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### 2016 CALENDAR OF SUBARU HOLIDAYS

#### Labor Day

Monday, September 5, 2016

#### Thanksgiving

Thursday, November 24, 2016



## 01 QMR OF THE MONTH

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

**David Callender** from  
**Roy Robinson Subaru in Marysville, WA**

David submitted a very detailed QMR on his diagnosis and repair of a 2016 Forester with 4400 miles. The customer reported they had received multiple email notifications telling them their STARLINK telematics was not connected. Based upon the complaint, David started his diagnosis by confirming the condition. He found the red LED on the STARLINK upper console was illuminated. Inspecting the DCM for codes, David found it had a current B2A04 MIC CIRCUIT code. Believing he had a failed microphone, David swapped it with a known good part and found the code still occurred and persons receiving a call from the car could not hear him. He then proceeded to check the wiring from the DCM to the microphone connection. David found moving the wire harness for connector i271 at the DCM produced a short to power on pin 8 of that connector. Following the circuit back he then checked connector i238 and found the condition still present. Moving i238 to inspect it further, David found the harness to be chafed at a point roughly three inches back from the connector. The damage was a result of the harness rubbing against a metal mounting bracket for the relay junction adjacent to the HVAC blower motor. David repaired the damaged wires in the harness and routed it so it would no longer contact the bracket. Following the repair, he confirmed that the green led for STARLINK illuminated appropriately. David then communicated with both the Roadside (“i”) and STARLINK (SOS) call centers as a final check confirming repairs were successful. David’s QMR included several detailed photos outlining the damage found, his repairs and the finished appearance. These details made it very clear how he arrived at the final result and provided useful feedback for manufacturing.

In appreciation for going the extra mile and sharing his experience with us, David will be receiving the following from his FSE:

An **Apple iPad® Mini tablet** with a custom **Subaru Confidence in Motion case**

#### 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, L.L. Bean, Baja, Tribeca, BRZ, XV Crosstrek 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.



QUALITY DRIVEN® SERVICE



## 01 QMR OF THE MONTH AWARD PRESENTATION

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 May, was David Callender, a Technician at Roy Robinson Subaru in Marysville, WA. David is shown above receiving his award and is joined by: (l to r), Ryan Jolly, Service Manager and Martin Schager, Field Service Engineer, SOA. Congratulations and THANK YOU to May’s QMR of the Month Award recipient!

**Congratulations David!**



Any Subaru Service Technician can participate in QMR of the Month. See the February 2013 and January 2016 Tech Tips for full details. You may see your name here in a future Tech Tips.

## 01 QMR OF THE MONTH PROGRAM UPDATE

Subaru of America, Inc. would like to thank all Subaru Service personnel who have participated in the QMR of the Month program. To keep the drive to win the National level award, there has been a change to the QMR of the Month National winner award. National winners will now earn:

- Snap-On Electronic Torque Wrench
- 3 credits to be used toward select tier one and/or tier two merchandise

All other aspects pertaining to the QMR of the Month program are currently remaining the same. Please see your FSE for details.

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*Subaru-U is committed not only to the development of future Technicians, but also educating existing Service personnel on how Automotive Education works and how to give back to local programs. The Subaru-U Program is a true partnership and it cannot work unless all parties strive to make it work.*



*Over the next few months, a series of short articles will be released to help inform you, our retailers, about the education side of Subaru-U and what you can do to make the program a success and get the most out of it.*

## **I Can't Mentor Students. Part 1 of 2**

We are in a time when qualified Technicians are becoming somewhat of a rarity. Gone are the days of posting an ad in the paper and several very capable Technicians come running to answer it. The proverbial pool has been drying up over the past several decades with young people becoming increasingly interested in technologies and other skilled trade career fields. Because automotive service is a self-regulated discipline, those in the field need to support and cultivate the next generation of automotive Technicians. Industrywide, the reasons why a retailer CANNOT mentor a young Technician are plenty. It seems there are those in the industry who feel the job of educating these new Technicians rests solely on the schools with the Service departments reaping the benefits of Technician development. Technician training is a partnership between the retailers and the schools to provide and cultivate different skills within the new Technician. Investment of one without the other equates to an incomplete or inadequately trained Technician.

