered, possibly resulting in injury.



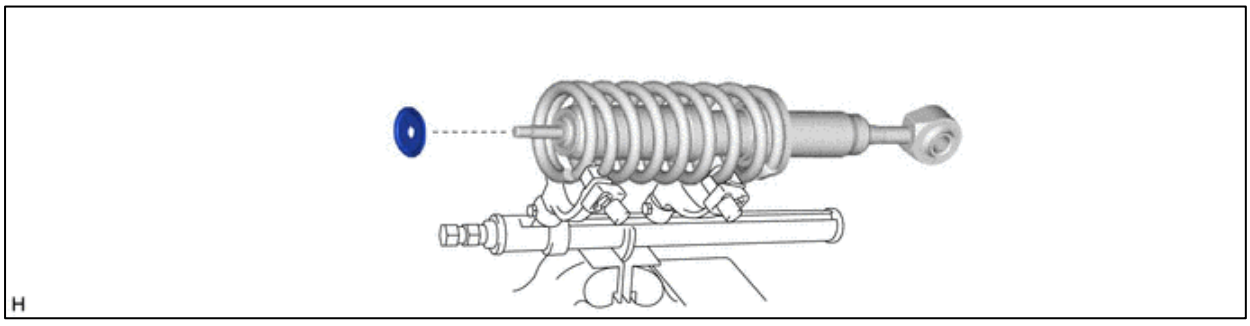
1.1.11 REMOVE FRONT UPPER SHOCK ABSORBER BRACKET SUB-ASSEMBLY LH



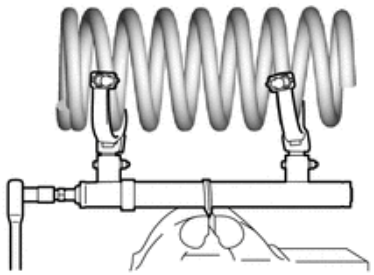
1.1.12 REMOVE FRONT SUSPENSION SUPPORT SUB-ASSEMBLY



1.1.13 REMOVE SHOCK ABSORBER CUSHION RETAINER



1.1.14 REMOVE FRONT COIL SPRING LH



Remove the front coil spring LH and SST.

NOTICE:

Do not use an impact wrench. It will damage SST.

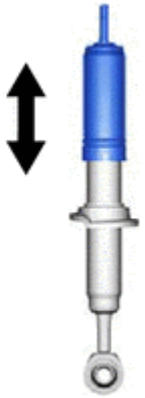
2 FRONT SUSPENSION FRONT SHOCK ABSORBER – INSPECTION

2.1 PROCEDURE

2.1.1 INSPECT FRONT SHOCK ABSORBER ASSEMBLY LH

Compress and extend the shock absorber rod 4 times or more. Check that there is no abnormal resistance or unusual sound during the operation.

If there is any abnormality, replace the shock absorber assembly with a new one.



H

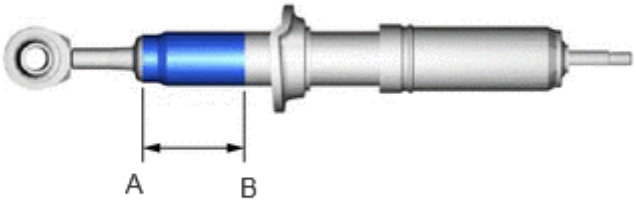
2.1.2 DISPOSE OF FRONT SHOCK ABSORBER ASSEMBLY LH

HINT:

Use the same procedure for the other front shock absorber.

a. Fully extend the shock absorber piston rod and fix the shock absorber in place at an angle in a vise or similar tool.

b. Using a drill or similar tool, slowly make a hole at the position indicated by the arrow in the illustration to discharge the gas inside of it.



H

NOTICE:

When disposing of the shock absorber, the gas is colorless, odorless and harmless.

Since the discharged gas may cause chips to fly off, cover the drill with a cloth when making a hole.

3 FRONT SUSPENSION FRONT SHOCK ABSORBER – INSTALLATION

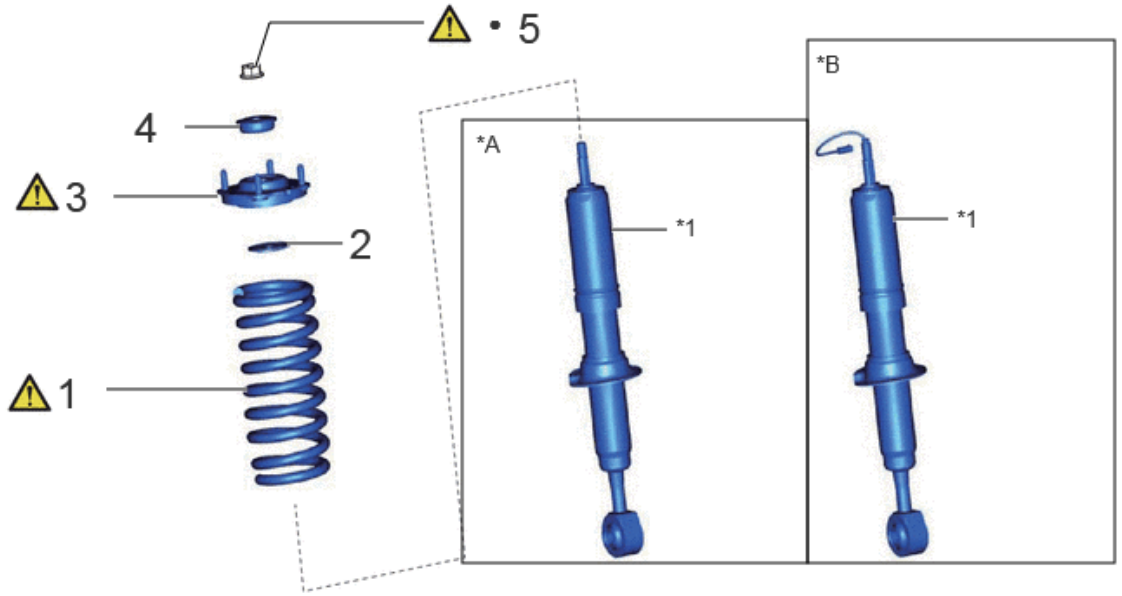
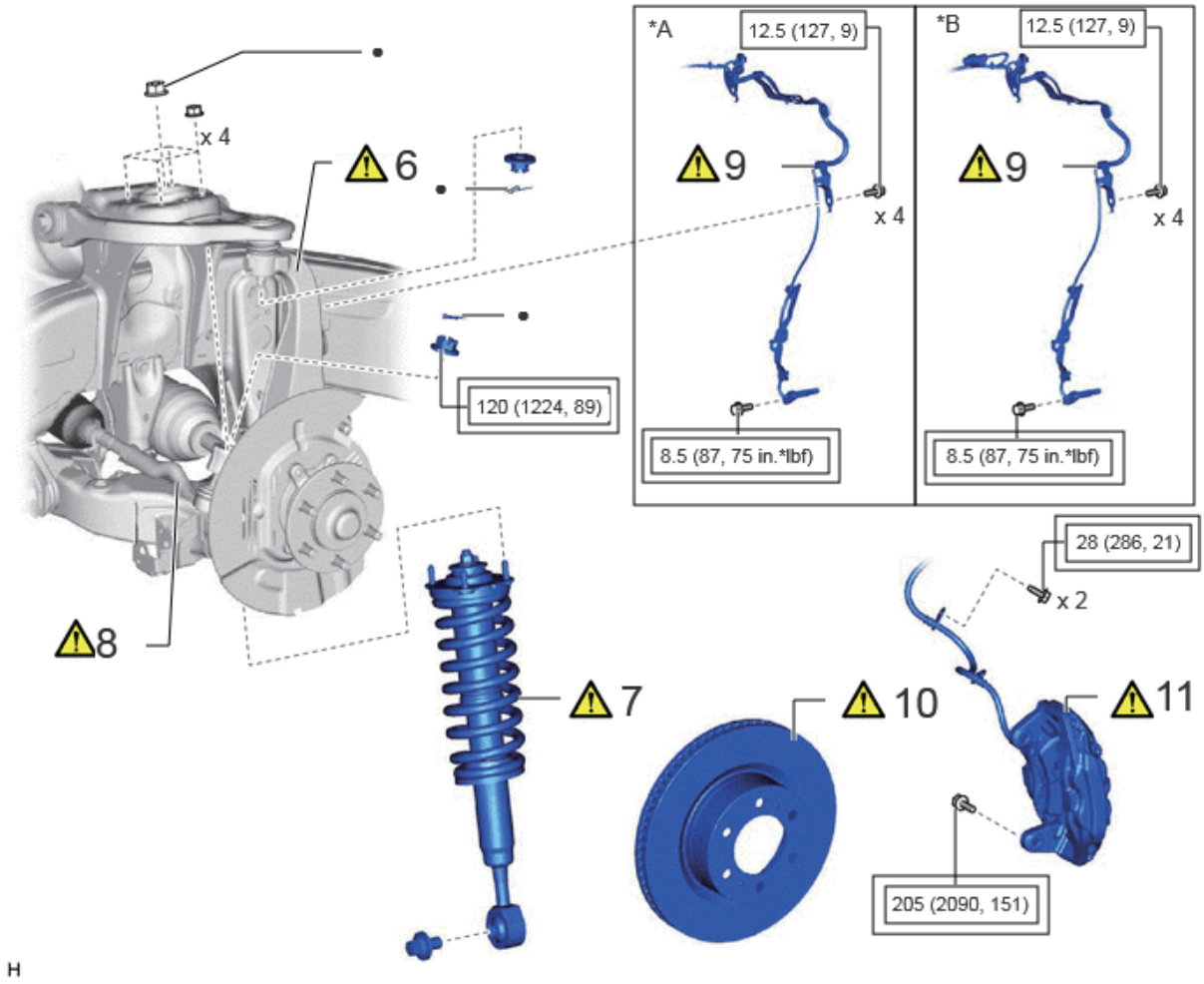


Figure 1 – Components (Installation)

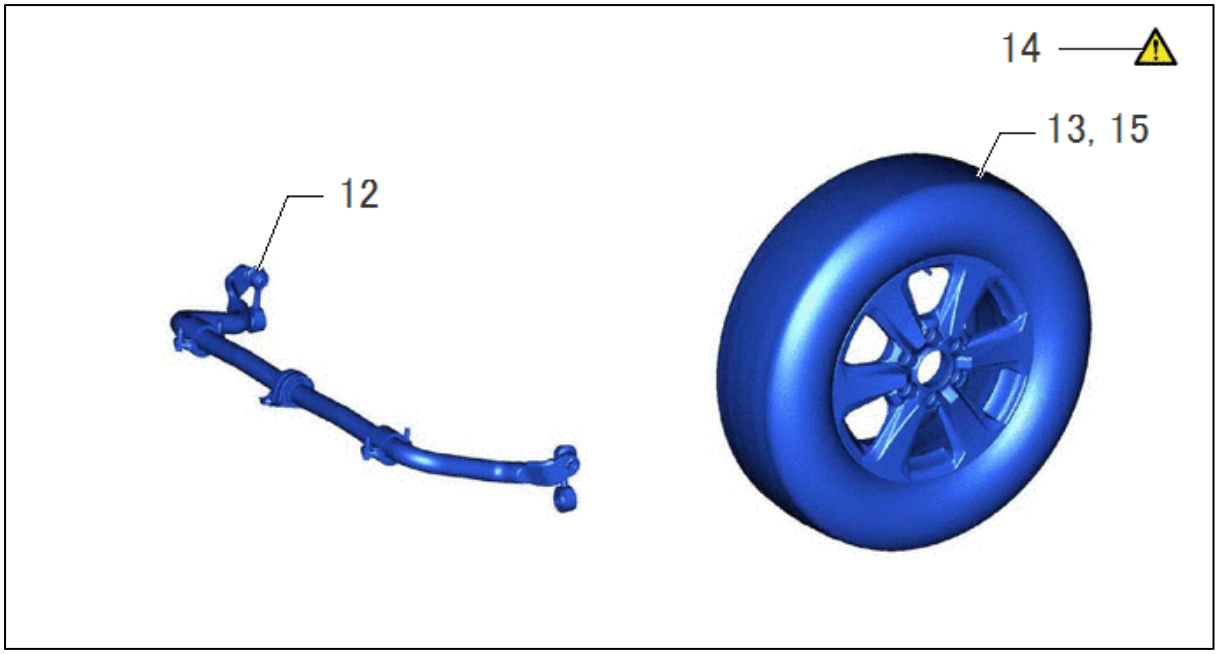
Procedure		Part Name Code
1	FRONT COIL SPRING LH	48132
2	SHOCK ABSORBER CUSHION RETAINER	48597
3	FRONT SUSPENSION SUPPORT SUB-ASSEMBLY	48609A
4	FRONT UPPER SHOCK ABSORBER BRACKET SUB-ASSEMBLY LH	48502
5	FRONT SUPPORT TO FRONT SHOCK ABSORBER NUT	48680A

*A	w/o AVS	*B	w/ AVS
*1	FRONT SHOCK ABSORBER ASSEMBLY LH	-	-
•	Non-reusable part	-	-

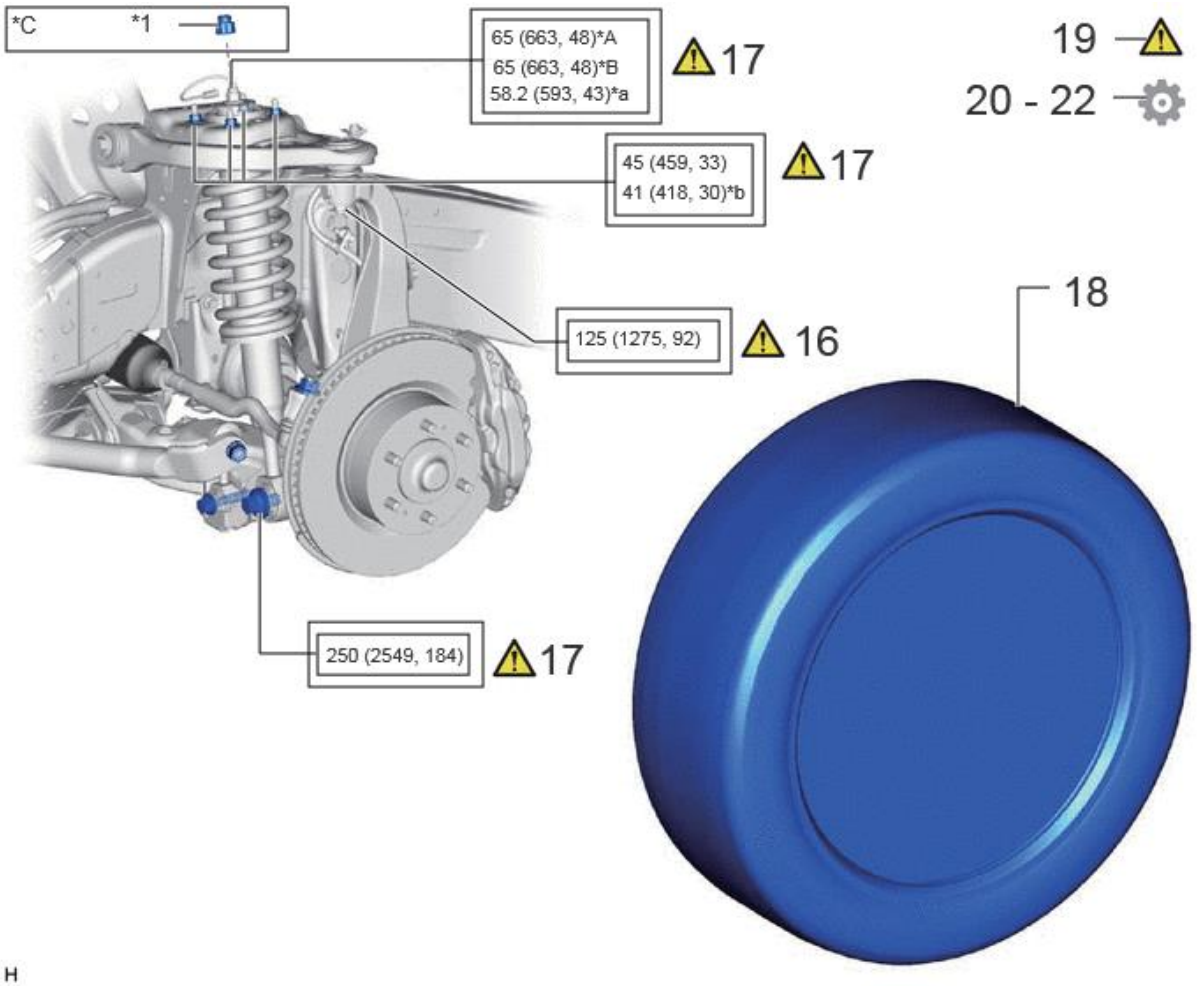


Procedure		Part Name Code
6	TEMPORARILY TIGHTEN STEERING KNUCKLE	-
7	TEMPORARILY TIGHTEN FRONT SHOCK ABSORBER WITH COIL SPRING	-
8	TIE ROD END SUB-ASSEMBLY LH	45047
9	FRONT SPEED SENSOR LH	89543
10	FRONT DISC LH	43512
11	FRONT DISC BRAKE CALIPER ASSEMBLY LH	-

*A	w/o AVS	*B	w/ AVS
	Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping": N*m (kgf*cm, ft.*lbf)		N*m (kgf*cm, ft.*lbf): Specified torque
•	Non-reusable part	-	-

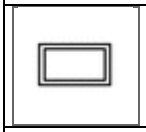


Procedure		Part Name Code
12	FRONT STABILIZER BAR	48811
13	INSTALL FRONT WHEEL	-
14	STABILIZE SUSPENSION	-
15	REMOVE FRONT WHEEL	-



H

Procedure		Part Name Code
16	FULLY TIGHTEN STEERING KNUCKLE	-
17	FULLY TIGHTEN FRONT SHOCK ABSORBER WITH COIL SPRING	-
18	INSTALL FRONT WHEEL	-
19	CONNECT CABLE TO NEGATIVE BATTERY TERMINAL	-
20	INITIALIZATION AFTER RECONNECTING BATTERY TERMINAL	-
21	CHECK FOR SPEED SENSOR SIGNAL	-
22	PERFORM INITIALIZATION	-

*A	w/o AVS	*B	w/ AVS
*C	w/ CAP	-	-
*1	UPPER SHOCK ABSORBER CAP	-	-
	Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping": N*m (kgf*cm, ft.*lbf)	-	-
*a	w/ AVS (For use with union nut wrench)	*b	For use with union nut wrench
•	Non-reusable part	-	-

CAUTION / NOTICE / HINT

HINT:

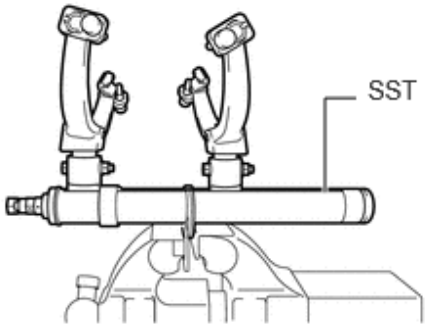
Use the same procedure for the RH and LH sides.

