

ATTENTION:
 GENERAL MANAGER
 PARTS MANAGER
 CLAIMS PERSONNEL
 SERVICE MANAGER

IMPORTANT - All Service Personnel Should Read and Initial in the boxes provided, right.

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QUALITY DRIVEN® SERVICE

SERVICE BULLETIN

APPLICABILITY: 2018-19MY STI **NUMBER:** 04-25-19R
SUBJECT: Torque Steer Diagnostics and Repair Procedure **DATE:** 04/25/19
REVISED: 08/28/19

INTRODUCTION:

The primary focus of this bulletin is to provide a procedure to follow when diagnosing a customer concern of Torque Steer, defined as a pulling condition to either the left or right when under full acceleration which requires a somewhat greater than standard correction of steering wheel input from the driver to counteract. As part of this diagnosis, it will be necessary to first eliminate two other conditions a customer may misinterpret as torque steer. These are: Steering Pull and Steering Off-Center. This will prevent incorrect or over-repair, both of which can negatively impact customer satisfaction. This bulletin applies only in cases where the original factory equipment wheels, tires, and all suspension components are currently installed and, the outlined condition is confirmed to be present.

SERVICE PROCEDURE / DIAGNOSTIC INFORMATION:

Definition of Terms:

- **Torque Steer:** A pull to either the left or right during full acceleration (high engine torque) which requires a somewhat greater than standard steering wheel input from the driver to counteract and keep the vehicle moving straight ahead.
- **Steering “Pull”:** A tendency for the vehicle to pull or “drift” to the left or right while at speed (not under acceleration) and holding the steering wheel straight ahead.

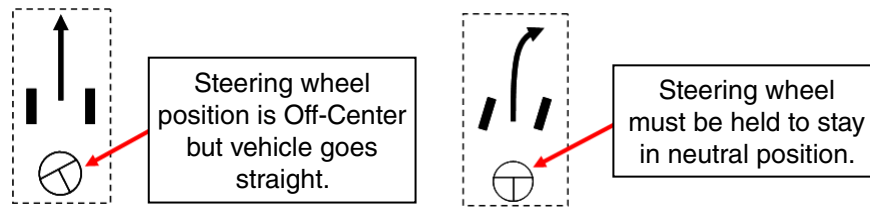


Steering wheel position is neutral (straight ahead) but vehicle pulls or drifts to the right (or left).

<p>CAUTION: VEHICLE SERVICING PERFORMED BY UNTRAINED PERSONS COULD RESULT IN SERIOUS INJURY TO THOSE PERSONS OR TO OTHERS.</p>	<p>Subaru of America, Inc. is ISO 14001 Compliant</p>
<p>Subaru Service Bulletins are intended for use by professional technicians ONLY. They are written to inform those technicians of conditions that may occur in some vehicles, or to provide information that could assist in the proper servicing of the vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do the job correctly and safely. If a condition is described, DO NOT assume that this Service Bulletin applies to your vehicle, or that your vehicle will have that condition.</p>	<p>ISO 14001 is the international standard for excellence in Environmental Management Systems. Please recycle or dispose of automotive products in a manner that is friendly to our environment and in accordance with all local, state and federal laws and regulations.</p>

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- **Steering Off-Center:** The steering wheel must be held at slight angle to keep the vehicle going straight.



Some examples of factors which can contribute to any of these conditions (not a complete list):

- Crowned road (slight slope) toward shoulder
- Remaining cornering force of tire (tire conicity or ply steer)
- Mismatched or unevenly worn tires
- Alignment out of proper adjustment
- Worn / damaged suspension component(s)
- Collision / suspension damage repairs not performed properly or to OEM specification.

