



ARTICLES CONTAINED IN THIS ISSUE

*Click on a title below to jump to the article.
Click the date located in the footer to return to page 1.*

CODE	ARTICLE	PAGE
(00)	STIS New Releases	5-7
(01)	QMR of the Month	1-2
(01)	QMR of the Month Award Presentations	2
(07)	2019MY Forester- Rear Seat Heaters Inoperative	3
(07)	2019MY Forester- Automatic Seat Retraction Feature Operation	3
Tech Tips Greatest Tips		
(07)	Electrical Diagnosis And Aftermarket Equipment	4-5
(15)	Use Of Aftermarket Accessory Engine / Fuel Economy Monitors	5
(15)	Basic Diagnostics for Remote Engine Start (RES) Systems	6
(15)	Testing and diagnosis of the Telematics WiFi HotSpot and Appointment Scheduler Features	6-9

01 QMR OF THE MONTH

We are pleased to announce this month's Winner of QMR of the Month:

Brad Fera from
Dan Perkins Subaru in Milford, CT

Brad submitted his award-winning QMR on a 2018 Crosstrek which presented with a slow cranking condition and a host of warning indicator lights illuminated in the combination meter. The majority of the DTCs he listed in his report related to communication failures with various systems and were all "hard" codes he was unable to clear. Before starting his diagnosis, Brad noticed evidence of a minor left rear bumper impact. He proceeded to dig into the wiring diagrams beginning with the EyeSight system which tested fine. Throughout all his diagnostics, Brad provided detailed results and readings of each test in his report. He determined there was a voltage draw after coming in the next morning to find the battery dead. Brad also isolated a common thread between some of the systems which led him to replace the BIU which unfortunately, had no effect. If he disconnected the battery and re-connected it, the draw would disappear until after the first key cycle. Further inspection led him to realize he could make the draw come and go by removing the fuse for the rear wiper. With the fuse removed, he was able to clear all the stored DTCs and get all the indicator lights to go off except for the BSD/RCTA (Blind Spot Detection / Rear Cross-Traffic Alert) light. There was also a DTC B2327 remaining for a rear radar sensor. This led Brad back to the left rear bumper impact noticed when first looking the car over and gave him the idea to take a closer look at the rear body harness wiring before trying to access and inspect the sensor. After disconnecting R464 which split the harness in half, there was no change which indicated the radar sensor was OK and directed him forward to inspect the B225 relay holder. No problems were found there either so, Brad started manipulating the engine harness while watching his DVOM. Finally, while moving the harness around in the area near the evaporator connections, he was able to watch the DVOM reading fluctuate showing the voltage draw come and go. Brad made and attached a video of this to his QMR showing the DVOM fluctuation while moving the harness in the affected area. He replaced the engine compartment bulkhead harness which returned all systems to normal operation and repaired the vehicle.

In appreciation for going the extra mile and sharing his experience with us, Brad will be receiving the following from his Field Service Engineer:

A \$500.00 Snap-On gift card.

CONTINUED ON THE NEXT PAGE

CAUTION: VEHICLE SERVICING PERFORMED BY UNTRAINED PERSONS COULD RESULT IN SERIOUS INJURY TO THOSE PERSONS OR TO OTHERS.

The Subaru TechTIPS newsletter is intended for use by professional Technicians ONLY. Articles 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 your vehicle has or will have that condition. Impreza, Legacy, Justy, Loyale, Outback, Forester, Subaru SVX, WRX, WRX STI, Baja, Tribeca, BRZ, XV Crosstrek, Ascent, Crosstrek Hybrid and "Quality Driven" are Registered Trademarks.

SUBARU OF AMERICA, INC. IS ISO 14001 COMPLIANT

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.



SUBARU

QUALITY DRIVEN® SERVICE

We Support



Education Foundation

01 QMR OF THE MONTH

The other Regional winners selected from QMRs submitted during January 2019 were:

- **Ricardo Luna-Garcia** from **Wilsonville Subaru** in Wilsonville, OR
- **Bren Baxter** from **Perry Subaru** in Norfolk, VA
- **Leo Gilmore** from **Ruge's Subaru** in Rhinebeck, NY
- **Eric Williams** from **Superior Subaru** of Houston, Jersey Village, TX

Any Subaru Technician can participate in the QMR of the Month program. See the February 2013 and January 2016 issues of Tech TIPS for full details. You just might see your name and photo in a future issue of Tech TIPS!