In the past year as I have spoken to instructors and Service Managers throughout the country, and heard many "reasons" why retailers are hesitant to take on the responsibility of mentoring a new Technician. Let's address some of the more common ones:

**"I don't have the room in my shop to mentor a Technician"**- An apprentice Technician is just that, an apprentice. You wouldn't want someone to read a book on brain surgery then have them operate on you without any supervision, would you? Apprentices need to work under the tutelage of another Technician to develop the skills necessary to be successful. Although the occasional entry level task solo is understood and encouraged, the apprentice should be primarily operating in the same space as the mentor. If this is done right, a mentor Technician can actually increase productivity and have very positive benefits for the shop. For an example of this and the labor, calculator visit

<https://www.ayes.org/Dealers/Intern-Value-Calculator.aspx>

**"Our insurance doesn't cover young apprentices"**- Students in college are almost always over the age of 18, legal age to hold a traditional job. Insurance coverage for those apprentices is usually not an issue. Most insurance companies will cover them as long as they meet the same guidelines as any other employee of the retailer (drug test, driving history, etc.) High school programs that are AYES accredited are covered differently. Please contact your local AYES representative for more information on mentoring high school apprentices.

**"We don't have time to mess with someone who doesn't know what they're doing"**- How can a young person ever know what they're doing if shops aren't willing to invest time in an apprentice? Not all of these students actually have what it takes to be a truly effective Technician but, unless shops are willing to step up to the plate, that won't be determined until after the Technician is already out in the

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work force actually repairing customer vehicles without mentor supervision. I have had retailers tell me “We tried that once and it didn’t work out.” The truth is, not all of them will. Retailers who understand this will usually mentor several students at the same time knowing that one or two may not work out in their shop. However, if a student does show particular talent, the mentoring shop usually has the ability to get first shot at picking that student up after their schooling is complete. So many young potential Technicians are discouraged because no shop is willing to take the time to cultivate them to their true potential. Shops willing to work with these young students are thinking ahead about the direction they want their business to progress. Something to think about; if your shop isn’t willing to work with and cultivate the talent that is coming into the workforce, your competition is.

As a retailer, if you are unsure how to effectively work with apprentices, develop mentors within your organization or find willing students in your area, contact your local AYES or NATEF representative or your FSE to find out how best to proceed with growing your Service business. Next month, in this 2-part article, we will give real life examples of retailers who have embraced the role of mentor with great success.

**05** ABNORMAL NOISE DIAGNOSIS

The Techline continues to receive calls from Technicians needing assistance with noise concerns. One thing to keep in mind when calling is to have very specific details on the noise and its location. If possible, it is recommended a video of the noise be submitted for the Techline to better assist you. If unable to duplicate the noise, arrange for a test drive with the customer. One of the things you will need to diagnose a noise which is hard to find is a set of chassis ears. This will be one of the first recommendations by the Techline in order to get the noise localized. Once localized, we will have a better idea of a possible cause and be able to give better advice on how to approach the noise. One of the main issues we see is lack of detail. Here are some questions you can have the advisor ask the customer or you should have the answer to when calling:

When does the noise occur? (hot, cold, rough surface only, etc.)

Where is the noise coming from? (L/F, R/R, center of vehicle, etc.)

- Steering/suspension related
- Engine/trans/driveline related
- Brake application related
- Body noise related

Is the noise normal? (Not sure? Compare it to a like vehicle.)

Check for any related TSBs or TIPS on the issue.

Generic  
Chassis  
Ears



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Please be advised there is a Bluetooth Pre-Call Worksheet which has been posted to Subarunet. This worksheet can be found under the Service Operations & Technical/ Techline Pre-Call Worksheets area of Subarunet. When you have a customer concern of the Bluetooth system not working properly, please use this worksheet to interview them and fully understand the complaint. After diagnosing the issue, if you still cannot figure out the problem, you should call the Techline. Starting with this announcement, all calls related to Bluetooth issues will require this worksheet to be filled out completely before we can assist you. Any calls we receive without the worksheet filled out will automatically be directed to complete it. The Technical Representative you are working with will then review and attach the worksheet to your Techline case number.

