

TECH TIPS

Subaru Service and Technical Support Line Newsletter

January 2017
SUBARU



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SUBARU TECHLINE HOLIDAY HOURS OF OPERATION

President's Day

Monday, February 20, 2017

Memorial Day

Monday, May 29, 2017

Independence Day

Tuesday, July 4, 2017

01 QMR OF THE MONTH

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

Nick Johnson from **Subaru of Las Vegas in Las Vegas, NV**

Nick submitted a very detailed QMR on his diagnosis and repair of a 2017 WRX with 453 miles. The customer reported an intermittent extended engine cranking condition which seemed to happen more in cold conditions. Nick was able to duplicate the condition after letting the car soak for two hours. He checked for codes and then for any ECM updates in FlashWrite but found none. Next, a fuel sample was taken and checked for alcohol content. After confirming the content to be 8% and acceptable, Nick proceeded to install a fuel pressure gauge on the low pressure fuel line. Fuel pressure was noted as 50 psi and within specification. Nick then monitored the pressure over time and determined it bled down to just 5 psi after only 4 hours. He was able to duplicate the extended cranking condition a second time and determined the low pressure fuel pump required replacement. After replacing the low pressure fuel pump, Nick checked the fuel pressure as the car soaked and noted significant improvement. An overnight soak showed the new pump was still holding pressure in the morning. Upon starting the engine, Nick experienced an extended cranking condition again although not nearly as long as the one from the original complaint. Comparing SSM4 Data collected while duplicating the condition with that from a known good vehicle, he noted the high pressure fuel rail sensor showed much higher readings during cranking and while soaking. Additionally, he noted the pressure rise was greater just before the engine started on the known good vehicle. Nick replaced the high pressure fuel pump at this point and found he now had high pressure values comparable to the known good vehicle. Additional quality checks confirmed the extended crank condition was now fully resolved. Nick supplied SSM4 project file data as well as screen shots of critical points taken the SSM4 data for both vehicles. He included text callouts on his screen shots where he described the conditions found during his inspections. These details made it very clear how he arrived at the final result and provided useful feedback for us.

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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

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

A Snap On ATECH2FR100B Electronic Torque Wrench plus credits to be used for additional award items of his choice.

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 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. In the photo above, from Subaru of Las Vegas left to right are: Steve Maffioi-Service Manager, Burton Hughes-General Manager, Nick Johnson-Winning Technician, Robert Wilkes-FSE and Michael Hoyt-Parts and Service Director.

Congratulations and **THANK YOU** to the QMR of the Month Award recipient!

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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.



Preparing for Interns

With March coming in a matter of weeks, now is the time retailers need to take a serious look at bringing interns on to help grow their service operations. Students are looking for intern positions within shops to hone their skills and reinforce what has been learned in the classroom. With the shortages of available Technicians, the updates on recent safety campaigns and the need to retain customers by providing a high quality service experience, retailers need to be proactive in recruiting students with the greatest potential. In previous articles, we have covered many of the do's and don'ts of properly working with inexperienced interns. In this article, we will cover how to actively recruit potential Technicians into your organization and have the chance of bringing students with the most potential to your shop.

Establish a rapport with the local Automotive Service Program- There have been many times, Service Managers come to a school and tell the instructors they need Technicians for their shops and it is the first time those retail personnel have ever been to the school. A training program will tend to be loyal to the businesses that support the program. The first time you go to a school, don't be looking for favors. Find out what you can do to be more active in supporting the program. If your organization is not participating in the advisory meetings make it a habit to do so. It's incredible how many say they will be at a meeting yet something always seems to come up. By volunteering to attend, keeping that commitment and being an active participant, you show the schools you are serious about supporting the program. Also, students in the program will get exposure to you and your organization. People tend to migrate towards things that are familiar so the chances of getting some of the best and brightest from the program are drastically improved.

Volunteer for “mock” interviews- Many programs schedule mock interviews during certain times of the year to help students get acclimated to the interview process. Several of our retailers have taken advantage of these interviews to actually screen potential candidates for employment in their shops. If the student doesn't know they are being interviewed for a possible position, they tend to be more at ease. This can help you, the retailer, evaluate them a little bit better than when they know the interview is for a potential position. Once again, communicate with the instructor that you wish to participate. They will definitely appreciate the fact that you are putting an effort in to be an active participant in the program.