The procedure listed below is for the LH side.

3.1 PROCEDURE

3.1.1 INSTALL FRONT COIL SPRING LH

⚠ i - iv

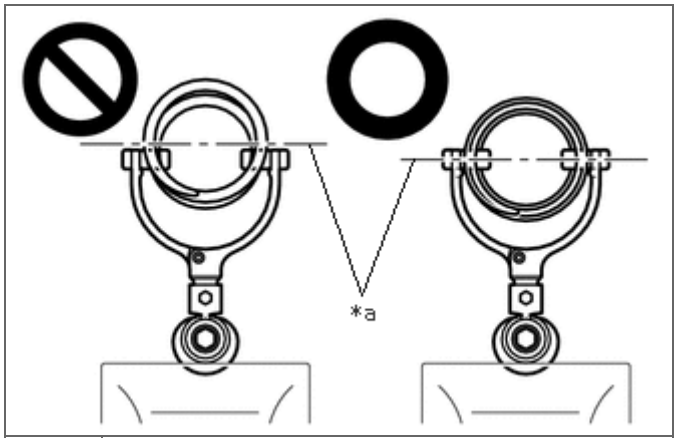


i. Secure SST in a vise.
SST
09727-30022 (09727-00010, 09727-00022, 09727-00031)

ii. Attach the hooks of each SST arm across the diameter of the coil spring.

CAUTION:

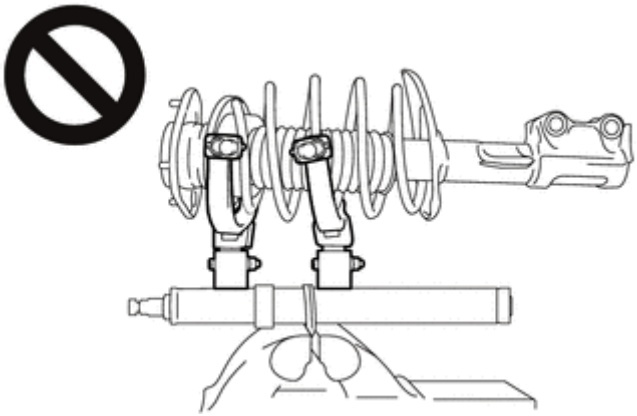
- Do not perform the work without checking to make sure that the claws of the hooks are securely engaged.
- It could cause the hook to slip off and the spring to fly out, which could result in an injury.



*a	Front Coil Spring Diameter

- Do not install SST to the front coil spring unless its top and bottom hook distance is set to the widest condition.
- It could cause the hook to slip off and the spring to fly out, which could result in an injury.
- Do not install SST when the distances between the SST arms or the number of coils of the coil spring between the hooks are not the same.
- It could cause the hook to slip off and the spring to fly out, which could result in an injury.

iii. Install the stopper pin to the hook of SST



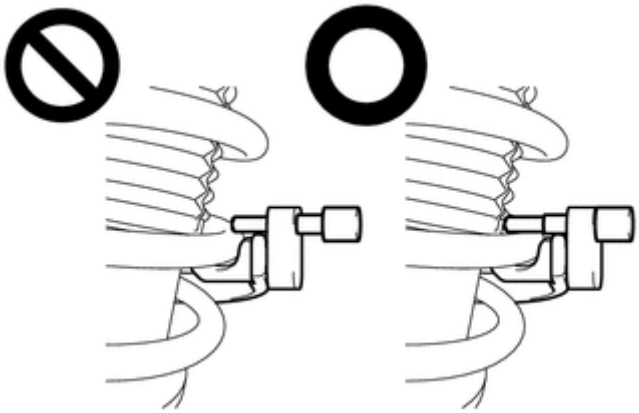
CAUTION:

- Check that the stopper pin is securely installed.
- It could cause the hook to slip off and the front coil spring LH to fly out, which could result in an injury.

iv. Using SST, compress the coil spring.

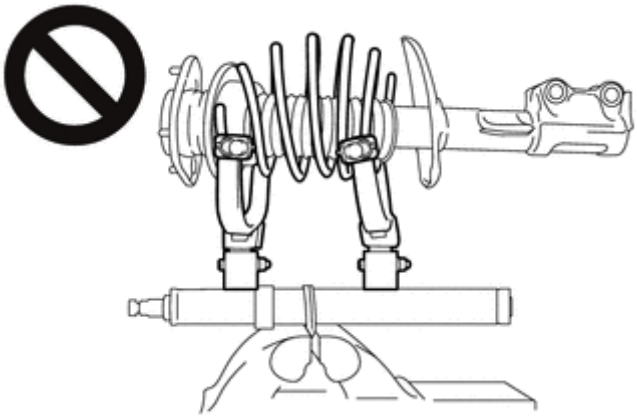
SST

09727-00110



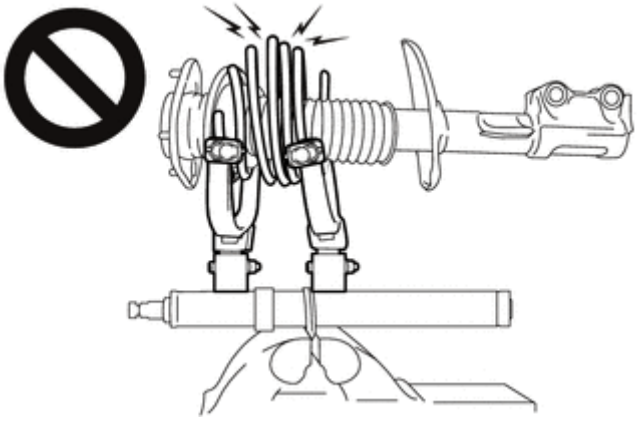
CAUTION:

- While compressing the spring, if the front coil spring starts to bend into a bow shape, do not continue the work.
- It could cause the hook to slip off and the spring to fly out, which could result in an injury.

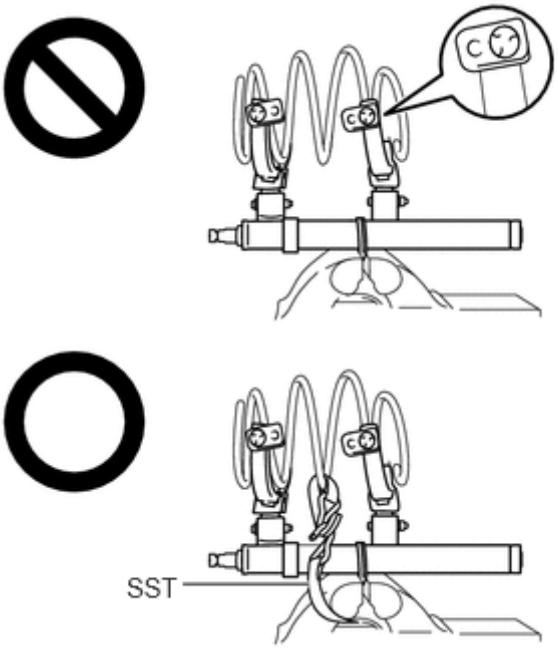


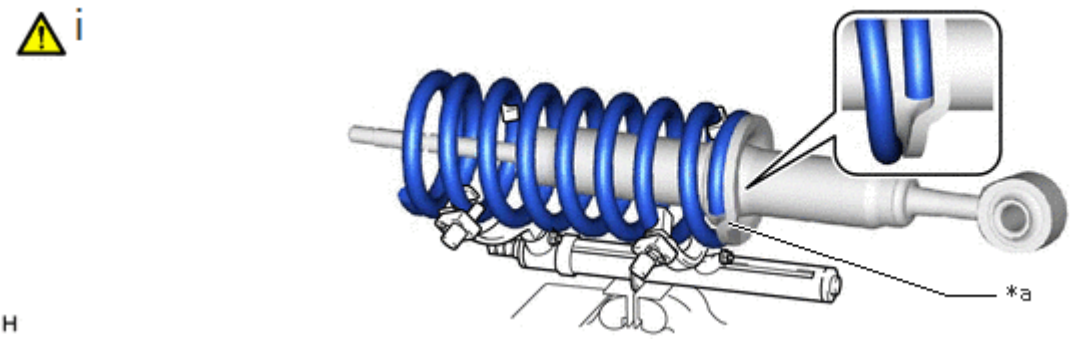
- Do not use an impact wrench.

- The threads may be stripped, or the sudden compression may result in slack that causes the hooks to slip off, causing the spring to fly out and possibly resulting in injury.



- If a stopper pin touches the coil spring while using SST, remove the stopper pin and continue with the procedure.
- If a stopper pin is removed, install SST as shown in the illustration.
- If a hook disengages from the coil spring, the coil spring may fly out, resulting in injury.





H

*a	Depression	-	-

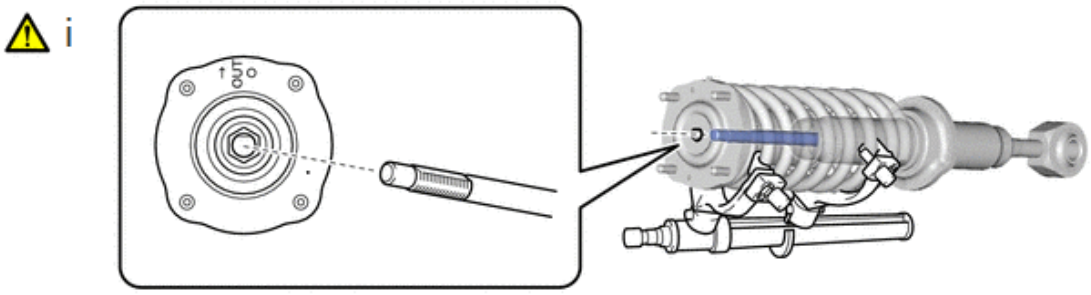
v. Install the front coil spring LH to the front shock absorber assembly LH.

NOTICE:
Make sure that the end of the front coil spring LH is positioned in the depression of the front lower spring seat.

3.1.2 INSTALL SHOCK ABSORBER CUSHION RETAINER

i. Install Shock Absorber Cushion Retainer (Part Number 48597) on the shock absorber to be fitted.

3.1.3 INSTALL FRONT SUSPENSION SUPPORT SUB-ASSEMBLY



i. Install the front suspension support sub-assembly to the front shock absorber assembly LH.

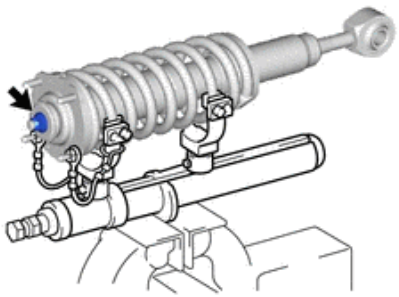
NOTICE:
Match the shape of the front shock absorber assembly support ring end to the shape of the front suspension support assembly.

3.1.4 INSTALL FRONT UPPER SHOCK ABSORBER BRACKET SUB-ASSEMBLY LH

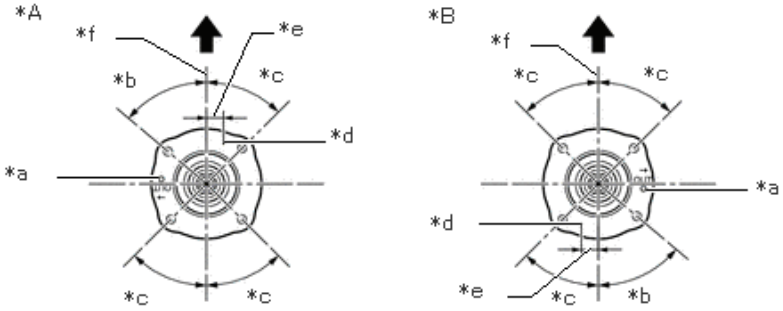
i. Install Front Upper Shock Absorber Bracket Sub-Assembly LH (Part Number 48502).

3.1.5 INSTALL FRONT SUPPORT TO FRONT SHOCK ABSORBER NUT

i



⚠ ii



*A	for LH Side	*B	for RH Side
*a	Identification Mark	*b	50°
*c	45°	*d	Coil Spring Lower End
*e	20 mm (0.787 in.)	*f	Absorber Bush Axis
	Front of the Vehicle	-	-

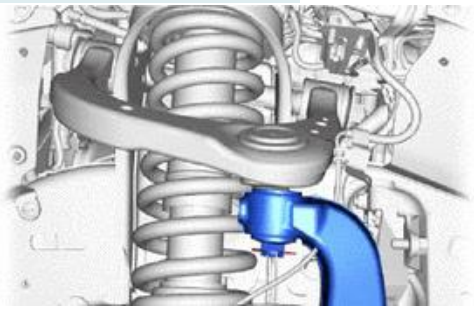
i. Temporarily tighten a new lock nut.
ii. Adjust the front suspension sub-support assembly so that the bolts come to the positions as shown in the illustration, and remove SST from the front coil spring LH.

NOTICE:

- Do not use an impact wrench. It will damage SST.
- Make sure that the width across flat on the front shock absorber piston rod end is located parallel to the front shock absorber bushing.
- Make sure of the direction of the front suspension support assembly when removing SST.

3.1.6 TEMPORARILY TIGHTEN STEERING KNUCKLE

⚠ i, ii



H

i. Connect the steering knuckle to the front upper suspension arm assembly.
ii. Install a new nut and a new cotter pin.

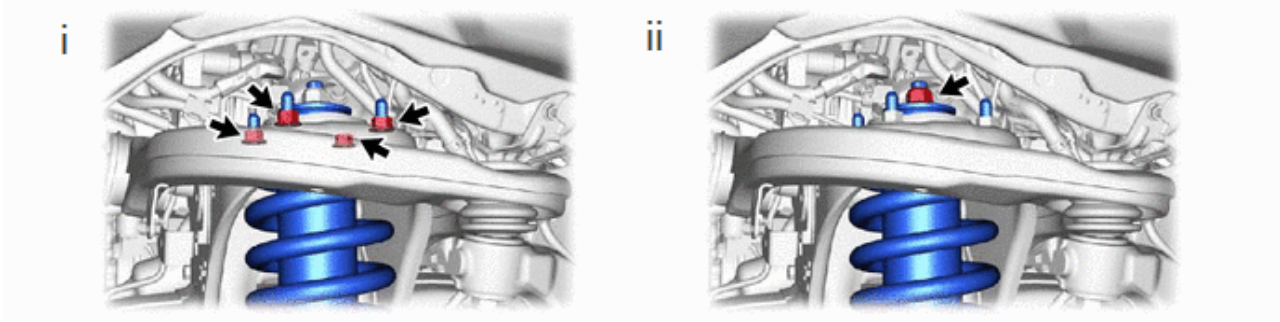
Torque:

125 N*m (1275 kgf*cm, 92 ft.*lbf)

NOTICE:
If the holes for the cotter pin are not aligned, tighten the nut further up to 60°.

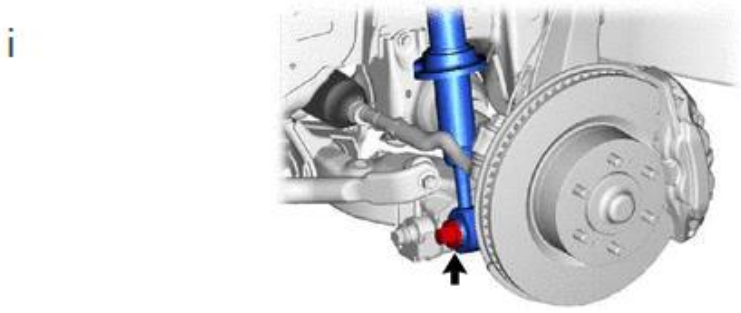
3.1.7 TEMPORARILY TIGHTEN FRONT SHOCK ABSORBER WITH COIL SPRING

for Upper Side:



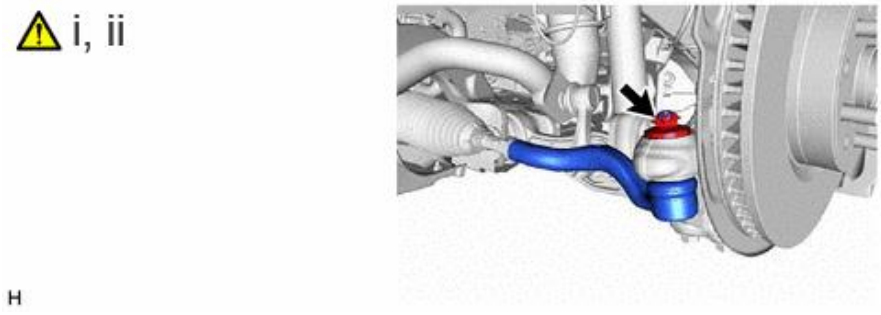
i. Temporarily tighten the 4 nuts on the upper side of the front shock absorber with coil spring.
ii. Temporarily tighten the a new nut on the upper side of the front shock absorber with coil spring.

for Lower Side:



i. Temporarily tighten the bolt on the lower side of the front shock absorber with coil spring

3.1.8 CONNECT TIE ROD END SUB-ASSEMBLY LH



i. Connect the tie rod end sub-assembly LH to the front lower ball joint assembly with the a new nut.
Torque:
120 N*m (1224 kgf*cm, 89 ft.*lbf)

ii. Install a new clip.

