

Part Number: PTR61-35170

Kit Contents

Item #	Quantity Req'd.	Description
1	2	Coil/ Shock Assy, Front
2	2	Shock Assy, Rear
3	1	Hardware Bag

Hardware Bag Contents

Item #	Quantity Req'd.	Description
1	1	Parking Brake Cable Spacer
2	1	Bolt for Spacer
3	2	Nut for RR Shock Absorber

Additional Items Required For Installation

Item #	Quantity Req'd.	Description
1		
2		
3		

Conflicts

2WD models

Recommended Tools

Personal & Vehicle Protection	Notes
Blanket	To protect engine cover
Special Tools	Notes
Alignment Equipment	
Installation Tools	Notes
3/8" Drive Socket	12mm, 14mm
1/2" Drive Socket	17mm, 19mm, 21mm
Ratchet	3/8" & 1/2"
Crowfoot	22mm
Wrench	19mm, 22mm & 26mm
Torque Wrench	3/8" & 1/2"
Screwdriver	Phillips #2
Paint Marker	
Special Chemicals	Notes
None	

General Applicability

TRD PRO Tacoma 4x4 Double Cab models with V6
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Recommended Sequence of Application

Item #	Accessory
1	TRD PRO Suspension
2	TRD PRO Wheels
3	TRD PRO Skid Plate

*Mandatory

Vehicle Service Parts (may be required for reassembly)

Item #	Quantity Req'd.	Description
1		
2		
3		

Legend

STOP **STOP:** Damage to the vehicle may occur. Do not proceed until process has been complied with.

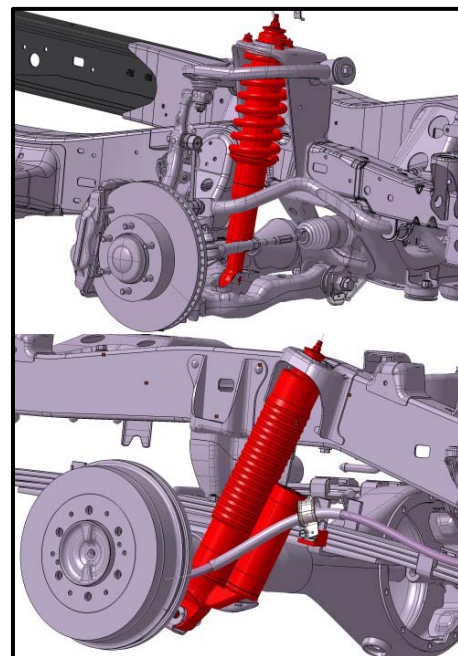
+ **OPERATOR SAFETY:** Use caution to avoid risk of injury.

! **CAUTION:** A process that must be carefully observed in order to reduce the risk of damage to the accessory/vehicle and to ensure a quality installation.

Wrench **TOOLS & EQUIPMENT:** Used in Figures calls out the specific tools and equipment recommended for this process.

|| **REVISION MARK:** This mark highlights a change in installation with respect to previous issue.

S **SAFETY TORQUE:** This mark indicates that torque is related to safety.



Care must be taken when installing this accessory to ensure damage does not occur to the vehicle. The installation of this accessory should follow approved guidelines to ensure a quality installation.

These guidelines can be found in the "Accessory Installation Practices" document.

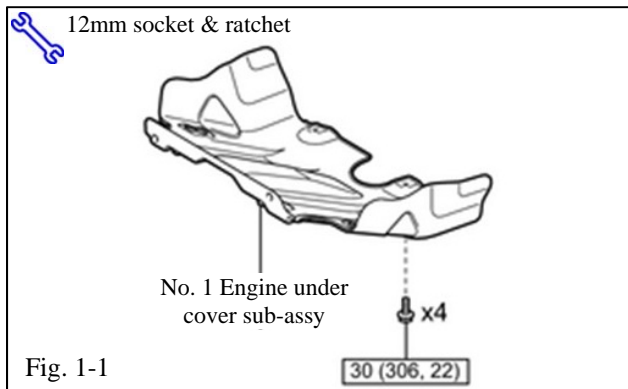
This document covers such items as:-

- Vehicle Protection (use of covers and blankets, cleaning chemicals, etc.).
- Safety (eye protection, rechecking torque procedure, etc.).
- Vehicle Disassembly/Reassembly (panel removal, part storage, etc.).
- Electrical Component Disassembly/Reassembly (battery disconnection, connector removal, etc.).

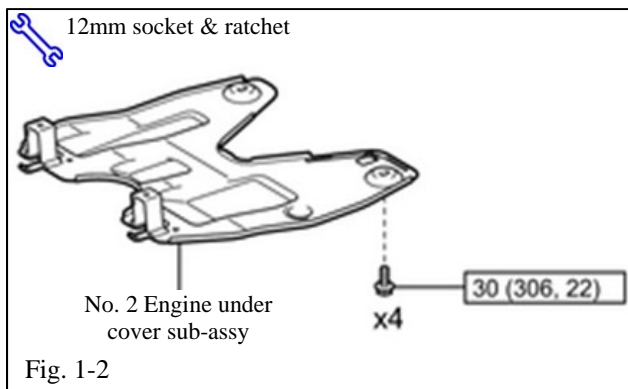
Please see your Toyota dealer for a copy of this document.