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Make sure your team is ready for interns- It has been said before and here it is again; just because a Technician has Master status does not mean he or she is the most qualified to be a mentor in your shop. A mentor is a great responsibility so, make sure the individuals (if you are doing this right, there will be more than one mentor) are going to make the concerted effort required to be an effective mentor. There are usually logs and records which must be kept of the intern's progress and exposure to different types of issues on vehicles. Once again, don't continuously oil change them. They chose this profession because they have a passion for all things automotive. If they are relegated to just one task without some changeup in task, there is a good chance they will become discouraged and leave the profession altogether.

March through May are key months for the schools to find either internships or permanent placement for their students and graduates. Even with the students who are out there looking for a job or an internship, the number of "potentially qualified candidates" is much less. Remember, not all of them are going to work out for you. Keep your lines of communication open so you can address needs in your organization as they occur. Don't be the employer who comes looking for potential employees without providing something in return. You can get the cream of the crop or table scraps; it's your call.

If a customer states they see a red box or area in their back-up camera display, the system may very well be operating as designed. Always perform a visual check of the sensors on the rear bumper first. If any of the sensors are covered over or obstructed by ice and / or snow, the RAB system may not function properly and the red area shown in the example photo below will most likely appear. When this occurs, the RAB system is unable to properly differentiate between what really is an obstacle and what is not. In this case, the sensor is iced over and the red area is displayed with no obstacle present. The Owner's Manual provides a list of other potential causes for this condition to occur:



- In the following cases, the system may not be able to properly detect an obstacle. Promptly contact a SUBARU dealer to have the system inspected.

- A sticker, paint, or a chemical is applied to the rear bumper near the sonar sensor
- The rear bumper is modified
- The rear bumper has been removed and reattached
- The ground clearance is changed due to the vehicle's loading condition or modification
- Ice, snow or mud is adhered to the rear bumper near the sonar sensor
- The rear bumper is exposed to strong impact, or the rear bumper is deformed

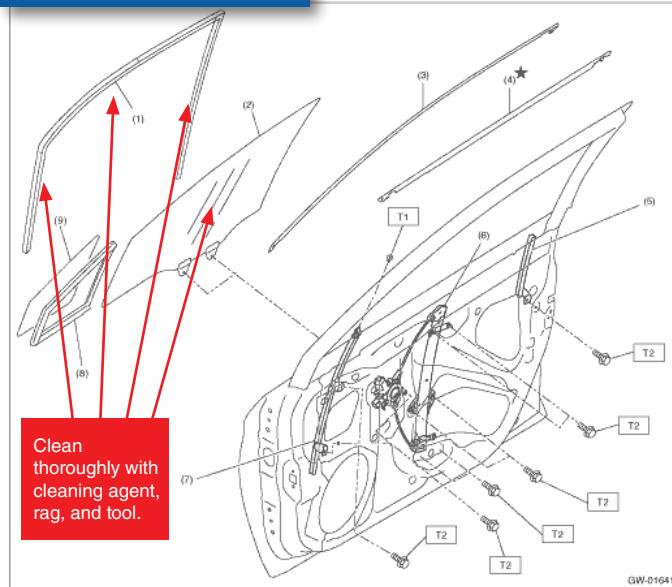
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06**2017MY IMPREZA WITH REVERSE AUTOMATIC BRAKING (RAB), RED AREA APPEARS IN BACK-UP CAMERA DISPLAY****07****POWER WINDOW OPERATION ERRATIC, CANNOT PROGRAM MEMORY.**

If you encounter a power window that will not fully close when using the auto up/down feature, then re-opens slightly, there are a few items which should be inspected before proceeding with component replacements. Typically, when this condition occurs, the power window controller within the window switch has recognized an unwanted variation in motor speed indicating an object blocking the window from closing. In order to prevent damage, or possible injury, the auto-reverse function will be enabled and the window will move in the reverse direction. When the window operates in auto-reverse mode, this results in window memory loss. We would like to provide inspection points and helpful tips to use when diagnosing this condition and programming the window memory as outlined in the Service Manual:

- Using a cleaning agent, rag, and plastic trim tool, clean the run channel seal and window glass thoroughly of dirt and debris that could potentially cause a binding condition. ➔ (See **Figure 1**)
- Inspect the run channel seal for bulging, proper fit, and placement in the run channel.
- If the vehicle has been in a collision with the door exhibiting the window issue, inspect installation of all affected components.
- Repeated attempts at learning the window memory could potentially overheat the motor, resulting in further difficulties. Allow the window motor to cool before proceeding with any further testing.
- The logic for the Auto-Reverse function is housed within the power window switch so, swap with a known good vehicle to test functionality.