01 QMR OF THE MONTH AWARD PRESENTATIONS

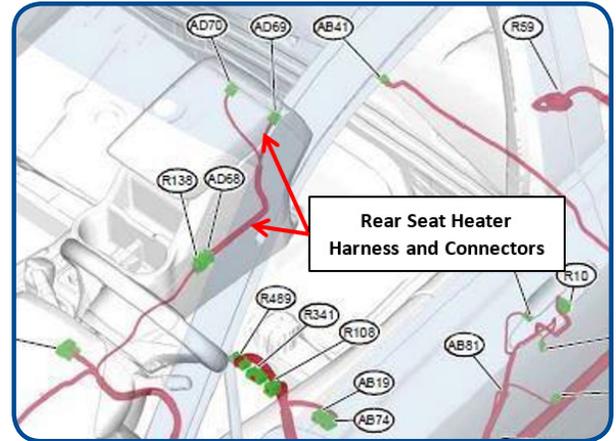
As part of our “enhanced” QMR of the Month recognition program, we will be including a photo (whenever available) of the recipient’s award presentation in TIPS. The winner selected from QMR of the Month submissions received during January, 2019 was Brad Fera, a Technician at Dan Perkins Subaru in Milford, CT.



*Brad is shown above receiving his \$500.00 Snap-On Gift Card. He was joined by (L to R) Evan Perkins, Dealer Principal, Susan Marsh, Field Service Engineer, Subaru New England, Marc Mesidor, Service Manager, Subaru New England District Parts and Service Manager Brian Giffen and, Dan Perkins Subaru's General Manager, Avrom Sevell. Congratulations and **THANK YOU** to our January, 2019 QMR of the Month Award recipient!*

CONTINUED ON THE NEXT PAGE

Should a customer present their vehicle with a concern of inoperative rear seat heaters, review the service history to check for any repairs which may have required removal of the center console box. The wiring harness for the rear seat heaters is secured with tape to the inside of the console box. If the tape were to come loose, the harness could droop down and become exposed. Rear seat passengers may inadvertently move or pull the exposed harness with their feet and disconnect rear seat heater connector(s). If the harness is found to be loose, remove the remains of the original tape and adhesive, clean and dry the affected area and properly re-secure the harness with a quality adhesive tape (e.g. duct tape). Make sure the new tape does not extend past the edge of the console box trim and become visible from the outside.



One of the many new features on the 2019MY Forester (Touring model) is Automatic Driver Seat Retraction designed to enhance driver accessibility. This feature is incorporated into the Driver Monitoring (DriverFocus) System. The Automatic Seat Retraction function is turned ON and OFF using the steering wheel controls and the Multi-Function Display (MFD). The following outline supplements the information in the Owner's Manual.

- The system is OFF by default.
- The system can be turned ON through the MFD (under Driver Monitoring System).
- When the system is turned ON, the seat will retract when:
 - The driver is registered to the DriverFocus system.
 - The vehicle is locked, unlocked, and Driver's door opened.
 - The centerline of the driver's seat is located forward of the seat rail centerline.

For example:

- On 2019MY Forester Touring models, the total seat rail sliding length is 260mm.
- If the drivers' seat is more than 130mm forward of the rear adjustment limit (more than half-way forward), the seat will retract to the 130mm (halfway) position and stop.
- If the driver's seat is exactly 130mm forward of the rear adjustment limit (half-way forward), the seat will only retract 10mm and stop.
- The seat will not retract at all if the access key used to open the door is also registered to a Driver's seat position:
 - The seat position registered to the access key can be cleared by pressing and holding the "SET" button on the door while pressing the "UNLOCK" button on the keyless access fob.
 - Clearing the seat position registered to the access key will also clear seat positions associated with memory button1 and 2.
- The seat will move forward to a registered position when the driver is recognized by the DriverFocus system (or it is moved manually).

TECH TIPS GREATEST TIPS

!!DOUBLE FEATURE!!