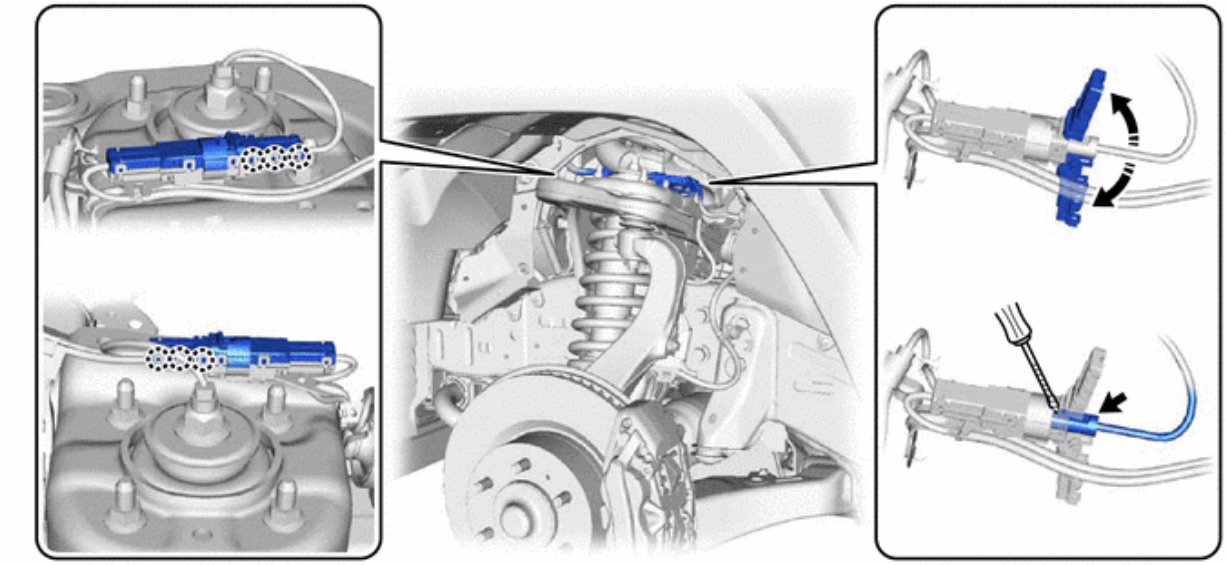
NOTICE:

Further tighten the nut up to 60° if the holes for the clip are not aligned.

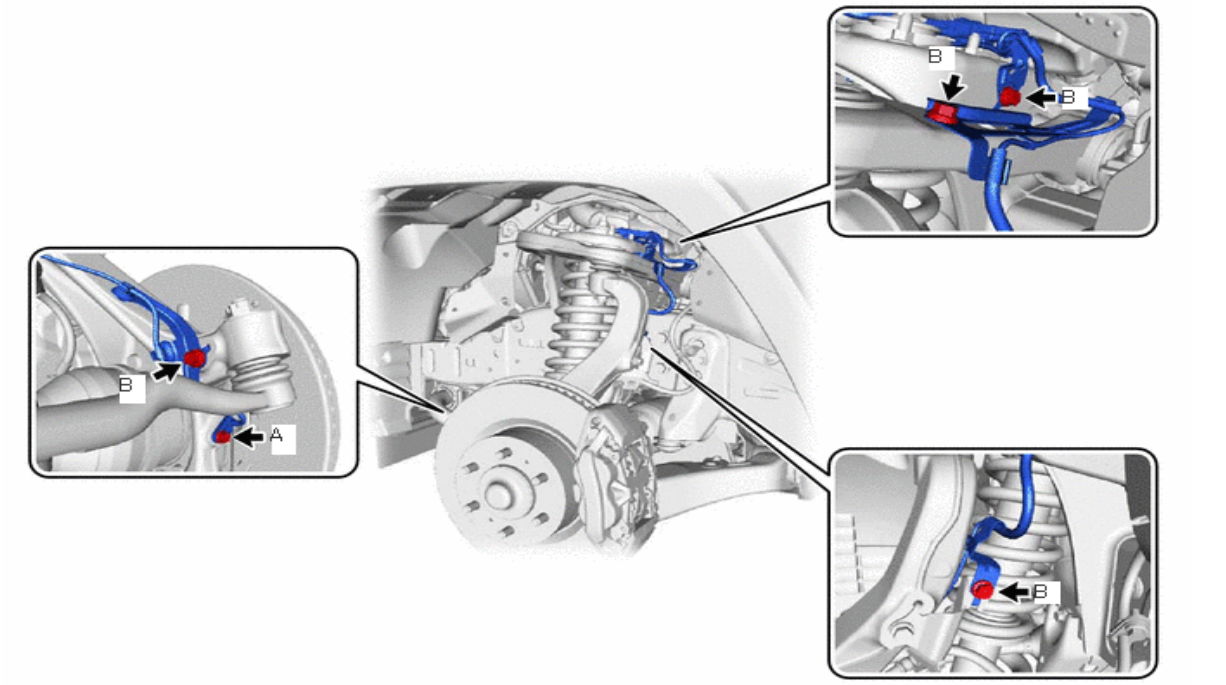
3.1.9 CONNECT FRONT SPEED SENSOR LH

NOTICE:

- Keep the tip of the front speed sensor and installation hole free of foreign matter.
- Firmly insert the front speed sensor body into the steering knuckle before tightening the bolt.
- After installing the front speed sensor to the steering knuckle, make sure that there is no clearance between the front speed sensor stay and steering knuckle. Also make sure that no foreign matter is stuck between the parts.
- Do not twist the front speed sensor wire harness when installing it.



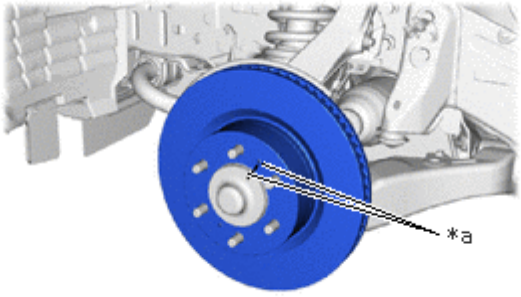
H



Torque:

Bolt A : 8.5 N*m (87 kgf*cm, 75 in.*lbf)
Bolt B : 12.5 N*m (127 kgf*cm, 9 ft.*lbf)

3.1.10 INSTALL FRONT DISC LH



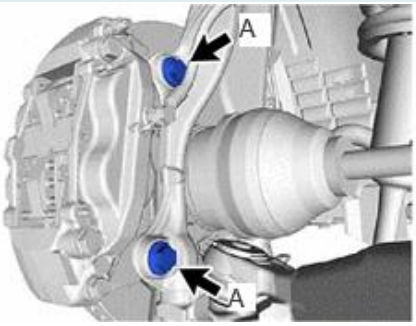
*a	Matchmark	-	-

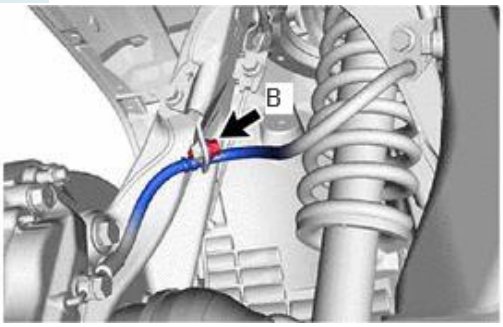
i. Align the matchmarks of the front disc and front axle hub sub-assembly, and install the front disc.

NOTICE:

When replacing the front disc with a new one, select the installation position where the front disc has minimal runout.

3.1.11 INSTALL FRONT DISC BRAKE CALIPER ASSEMBLY LH





Torque:

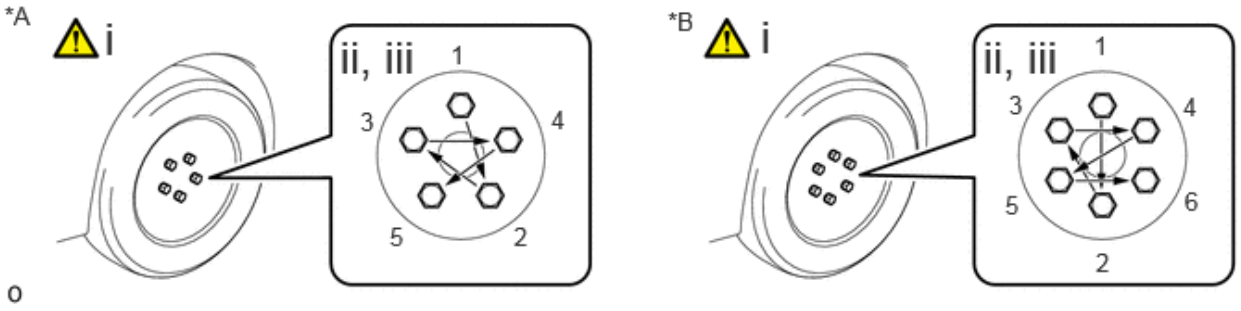
Bolt A : 205 N*m (2090 kgf*cm, 151 ft.*lbf)
Bolt B : 28 N*m (286 kgf*cm, 21 ft.*lbf)

3.1.12 INSTALL FRONT STABILIZER BAR

HINT:

Perform the reverse of the procedure outlined in Section 1.1.3 for front stabilizer bar installation. Use the same procedure for the RH and LH sides.

3.1.13 INSTALL FRONT WHEEL



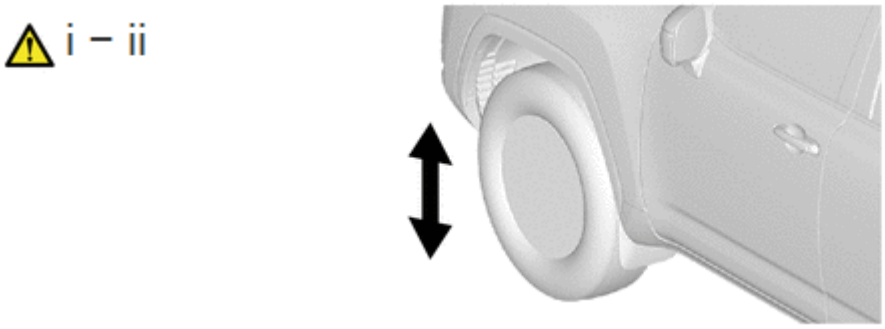
*A	for 5 Bolt Axle Hub	*B	for 6 Bolt Axle Hub

i. While aligning the wheel assembly with the center of the axle hub, install the axle hub nuts by hand.
ii. Temporarily tighten the axle hub nuts in the order shown in the illustration.
iii. Lower the vehicle then fully tighten the axle hub nuts in the order shown in the illustration.

Torque:

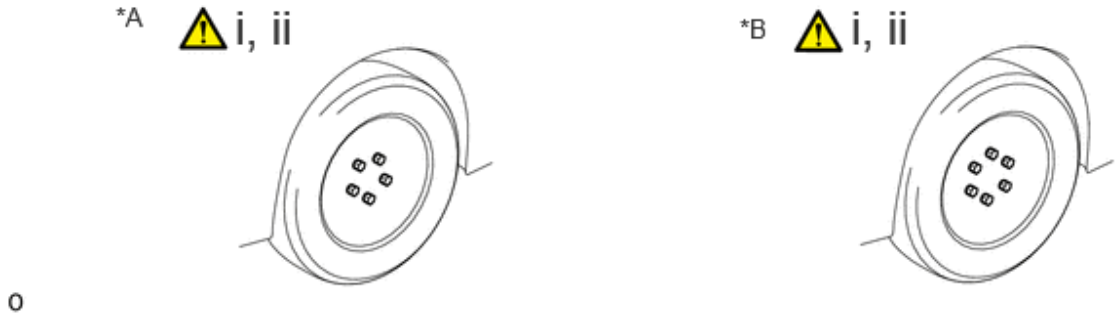
for Steel Wheel : 209 N*m (2131 kgf*cm, 154 ft.*lbf)
for Aluminum Wheel : 131 N*m (1336 kgf*cm, 97 ft.*lbf)

3.1.14 STABILIZE SUSPENSION



i. Lower the vehicle.
ii. Bounce the vehicle up and down several times to stabilize the suspension.

3.1.15 REMOVE FRONT WHEEL

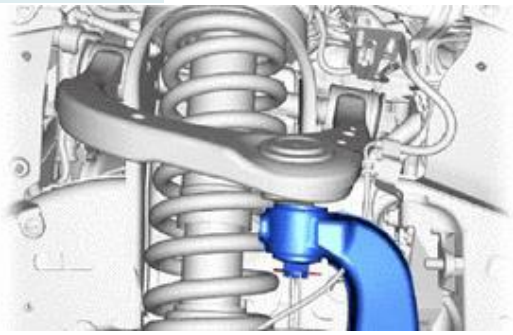


*A	for 5 Bolt Axle Hub	*B	for 6 Bolt Axle Hub

i. Loosen the axle hub nuts approximately 90°.
ii. Lift up the vehicle and remove the axle hub nuts and wheel assembly.

3.1.16 FULLY TIGHTEN STEERING KNUCKLE

⚠ i, ii



H

i. Connect the steering knuckle to the front upper suspension arm assembly.
ii. Install a new nut and a new cotter pin.

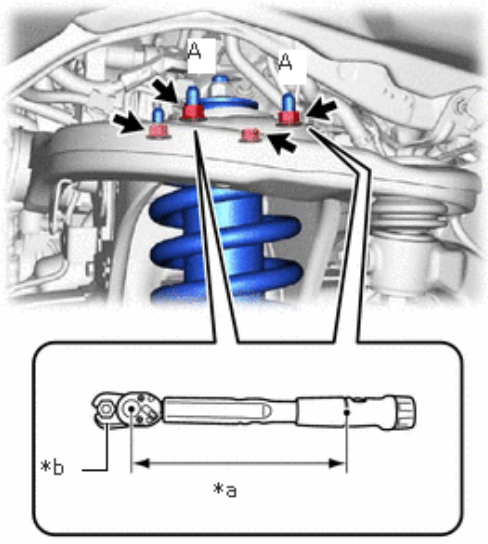
Torque:
125 N*m (1275 kgf*cm, 92 ft.*lbf)

NOTICE:
If the holes for the cotter pin are not aligned, tighten the nut further up to 60°.

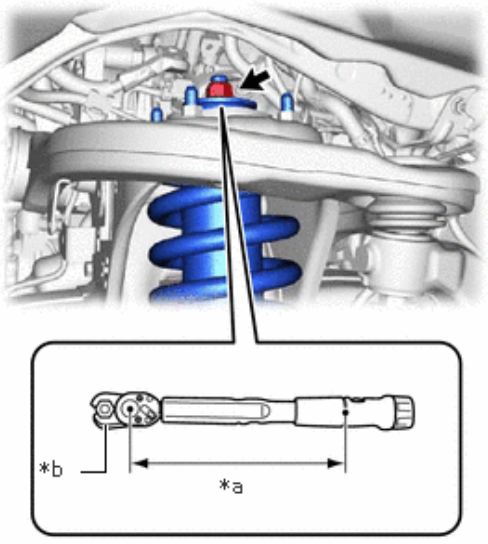
3.1.17 FULLY TIGHTEN FRONT SHOCK ABSORBER WITH COIL SPRING

for Upper Side:

⚠ i, ii



⚠ iii – v



*a	Torque Wrench Fulcrum Length	*b	Union Nut Wrench

i. Using a union nut wrench, fully tighten the 2 nuts (A).
Torque:
Specified tightening torque : 45 N*m (459 kgf*cm, 33 ft.*lbf)

ii. Fully tighten the 2 nuts.
Torque:
45 N*m (459 kgf*cm, 33 ft.*lbf)

iii. w/ AVS:
Using a union nut wrench, fully tighten the nut.
Torque:
Specified tightening torque : 65 N*m (663 kgf*cm, 48 ft.*lbf)

iv. w/o AVS:
Fully tighten the nut.
Torque:
65 N*m (663 kgf*cm, 48 ft.*lbf)

v. w/ Cap:
Install the upper shock absorber cap to the front shock absorber with coil spring.

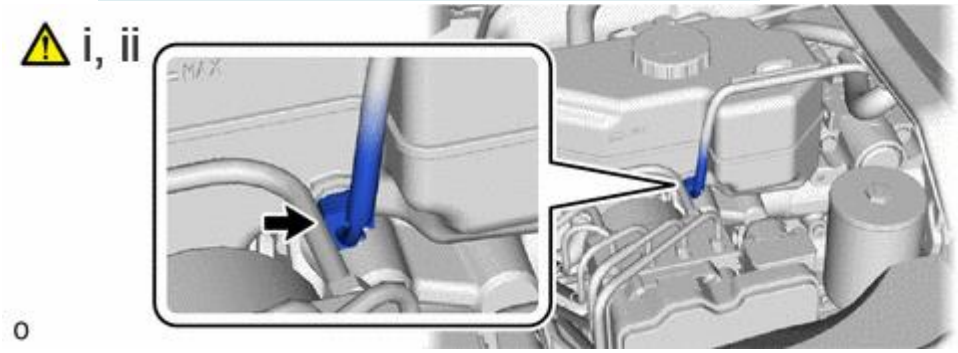
for Lower Side:
Torque:
: 250 N*m (2549 kgf*cm, 184 ft.*lbf)

3.1.18 INSTALL FRONT WHEEL

HINT:

Perform the reverse of the procedure outlined in Section 3.1.13 for installation of front wheel.
Use the same procedure for the RH and LH sides.

3.1.19 CONNECT CABLE TO NEGATIVE BATTERY TERMINAL



i. Perform the following procedure:
1. Connect the reservoir level switch connector.
2. Connect the cable to the negative (-) battery terminal.

ii. Perform the following procedure if air bleeding is not necessary:
1. Turn the ignition switch to ON.
2. Depress the brake pedal and release it.
3. Clear the DTCs.

3.1.20 INITIALIZATION AFTER RECONNECTING BATTERY TERMINAL

WORK PROCEDURES NECESSARY WHEN CABLE IS DISCONNECTED / RECONNECTED TO AUXILIARY BATTERY TERMINAL

Effect/Inoperative Function When Necessary Procedures are not Performed	Necessary Procedures
Parking assist monitor system	Memorize steering angle neutral point
Multi-terrain monitor system	
Panoramic view monitor system	

1. **INITIALIZE PARKING ASSIST MONITOR SYSTEM**

When the "!" mark is displayed on the display, correct the steering angle neutral point using the following method.

i. Fully turn the steering wheel to the right and left on level ground.

NOTICE:

Memorizing the steering angle neutral point must be carried out with the engine started. Apply the parking brake, depress the brake pedal, check that the shift lever is in P, and ensure that the vehicle is not moving.