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07**POWER WINDOW OPERATION ERRATIC, CANNOT PROGRAM MEMORY.****Figure 1 – Front Door Glass**

- (1) Running channel - front door (6) Regulator & motor ASSY - front
(2) Glass ASSY - front door (7) Sash ASSY - partition
(3) Molding - door sash front (8) Weather strip - front door partition
(4) Weather strip outer - front door (9) Glass - front door partition
(5) Sash ASSY - lower

07**NO HYBRID AUTO START STOP OR EV TRAVEL**

The Techline has been receiving an increased amount of calls on Hybrid vehicles with a concern of no auto start stop operation, with or without DTCs. If you encounter one of these issues, a necessary step to include into your diagnosis should be to check the 12V Restart battery condition with the GR8. We have seen a bad restart battery accompany DTCs related to the Integrated Starter Generator (ISG) along with disabling both the Auto Start Stop and EV traveling modes. If DTCs are involved, the applicable troubleshooting procedure should be followed including the battery testing. If questioning the necessary conditions required for EV travel or Auto Start Stop operation, this can be found in the applicable Service Manual under the HYBRID ELECTRIC VEHICLE (DIAGNOSTICS) > Read Current Data > Operation section. Figure 1 is an excerpt from the 2014 XV Crosstrek Hybrid Service Manual highlighting the 12V restart battery parameters which must be met before either mode is enabled.

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Figure 1 – 12v Restart Battery Parameters

2. HYBRID POWERTRAIN CONTROL SYSTEM (AUTO START STOP AND EV TRAVELING CONDITIONS)

NOTE:

For Auto Start Stop and EV traveling conditions of hybrid powertrain control system, refer to

Display	Auto Start Stop		EV traveling	
	Condition for permission	Condition for cancel	Condition for permission	Condition for cancel
Brake Booster Pressure 1	< 63.83 kPa	> 69.83 kPa	< 63.83 kPa	> 69.83 kPa
Brake Booster Pressure 2	< 51.33 kPa	> 55.33 kPa	< 51.33 kPa	> 55.33 kPa
12V Engine Restart Battery SOC Control	≥ 70.0%	< 60.0%	≥ 70.0%	< 60.0%
12V Engine Restart Battery Voltage	≥ 12.6 V	≤ 11.4 V	≥ 12.6 V	≤ 11.4 V
12V Engine Restart Battery Temperature	≥ -10°C (14°F) and ≤ 78°C (172.4°F)	< -12°C (10.4°F) or ≥ 80°C (176°F)	≥ -10°C (14°F) and ≤ 78°C (172.4°F)	< -12°C (10.4°F) or ≥ 80°C (176°F)

Note: This data should only be used for reference. Testing of the 12v Restart Battery must be done with the GR8.

The information on the electrical system shown below in Figure 2 can be found under General Specifications in the Service Manual. Always review the applicable Service Manual before testing any electrical system.

Figure 1 – 12v Restart Battery Parameters

ELECTRICAL

Model		2.0 L	2.0 L HEV
Ignition timing (at idling)	BTDC	MT: 16°±10° CVT: 16°±10°	10°±10°
Spark plug	Type and manufacturer	NGK: SILZKAR7B11	NGK: DILZKAR7B11
Generator		12 V – 110 A	–
Integrated starter generator (ISG)		–	12 V – 200 A
DC/DC converter		–	12 V – 130 A
Battery	Type and capacity (5HR)	12 V – 48 AH (55D23L)	12 V – 48 AH (55D23L) (12 volt auxiliary battery) 12 V – 41 AH (N55-R) (12 volt engine restart battery)
	CCA	390 A	390 A (12 volt auxiliary battery) 450 A (12 volt engine restart battery)
High voltage battery	Type and capacity (1HR)	–	100.8 V – 5.5 AH Ni-MH (nickel metal hydride) battery
Drive motor	kind	–	Three-phase AC synchronous motor
	Rated voltage	–	100 V
	Maximum output	–	10 kW [13.4 HP]
	Maximum torque	–	65 N·m [6.6 kgf-m]

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The Techline continues to receive calls from Technicians about issues after replacing a BIU. For example, not switching the Factory Initial Setting from “Factory” to “Market” typically results in the pocket lights, dome lights, and key ring flashing. As shown below in **Figure 1**, prior to replacing the BIU it is required to check and record the current customized settings. This can be achieved through the work support function utilizing the SSM4. More information on this can be found in the April 2016 TechTIPS Newsletter. Once BIU installation is complete, the unit must be customized to match the recorded settings.