Diagnosing P0171 can be broken down into simple categories to reduce diagnostic time. Start by electronically saving the freeze frame data (FFD) and review it for necessary information. Do not clear the ECM memory at this time. Doing so will reset all learned values and may require a test drive to duplicate the fault. Next, enter engine control module current data display to monitor the short and long term fuel trims while the vehicle is at idle. If necessary, compare to a like vehicle under the same conditions. If the fuel trims are a high percentage indicating a lean air/fuel mixture, inspect the following items:

### Fuel

- **Fuel pressure** below specification will not supply the required amount of fuel for a stoichiometric combustion.
  - Inspect components such as injectors, piping, and fuel pumps according to the applicable Service Manual.
- **Poor fuel quality** such as fuel containing more than 10% Ethanol will create a lean condition.
  - Use the appropriate testing equipment to determine fuel quality.

### Unmetered Air

- Air that enters the engine **after** the **MAF** will cause lean air/fuel mixtures.
  - Inspect all air intake connections for damage or looseness after the MAF.
  - In order to locate air leaks which cannot be visually inspected, use a method of fuel enrichment while monitoring your fuel trims. If the fuel trims drop toward 0% or A/F sensor returns to  $\leq 1.0$  during enrichment of a certain location, suspect an air leak.
  - Test the **CPC solenoid** and **brake booster** by blocking the hose connected to the component while monitoring the fuel trims to determine if there is a fault.

### Exhaust

- **Air** entering the exhaust system between the cylinder head and A/F sensor will also cause a false lean condition.

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### Metering devices

- Metering devices for the air/fuel mixture can send incorrect information to the ECM causing incorrect fuel corrections.
  - Inspect the connections at all air/fuel metering devices for poor connection and contamination.
  - Swap the **MAF** and **A/F** sensor into a like vehicle to see if the condition follows the sensor.

### Combustion chamber

- Poor combustion in a cylinder can result in unburned oxygen. The A/F sensor will read the unburned oxygen as a lean condition.
  - Verify **valve clearances** and **compression** readings are within specifications according to the applicable Service Manual.
  - Information regarding cylinder **leak-down** testing can be found on STIS in Technician's Reference Booklet: Engine Theory and Diagnosis MSA5P2106C.

Techline has received several glass repair authorization requests where the interior rear view mirror has separated from the windshield and in the process pulled some glass from the windshield. This type of failure is a result of abnormal (high shear force) being applied to the mirror. The mirror mounting is designed to meet the FMVSS (Federal Motor Vehicle Safety Standard) for required separation in the event of specified impact forces being applied to it during a collision to reduce bodily injury. These forces exceed the normally applied forces found during standard mirror adjustment. The application of high shear force to the mirror through sudden, forceful movements or an unusual level of force being applied against the mirror when it reaches or has reached the end limit of its range of travel, may duplicate the forces required to cause the mirror to shear from the windshield. This type of separation is not a result of any defect in the windshield glass and not eligible for authorization through the Techline glass authorization process. If you believe some unusual circumstances occurred beyond the control of the customer resulting in this condition, those facts should be reviewed with your DPSM.

Photo examples are shown to the right of mirror base and windshield glass following the application of high (unusual) shear force and the expected results. This will not occur during normal mirror adjustment.



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If you are diagnosing an electrical fault on a vehicle, do not forget to check all of the associated systems involved with the circuit in question. One example would be inoperative back-up lights and back-up camera on a 2016 Forester with a short to ground in power supply circuit **FB-35**. Check if the vehicle is equipped with the Auto Dimming and Home Link accessory mirror. If equipped, there is a possibility when the map light or Eye Sight® panel was reinstalled, the wiring harness may have been pinched if not routed correctly. **Figure 1** shows a damaged wiring harness in this case.