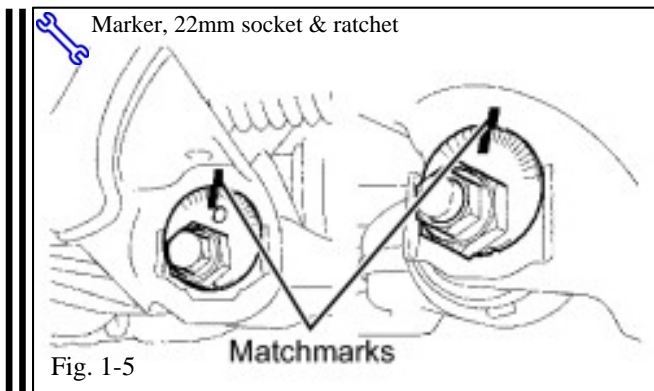
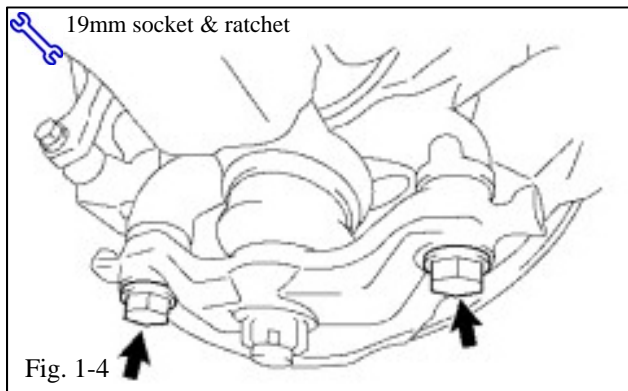
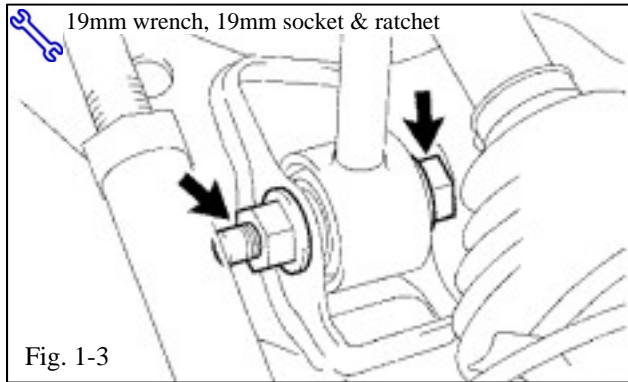
1. Remove the Front OE Shock Assemblies.

- (a) Place the vehicle in Park (AT) or in gear (MT).
- (b) Put a brake hold tool in place.
- (c) Raise the vehicle to the highest lift position.
- (d) Remove the front wheels.
- (e) Use a 12mm socket to remove the four bolts from the engine under cover sub-assembly No. 1 (Fig. 1-1). Remove the cover and retain it and the bolts for reinstallation.



- (f) Use a 12mm socket to remove the four bolts from the engine under cover sub-assembly No. 2, if equipped (Fig. 1-2). Remove the cover and retain it and the bolts for reinstallation.







(g) Remove the front shock absorber with coil spring assembly.

(1) Use a 19mm wrench and 19mm socket to remove the lower bolt, nut and washer (Fig. 1-3). Retain them for reinstallation.

HINT: Move the brake caliper up and down slightly to allow the bolt to slide out.

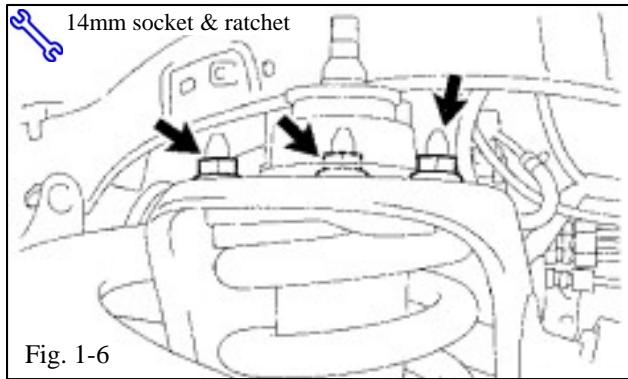
(2) Use a 19mm socket to remove the two bolts from the lower ball joint assembly (Fig. 1-4). Retain them for reinstallation.

 (3) Place match marks at the top of the front and rear alignment cams to indicate the original position before loosening them (Fig. 1-5).

 (4) Use a 22mm socket to loosen (**do not remove**) the lower control arm cam bolts & nuts to allow the lower control arm to swing down freely.

(a) At the front of the arm, loosen the bolt head facing forward.

(b) At the rear of the arm, loosen the nut facing rearward.



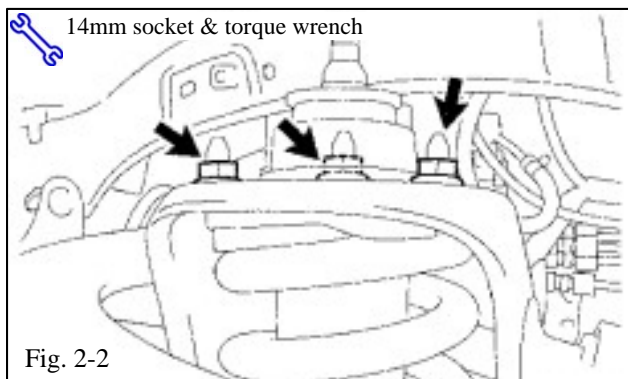
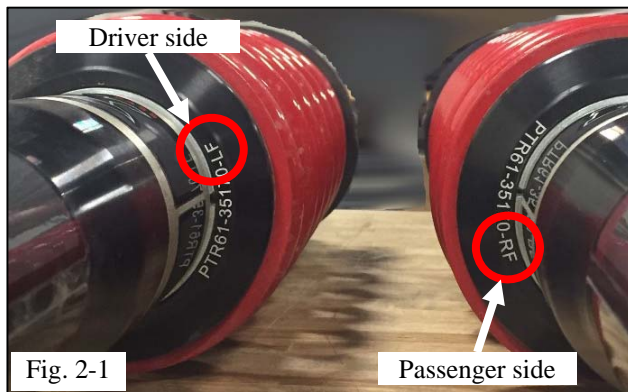
(5) Use a 14mm socket to remove the three nuts on the upper side of the OE front shock absorber with coil spring assembly (Fig. 1-6). Remove the assembly from the vehicle.

HINT: Disassemble the other side before installing the new components.

CAUTION: Take care not to damage the axle CV boot or steering rack boot while lowering the assembly.