Figure 1 – Body Integrated Unit Replacement on 2015 Outback

SECURITY AND LOCKS > Body Integrated Unit

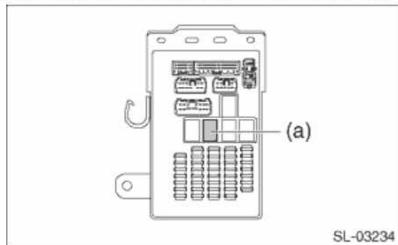
NOTE

1. WHEN REPLACING THE BODY INTEGRATED UNIT

1. Check and record the current setting. 

CAUTION:

- When the body integrated unit is replaced, registration of the immobilizer is required.
For detailed operation procedure, refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”. (Models without the keyless access with push button start)
- When replacing the body integrated unit, install the starter relay (a) to the relay holder.



NOTE:

The fuse & relay box is a single unit with the body integrated unit.

2. AFTER REPLACING THE BODY INTEGRATED UNIT

1. Set the current settings as recorded.

2. Register the immobilizer. (Models without the keyless access with push button start, and except for C0 and C5 models)

NOTE:

For detailed operation procedure, refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.

If you encounter DTC P05A0 ACTIVE GRILLE SHUTTER “A” STUCK in any Subaru vehicle, it is imperative the Active Grill Air Shutter assembly is completely inspected for debris or damage. This DTC is detected when the open or close operation of the Active Grill Shutter is disabled due to foreign debris such as rocks, walnuts, or ice. Using the SSM4, Technicians should **save the FFD** associated with this DTC and proceed to visually inspect the Active Grill Shutter for debris that would prevent proper operation. If there are no visible debris present that would prevent operation, front bumper cover removal is required for an inspection. Below in the image labeled **Figure 1** is a rock that prevented operation of the Active Grill Shutter, and could not be seen with the bumper cover installed.

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Figure 1 – Rock stuck in AGS



Now below in the image labeled **Figure 2**, you can see how difficult it would be to see this obstruction with the front bumper cover installed.

Figure 2 – Bumper Cover Installed

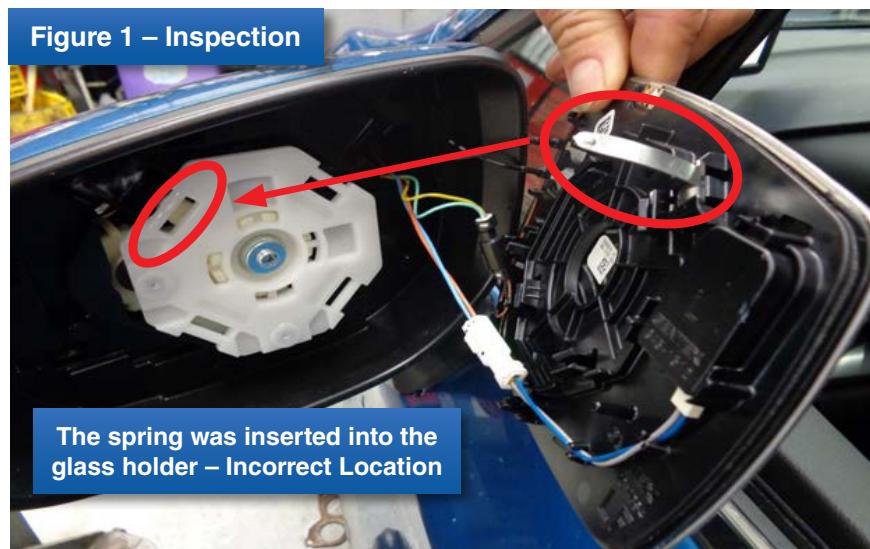


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There have been reports of the exterior mirror glass not traveling its full range of motion on the 2017 Impreza equipped with exterior auto-dimming mirrors. Upon further investigation, it is possible the Friction Damper Spring could have been inserted into the incorrect position resulting in the condition. If the friction damper spring is not located in the correct position it will limit the amount of travel for the mirror glass. We have provided an inspection and repair procedure to address this concern as outlined below.

Note: This procedure should only be performed after confirming the mirror glass does not travel in its full range of motion.

Remove the mirror glass from the mirror housing as outlined in the Service Manual and inspect the position of the friction damper spring as seen in **Figure 1**. Depending on its position will determine if the spring was installed in the correct slot.