DIAGNOSTIC PROCEDURE FOR TORQUE-STEER CONCERNS:

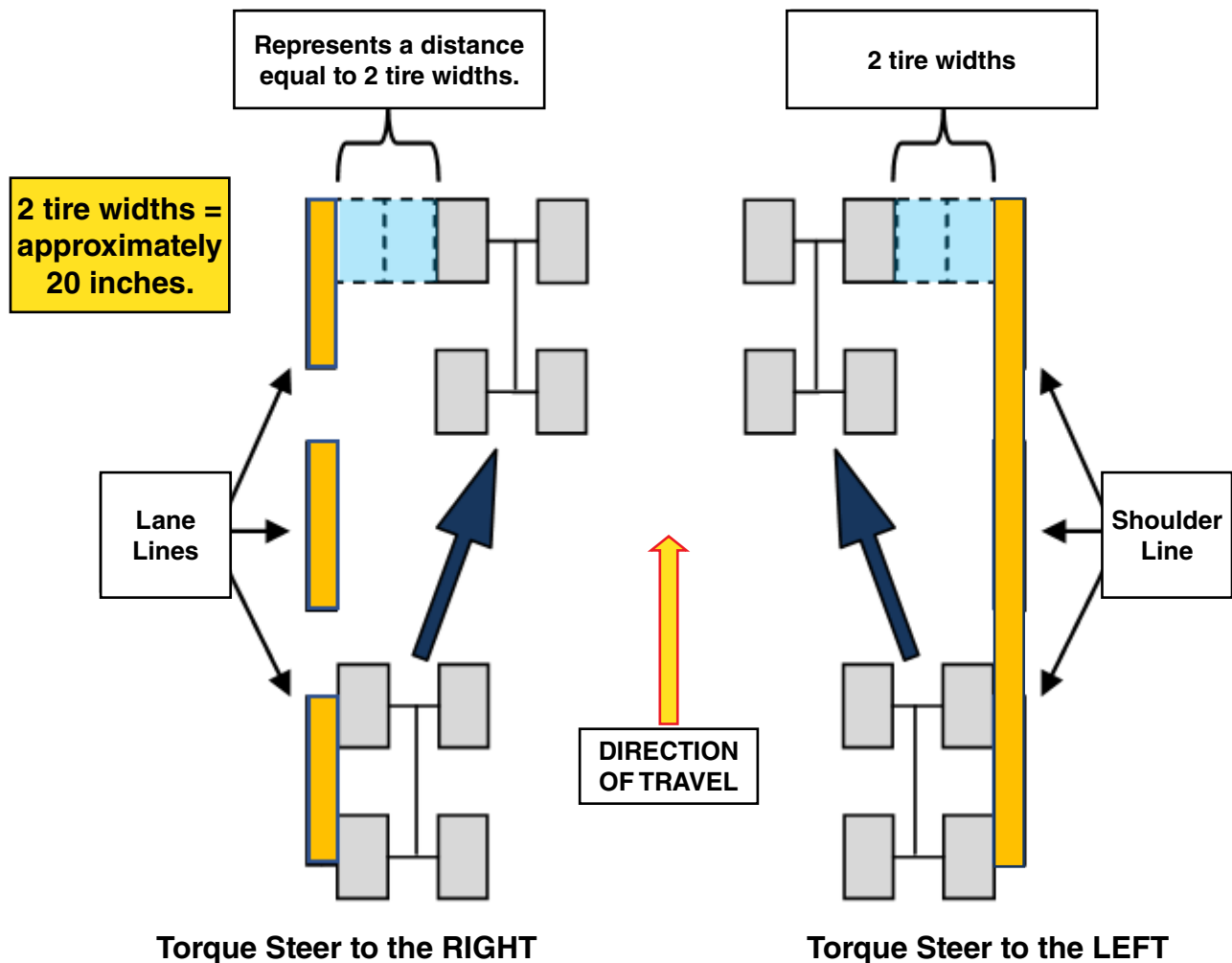
Step 1- Confirm the tire pressures are set to specifications; 33 PSI front and 32 PSI rear and verify all tires have no uneven / irregular treadwear or damage which could contribute to a pull or drift condition.