2. Install the TRD Shock Absorber Assembly.

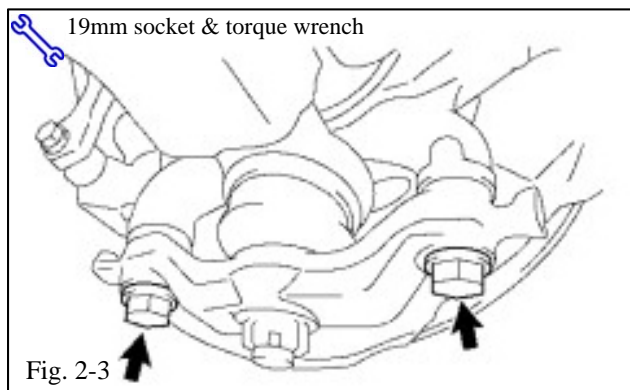
NOTE: The front shock absorber assemblies are marked LF & RF (circles, Fig. 2-1). Be sure to confirm the correct installation location based on the marking on the coil spring perch.



(a) Use a 14mm socket to install the three nuts onto the upper side of the front shock absorber with coil spring assembly (Fig. 2-2).

Torque: 64 N·m (47 ft-lbf)

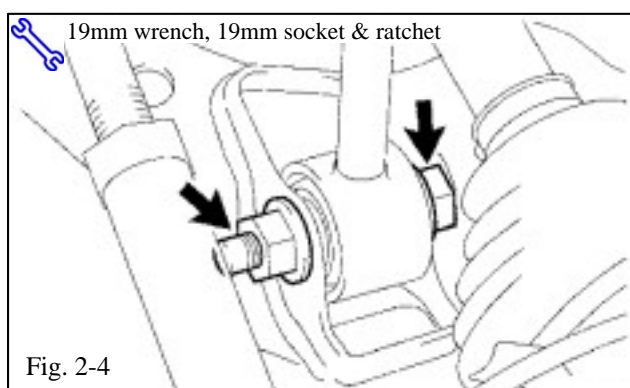
(b) Raise the lower control arm and lower ball joint assembly so it contacts the steering knuckle.



(c) Use a 19mm socket to install and torque the front lower ball joint attachment with the two bolts (Fig. 2-3).

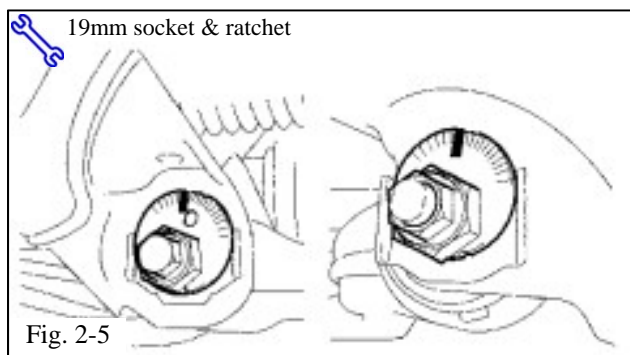
STOP **WARNING:** These bolts **MUST** be hand started before using an air tool.

S **Torque: 160 N·m (118 ft·lbf)**



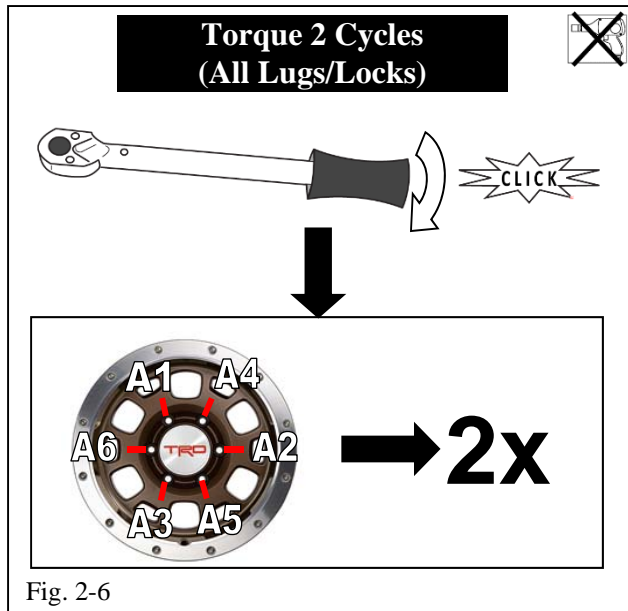
(d) Use a 19mm wrench and a 19mm socket to temporarily tighten the lower bolt, nut and washer as shown in Fig. 2-4.

NOTE: Hand tighten for moving the vehicle to alignment.



(e) Align the adjustment cams to the marks made in Step 1(g)(3) (Fig. 2-5).

(f) Use a 19mm socket to temporarily tighten the lower control arm bolts (Fig. 2-5). Snug with a ratchet is fine until alignment.



- (g) Install the front wheel/tire assemblies onto the vehicle. Hand start the lug nuts during installation. Tighten the lug nuts in sequence 1 through 6 or equivalent star pattern (Fig. 2-6). Ensure that the socket does not scuff the wheels. Tighten the nuts to 113 N·m (83 ft·lbf) using a torque wrench.

S Torque: 113 N·m (83ft·lbf)

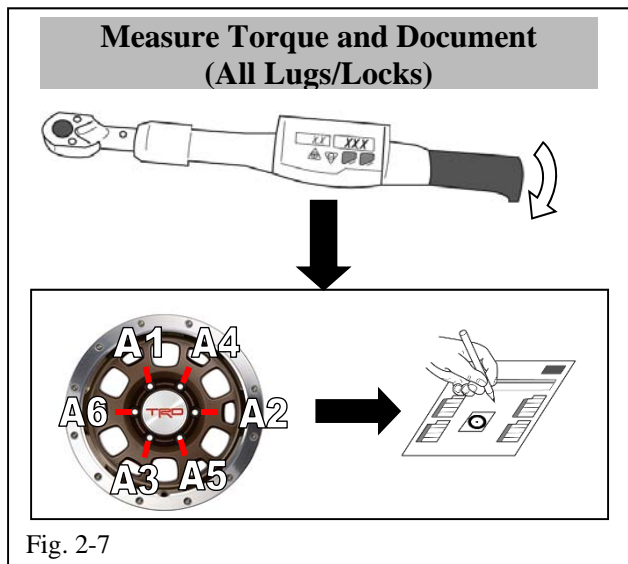
- (h) Re-torque all of the lug nuts in the same 1-6 sequence (Fig. 2-6).