This series features TechTIPS articles frequently referred to by Techline. This month's features from April 2015 & July 2015 highlight the importance of inspecting for aftermarket accessories and lighting when diagnosing a customer's concern.

Note: Genuine LED Upgrade Map and Dome Lights are available. See the Subarunet announcement "LED Upgrade – Map and Dome Lights Application Guide" dated June 29, 2018 for more information.

07 ELECTRICAL DIAGNOSIS AND AFTERMARKET EQUIPMENT

As we all know, our vehicles are becoming more and more electronically-controlled with the number of control modules continuing to increase all the time. These modules work on specific voltages and current, typically low-voltage and low-current to help protect the circuits inside them. Before diagnosis of an electronic concern is begun, it is imperative to perform a thorough inspection of the vehicle for any aftermarket electronic devices. Ideally, the Service Advisor would question the customer to gather pertinent information to help with your diagnosis like: When did this condition start happening? Did you have any aftermarket equipment installed before the concern happened?...etc. Most of the time, an erratic electronic failure of a single item can be attributed to a loose ground or poor connection but, a complete failure of a single or multiple items often ends up being attributed to a power failure. What contributes to erroneous voltages? One cause can be attributed to the ever-growing popularity of LED lighting. LEDs are low-power devices which also draw relatively low current and are designed to work on specific, current-controlled circuits. To install LED lighting on a vehicle not originally designed to utilize it, LED bulbs with internal load resistors can be used or, bulbs not having internal load resistors can also be used as long as external, in-line load resistors are installed in parallel with them.

Because LEDs operate with low-resistance, if they are installed without the proper load resistor in a circuit designed for a high-resistance (incandescent) bulb, the device could cause the related circuit to be mistaken by the applicable control unit as "open." An example of this would be a turn signal or hazard flasher blinking rapidly similar to when a bulb is burned out or maybe a dash warning light coming on to indicate a bulb is out. Another more costly condition would be a large amount of current (surge or voltage spike) from a non-resistor LED making its way back into a control module and damaging a circuit (vehicles with CAN circuitry are the most susceptible to this type of failure).



Replacement LED Bulb (7440, Red) (7440CR) by Lumen®, Bulb. 27-LEDs bulb, 360 degree light output. Increase the output of your vehicle lights for safety and style with replacement LED bulbs that are fitted to install easily in the original light sockets without modification. **CAN Bus compatibility** ensures no flickering, bulb out warnings, check engine lights or other data loop errors on modern vehicles so equipped. 1-year manufacturer warranty. Replaces the following bulb types: 992. "CAN BUS compatible" versions typically \$20 or more.



Typical LED bulbs without a resistor, Non-CAN BUS compatible, sell for \$4

CONTINUED ON THE NEXT PAGE

07 ELECTRICAL DIAGNOSIS AND AFTERMARKET EQUIPMENT (CONTINUED)

NOTE: Subaru of America, Inc. does not currently offer any exterior LED bulb replacement or lighting accessories. Therefore, no testing has been performed by SOA to determine compatibility or effect of using these LED bulbs with any related Subaru electrical systems. As a result, damage to components caused by aftermarket modifications are not a matter for warranty.



This replacement LED bulb which came from a 2010 Outback, had no resistor and was determined to be causing the shift lock solenoid to turn on/off randomly. In addition, the solenoid would occasionally stick “on” enabling the transmission to be taken out of Park without stepping on the brake pedal. Voltage at the BIU, ECM, TCM, and VDC control modules from the brake light circuit measured 2.83V with the brake pedal not depressed (specification is less than 1.5V). The result was a damaged BIU which caused the 2.83V output voltage to the shift lock solenoid.

15 USE OF AFTERMARKET ACCESSORY ENGINE / FUEL ECONOMY MONITORS

While gathering your initial information to aid in diagnosis, it is always a good idea to inquire from the customer if they have installed any aftermarket accessories. Always inspect for them on your own regardless of the customer’s response. A QMR was received outlining a driveability and stalling concern the customer was experiencing. The Technician’s inspection revealed an aftermarket engine / fuel economy monitor similar to the unit shown below plugged into the vehicle’s OBDII connector. After further discussion with the customer about the accessory, it came out that the driveability concerns only occurred when the monitor was connected.