Step 2- Road test the vehicle following a normal driving pattern and confirm if the condition is a result of steering wheel off-center or steering pull as outlined in the Service Procedure section above.

- If steering pull or steering wheel off-center condition is found, address through standard adjustments as found in the applicable Service Manual. The balance of this bulletin does not apply. Additional information on these conditions can be found in **TSB 14-19-17**.
- If Torque Steer is confirmed, proceed to **Step 3** using a roadway as outlined in the **NOTE** below.

NOTE: Before proceeding, identify a SAFE location to perform this testing. The road surface should be flat and smooth as possible with a minimal (if any) “crown” which could contribute to a steering / vehicle drift toward the shoulder. The roadway will also need to be lined as shown in the illustration below. Alternatively, an empty parking lot free of obstacles and lined for parking may also be suitable as the test acceleration distance is relatively short. The less amount traffic in the selected test area the better. The lines will be used for measurement reference when necessary. When using a public or private roadway, at no point should the center line ever be crossed. Always remain in the lane of travel. Vehicle control must **always** be maintained. Identify markers (e.g. posts, trees or even use traffic cones) to signify a “test zone” 100 meters (330 feet in length). Keep in mind, there needs to be enough room prior to entering the zone for the vehicle to accelerate up to 40 MPH in fourth gear and after the zone to safely stop. **SAFETY IS KEY!**

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Step 3- Print out and review a copy of **Appendix A** found on page 7 of this bulletin.

NOTE: This worksheet is to be use for Torque Steer concerns ONLY.

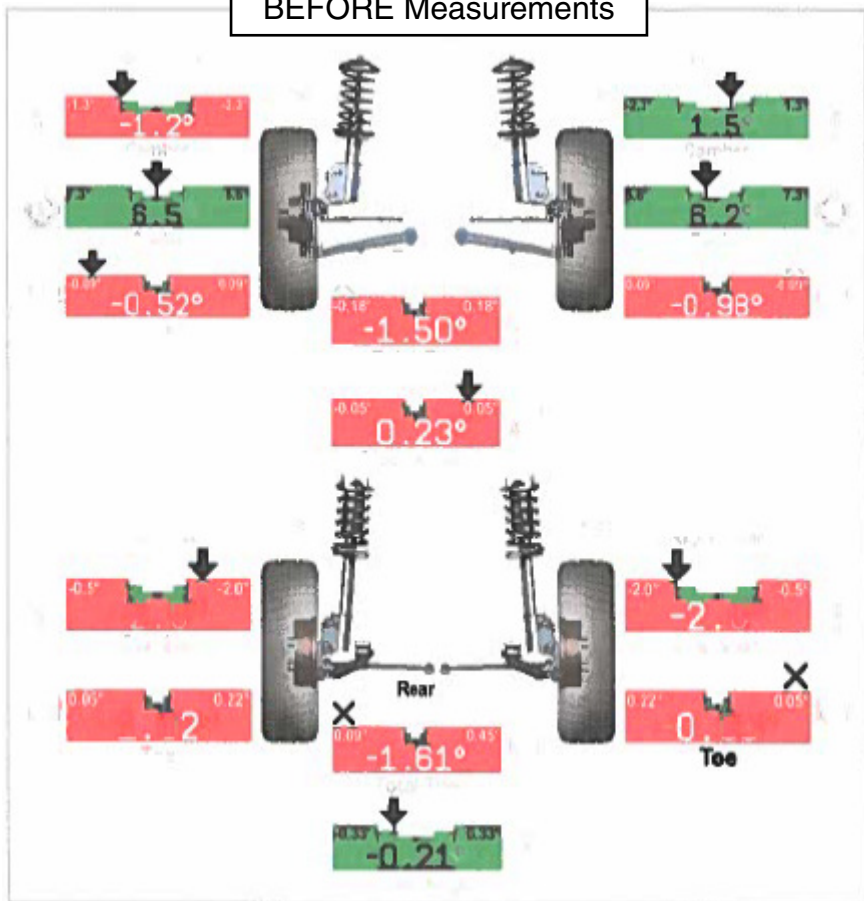
Step 4- Using properly calibrated 4-wheel alignment -capable equipment, perform a complete 4-wheel alignment using the following specifications:

- **Camber:** Identical (no difference between) left and right camber angles
- **Front Toe:** 0.13 degrees on each side
- **Rear Toe:** 0 degrees on each side.