S Torque: 113 N·m (83ft·lbf)



CAUTION: DO NOT USE AN IMPACT WRENCH TO INSTALL OR REMOVE WHEEL LOCKS.

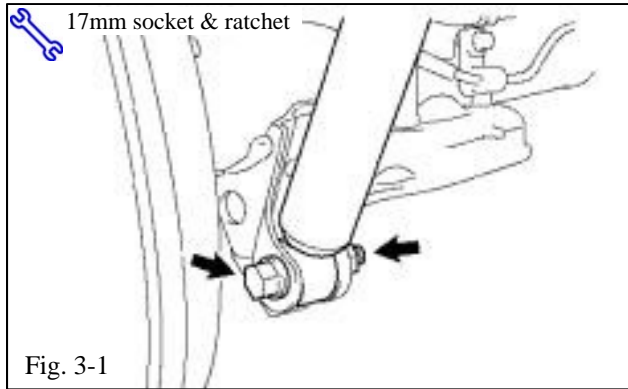
- (i) With the vehicle still on the lift, use a digital torque wrench to measure the torque of each lug nut/lock and record it on the Torque Audit Sheet (Fig. 2-7). (PPO installation only. Does not apply to DIO installation.)



3. Remove the Rear OE Shock Absorbers.

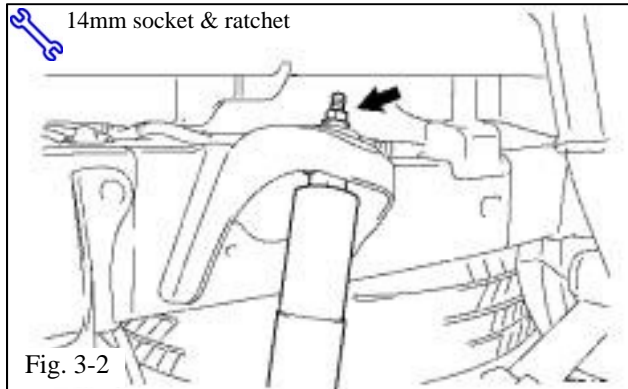
- (a) Remove the rear wheels.
- (b) Use a 17mm socket to remove the lower shock absorber bolt and separate the shock absorber (Fig. 3-1). Retain all hardware for reuse.

HINT: Move the brake drum up and down to assist in removal of the bolt.



- (c) Remove the nut, three cushion retainers, cushion No. 1, cushion No. 3 and shock absorber (Fig. 3-2). Discard the upper nut and shock absorber (See Fig. 5-1).

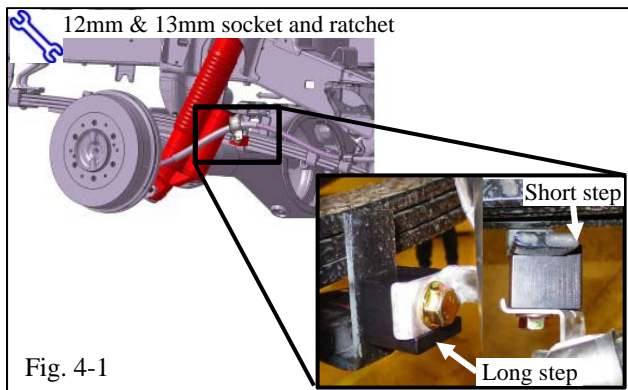
- (d) Repeat Step 3 on the other side.



4. Install the Parking Brake Cable Spacer.

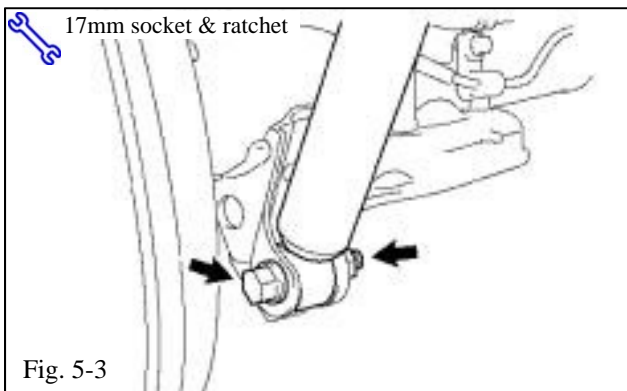
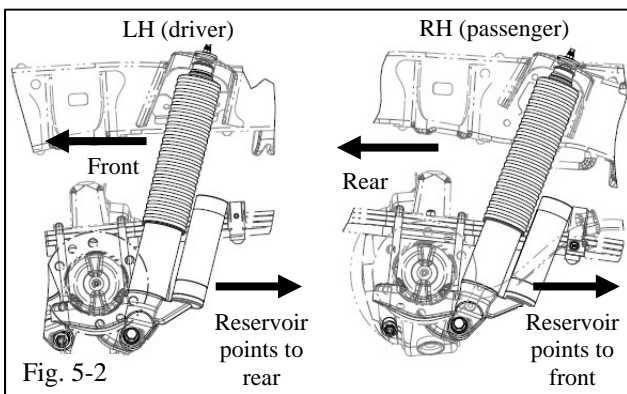
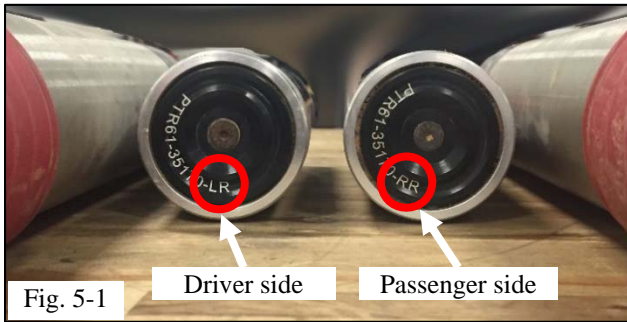
- (a) Remove the parking brake cable (PKB) bolt on the RH (passenger) side (Fig. 4-1).
- (b) Place the parking brake cable spacer between the parking brake cable clamp and the leaf spring bracket (Fig. 4-1). Install the supplied bolt.