HINT:

If the "!" mark is displayed on the image of the area behind the vehicle with the steering wheel fully turned to the right or left, perform "Steering Angle Setting in Calibration".

2. INITIALIZE PANORAMIC VIEW MONITOR SYSTEM

When "!" mark is displayed on the multi-display assembly, correct the steering angle neutral point using the following method.

i. Fully turn the steering wheel to the left and right on flat ground.

NOTICE:

Memorizing the steering angle neutral point must be carried out with the engine started. Apply the parking brake, depress the brake pedal, check that the shift lever is in P, and ensure that the vehicle is not moving.

HINT:

If the steering angle neutral point cannot be memorized by fully turning the steering wheel to the left and right perform Steering Angle Setting in Calibration.

3. INITIALIZE PANORAMIC VIEW MONITOR SYSTEM

When "!" mark is displayed on the multi-display assembly, correct the steering angle neutral point using the following method.

i. Fully turn the steering wheel to the left and right on flat ground.

NOTICE:

Memorizing the steering angle neutral point must be carried out with the engine started. Apply the parking brake, depress the brake pedal, check that the shift lever is in P, and ensure that the vehicle is not moving.

HINT:

If the steering angle neutral point cannot be memorized by fully turning the steering wheel to the left and right perform Steering Angle Setting in Calibration.

3.1.21 CHECK FOR SPEED SENSOR SIGNAL

NOTICE:

- After performing "Calibration", perform a master cylinder pressure sensor check.
- After replacing or removing and installing a speed sensor, perform Dealer Mode (Signal Check) inspection to confirm that the speed sensors are operating correctly.
- After replacing or removing and installing a speed sensor rotor, perform Dealer Mode (Signal Check) inspection to confirm that the speed sensors are operating correctly.

HINT:

- Signals related to the electronically controlled brake system can be inspected by performing a Dealer Mode (Signal Check) inspection. During the inspection, the display of items determined normal by the skid control ECU changes from incomplete to complete.
- During Dealer Mode (Signal Check), the VSC and TRC do not operate regardless of whether the system is normal or a malfunction is detected.
- If a sensor is malfunctioning, ABS does not operate and the ABS warning light, brake system warning light (yellow indicator) and slip indicator light illuminate.
- When entering Dealer Mode (Signal Check), the No. 2 skid control ECU (brake actuator assembly) communicates with the forward recognition camera to judge whether the vehicle is equipped with the pre-collision system. Therefore, do not exit Dealer Mode (Signal Check) within 5 seconds of entering Dealer Mode (Signal Check).
- Even during Dealer Mode (Signal Check), if there is a system malfunction that causes brake hold control to be prohibited, when the vehicle is under the following conditions and the brake hold switch (electric parking brake switch assembly) is turned on, the brake hold operated indicator light blinks.

Vehicle Conditions:
(1) The driver door is closed.
(2) The driver seat belt is fastened.

3.1.22 PERFORM INITIALIZATION

NOTE:

Refer the Toyota Service Manual for "PROCEDURES NECESSARY WHEN ECU OR OTHER PARTS ARE REPLACED" to perform this procedure.

TEEBRO Toyota J30T LC300 SSM

Rear Suspension Work Instruction

Document Reference	**TEEBRO300-PRO-00**2
Issue Level	1.0
Issue Date	4 October 2022

Table 1 Document Version Control

Version	Description of Change	Changed By	Date
1.0	Initial Implementation	Brent Hawkins	12/09/2022

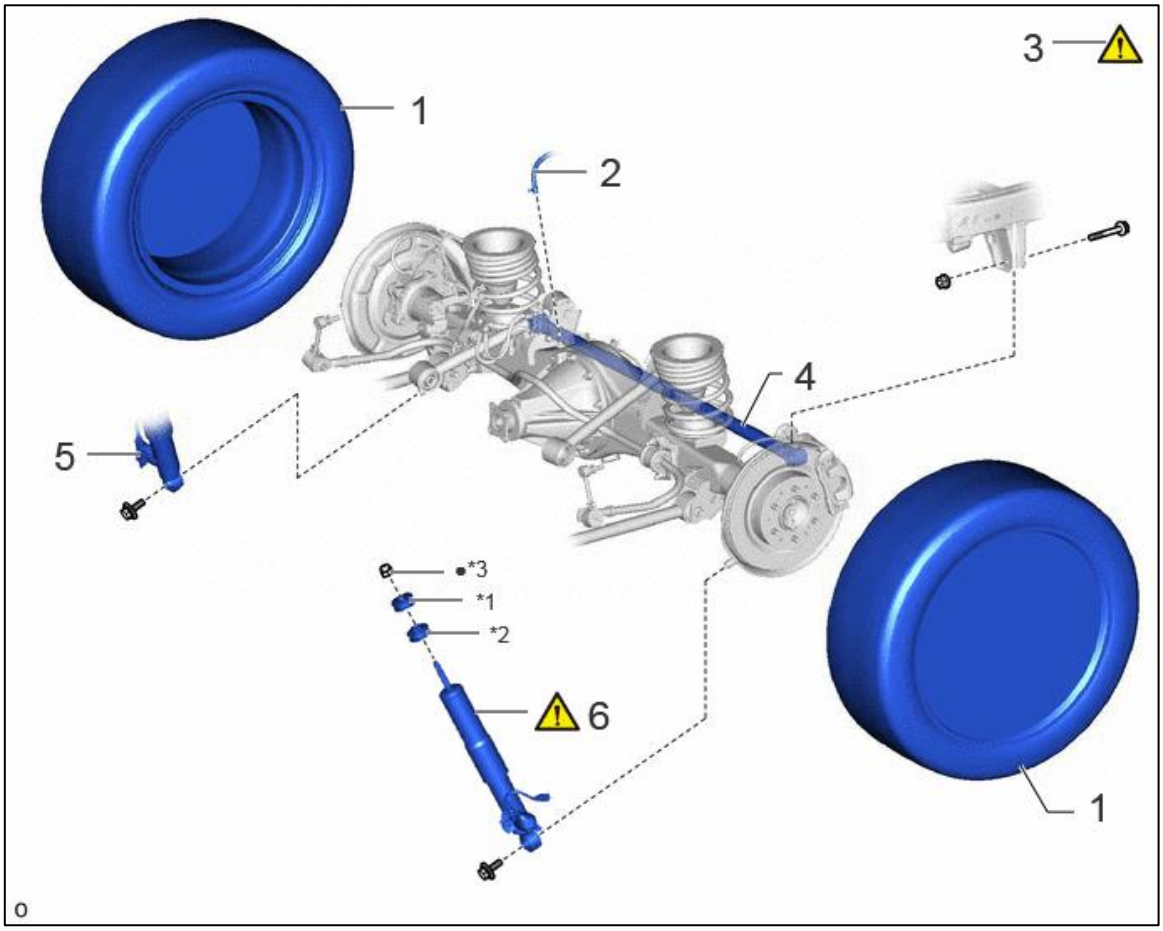
Table 2 Document Approvals

Version	Comments	Approved By	Date
1.0	Initial Implementation		

Table 3 Document Distribution Control

Version	Released To	Released By	Date
1.0	AEV Workshop	Brent Hawkins	12/09/2022
1.0	JMACX Offroad Solutions	Brent Hawkins	12/09/2022

1 REAR SUSPENSION FRONT SHOCK ABSORBER - REMOVAL



Procedure		Part Name Code
1	REAR WHEEL	-
2	REAR AXLE BREATHER HOSE SUB-ASSEMBLY	42306
3	SUPPORT REAR AXLE HOUSING ASSEMBLY	-
4	REAR LATERAL CONTROL ROD ASSEMBLY	48740
5	REAR SHOCK ABSORBER ASSEMBLY RH	48530
6	REAR SHOCK ABSORBER ASSEMBLY LH	48540

*1	REAR NO. 1 SHOCK ABSORBER CUSHION	*2	REAR NO. 2 SHOCK ABSORBER CUSHION
*3	LOCK NUT	-	-
●	Non-reusable part	-	

CAUTION / NOTICE / HINT

The necessary procedures (adjustment, calibration, initialization, or registration) that must be performed after parts are removed, installed, or replaced during the front shock absorber removal/installation are shown below.

Necessary Procedure After Parts Removed/Installed/Replaced:

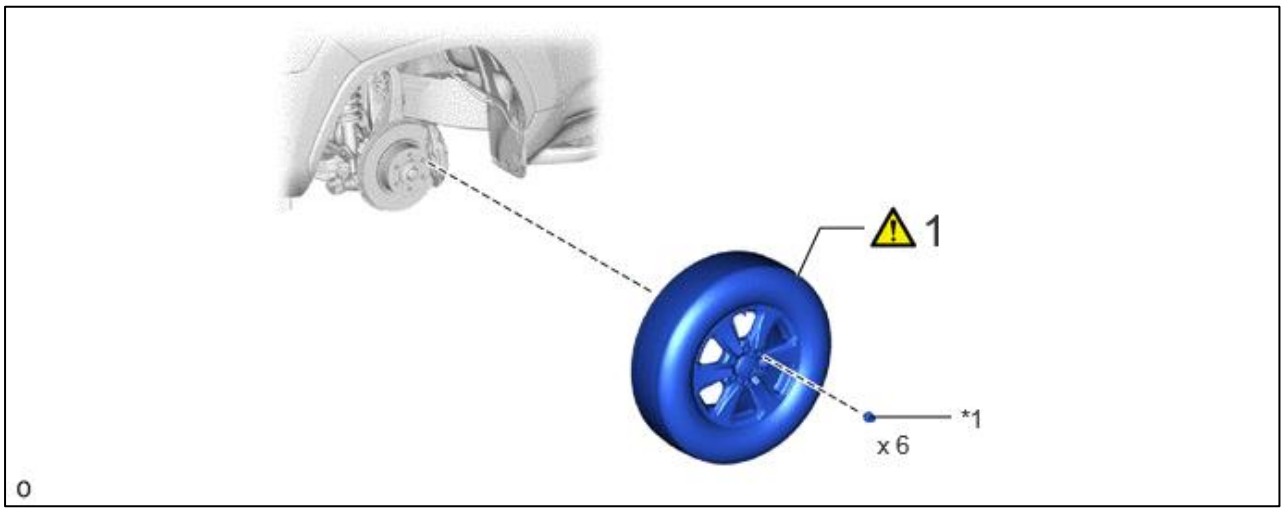
Replacement Part or Procedure	Necessary Procedures	Effects/Inoperative when not Performed
Suspension, tires, etc.	**w/ Parking Support Brake System:** • Ultrasonic sensor detection angle • Ultrasonic sensor detection angle registration	Parking support brake system
	Rear television camera assembly optical axis (Back camera position setting)	Parking assist monitor system
	• Parking assist ECU initialization • Adjust steering angle • Rear television camera view adjustment (for Rear camera detection system)	Panoramic view monitor system

HINT:

- **Use the same procedure for the RH and LH sides.**
- **The procedure listed below is for the LH side.**

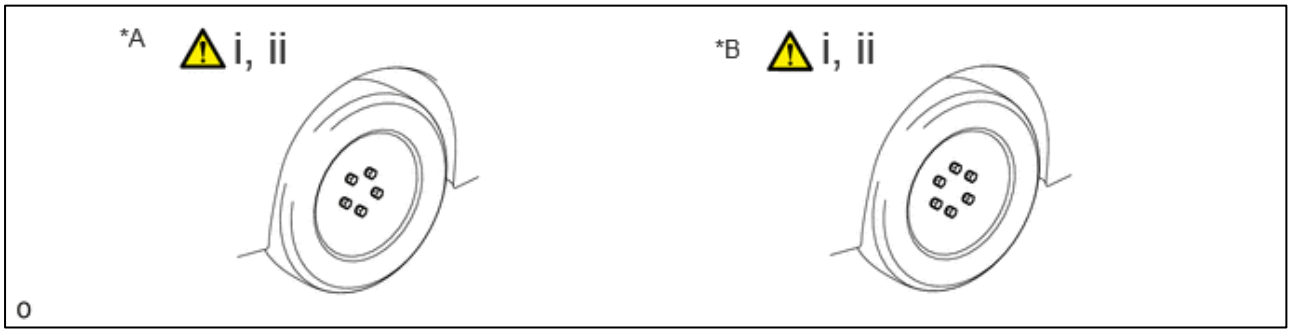
1.1 PROCEDURE

1.1.1 REMOVE REAR WHEEL



	Procedure	Part Name Code
1	WHEEL ASSEMBLY	-

*1	AXLE HUB NUT	-

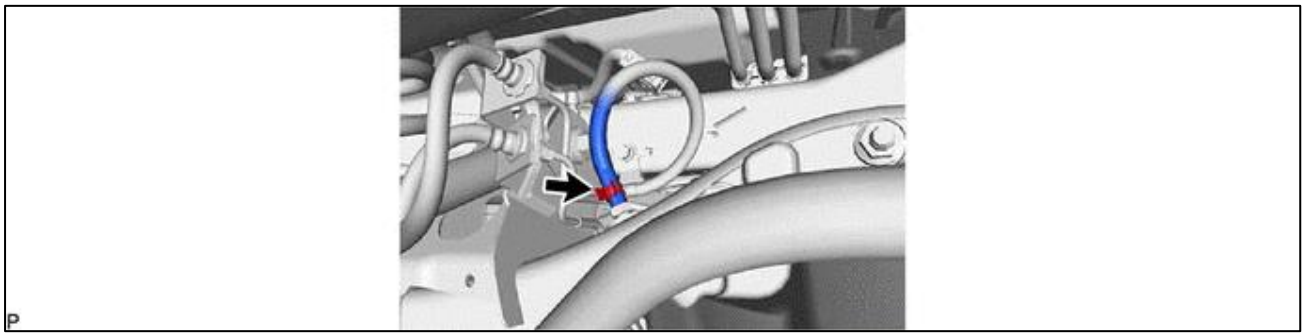


*A	for 5 Bolt Axle Hub	*B	for 6 Bolt Axle Hub

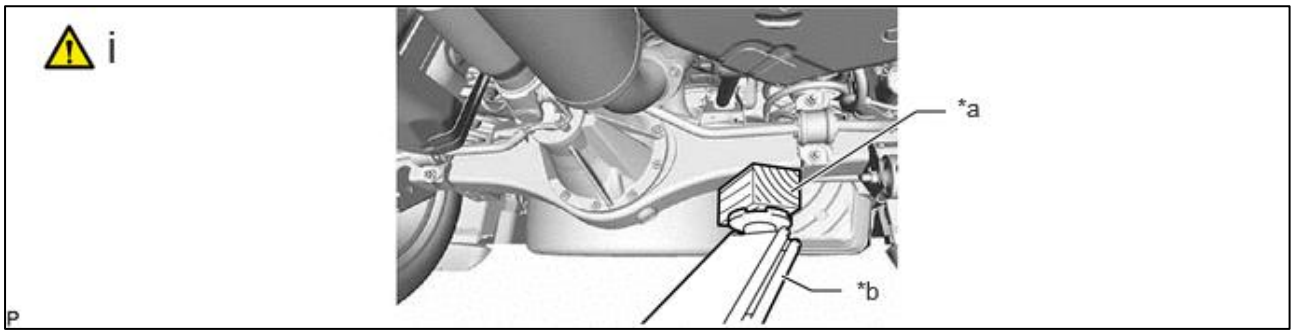
i. Loosen the axle hub nuts approximately 90°.

ii. Lift up the vehicle and remove the axle hub nuts and wheel assembly.

1.1.2 DISCONNECT REAR AXLE BREATHER HOSE SUB-ASSEMBLY



1.1.3 SUPPORT REAR AXLE HOUSING ASSEMBLY



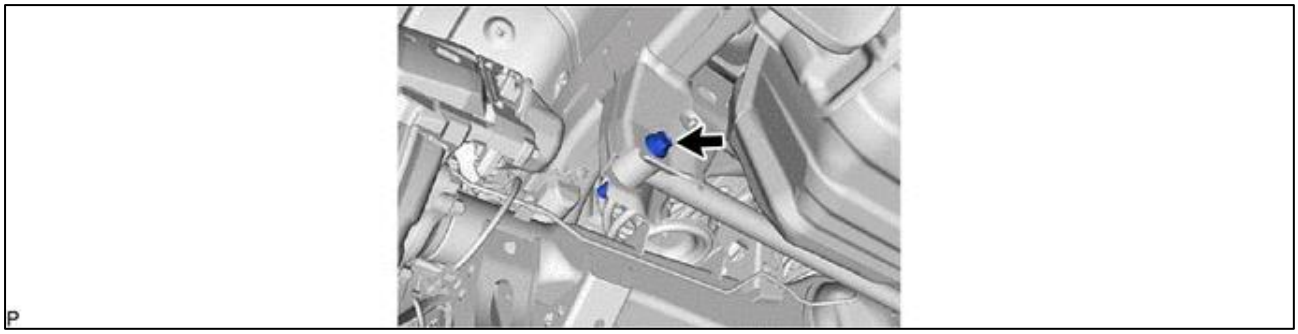
*a	Wooden Block	*b	Jack

i. Using a jack and wooden block, support the rear axle housing assembly.

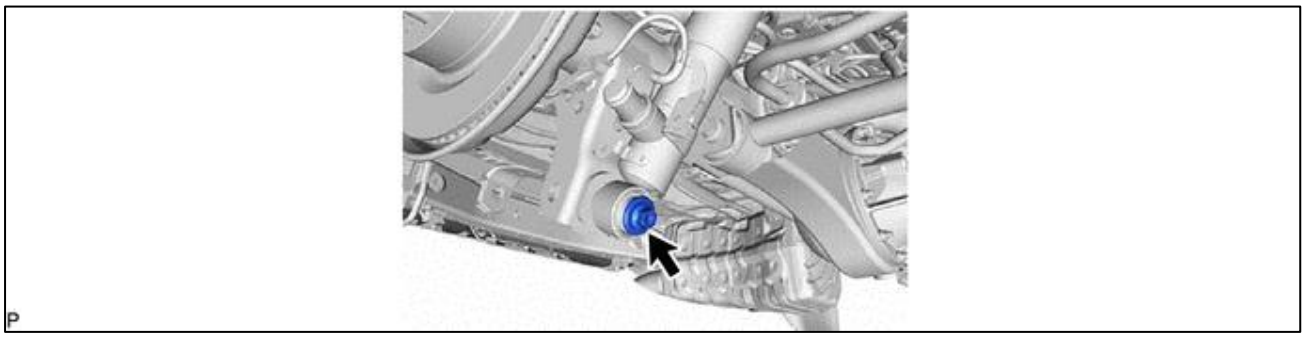
NOTICE:

- When jacking up the rear axle housing assembly, be sure to jack it up slowly.
- Make sure to perform this operation with the vehicle kept as low as possible.