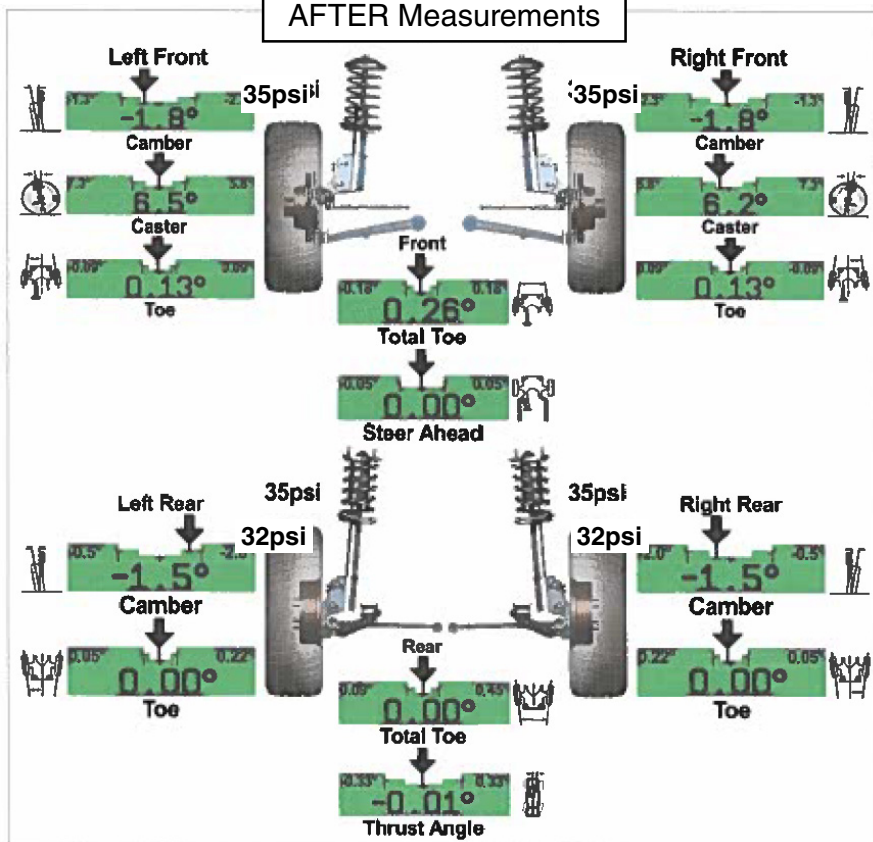
IMPORTANT: These specifications are different than those supplied in the 2018 and 2019MY STI Service Manual. Always save a copy of the Before and After alignment print outs as part of the claim documentation. Examples are provided below.

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BEFORE Measurements



AFTER Measurements



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When complete, road test the vehicle to confirm the repair.

- Has performing a 4-wheel alignment corrected the condition and does the vehicle now operate within the specifications outlined in **Step 2**?

YES- Repair procedure is complete. Proceed to the Warranty / Claim Information section for claim submission information. Save a copy of the Before and After alignment print outs as part of the claim documentation.

NO- Follow the **Step 5** procedures below.

Step 5- Complete the **Appendix A** Torque Steer Evaluation worksheet.

REMINDER: A copy of the completed worksheet, Before and After 4-wheel alignment print outs and a copy of the Repair Order are required to be retained for claim documentation.