Torque: 13 N•m (10 ft-lbf)



5. Install the TRD Rear Shock Absorbers.

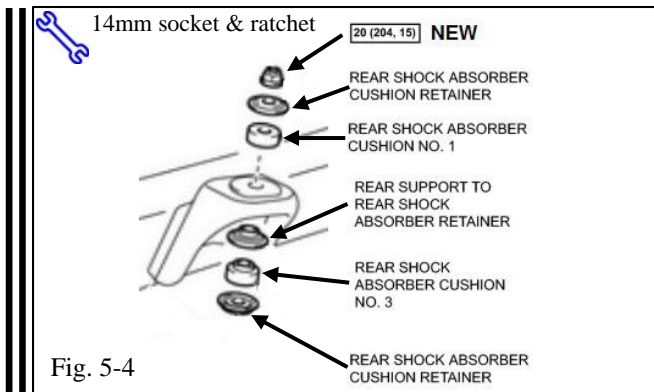
NOTE: The rear shock absorber assemblies are marked LR & RR (circles, Fig. 5-1). Be sure to confirm the correct installation location based on the marking on the lower end cap.



(a) Confirm the reservoirs are pointed in the correct orientation (Fig. 5-2).

(b) Temporarily install the shock absorber lower mount with the bolt, nut and washer removed in Step 3(b) (Fig. 5-3).

NOTE: Hand tighten for moving the vehicle to alignment.

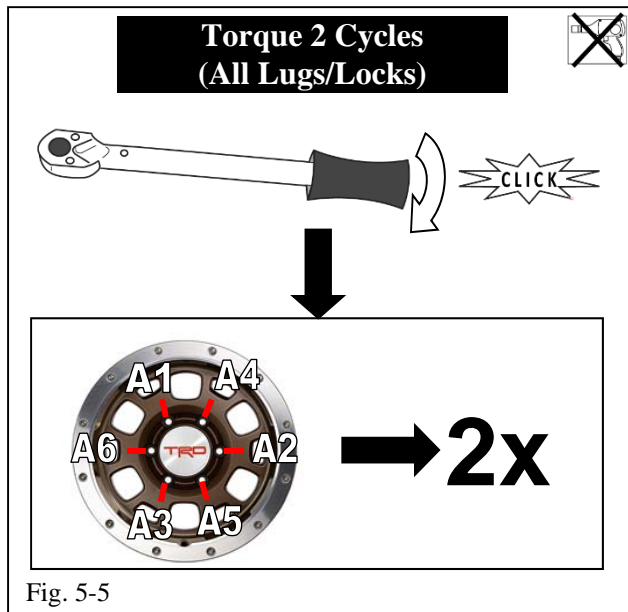


- (c) Install the lower cushion retainer onto the shock absorber stud (Fig. 5-4).
- (d) Reinstall cushion No. 3 and the original support retainer (Fig. 5-4).
- (e) Pull down on the shock absorber body and insert the stud into the shock absorber mount.

HINT: Rotate the body to loosen any sticking friction of the assembly.

- (f) Hold the shock absorber stud and tighten the **new supplied nut** (Fig. 5-4).

S Torque: 20 N·m (15 ft·lbf)



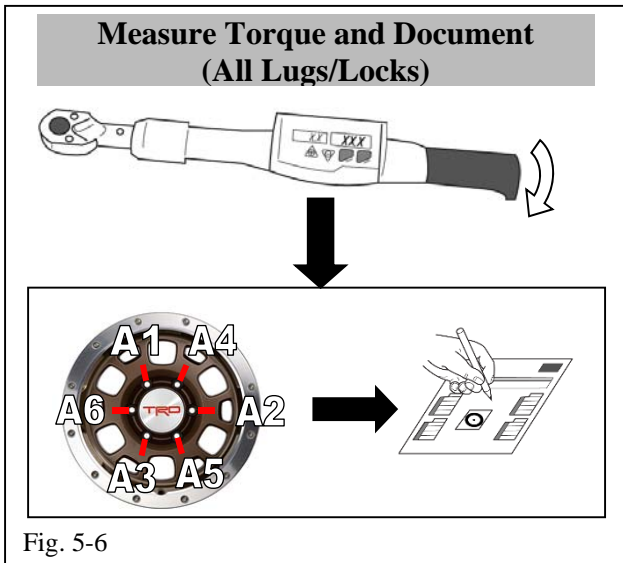
- (g) Install the rear wheel/tire assemblies onto the vehicle. Hand start the lug nuts during installation. Tighten the lug nuts in sequence 1 through 6 or equivalent star pattern (Fig. 5-5). Ensure that the socket does not scuff the wheels. Tighten the nuts to 83 ft-lbf (113 N·m) using a torque wrench.

S Torque: 113 N·m (83ft·lbf)

- (h) Re-torque all of the lug nuts in the same 1-6 sequence (Fig. 5-5).

S Torque: 113 N·m (83ft·lbf)

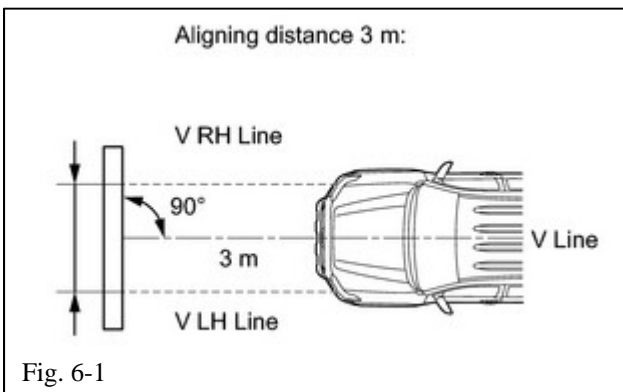
STOP CAUTION: DO NOT USE AN IMPACT WRENCH TO INSTALL OR REMOVE WHEEL LOCKS.