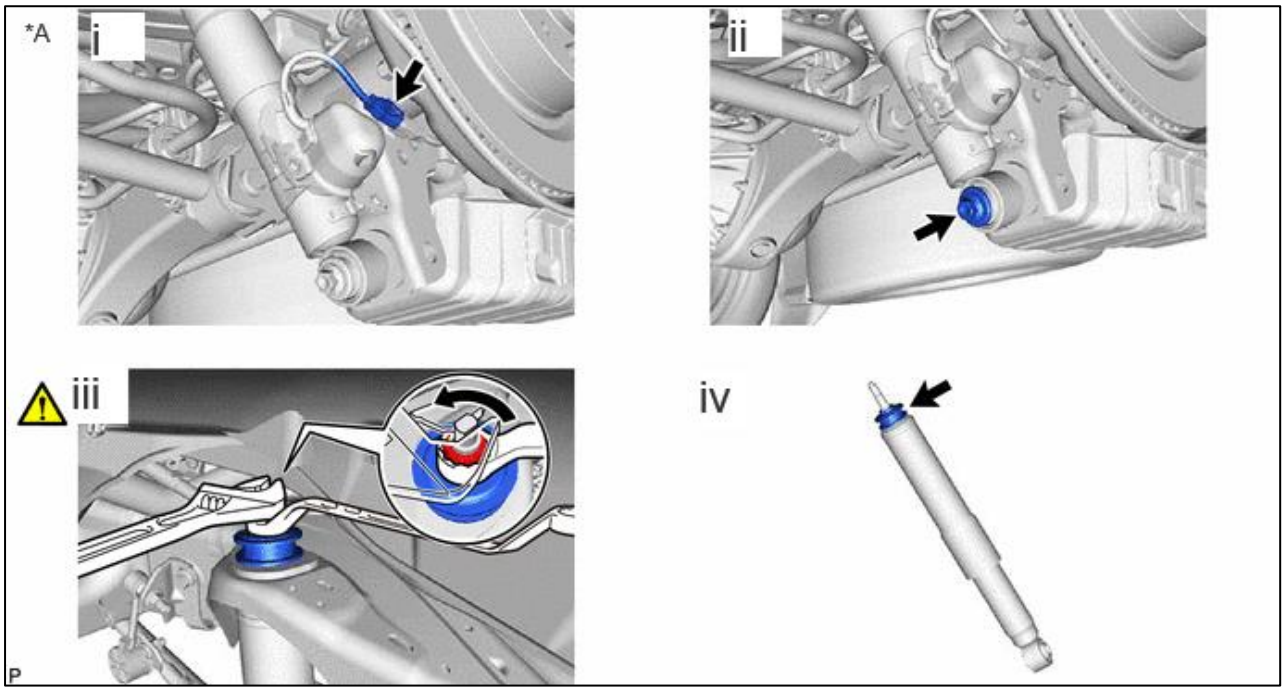
1.1.4 DISCONNECT REAR LATERAL CONTROL ROD ASSEMBLY



1.1.5 DISCONNECT REAR SHOCK ABSORBER ASSEMBLY RH



1.1.6 REMOVE REAR SHOCK ABSORBER ASSEMBLY LH



*A	w/ AVS	-	-

i. w/ AVS:
Disconnect the connector.

ii. Remove the bolt on the lower side of the rear shock absorber assembly LH.

iii. Remove the nut, rear No. 1 shock absorber cushion and rear shock absorber assembly LH as shown in the illustration.

iv. Remove the rear No. 2 shock absorber cushion from the rear shock absorber assembly LH.

2 REAR SUSPENSION FRONT SHOCK ABSORBER – INSPECTION

2.1 PROCEDURE

2.1.1 INSPECT FRONT SHOCK ABSORBER ASSEMBLY

Compress and extend the shock absorber rod 4 times or more. Check that there is no abnormal resistance or unusual sound during the operation.

If there is any abnormality, replace the shock absorber assembly with a new one.

Standard:

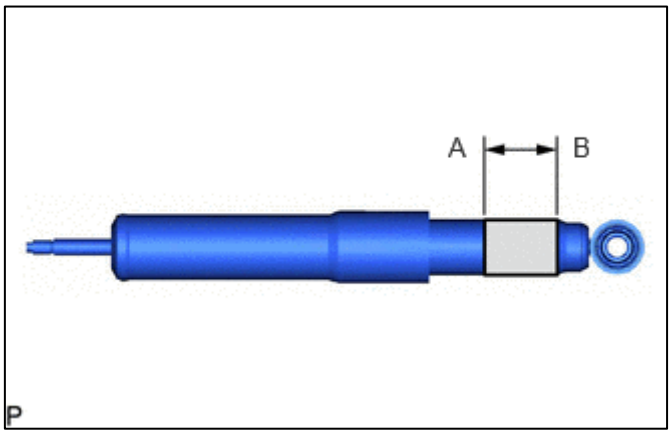
When compressed and extended at a constant speed, the stroke of the shock absorber rod is smooth with no abnormal resistance or sounds. When extended, the shock absorber rod returns to its original position at a constant speed with no abnormal sounds.

2.1.2 DISPOSE OF FRONT SHOCK ABSORBER ASSEMBLY LH

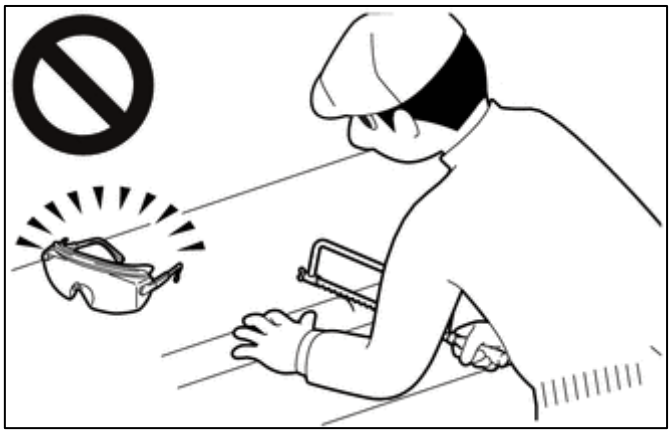
HINT:

Use the same procedure for the other front shock absorber.

a. Fully extend the shock absorber piston rod and fix the shock absorber in place at an angle in a vise or similar tool.



b. Using a hacksaw, slowly make a hole at the position indicated by the arrow in the illustration to discharge the gas inside.



NOTICE:

When disposing of the shock absorber, the gas is colorless, odorless and harmless.

Since the discharged gas may cause chips to fly off, cover the drill with a cloth when making a hole.

3 REAR SUSPENSION REAR SHOCK ABSORBER – INSTALLATION

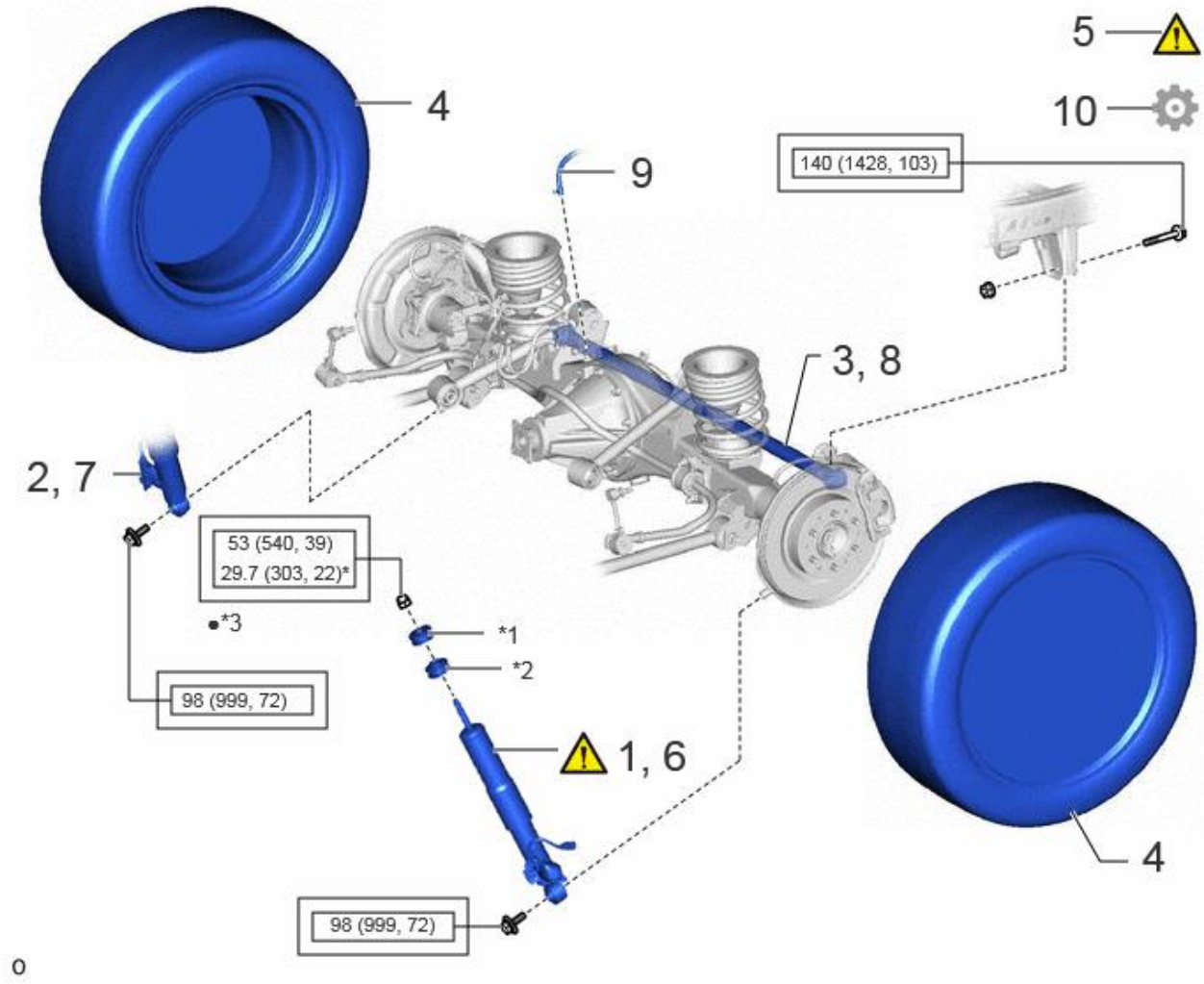


Figure 1 – Components (Installation)

Procedure		Part Name Code
1	TEMPORARILY TIGHTEN REAR SHOCK ABSORBER ASSEMBLY LH	48540
2	TEMPORARILY TIGHTEN REAR SHOCK ABSORBER ASSEMBLY RH	48530
3	TEMPORARILY TIGHTEN REAR LATERAL CONTROL ROD ASSEMBLY	48740
4	REAR WHEEL	-
5	STABILIZE SUSPENSION	-
6	FULLY TIGHTEN REAR SHOCK ABSORBER ASSEMBLY LH	48540
7	FULLY TIGHTEN REAR SHOCK ABSORBER ASSEMBLY RH	48530
8	FULLY TIGHTEN REAR LATERAL CONTROL ROD ASSEMBLY	48740
9	REAR AXLE BREATHER HOSE SUB-ASSEMBLY	42306
10	PERFORM INITIALIZATION	-

*1	w/o AVS	*2	REAR NO. 2 SHOCK ABSORBER CUSHION
*3	LOCK NUT	-	-
▭	Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping": N*m (kgf*cm, ft.*lbf)	▭	N*m (kgf*cm, ft.*lbf): Specified torque
•	Non-reusable part	*	For use with SST

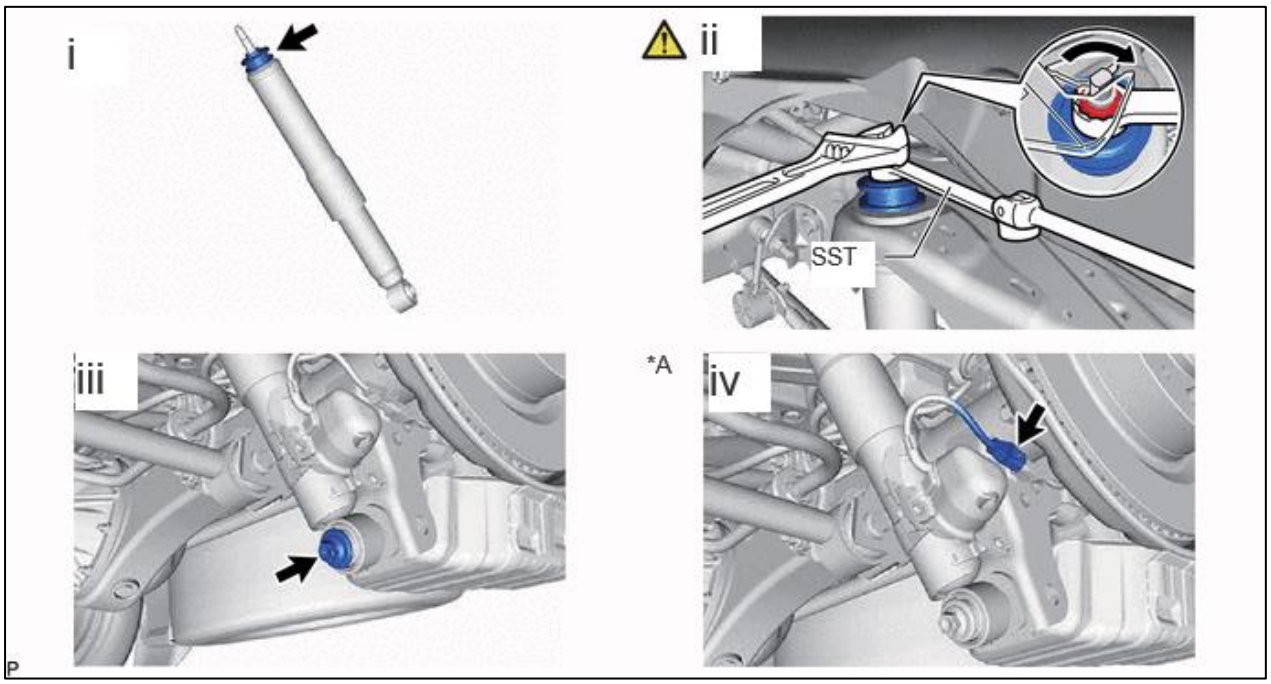
CAUTION / NOTICE / HINT

HINT:

- Use the same procedure for the RH and LH sides.
- The procedure listed below is for the LH side.

3.1 PROCEDURE

3.1.1 TEMPORARILY TIGHTEN REAR SHOCK ABSORBER ASSEMBLY LH



*A	w/ AVS	-	-

i. Install the rear No. 2 shock absorber cushion to the shock absorber.

ii. Using a SST, Temporarily install the rear shock absorber and rear No. 1 shock absorber cushion with a new nut as shown in the illustration.
SST
09729-00220

iii. Temporarily install the lower side of the shock absorber with the bolt.

iv. w/ AVS:
Connect the connector.

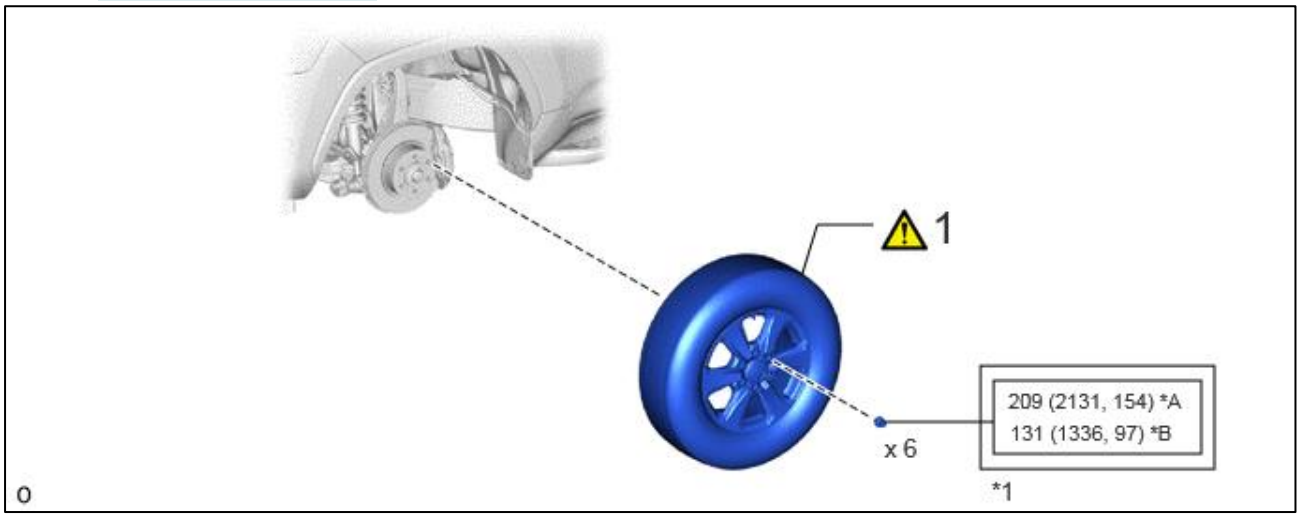
3.1.2 TEMPORARILY TIGHTEN REAR SHOCK ABSORBER ASSEMBLY RH

i. Temporarily tighten Rear Shock Absorber Assembly (Part Number 48530).