Remember, the only accessories tested and confirmed to be compatible with the various operating systems used on Subaru vehicles are those found in the Genuine Subaru Accessory catalogs and brochures.

The screenshot displays the ScanGauge website interface. At the top, it features the ScanGauge logo and navigation links for Home, Products, Media, Quick Tips, Support Center, and Where To Buy. A main banner image shows a ScanGauge II device installed in a vehicle's instrument cluster, displaying various gauges and data points like 73 MPH, 2243 RPM, 18.5 MPG, and 181 FT. Below the banner, there are sections for 'Ultra Compact Automotive Computers' and 'Fuel Saving Features'. The 'Ultra Compact Automotive Computers' section lists features like 'ScanGaugeD works with J1939 & J1708 Protocol' and 'Detachable Cable'. The 'Fuel Saving Features' section lists 'Compact size Fits almost anywhere!' and 'ScanGaugeII & ScanGaugeE Work On all 1996 & Newer Cars and Light Trucks'. A 'Learn More' button is visible in the banner area.

Below are some basic diagnostic steps to follow when a vehicle presents with a concern of RES does not operate:

- Determine which RES system or component is malfunctioning (e.g. factory RES using the keyless access fob, the accessory installed long-range fob, the MySubaru application-based system, etc.).
- Test and diagnose any vehicle diagnostic trouble codes (DTC) prior to proceeding with any Remote Engine Start (RES) component replacements.
- Charge and test the vehicle battery.
- Ensure all harness connectors are securely seated per respective installation instructions.
- Make sure the vehicle has a sufficient amount of fuel.
- Obtain Installation Instructions AND the applicable Troubleshooting Guide (found under Troubleshooting Guide section of STIS Online Reference publication type if available).

Many RES failures can be traced to vehicle-side faults. The RES system must confirm several vehicle conditions to operate successfully. These conditions may vary between vehicles. Some examples include but are not limited to:

- Hood, doors, and rear gate are closed.
- Shifter is in the Park position.
- No DTCs are stored.
- Brake pedal is not depressed.
- There is no key in the ignition.
- Some systems require the doors to be locked prior to RES operation.

Remember, the RES system cannot physically see these items are in their correct position but instead, relies on electrical signal inputs from switches. For example, when a door is closed, if the switch is not registering correctly, the RES may see it as open and inhibit RES operation.

The Telematics system uses 2 different APNs (Access Point Name) depending on which Telematics features are being used by the connected vehicle. For this article, a key point to understand is BOTH the WiFi HotSpot feature and the Service Appointment Scheduler features use the same APN.

Test Criteria:

When troubleshooting a WiFi HotSpot issue (which is relatively common) or a Service Appointment Scheduler problem (far less common), the failure or success of either feature will aid in diagnosing the overall trouble.

Prerequisite:

Before proceeding, confirm the Telematics LEDs are operating normally (see table below). If the LED operation is not as described in the table below, follow the diagnostics in the applicable Service Manual.

CONTINUED ON THE NEXT PAGE

	RED LED ON	RED LED Flash	RED LED OFF
GREEN LED ON	Initial collation with the server failed. It is possible that the server/DCM are malfunctioning or out of the service range.	—	<ul style="list-style-type: none"> Factory mode: DCM is normal. Service status: Communication with the server and DCM are operating normally (no communication failure with the STARLINK server, no DTCs within the vehicle unit).
GREEN LED Flash	—	Collation with the server is in progress.	Connection to the server is being attempted and in progress.
GREEN LED OFF	It is possible that the DCM is malfunctioning.	It is possible that communication with the server/DCM are malfunctioning.	Telematics function is not activated.

- Telematics “i” and “SOS” buttons function normally (depressing either reaches an operator).
- Telematics Security Plus and Safety Plus Features operate from customer’s My Subaru account.
- Either the WiFi HotSpot or Service Appointment Scheduler feature is inoperative.

(1) **Symptom / Confirmation:**

First, verify the WiFi HotSpot issue exists using the customer’s equipment as well as non-customer (known good) equipment. Using both an Apple and Android device in the verification process is recommended for a complete verification.