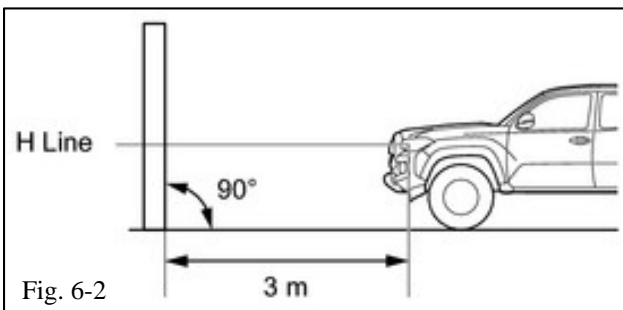
- (i) With the vehicle still on the lift, use a digital torque wrench to measure the torque of each lug nut/lock and record it on the Torque Audit Sheet (Fig. 5-6). (PPO installation only. Does not apply to DIO installation.)

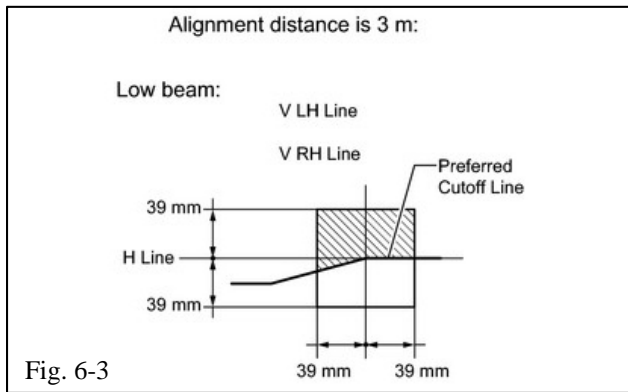
6. Adjust the Vertical Headlamp Aim.

- (a) Lower the vehicle onto the floor and remove the brake hold tool.
- (b) Back the vehicle up 2 to 4 feet and return it to the original position.
- (c) Place a white board 9.84 feet or 3 meters in front of the vehicle (or use a flat wall). Low light conditions can help (Fig. 6-1 & Fig. 6-2):



- (1) Use a location that is dark enough to clearly observe the cutoff line. The cutoff line is a distinct line, below which light from the headlights can be observed and above which it cannot.
- (2) Place the board at a 90° angle to the vehicle.
- (3) Keep a 9.84 ft (3m) distance between the center of the headlight bulb and the board.
- (4) Ensure the vehicle is on a level surface.





(5) Measure the height to the center mark on the headlight lens. This is the H Line height (Fig. 6-3).

(6) Mark this height on the board in front of the vehicle (ex: use masking tape).

(d) Adjust the vertical aim of the lamps.

(1) Cover the headlight on the opposite side to prevent light from the headlight not being adjusted from affecting the headlight aiming process.

STOP NOTE: Do not keep the headlamp covered for more than 3 minutes. The headlamp can be damaged due to high heat.

(2) Turn on the headlamps.

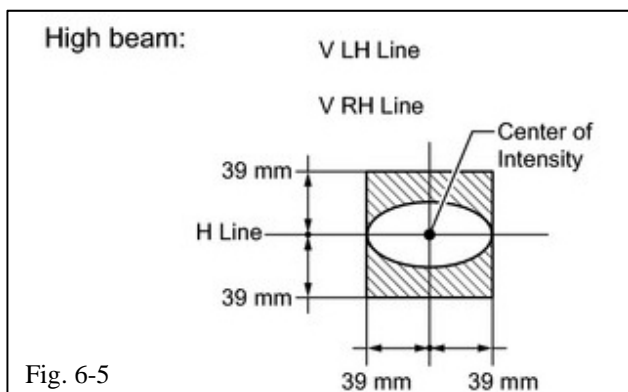
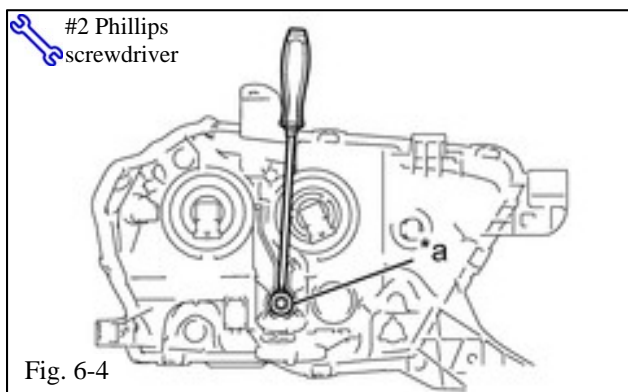
(3) Adjust the headlight aim to within the specified range by turning aiming screw “a” with a screwdriver (Fig 6-3).

! NOTE: The final turn of the aiming screw should be made in the clockwise direction. If the screw is tightened excessively, loosen it and then retighten it, so that the final turn of the screw is in the clockwise direction.

! NOTE: Do not alter the horizontal adjustment.

! NOTE: Since the low-beam light and the high-beam light are a unit, if the aim on one is correct, the other should be correct. The high-beam should only need verification and no adjustment, but check and adjust if necessary (Fig. 6-5).

HINT: The headlight aim moves up when turning the aiming screw clockwise and moves down when turning the aiming screw counterclockwise.



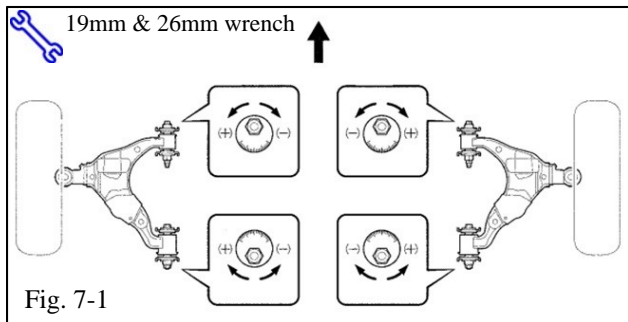


Fig. 7-1

Alignment Settings

- **Camber: 0°31' +/- 45' (0.52° +/- 0.75°)**
- **Caster: 2°8' +/- 45' (2.13° +/- 0.75°)**
- **Cross camber and cross caster difference should be 30' (0.5°) or less.**
- **Standard Steering Axis Inclination: 11°56' +/- 45' (11.93° +/- 0.75°)**
- **Toe-in: C + D: 0°05' +/- 0°10' (0.083° +/- 0.159°) and B - A: 1.04 +/- 2mm (0.041 +/- 0.08 in.)**