3.1.3 TEMPORARILY TIGHTEN REAR LATERAL CONTROL ROD ASSEMBLY

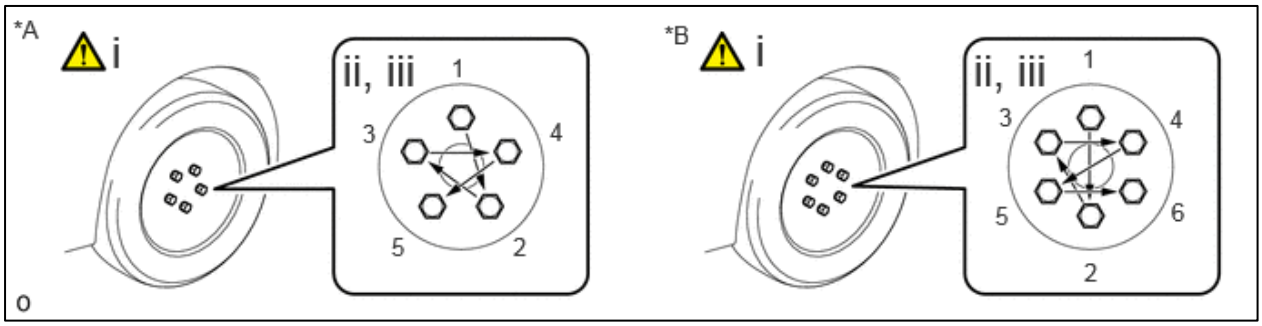
i. Temporarily tighten Rear Lateral Control Rod Assembly (Part Number 48740).

3.1.4 INSTALL REAR WHEEL



Procedure		Part Name Code
1	WHEEL ASSEMBLY	-

*A	for Steel Wheel Type	*B	for Aluminum Wheel Type
*1	AXLE HUB NUT	-	-
▭	Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping": N*m (kgf*cm, ft.*lbf)	-	-



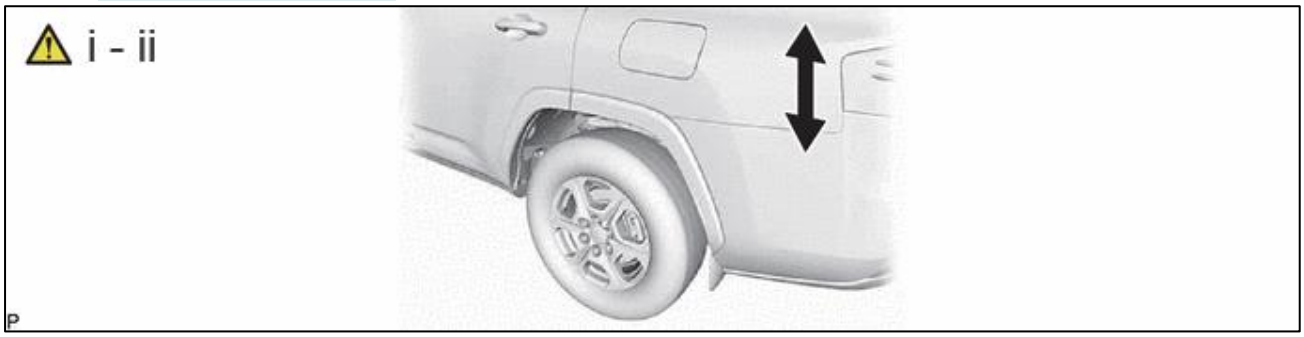
*A	for 5 Bolt Axle Hub	*B	for 6 Bolt Axle Hub

i. While aligning the wheel assembly with the center of the axle hub, install the axle hub nuts by hand.
ii. Temporarily tighten the axle hub nuts in the order shown in the illustration.
iii. Lower the vehicle then fully tighten the axle hub nuts in the order shown in the illustration.

Torque:

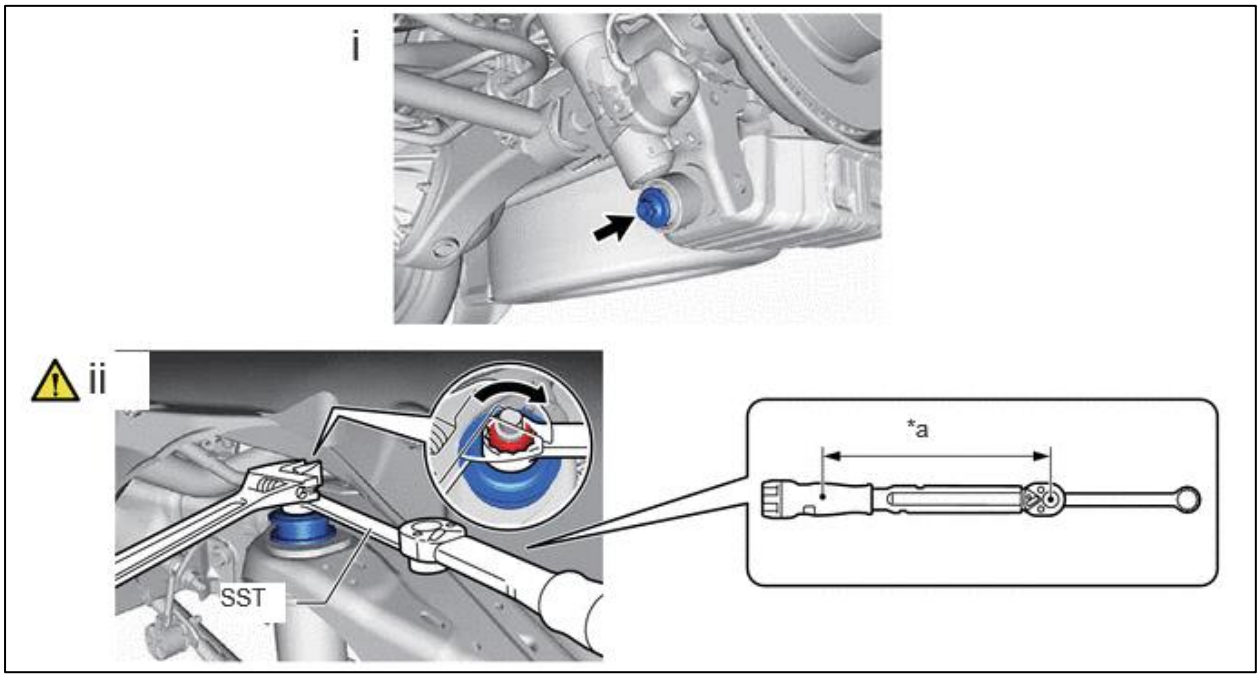
for Steel Wheel : 209 N*m (2131 kgf*cm, 154 ft.*lbf)
for Aluminum Wheel : 131 N*m (1336 kgf*cm, 97 ft.*lbf)

3.1.5 STABILIZE SUSPENSION



i. Lower the vehicle.
ii. Bounce the vehicle up and down several times to stabilize the suspension.

3.1.6 FULLY TIGHTEN FRONT SHOCK ABSORBER WITH COIL SPRING



*a	Torque Wrench Fulcrum Length	*b	Union Nut Wrench

i. Fully tighten the bolt.
Torque:
98 N*m (999 kgf*cm, 72 ft.*lbf)
ii. Using a SST, fully tighten the rear shock absorber assembly LH with the bolt as shown in the illustration.
SST
09729-00220

Torque:
Specified tightening torque : 53 N*m (540 kgf*cm, 39 ft.*lbf)

3.1.7 FULLY TIGHTEN REAR SHOCK ABSORBER ASSEMBLY RH

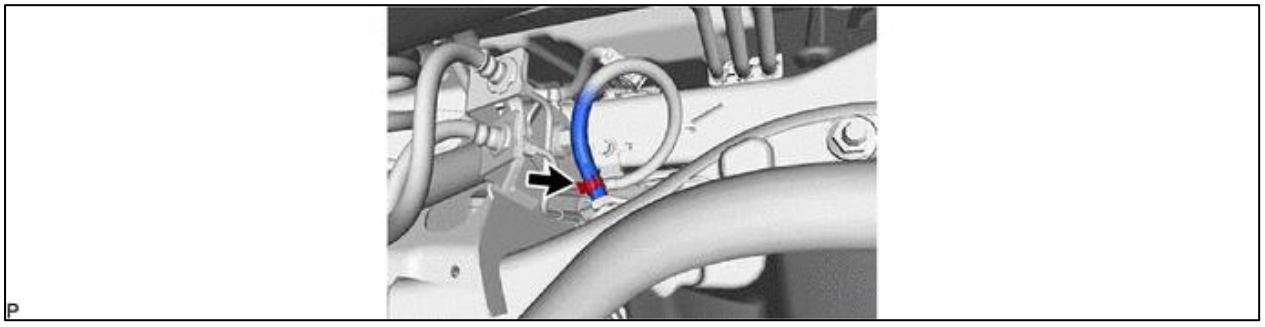
Torque:
98 N*m (999 kgf*cm, 72 ft.*lbf)

3.1.8 FULLY TIGHTEN REAR LATERAL CONTROL ROD ASSEMBLY

Torque:

140 N*m (1428 kgf*cm, 103 ft.*lbf)

3.1.9 CONNECT REAR AXLE BREATHER HOSE SUB-ASSEMBLY



3.1.10 PERFORM INITIALIZATION

NOTE:

Refer the Toyota Service Manual for "PROCEDURES NECESSARY WHEN ECU OR OTHER PARTS ARE REPLACED" to perform this procedure.

TEEBRO Toyota J30T LC300 SSM

Rear Differential & Propeller Shaft Work Instruction

Document Reference	**TEEBRO300-PRO-003**
Issue Level	1.0
Issue Date	4 October 2022

Table 1 Document Version Control

Version	Description of Change	Changed By	Date
1.0	Initial Implementation	Brent Hawkins	12/09/2022

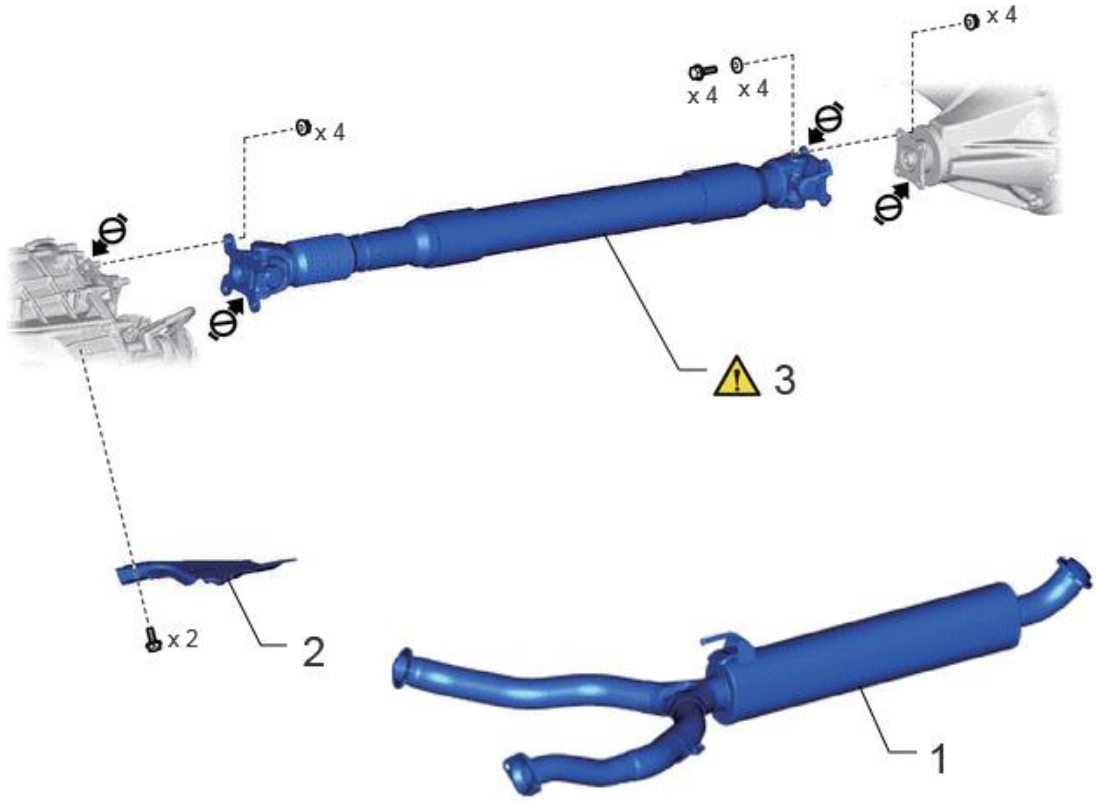
Table 2 Document Approvals

Version	Comments	Approved By	Date
1.0	Initial Implementation		

Table 3 Document Distribution Control

Version	Released To	Released By	Date
1.0	AEV Workshop	Brent Hawkins	12/09/2022
1.0	JMACX Offroad Solutions	Brent Hawkins	12/09/2022

1 DRIVE SHAFT / PROPELLER SHAFT ASSEMBLY - REMOVAL



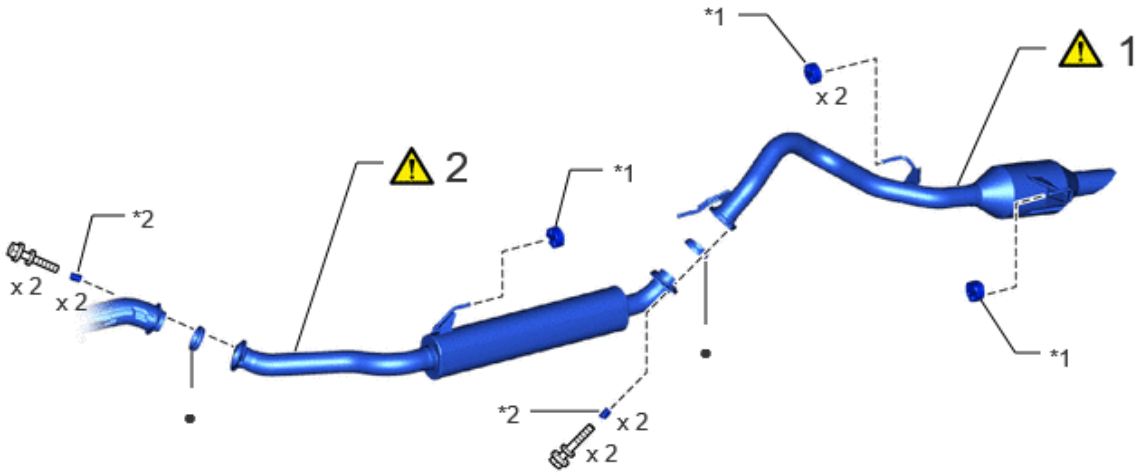
Procedure		Part Name Code
1	CENTER EXHAUST PIPE ASSEMBLY	-
2	NO. 3 PROPELLER SHAFT HEAT INSULATOR	-
3	REAR PROPELLER SHAFT ASSEMBLY	37110F

	Do not apply lubricants	-	-

1.1 PROCEDURE

1.1.1 REMOVE CENTER EXHAUST PIPE ASSEMBLY

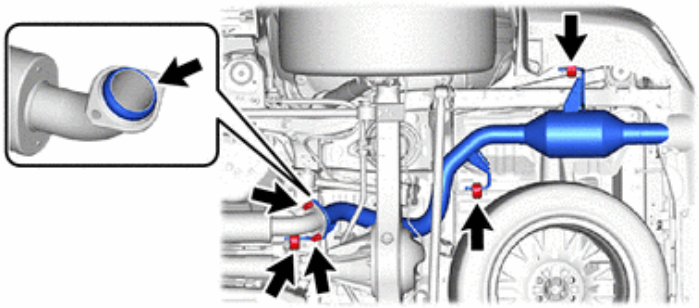
*A



Procedure		Part Name Code
1	TAIL EXHAUST PIPE ASSEMBLY	17430
2	CENTER EXHAUST PIPE ASSEMBLY	17420

*A	w/ DPF	-	-
*1	EXHAUST PIPE SUPPORT	*2	COMPRESSION SPRING
•	Non-reusable part	-	-

REMOVE TAIL EXHAUST PIPE ASSEMBLY



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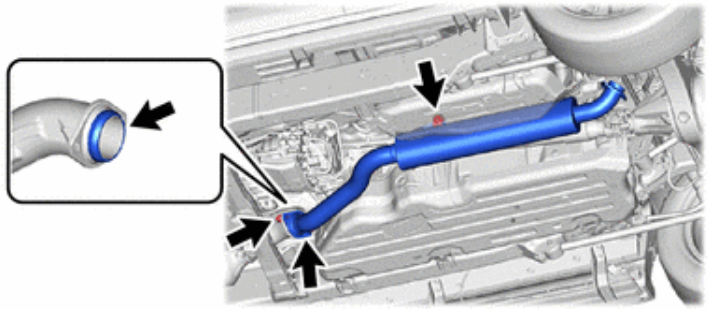
CAUTION:

To prevent burns, do not touch the engine, exhaust pipe or other high temperature components while the engine is hot.

REMOVE CENTER EXHAUST PIPE ASSEMBLY



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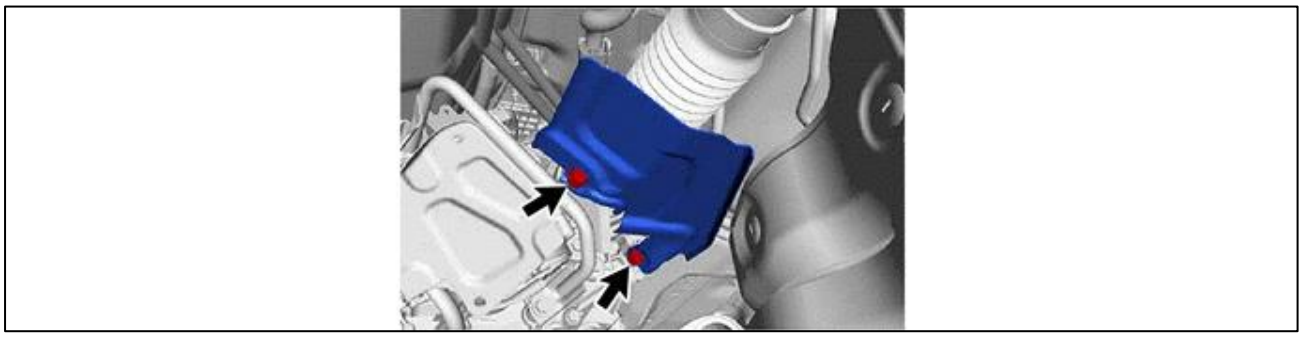
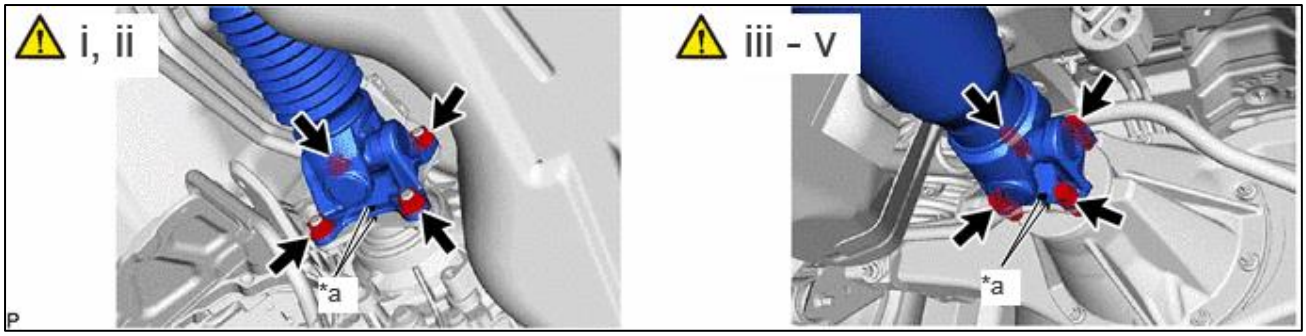
1.1.2 REMOVE NO. 3 PROPELLER SHAFT HEAT INSULATOR



1.1.3 REMOVE REAR PROPELLER SHAFT ASSEMBLY



*a	Matchmark	-	-

i. Place matchmarks on the rear propeller shaft assembly flange and transfer flange.