- If after performing the alignment 4-wheel using the specifications listed above, the Torque Steer condition remains and exceeds the specifications listed, tires may be ordered through the Subaru Tire Center to correct this condition.
- After completing the worksheet, use the Subaru Tire Center found on Subarunet to order a set of four (4) tires, part number **435WR9ADSV2**. Use the Subaru Tire Center Part Number order field as shown below when making this order.

IMPORTANT: Only tires ordered through the Subaru Tire Center may be claimed for repair outlined in this bulletin.

The screenshot shows the Subaru Tire Center website interface. At the top, there is a navigation bar with the Subaru logo, 'SUBARU Tire Center', a phone number '866-981-3943', and a user account section 'SOA NATL WEB LOG IN My Account'. Below the navigation bar is a menu with categories: Tires, Inventory Management, Info Center, Marketing Tools, Training Center, Promotions, and a Search field. The main content area features a form with three input fields: 'Vehicle', 'Tire Size', and 'Part Number'. The 'Part Number' field is highlighted with a red circle and contains the text 'Subaru Tire Center Part Number 435WR9ADSV2'. There are play button icons next to each input field.

- Once the 4 new tires are received and installed, road test the vehicle again using the evaluation process outlined in **Step 2**.
- If the vehicle is now within the Torque Steer specification, the repair is completed. Proceed to the Warranty / Claim Information section for claim submission information.
- If the Torque Steer condition remains even after tire replacement and confirmation of alignment using que Steer the specifications listed in this bulletin, contact your FSE for further assistance.

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WARRANTY / CLAIM INFORMATION:

For vehicles within the Basic New Car Limited Warranty period, refer to the Subaru Labor Time Guide for claim coding information.

Labor Description	Labor Operation #	Fail Code	Labor Time
STI TORQUE STEER INSPECTION- NORMAL CONDITION	A613-610	NCR-88	0.5
STI TORQUE STEER INSPECTION- PERFORM 4-WHEEL ALIGNMENT CUSTOMER CONCERN REPAIRED	A613-618		1.8
STI TORQUE STEER INSPECTION- PERFORM 4-WHEEL ALIGNMENT CUSTOMER CONCERN NOT REPAIRED, REPLACE ALL 4 TIRES	A613-614		3.0

IMPORTANT NOTES:

- The actual cost amount for the replacement tires must be entered in Sublet.
- No part number entry for tire replacement is required.
- It is **STRONGLY** recommended to retain a copy of the Subaru Tire Center invoice in the vehicle file for future reference.
- For repairs performed in accordance with this Service Bulletin **ONLY**, the requirement for DPSM Authorization is waived.

HANDLING OF REPLACED TIRES CLAIMED TO SOA:

NOTE: The procedures listed here are specific to this Service Bulletin and not applicable to any other claimed repairs.

All tires replaced and claimed to SOA must have a hole drilled through **both** sidewalls near the D.O.T. number. Retailers may at their option, either hold these tires for normal scrapping or if space is constrained, perform the following procedure:

- Clearly mark each tire near the D.O.T. number with a tire crayon indicating the position it was on the car (LF, LR, RF, and RR).
- Drill at least a ¼ inch hole in **both** sidewalls of each tire with one of the holes located next to the D.O.T. number and crayon position location lettering.
- Take a photo of each tire showing the D.O.T. number and the drilled hole, and a close-up of the Repair Order showing the RO Number and VIN.
- Print and Save these photos along with the Repair Order hard copy as part of the repair documentation as copies may be requested by the Claims Team.

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Appendix A- Torque Steer Evaluation Worksheet

REMINDER: This form must be COMPLETED (including ALL before and after measurements). Copies of the Before **AND** After printouts are required as part of claim documentation for any tire replacement claimed to SOA.