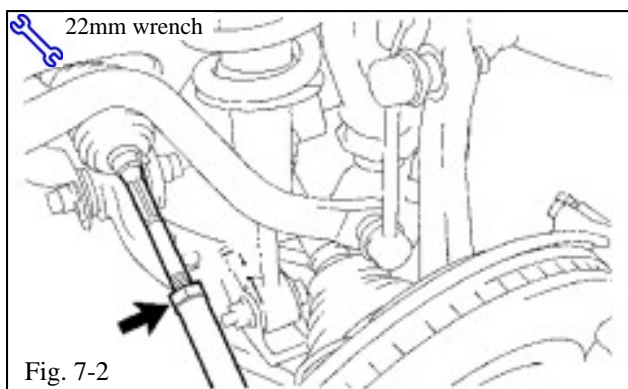


Fig. 7-2

7. Adjust the Wheel Alignment.

- (a) Park the vehicle on an alignment rack at the designated location, leaving the shift lever in “neutral” and the steering wheel pointed straight ahead.
- (b) Initialize the alignment system and measure the caster.
- (c) Loosen the adjustment nuts and bolts (Fig. 7-1).
- (d) Turn the front and rear adjustment cams as necessary. Adjust the camber and caster as close to the specifications values as possible.

HINT: Start with the adjustment cams at the centered position.

Camber: 0°31' +/- 45' (0.52° +/- 0.75°)

Caster: 2°8' +/- 45' (2.13° +/- 0.75°)

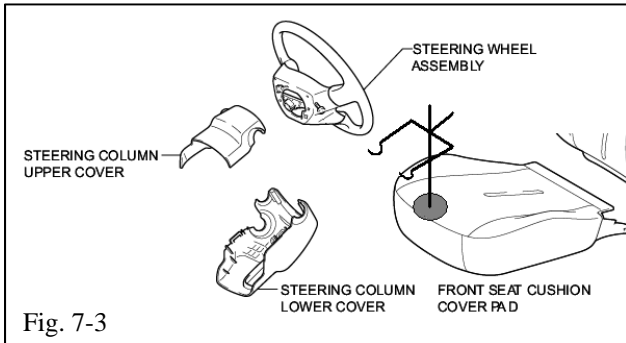
Standard Steering Axis Inclination: 11°56' +/- 45' (11.93° +/- 0.75°)

- (e) Repeat Steps 7(c) and 7(d) for the other side.
- (f) The difference left to right must be 0.50° (0°30') or less for both caster and camber.
- (g) Make adjustments with the front cams as necessary.
- (h) Tighten the bolts to prevent movement.
- (i) Loosen tie rod end lock nuts (Fig. 7-2).
- (j) Roughly adjust the toe settings so that the toe indicator arrow is in the green range.

(k) Install a steering wheel holding tool. Insure that the steering wheel is completely straight.

HINT: Line up the horn pad with the plastic garnish covering the steering column (Fig. 7-3).

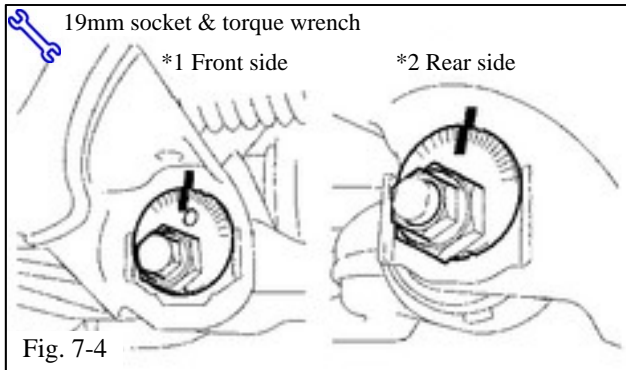
(l) Make any final caster and/or camber adjustments.



(m) Use a 19mm socket to torque the front and rear lower control arm bolts and nuts (Fig. 7-4).

S Torque, Front: 183 N·m (135 ft·lbf)

S Torque, Rear: 188 N·m (139 ft·lbf)

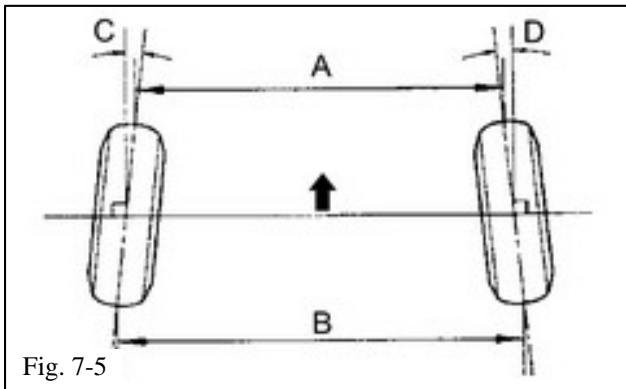


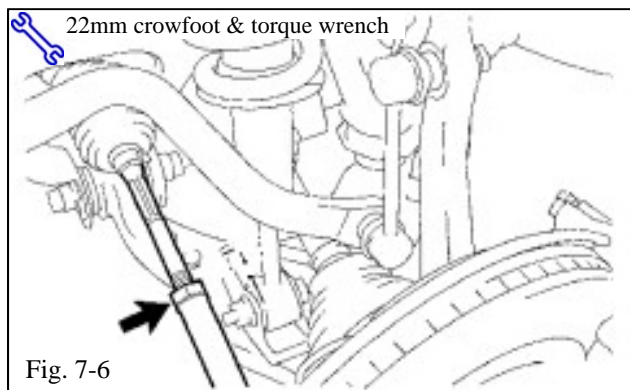
(n) Measure and adjust the toe (Fig. 7-5).

Toe-in:

C + D: 0°05 ' +/- 0°10 ' (0.083° +/- 0.159°)

B - A: 1.04 +/- 2mm (0.041 +/- 0.08 in.)