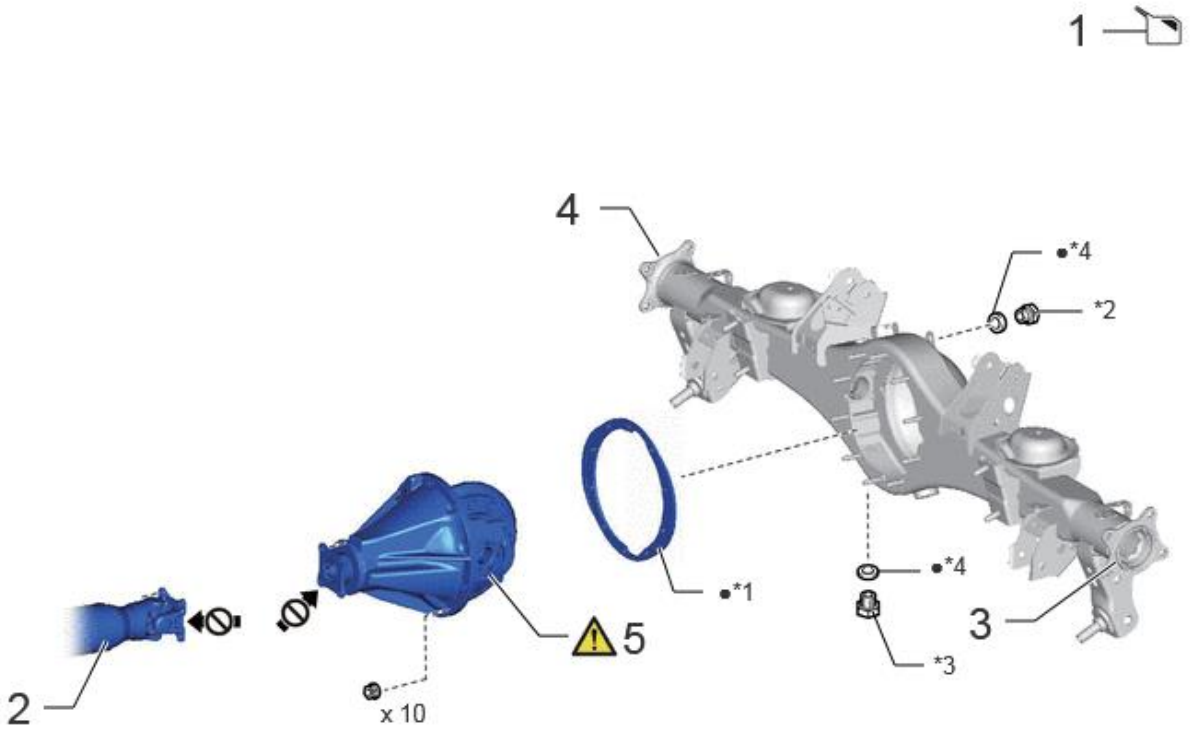
ii. Remove the 4 nuts and disconnect the rear propeller shaft assembly.

iii. Place matchmarks on the rear propeller shaft assembly flange and differential flange.

iv. Remove the 4 nuts, 4 bolts and 4 washers.

v. Remove the rear propeller shaft assembly.

2 REAR DIFFERENTIAL CARRIER ASSEMBLY – REMOVAL



P

1	DRAIN DIFFERENTIAL OIL	-
2	REAR PROPELLER SHAFT ASSEMBLY	37110F
3	REAR AXLE SHAFT WITH BACKING PLATE LH	-
4	REAR AXLE SHAFT WITH BACKING PLATE RH	-
5	REAR DIFFERENTIAL CARRIER ASSEMBLY	41110

*1	REAR DIFFERENTIAL CARRIER GASKET	*2	REAR AXLE HOUSING FILLER PLUG
*3	REAR AXLE HOUSING DRAIN PLUG	*4	GASKET
•	Non-reusable part		Do not apply lubricants

CAUTION / NOTICE / HINT

The necessary procedures (adjustment, calibration, initialization, or registration) that must be performed after parts are removed, installed, or replaced during the rear differential carrier assembly removal/installation are shown below.

Necessary Procedure After Parts Removed/Installed/Replaced:

Replacement Part or Procedure	Necessary Procedures	Effects/Inoperative when not Performed
Suspension, tires, etc.	**w/ Parking Support Brake System:** • Ultrasonic sensor detection angle • Ultrasonic sensor detection angle registration	Parking support brake system
	Rear television camera assembly optical axis (Back camera position setting)	Parking assist monitor system
	• Parking assist ECU initialization • Adjust steering angle • Rear television camera view adjustment (for Rear camera detection system)	Panoramic view monitor system
Disconnect cable from negative battery terminal	Memorize steering angle neutral point	Parking assist monitor system
		Multi-terrain monitor system
		Panoramic view monitor system

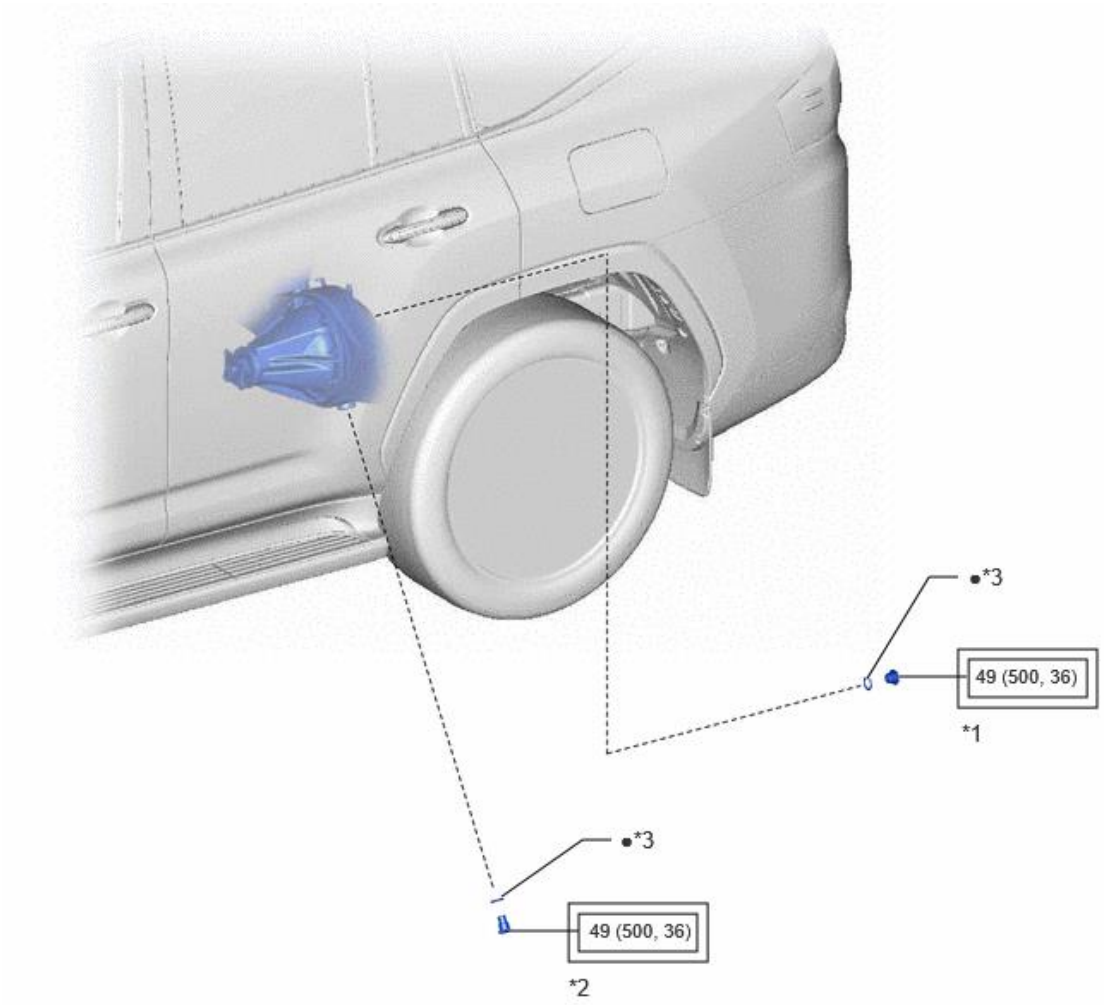
NOTICE:

- Immediately after installing the brake pads, the braking performance may be reduced. Always perform a road test in a safe place while paying attention to the surroundings.
- After replacing the rear disc brake pads, the brake pedal may feel soft due to clearance between the rear disc brake pads and rear disc. Depress the brake pedal several times until the brake pedal feels firm.
- When removing or installing the rear disc brake cylinder assembly, pushing back the disc brake piston may cause a large clearance between the brake pads and brake disc. When the brake pedal is depressed with a large clearance between the brake pads and the brake disc, DTC C13DB00, C13DC00, C13DD00, C13DE00, C140000 and/or C140A00 related to abnormal brake fluid pressure may be stored. Make sure to clear any DTCs after performing this procedure.
- While the battery is connected, even if the ignition switch is off, the brake control system activates when the brake pedal is depressed or any door courtesy switch turns on. Therefore, when servicing the brake system components, do not operate the brake pedal or open/close the doors while the battery is connected.

HINT:

When the cable is disconnected/reconnected to the battery terminal, systems temporarily stop operating. However, each system has a function that completes learning the first time the system is used.

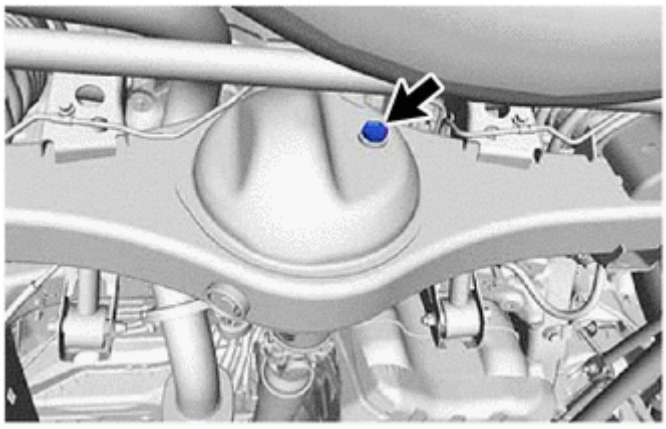
2.1.1 DRAIN DIFFERENTIAL OIL



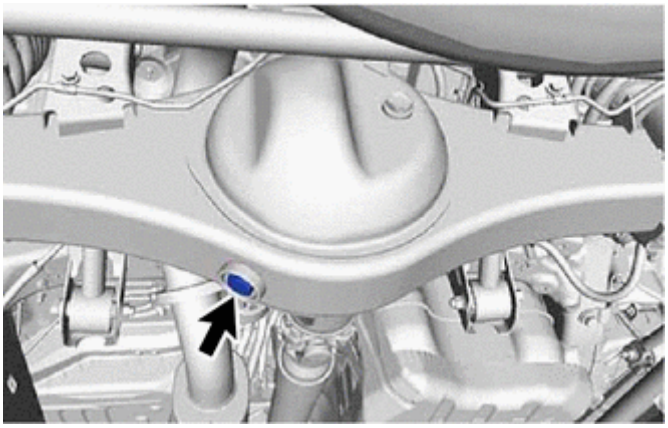
*1	REAR AXLE HOUSING FILLER PLUG	*2	REAR AXLE HOUSING DRAIN PLUG
*3	GASKET	-	-
▭	Tightening torque for "Major areas involving basic vehicle performance such as moving/turning/stopping": N*m (kgf*cm, ft.*lbf)	•	Non-reusable part

Stop the vehicle on a level place.

i. Remove the filler plug and gasket.



ii. Remove the drain plug and gasket, and drain the oil.

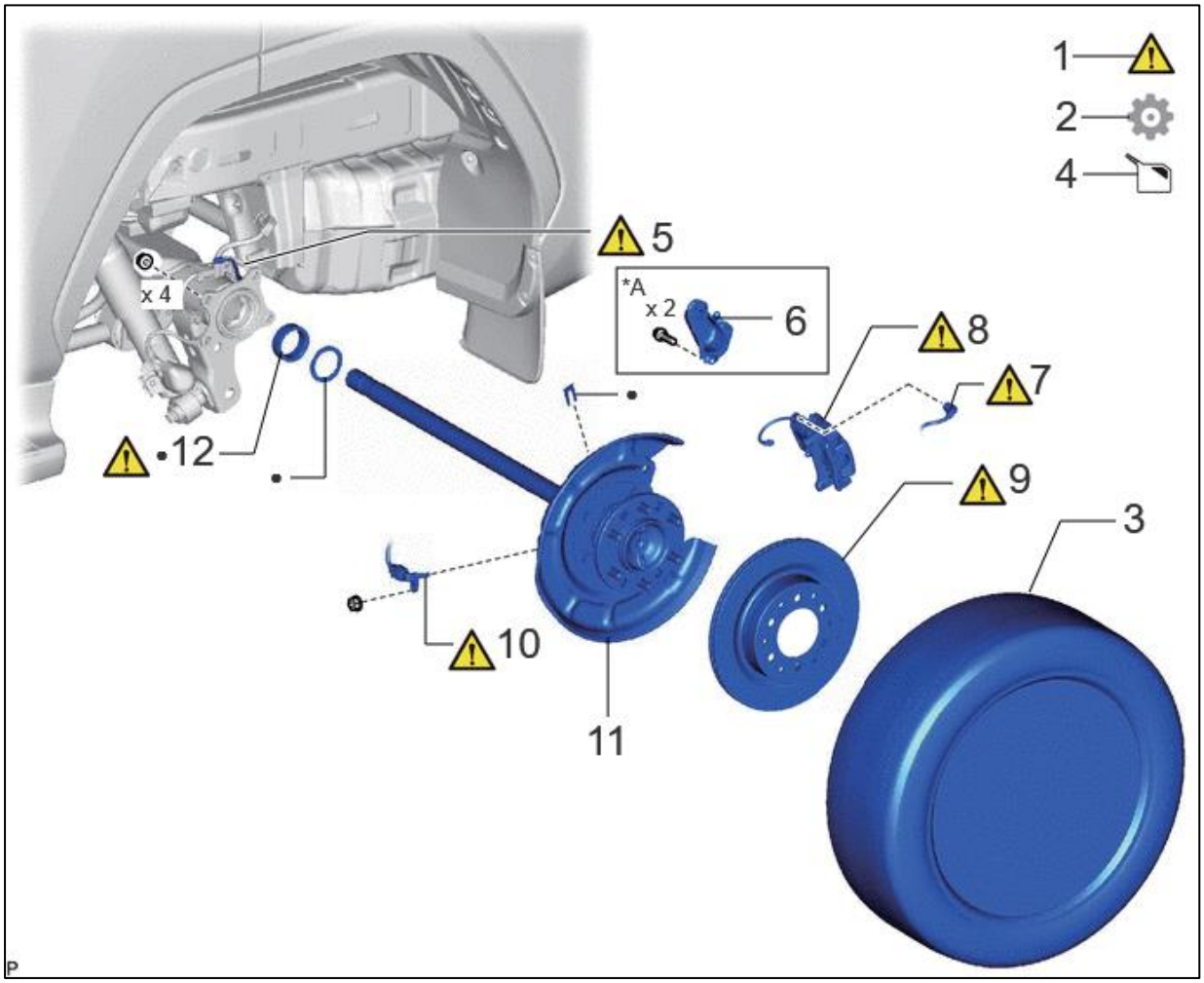


iii. Install a new gasket and the drain plug.
Torque:
49 N*m (500 kgf*cm, 36 ft.*lbf)

2.1.2 REMOVE REAR PROPELLER SHAFT ASSEMBLY

Perform the reverse procedure for the removal of rear propeller shaft assembly as per section 1.1.3

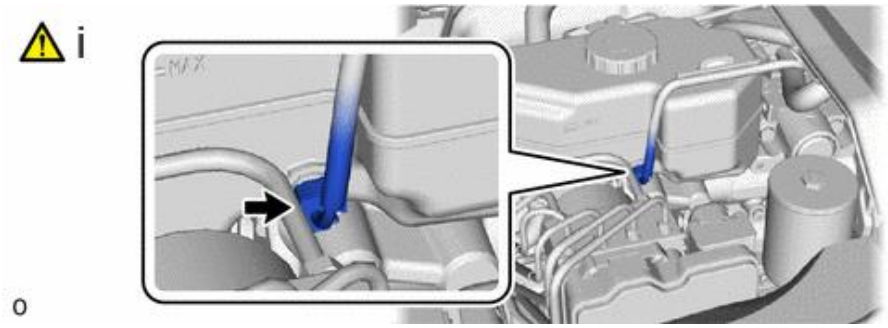
2.1.3 REMOVE REAR AXLE SHAFT WITH BACKING PLATE (LH & RH)



1	PRECAUTION	-
2	DISABLE BRAKE CONTROL	-
3	REAR WHEEL	-
4	DRAIN BRAKE FLUID	-
5	REAR BRAKE FLEXIBLE HOSE	-
6	PARKING BRAKE ACTUATOR PROTECTOR ASSEMBLY	46170
7	NO. 2 PARKING BRAKE WIRE ASSEMBLY	890C0A
8	REAR DISC BRAKE CYLINDER ASSEMBLY LH	47850
9	REAR DISC	42431
10	REAR SPEED SENSOR LH	89546
11	REAR AXLE SHAFT LH	42312
12	REAR AXLE SHAFT OIL SEAL LH	42312C

*A	w/ PARKING BRAKE ACTUATOR PROTECTOR ASSEMBLY
•	Non-reusable part

2.1.3.1 DISABLE BRAKE CONTROL



i. Wait 2 minutes after turning the ignition switch off to ensure that the skid control ECU is in sleep mode.