Test Results:

Pass:

The customer’s equipment as well as the non-customer equipment shows “Registered” to WiFi HotSpot but internet connection fails. Follow the Service Manual link below to aid in diagnosis of this condition.

27	WiFi HotSpot does not operate/connection to the Internet fails	 Ref. to TELEMATICS SYSTEM (DIAGNOSTICS)>Diagnostics with Phenomenon>INSPECTION > WIFI HOTSPOT DOES NOT OPERATE/CONNECTION TO THE INTERNET FAILS.
----	--	---

Fail:

The customer’s equipment and the non-customer equipment fails to register to WiFi HotSpot. Follow the Service Manual link below to aid in diagnosis of this condition.

See: The Device Cannot Be Registered to the WiFi HotSpot .

26	The device cannot be registered to WiFi HotSpot.	 Ref. to TELEMATICS SYSTEM (DIAGNOSTICS)>Diagnostics with Phenomenon>INSPECTION > THE DEVICE CANNOT BE REGISTERED TO WIFI HOTSPOT..
----	--	---

(2) Symptom / Confirmation:

Both the customer's equipment and the non-customer equipment successfully registers to WiFi HotSpot but an internet connection is not established.

Action:

To determine if the DCM or the provider network (AT&T) is the root cause, attempt to schedule a Service Appointment using the My Subaru icon on the home screen of the head unit. See the information and instructions provided below.

**Service Appointment Scheduler**

Whether it's time for regular maintenance or even when your vehicle tells you it's time to see a certified Subaru Service Technician, setting an appointment at your preferred Subaru Retailer for service is just a few "clicks" away. With SUBARU STARLINK Service Appointment Scheduler you can set an appointment from the MySubaru website, Mobile App or the vehicle's head unit. Getting your Subaru vehicle to the Subaru professionals for service is easy, no matter where you are. If you are away from your preferred Retailer for service, you can always use Service Appointment Scheduler to locate any of our certified Subaru Retailers near your location.

STARLINK Service Appointment Scheduler on your head unit is a convenient way to set a service appointment. Simply select the MySubaru icon on the home screen and choose "Make an Appointment" to get started:

- Schedule a new or view any existing service appointments with your preferred Retailer.
- Choose the date you would like to schedule an appointment from the options displayed
- Set a timeframe for your appointment (AM or PM)
- Select an available time
- Confirm your appointment

Have a question for your Retailer or need directions? STARLINK Service Appointment Scheduler has the following options to help:

- Locate a Retailer near your location
- Place a phone call to your Retailer (via Bluetooth)
- Get directions to your Retailer (Navigation System Only)

Subaru is there to help when your vehicle needs service. In the event that a Maintenance interval, Diagnostic Alert or Recall campaign occurs, the SUBARU STARLINK Service Appointment Scheduler will assist you in making sure your vehicle gets the attention it needs to stay healthy and on the road.

NOTE

Before using Service Appointment Scheduler for the first time, be sure to pair your smartphone with the vehicle's head unit, sync your contacts and allow notifications. This will help set the vehicle's internal clock to your location.

NOTE

Depending on how your vehicle is equipped, some features might not be available. Check with your Retailer or MySubaru to see what SUBARU STARLINK features are applicable to your vehicle.

NOTE

This feature will not work under the following conditions:

- GPS signal is not available
- Weak signal area

Test Results:**Pass:**

If the Service Appointment Scheduler successfully schedules the appointment, this indicates the provider network is provisioned and functioning properly. The most likely cause is the DCM.

Fail:

If the Service Appointment Scheduler fails to successfully complete scheduling an appointment, the provider network (AT&T) should be verified prior to DCM replacement since there is a possibility the fault could be on the provider side. It may be necessary to contact the AT&T Help Desk on the customer's behalf and have them verify the provisioning and / or the DCM is being seen by the network.

Alternate Method:

Using the WiFi HotSpot operation as a diagnostic tool can also be used when the Service Appointment Scheduler is inoperative. Follow the Service Manual link below for more help with diagnosis of this condition.

See: Service Appointment Scheduler Does Not Operate.