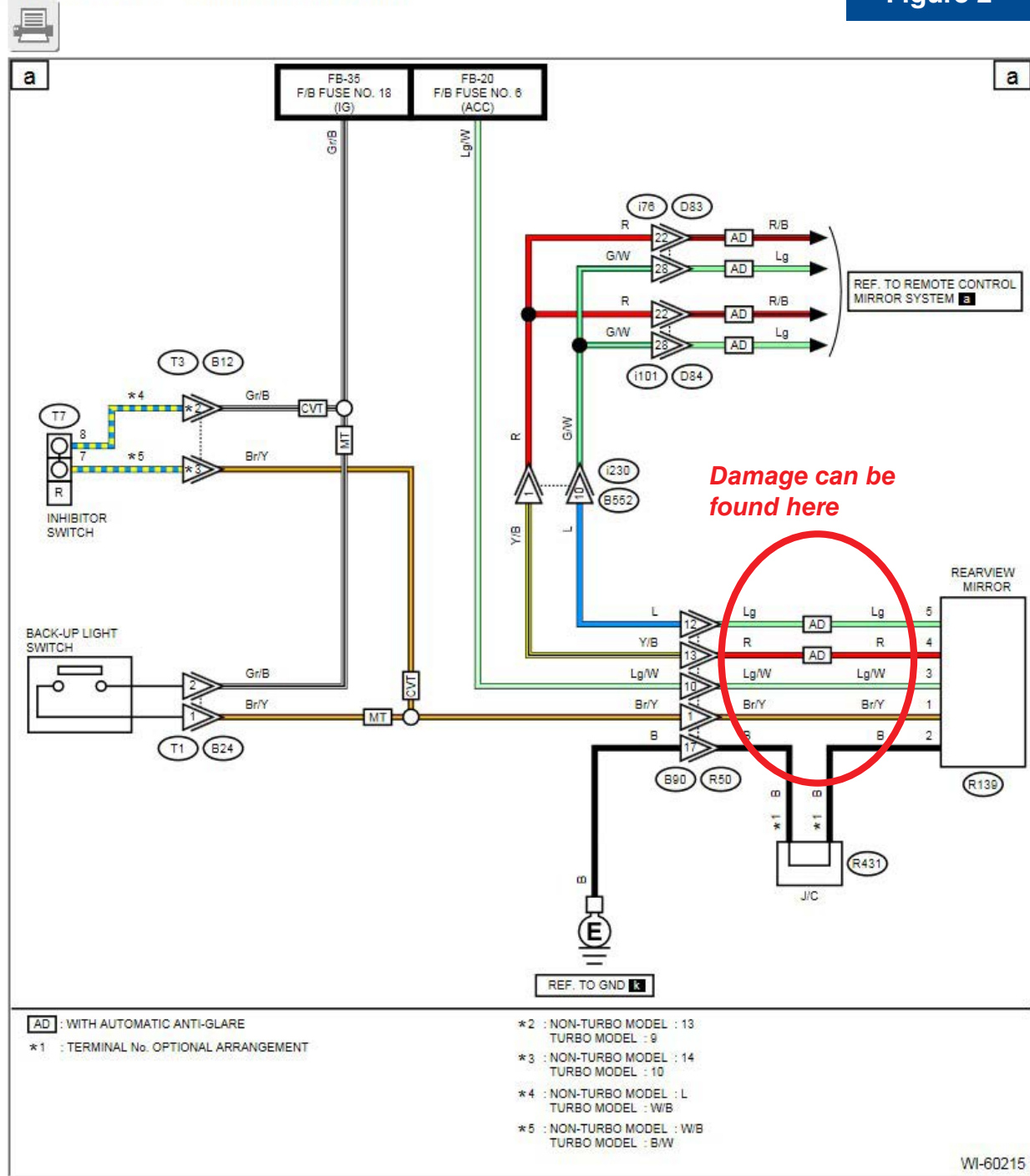
Figure 1



Outlined in **Figures 2-4** are the wiring diagram, connector identification, and associated circuits involved with this particular scenario.