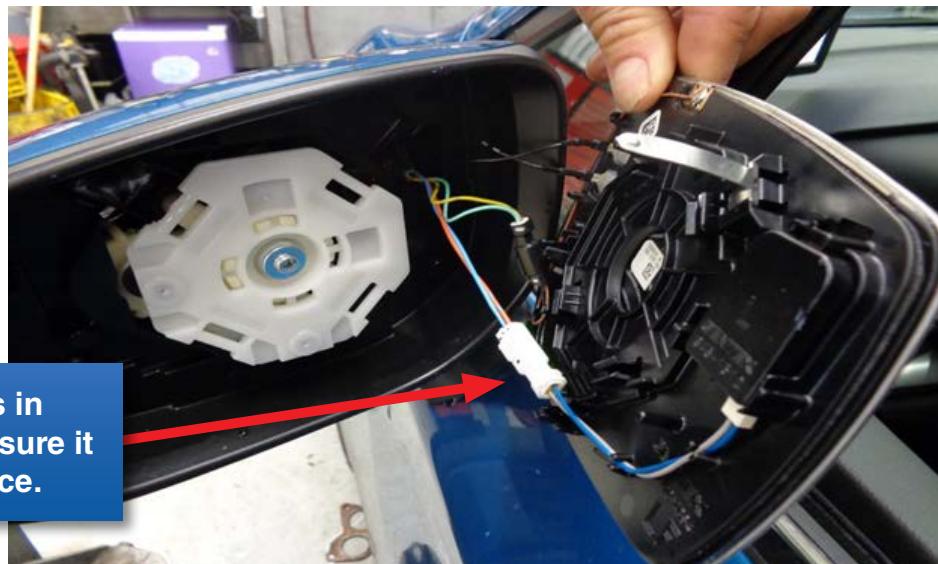
If it is determined the spring is bent in the incorrect position, it will need to be realigned to be inserted into the holder shown in **Figure 2.v**



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15**2017 AUTO-DIMMING OUTSIDE MIRROR LIMITED MOVEMENT**

Once the spring is realigned for correct installation, verify the connector below in **Figure 3** is seated into the correct position so it does not interfere with reassembly.



Reinstall the mirror glass by firmly pressing it into the holder (you will feel it snap into place). Confirm your repair was successful by operating the mirror through its full range of movement.

15**2017MY FORESTER WHEEL ARCH MOLDING INSTALLATION**

The 2017MY Forester Accessory Wheel Arch Molding (WAM) kit is now available for Retailer Installation only. A video was created to detail the actual 2017MY Forester Wheel Arch Molding installation from start to finish. The WAM video is an addition or supplement to the WAM retailer installation instructions posted on STIS.



[CLICK TO VIEW VIDEO](#)

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ITEM CODE	ITEM TYPE	TITLE	CREATED DATE
02-163-16R	Technical Service Bulletin	Inspection and Repair Procedures for AVCS-Related DTCs	26-Jan-17
MSA5P2929C	Technician Reference Booklet	2017 Impreza New Technology	25-Jan-17
14-23-17	Technical Service Bulletin	ATEQ VT30 TPMS Registration Tool Update	24-Jan-17
12-210-17	Technical Service Bulletin	Pitching Stopper Bracket Design Change	23-Jan-17
12-215-17	Technical Service Bulletin	Creaking Sound When Operating Clutch Pedal	20-Jan-17
12-190-15R	Technical Service Bulletin	Elimination of Creaking Sound from Clutch Pedal Assembly	20-Jan-17
J101SFL300	Accessory Installation Guide	Splash Guard 2017 Impreza Sport 5 door	19-Jan-17
J101SFL200	Accessory Installation Guide	Splash Guard 2017 Impreza Sport 4 door	19-Jan-17
J101SFL100	Accessory Installation Guide	Splash Guard 2017 Impreza 5 door (except Sport model)	19-Jan-17
J101SFL000	Accessory Installation Guide	Splash Guard 2017 Impreza 4 door (except Sport model)	19-Jan-17
WVM-23R	Subaru Product / Campaign Bulletin	Engine Control Module (ECM) Reprogramming	18-Jan-17
TKC-17R	Subaru Product / Campaign Bulletin	Takata Front Passenger Airbag Inflator Replacement	18-Jan-17
TKB-17R	Subaru Product / Campaign Bulletin	Takata Front Passenger Airbag Inflator Replacement	18-Jan-17
TKA-17R	Subaru Product / Campaign Bulletin	Takata Front Passenger Airbag Inflator Replacement	18-Jan-17
TKC-16R	Subaru Product / Campaign Bulletin	Takata Front Passenger Airbag Inflator Replacement	18-Jan-17
TKB-16R	Subaru Product / Campaign Bulletin	Takata Front Passenger Airbag Inflator Replacement	18-Jan-17
TKA-16R	Subaru Product / Campaign Bulletin	Takata Front Passenger Airbag Inflator Replacement	18-Jan-17

All revised publications are highlighted in yellow.