19	Service appointment scheduler does not operate.	 Ref. to TELEMATICS SYSTEM (DIAGNOSTICS)>Diagnostics with Phenomenon>INSPECTION > SERVICE APPOINTMENT SCHEDULER DOES NOT OPERATE.
----	---	--

ITEM CODE	ITEM TYPE	TITLE	CREATED DATE
15-236-18R	Technical Service Bulletin	Reprogramming File Availabilit...	Mar 21, 2019
TKC-19	Subaru Product/Campaign Bulletin	Takata Front Passenger Airbag ...	Mar 19, 2019
TKB-19	Subaru Product/Campaign Bulletin	Takata Front Passenger Airbag ...	Mar 19, 2019
TKA-19	Subaru Product/Campaign Bulletin	Takata Front Passenger Airbag ...	Mar 19, 2019
06-70-19	Technical Service Bulletin	VDC Control Module- Software C...	Mar 18, 2019
15-234-18	Technical Service Bulletin	2019 Audio/Navigation & Power ...	Mar 13, 2019
07-148-19	Technical Service Bulletin	Door Latch / Actuator Assembly...	Mar 13, 2019
15-214-17R	Technical Service Bulletin	2018 Audio/Navigation Exchange...	Mar 13, 2019
15-239-19	Technical Service Bulletin	Cargo Net Attachment Hardware ...	Mar 13, 2019
12-259-19	Technical Service Bulletin	Cowl Panel Gap- Design Change	Mar 13, 2019

All revised publications are highlighted in yellow.

ITEM CODE	ITEM TYPE	TITLE	CREATED DATE
15-228-18R	Technical Service Bulletin	Harman Audio / Infotainment: D...	Mar 13, 2019
15-204-16R	Technical Service Bulletin	2017 Audio/Navigation Exchange...	Mar 13, 2019
WTZ-85R	Subaru Product/Campaign Bulletin	Harman Kardon Head Unit FMVSS ...	Mar 12, 2019
WUC-88R	Subaru Product/Campaign Bulletin	Power Steering Gear Box Inspec...	Mar 11, 2019
15-238-19	Technical Service Bulletin	Enhanced CD Incompatibility wi...	Mar 11, 2019
02-181-19	Technical Service Bulletin	Crankshaft Bearing Warranty Ex...	Mar 11, 2019
15-229-18R	Technical Service Bulletin	Harman Audio / Infotainment: T...	Mar 11, 2019
02-163-16R	Technical Service Bulletin	Inspection and Repair Procedur...	Mar 8, 2019
WUD-89	Subaru Product/Campaign Bulletin	Combination Meter Reprogrammin...	Mar 6, 2019
11-190-19R	Technical Service Bulletin	DTC U0122 and Hesitation at Hi...	Mar 4, 2019
05-68-19	Technical Service Bulletin	Front Hub Retaining Bolt Chang...	Mar 4, 2019
16-120-19	Technical Service Bulletin	AWD Transfer Clutch Chatter So...	Mar 4, 2019
10-90-19	Technical Service Bulletin	Seat Heater Switches Sticking,...	Feb 28, 2019
MSA5P3932T	Technician Reference Booklet	2019 Crosstrek Hybrid New Tech...	Feb 27, 2019
02-178-18R	Technical Service Bulletin	Timing Hole Plug- Design Chang...	Feb 22, 2019
WTW-82	Subaru Product/Campaign Bulletin	Combination Meter Reprogrammin...	Feb 21, 2019

All revised publications are highlighted in yellow.

This is your chance to offer suggestions for use in future issues of TechTIPS! Make sure that if you e-mail us, you place in the **subject line** of your e-mail **“For TechTIPS Newsletter”**. Thank you!

MODEL: _____

YEAR: _____

VIN: _____

Description of situation encountered: _____

Your suggestion for repair procedure, product improvements, etc.: _____

Please attach separate sheets, if necessary. You may also want to include Service Manual diagrams or references, or your own drawings to assist in describing your suggestion. All information submitted becomes the property of Subaru of America, Inc. Permission is granted to Subaru of America, Inc. to print your name and suggestions in TechTIPS and other Subaru of America, Inc. publications. Mail items to: PO Box 9103; Camden, NJ 08101-9877.

Your Name: _____

Signature: _____

Dealer's Name: _____

City: _____

Date: _____

Dealer Code: _____