WIRING SYSTEM > Rearview Mirror System

Figure 2

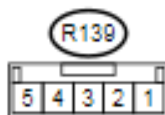


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**Figure 3**

Fuse-Box/ Multi-Box	Fuse No.	Fuse Description	Wire Color	Controlling circuits Systems that could be INOP
FB-20	Fuse No. 6	(ACC)	Lg/W	Seat Heater Relay, Rear View Mirror Power for Auto Dimming and Home -link Functions, Remote Control Mirror Switch
FB-35	Fuse No. 18	(IG)	Gr/B	Inhibitor Switch, Back-Up Light Switch
MB-5	Fuse No. 10		R/L	Exterior Mirror Heater LH, Exterior Mirror Heater RH, A/C Control Panel


**Figure 4**

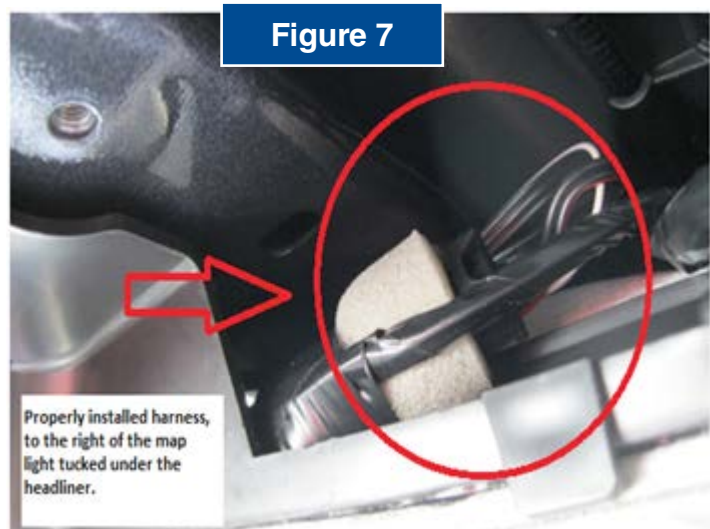
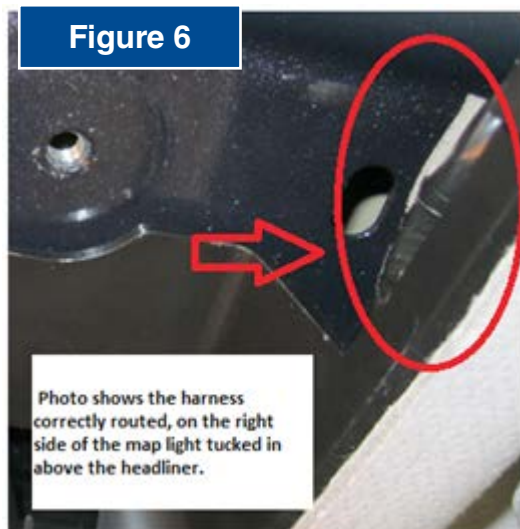
- Terminal No. 1** = [Br/Y] Back-up Light Switch (Auto un-dims the A/D Mirror when Reverse Gear is selected.)  
**Terminal No. 2** = [B] Ground wire  
**Terminal No. 3** = [Lg/W] Accessory 12v Power to A/D Home Link Accessory Mirror  
**Terminal No. 4** = [R] Reversion Wire to the accessory exterior Auto Dimming Mirrors with Approach Lighting  
**Terminal No. 5** = [Lg] Reference Wire to the accessory exterior Auto Dimming Mirrors with Approach Lighting

Multiple components could be affected on this 2016 Forester if the roof harness or Auto Dimming and Home Link accessory mirror harness is damaged. Reviewing **Figure 3** shows that any component on the reverse light circuit could be affected. Another symptom of this damage, shown in **Figure 5**, can be found in TSB 15-173-14 which is applicable to the 2014-2015 Forester models. Information found in this bulletin highlights damaged exterior auto dimming mirrors with approach lighting caused by a short to ground in the interior auto dimming mirror harness.