To confirm the symptom type	Confirmation of three kinds of symptoms and OK / NG judgment			
	Intention	Confirmation	Result	Judgment
	Confirmation for "Steering Off Center" or others	Whether you need the force for holding steering wheel to drive on the straight or not?	<input type="checkbox"/> No necessary of steering force but not in neutral position. <input type="checkbox"/> Holding force required.	→ Steering Off Center → Steering Pull or Torque Steer
	Confirmation for "Steering Pull" or "Torque Steer"	Whether the engine torque influence on the steering holding force or not?	<input type="checkbox"/> Engine torque influence on the steering holding force. <input type="checkbox"/> Engine torque not influence on the steering holding force.	→ Steering Pull → Torque Steer
Confirmation for the direction of lateral motion by "Torque Steer"	Confirm the lateral movement when vehicle accelerated from 40MPH to 100m.	Which direction of lateral movement? Whether lateral movement is more than two tires in width?	<input type="checkbox"/> Right-hand, <input type="checkbox"/> Left-hand <input type="checkbox"/> More <input type="checkbox"/> Less	
Preparation for the countermeasure of "Torque Steer"	Check to the current condition of each tires			
	Front Tire	LH	RH	
	Serial number of tire			PMM** *○ * * :Product week / ○○ :Product year
	Tire pressure on current condition (kPa)			Adjust to standard pressure Ft: 230kPa / Rr: 220kPa
	Rear Tire	LH	RH	
	Serial number of tire			PMM** *○ * * :Product week / ○○ :Product year
Tire pressure on current condition (kPa)			Adjust to standard pressure Ft: 230kPa / Rr: 220kPa	

Wheel alignment adjustment	【Adjust Front Camber Angle】 Target Value: Difference between the right and left angles is <u>0 degree or less than 0.2 degree</u>			
	Front Camber Angle	LH	RH	
	Current condition of Front Camber Angle value	_____°	_____°	Which camber angle is larger? <input type="checkbox"/> LH <input type="checkbox"/> RH
	Which direction of lateral movement? / Which camber angle is larger?	<input type="checkbox"/> Lateral movement is Right and Larger camber angle is Left. <input type="checkbox"/> Lateral movement is Left and Larger camber angle is Right.		If the check box is applicable, please adjust the larger side of camber angle compare with the standard angle value.
	After adjustment of Front Camber Angle value	_____°	_____°	
	【Adjust Front Toe Angle】 Target Value: Toe-in 0.13 degree or more than 0.8 degree (on either side)			
	Front Camber Angle	LH	RH	
	Current value of EACH Toe Angle	_____°	_____°	If Front Toe Angle is within target value on current condition, it is not necessary to readjust.
	Current value of TOTAL Toe Angle	_____°		
	After adjustment of EACH Toe Angle value	_____°	_____°	
After adjustment of TOTAL Toe Angle value	_____°			
【Adjust Rear Toe Angle】 Target Value: Toe-in 0 degree or ±0.05 degree (on either side)				
Current value of EACH Toe Angle	LH	RH		
Current value of EACH Toe Angle	_____°	_____°	If Rear Toe Angle is within target value on current condition, it is not necessary to readjust.	
Current value of TOTAL Toe Angle	_____°			
After adjustment of EACH Toe Angle value	_____°	_____°		
After adjustment of TOTAL Toe Angle value	_____°			

After wheel alignment adjustment	Confirmation for the direction of lateral motion by "Torque Steer"	Which direction of lateral movement? Whether lateral movement is more than two tires in width?	<input type="checkbox"/> Right-hand, <input type="checkbox"/> Left-hand <input type="checkbox"/> More <input type="checkbox"/> Less	Final Judgment <input type="checkbox"/> OK <input type="checkbox"/> NG

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IMPORTANT REMINDERS:

- SOA strongly discourages the printing and/or local storage of service information as previously released information and electronic publications may be updated at any time.
- Always check for any open recalls or campaigns anytime a vehicle is in for servicing.
- Always refer to STIS for the latest service information before performing any repairs.