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ITEM CODE	ITEM TYPE	TITLE	CREATED DATE
E2610FL010	Accessory Installation Guide	2017 Impreza STI Side Under Spoiler 4D & 5D Sport trim only	17-Jan-17
C1010FG100	Accessory Installation Guide	2009 STI Shift Knob For 6M/T (C1010FG100)	16-Jan-17
C1010FG100	Accessory Installation Guide	2011 STI Shift Knob for 6MT	16-Jan-17
C1010FG000	Accessory Installation Guide	2009 STI Shift Knob for M/T - Forester (C1010FG000)	16-Jan-17
C1010FG000	Accessory Installation Guide	2009 Shift Knob 5MT - Forester (C1010FG000)	16-Jan-17
C1010FG000	Accessory Installation Guide	2008 Shift Knob 5MT - Legacy, Impreza, Forester (C1010FG000)	16-Jan-17
C1010FG000	Accessory Installation Guide	2009 STI Shift Knob For 5M/T (C1010FG000)	16-Jan-17
C1010FG000	Accessory Installation Guide	STI Shift Knob for 5MT	16-Jan-17
15-199-16R	Technical Service Bulletin	Reprogramming File Availability to Address Operational Concerns with 6.2 inch Clarion Display Audio Unit	16-Jan-17
15-186-15R	Technical Service Bulletin	Reprogramming File Availability to Improve Bluetooth Pairing	16-Jan-17
01-167-08R	Technical Service Bulletin	Recommended Materials (All Vehicles)	16-Jan-17
12-214-17	Technical Service Bulletin	Front and Rear Door Checkers- Design Change	12-Jan-17
12-213-17	Technical Service Bulletin	Center Console Lower Trim Panel- Design Change	12-Jan-17
TSMSAL	Troubleshooting Guide	2015-17MY Legacy and Outback Remote Engine Start Systems Troubleshooting Guide	10-Jan-17
TSMSSG	Troubleshooting Guide	Remote Engine Start Systems (2014-2017MY Forester)	10-Jan-17
09-67-17	Technical Service Bulletin	Rattling Sound from Fuel Piping	10-Jan-17

All revised publications are highlighted in yellow.

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ITEM CODE	ITEM TYPE	TITLE	CREATED DATE
10-85-17	Technical Service Bulletin	Driver's Floor Vent Duct- Design Change	10-Jan-17
18-189-17	Service Manual Correction	Service Manual Corrections	10-Jan-17
S1053BE	Service Manual Full	2017MY Registration Manual For Immobilizer	10-Jan-17
L2510BE	Service Manual Full	2017 Impreza Body Repair Manual	10-Jan-17
14-22-16R	Technical Service Bulletin	Special Service Tool Cross Reference List	6-Jan-17
15-204-16R	Technical Service Bulletin	2017 Audio/Navigation Exchange Component Identification and Procedures	6-Jan-17
MSA5M1701A	Owner Manual	2017MY Impreza Owner's Manual	5-Jan-17
F551SAL100	Accessory Installation Guide	Trunk Hook	5-Jan-17
12-211-17	Technical Service Bulletin	Center Dash Vent Grille- Design Changes to Improve Fit	4-Jan-17
12-212-17	Technical Service Bulletin	Rattling Sound from Engine Compartment Area	3-Jan-17
03-78-17	Technical Service Bulletin	Clutch Release Bearing- Design Change	3-Jan-17
03-77-17	Technical Service Bulletin	Rotational Sound from Clutch Release Bearing	3-Jan-17
07-116-16R	Technical Service Bulletin	Optional Service Procedure Information to be Used in Conjunction with Campaigns WQP-51, WQR-53R and TKA, B, C-16R	30-Dec-16

All revised publications are highlighted in yellow.

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*** NOW YOU CAN E-MAIL YOUR TECHTIPS INPUT AND SUGGESTIONS TO: TECH@SUBARU.COM ***

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: _____

SUBARU TECHLINE
Hours of Operation

Monday – Thursday 8:30 am to 7:30 pm
Friday 10:30 am to 5 pm and Saturday 9 am to 3 pm