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**Figure 5**


TSB 15-173-14 also includes detailed images of the harness damage, along with auto dimming mirror circuit testing when applicable. If inspecting this harness for damage, or replacement of the harness is necessary, it is required that the harness be routed correctly. **Figures 6 and 7** show the proper routing and placement of the roof harness and accessory mirror harness.



Keep in mind, not all vehicles are equipped with the accessory Auto Dimming and Home Link mirror but could exhibit similar symptoms if the factory roof harness is damaged. In order to eliminate the roof harness, a simple test would be to refer to the applicable Service Manual and use the split-half troubleshooting technique on the circuit in question.

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## 15 MICROPHONE NOT WORKING? CHECK THE TELEMATICS SYSTEM

Techline has received a limited number of reports concerning inoperative microphones on 2016MY and later vehicles. Customer concerns have stated the party on the other end of the call cannot hear them, the voice recognition feature is inoperative, and the STARLINK Telematics operator cannot hear them. When diagnosing these concerns, it is important to inspect all related items. Wiring should be verified from the microphone to both the audio unit and DCM. If the microphone harness is open or shorted, this could cause the condition. If a microphone is suspected as the failed component, it can easily be swapped into a known good vehicle to see if the concern follows.

Telematics system operation should be verified when inspecting the vehicle. A simple test would be to press the “i” button and see if there is a response. If no response, connect the SSM4 to the vehicle and attempt to communicate with the Telematics system. In the event communication cannot be established, the first check should be power and ground to the DCM. Some Technicians have found the DCM fuse was removed in error during the PDI process. Please refer to the applicable Service Manual to determine correct fuse locations. The February, 2016 issue of TechTIPS addresses this issue on 2016MY Impreza, Crosstrek, and Forester models.

If the audio unit is suspected as the failed component, it also can be swapped into a known good vehicle to see if the condition follows.

### IMPORTANT NOTE / REMINDER: NEVER SWAP THE DCM!

## 00 STIS NEW RELEASES

ITEM CODE	ITEM TYPE	TITLE	CREATED DATE
12-206-16	Technical Service Bulletin	Seat Cushion Frame Surface Rust Treatment Procedure	28-Jul-16
12-205-16	Technical Service Bulletin	Procedure to Eliminate a Depression or Dent in the Roof Trim Panel (Head Liner)	28-Jul-16
06-57-16	Technical Service Bulletin	New Disc Brake Mounting Bolt and Torque Specification Change	28-Jul-16
12-189-15R	Technical Service Bulletin	Rattling Sound from Rear Package Shelf Area	26-Jul-16
R_J2534	Other / Miscellaneous	Reprogramming J-2534 Files Chart	25-Jul-16
11-164-16R	Technical Service Bulletin	Surging Condition During High Ambient Temperatures	22-Jul-16
MSA5P2410C	Technician Reference Booklet	Basic Fuel Injection Part 3 (June 2016)	21-Jul-16

**All revised publications are highlighted in yellow.**

ITEM CODE	ITEM TYPE	TITLE	CREATED DATE
01-174-16	Technical Service Bulletin	Windshield Sticker Placement Guideline	21-Jul-16
14-22-16	Technical Service Bulletin	Special Service Tool Cross Reference List	21-Jul-16
12-204-16R	Technical Service Bulletin	Pop, Click, Creak Sounds from the Rear Body Area	20-Jul-16
07-111-16	Technical Service Bulletin	Headlamps- Design Change to Prevent Moisture Intrusion	19-Jul-16
12-204-16	Technical Service Bulletin	Pop, Click, Creak Sounds from the Rear Body Area	15-Jul-16
WQR-53R	Subaru Product / Campaign Bulletin	Takata Front Passenger Air Bag Inflator Replacement	15-Jul-16
H701SCA100	Accessory Installation Guide	BRZ 2017MY Accessory Footwell Illumination Kit (blue)	14-Jul-16
H701SCA000	Accessory Installation Guide	BRZ 2017MY Accessory Footwell Illumination Kit (red)	14-Jul-16
12-203-16	Technical Service Bulletin	Squeaking Sound from Front Seat Buckle	14-Jul-16
MSA5M1713A	Owner Manual	2017MY Forester EyeSight Owner's Manual	13-Jul-16
MSA5M1702A	Owner Manual	2017MY Forester Owner's Manual	13-Jul-16
MSA5M1714A	Owner Manual	2017MY Legacy and Outback EyeSight Owner's Manual	13-Jul-16
MSA5M1703A	Owner Manual	2017MY Legacy and Outback Owner's Manual	13-Jul-16
12-202-16	Technical Service Bulletin	Rear Gate and Rear Gate Buffer Information	13-Jul-16
TKC-16	Subaru Product / Campaign Bulletin	Takata Front Passenger Airbag Inflator Replacement	13-Jul-16
TKB-16	Subaru Product / Campaign Bulletin	Takata Front Passenger Airbag Inflator Replacement	13-Jul-16
TKA-16	Subaru Product / Campaign Bulletin	Takata Front Passenger Airbag Inflator Replacement	13-Jul-16