NOTICE:

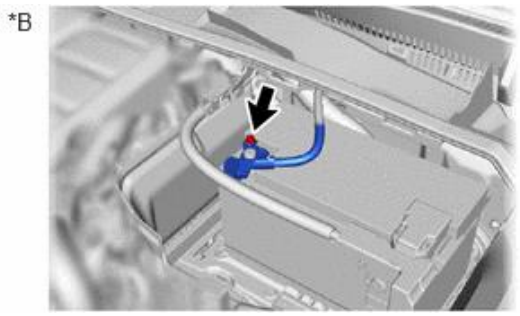
- When the brake pedal is depressed or the door courtesy switch is turned on even if the ignition switch is off, the brake control system activates. Therefore do not depress the brake pedal or open/close the doors until the reservoir level switch connector is disconnected.
- Do not operate the electric parking brake switch assembly when the electric parking brake system is in rear brake pad replacement mode.

ii. Remove the engine side cover RH.

	Remove in this Direction (1)		Remove in this Direction (2)

iii. Disconnect the connector from the brake master cylinder reservoir assembly.

iv. Disconnect the cable from the negative (-) battery terminal.



v. In order to prevent pressurized brake fluid in the accumulator from being applied to the brake calipers, depress the brake pedal 40 times or more to return the pressurized brake fluid in the accumulator back to the brake master cylinder reservoir assembly.

vi. Check that the brake pedal cannot be further depressed.

vii. Remove Rear Wheel Assembly

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*A	for 5 Bolt Axle Hub	*B	for 6 Bolt Axle Hub

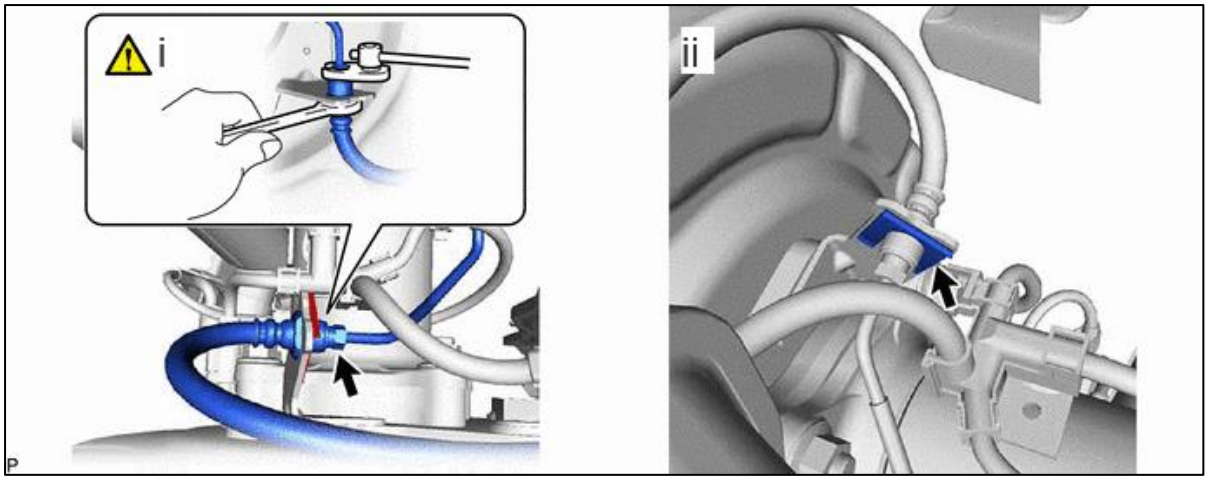
- Loosen the axle hub nuts approximately 90°.
- Lift up the vehicle and remove the axle hub nuts and wheel assembly.

2.1.3.2 DRAIN BRAKE FLUID

NOTICE:

If brake fluid leaks onto any painted surface, immediately wash it off.

2.1.3.3 DISCONNECT REAR BRAKE FLEXIBLE HOSE



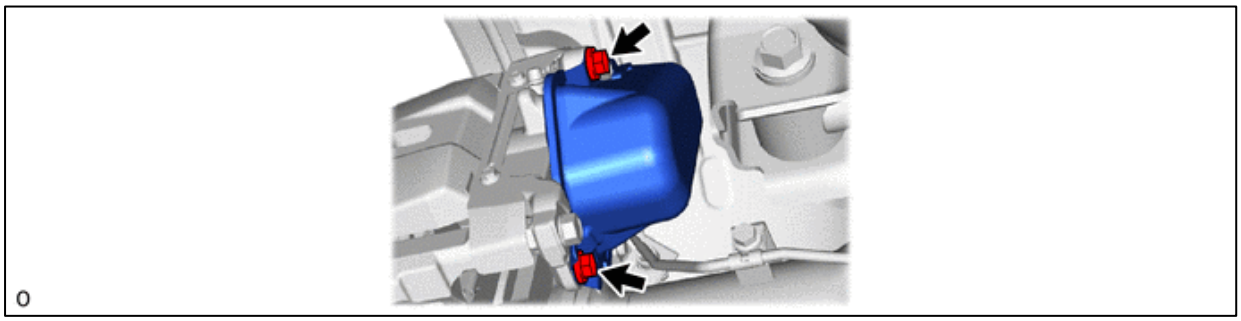
i. Disconnect the brake tube from the rear flexible hose with union nut wrench while holding the flexible hose with a wrench.

NOTICE:

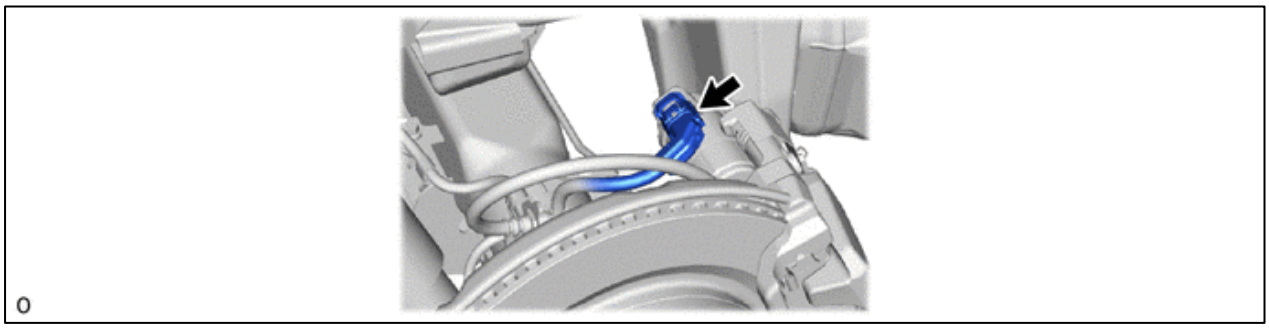
- Do not bend or damage the brake tube.
- Do not allow any foreign matter such as dirt and dust to enter the brake tube from the connecting point.

ii. Remove the clip.

2.1.3.4 REMOVE PARKING BRAKE ACTUATOR PROTECTOR ASSEMBLY



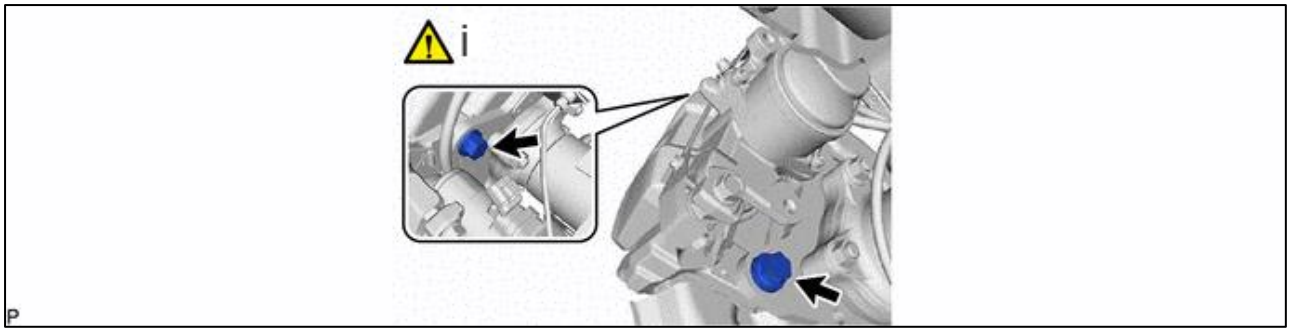
2.1.3.5 5.DISCONNECT NO. 2 PARKING BRAKE WIRE ASSEMBLY



NOTICE:

- Remove any dirt or foreign matter on and around the No. 2 parking brake wire assembly connector before performing this step.
- Do not allow water, oil or dirt to enter the No. 2 parking brake wire assembly connector.

2.1.3.6 DISCONNECT DISC BRAKE CYLINDER ASSEMBLY REAR (LH & RH)

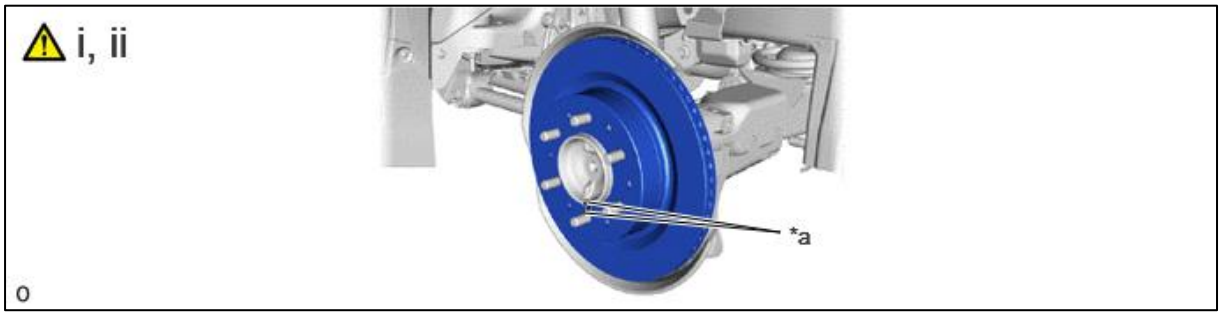


i. Remove the 2 bolts and disconnect the rear disc brake cylinder assembly LH.

NOTICE:

- Do not twist or bend the rear flexible hose.
- Do not disconnect the rear brake flexible hose from the rear disc brake cylinder assembly LH.

2.1.3.7 REMOVE REAR DISC

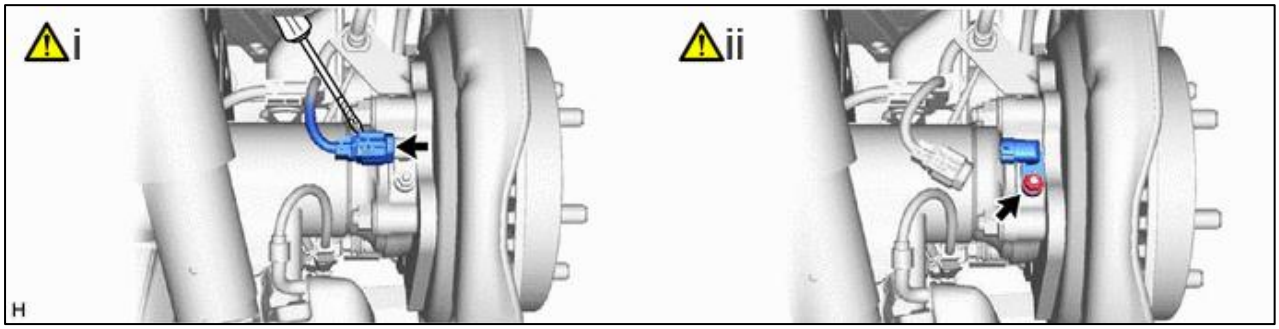


*a	Matchmark	-	-

i. Put matchmarks on the rear disc and rear axle shaft.

ii. Remove the rear disc.

2.1.3.8 REMOVE REAR SPEED SENSOR LH



i. Using a screwdriver with its tip wrapped with protective tape, disconnect the No. 2 parking brake wire assembly connector from the rear speed sensor LH.

NOTICE:

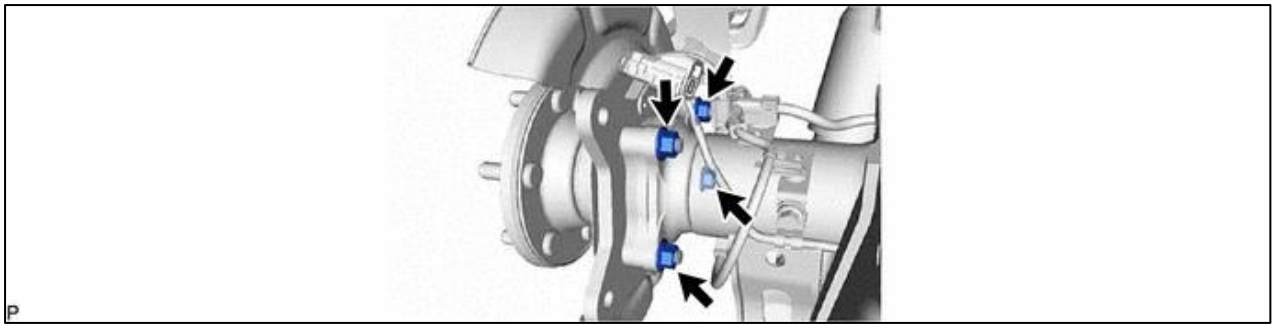
Be careful not to damage the rear speed sensor LH or connector.

ii. Remove the nut and the rear speed sensor LH.

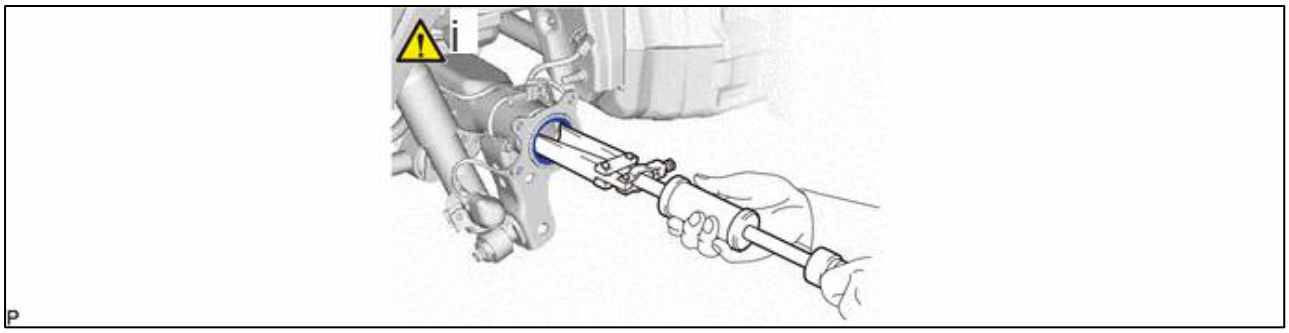
NOTICE:

- Prevent foreign matter from attaching to the sensor tip.
- The rear speed sensor LH is easily damaged. When pulling out the rear speed sensor LH from the rear axle hub LH, do not use excessive force to rotate and remove it.

2.1.3.9 REMOVE REAR AXLE SHAFT



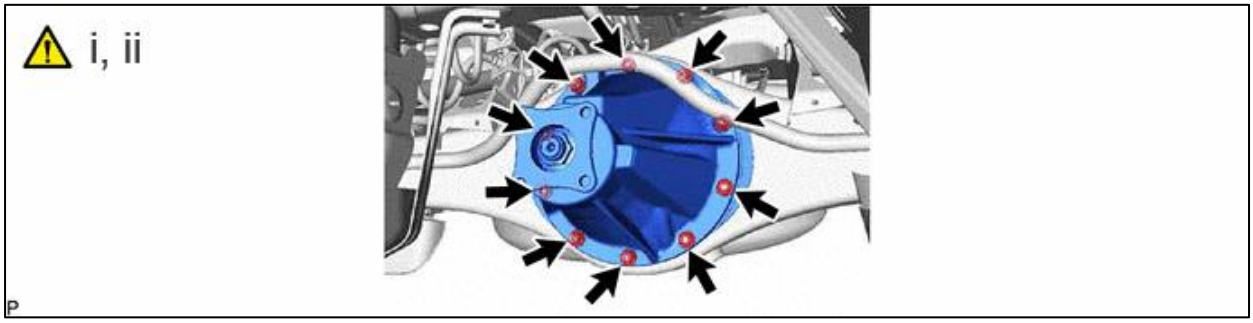
2.1.3.10 REMOVE REAR AXLE SHAFT OIL SEAL



i. Using SST, tap out the rear axle shaft oil seal LH.
SST
09308-00010

NOTICE:
Be careful not to damage the axle housing hole.

2.1.4 REMOVE REAR DIFFERENTIAL CARRIER ASSEMBLY



i. Remove the 10 nuts, 10 washers and rear differential carrier assembly.

CAUTION:
The rear differential carrier assembly is a heavy component. Make sure that it is supported securely.

NOTICE:

- Be careful not to damage the contact surface.
- Securely support the rear differential carrier assembly while performing this step to avoid excessively tilting or dropping the rear differential carrier assembly.
- The remaining oil may leak out when removing the rear differential carrier assembly.
- Do not damage the installation surface when removing the rear differential carrier assembly.
- Remove the bolts with the rear differential carrier assembly secured.

ii. Remove the rear differential carrier gasket.

Attachments A

Drawings:

TEEBRO Toyota LC300 J30T 4200 Lighting Layout (DRW-LC300-002)

Side View

	Item		No.	Height Lower Border	Height Upper Border	Distance Outside	Distance Inside	Comply (Y/N/NA)
				HL (mm)	HU (mm)	DO (mm)	DI (mm)	
G	Side Indicator		2	>500 **(1490)**	<1500 **(1500)**	Distance from Front <1800 mm		Y
G*	Side Indicator	LED AutoLamp 77AM2	2	>500 **(1090)**	<1500 **(1100)**	Distance from Front <1800 mm		Y