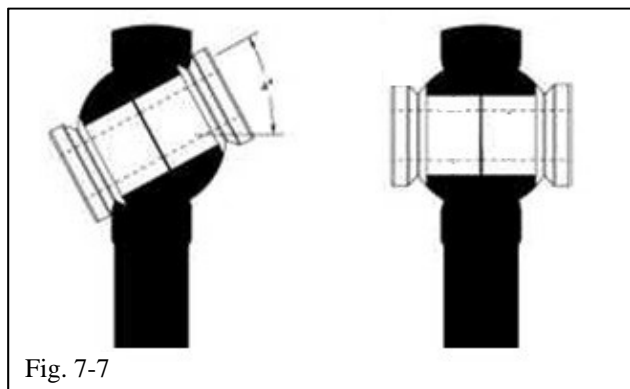


- (o) Use a 22mm crowfoot to torque the locking nut and be sure not to upset the final readings (Fig. 7-6).

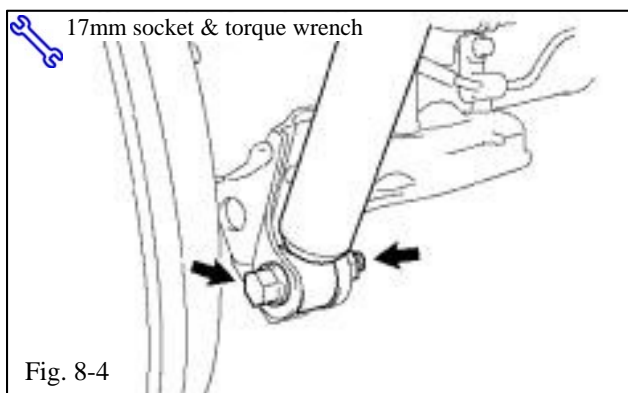
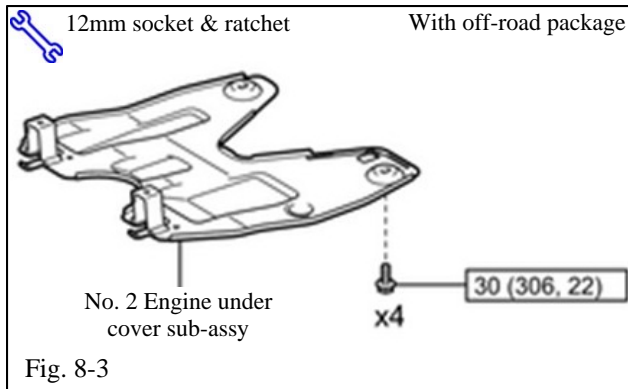
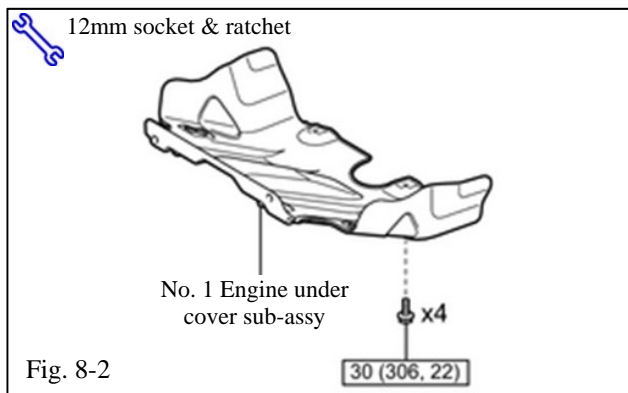
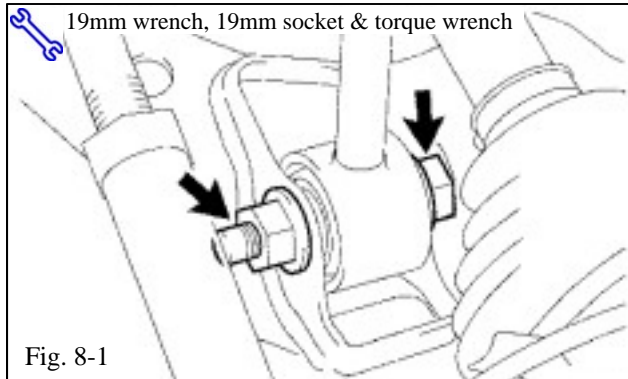
HINT: Turn the tie rod ends clockwise until they stop. Adjust the toe with additional “toe in” so that tension on the lock nut moves the wheel into specification.

S Torque: 56 N·m (41 ft·lbf)

! NOTE: After the lock nut is torqued, return the tie rod end to its neutral position on the ball joint (Fig. 7-7).



- (p) Remove the alignment heads and return them to their storage location.



8. Complete the Assembly.

- (a) Use a 19mm wrench and 19mm socket to torque the nut on the lower side of the front shock absorber (Fig. 8-1).

Torque: 83 N·m (61 ft·lbf)

- (b) **DIO ONLY (w/o TRD skid plate):** Use a 12mm socket to install both the No. 1 and No. 2 engine (if equipped) under cover(s). Torque the bolts to specification (Fig. 8-2 & Fig. 8-3).

Torque: 30 N·m (22 ft·lbf)

- (c) Use a 17mm socket to torque the rear lower shock absorber bolts (Fig. 8-4).

Torque: 58 N·m (43 ft·lbf)

- (d) Confirm the steering wheel is straight while returning the vehicle to the main shop for additional assembly.

Checklist - these points **MUST** be checked to ensure a quality installation.

<u>Check:</u>	<u>Look For:</u>
<u>Accessory Function Checks</u> <ul style="list-style-type: none"> <input type="checkbox"/> Verify the parking brake cable spacer is installed correctly <input type="checkbox"/> Confirm the rear shock absorber reservoirs are pointed in the correct direction 	<p>Sufficient clearance to rear shock reservoir</p> <p>Left side to rear, right side to front</p>
<u>Vehicle Function Checks</u> <ul style="list-style-type: none"> <input type="checkbox"/> Check the steering wheel <input type="checkbox"/> Verify the headlight aim 	<p>The steering wheel should be straight.</p> <p>The headlight aim should be in spec.</p>
<u>Vehicle Appearance Check</u> <ul style="list-style-type: none"> <input type="checkbox"/> After accessory installation and removal of protective cover(s), perform a visual inspection. 	<p>Ensure no damage (including scuffs and scratches) was caused during the installation process. (For PPO installations, refer to TMS Accessory Quality Shipping Standard.)</p>