**All revised publications are highlighted in yellow.**

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ITEM CODE	ITEM TYPE	TITLE	CREATED DATE
15-196-16R	Technical Service Bulletin	Data Communication Module (DCM) Procedures for Provisioning Failure, Inspection / Repair	13-Jul-16
	HTML Diagnostics	2017MY Forester Service Manual V8	12-Jul-16
16-102-16	Technical Service Bulletin	DTC P0841 Diagnostics	11-Jul-16
MSA5T1688A	Service Manual Full	2016 Impreza, XV Crosstrek and XV Crosstrek Hybrid Body Repair Manual	11-Jul-16
MSA5T1569A	Service Manual Full	2015 Impreza, XV Crosstrek and XV Crosstrek Hybrid Body Repair Manual	11-Jul-16
MSA5T1725A	Service Manual Full	2017MY WRX and WRX STI Body Repair Manual	8-Jul-16
MSA5T1665A	Service Manual Full	2016MY WRX and WRX STI Body Repair Manual	8-Jul-16
MSA5T1640A	Service Manual Full	2016 Legacy and Outback Body Repair Manual	8-Jul-16
MSA5T1677A	Service Manual Full	2016MY BRZ Body Repair Manual	8-Jul-16
MSA5T1578A	Service Manual Full	2015MY BRZ Body Repair Manual	8-Jul-16
H771SSG101	Accessory Installation Guide	Forester Trailer Hitch Harness (turbo)	8-Jul-16
H771SSG001	Accessory Installation Guide	Forester Trailer Hitch Harness (non-turbo)	8-Jul-16
15-198-16R	Technical Service Bulletin	Reprogramming File Availability for Gen 2 Fujitsu-TEN F10 Navigation and 7 inch Display Audio Units	8-Jul-16
MSA5T1626A	Service Manual Full	2016 Forester Body Repair Manual	8-Jul-16
MSA5T1537A	Service Manual Full	2015 Forester Body Repair Manual	8-Jul-16
SOA567x020	Accessory Installation Guide	2017 Outback (Touring Only) Crossbar Installation	7-Jul-16

ITEM CODE	ITEM TYPE	TITLE	CREATED DATE
	HTML Diagnostics	2017MY Legacy and Outbak Service Manual v1	30-Jun-16
G2530BE	Service Manual Full	2017MY Legacy and Outback Service Manual	30-Jun-16
TIPS0616	TechTIPS NewsLetter	2016 June TechTIPS Newsletter	28-Jun-16
15-202-16	Technical Service Bulletin	Turbo Boost Gauge Removal Procedure	27-Jun-16
06-55-16R	Technical Service Bulletin	Design Change to Stop Light Switch	24-Jun-16
06-42-12R	Technical Service Bulletin	ABS Wheel Speed Sensor (rear)	24-Jun-16
06-56-16	Technical Service Bulletin	New Rear Wheel ABS Sensor Replacement Parts	24-Jun-16

**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 6000, Cherry Hill, NJ 08034-6000.

Your Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Dealer's Name: \_\_\_\_\_

City: \_\_\_\_\_

Date: \_\_\_\_\_

Dealer Code: \_\_\_\_\_