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### SUBARU TECHLINE HOLIDAYS & HOURS OF OPERATION

Mon. - Thurs.	8:30AM - 7:30PM EST
Friday	10:30AM - 5:00PM EST
Saturday	9:00AM - 3:00PM EST

## 01 TechShare QMR of the Month

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

**Alejandro Guerrero** from  
**Subaru of Englewood** in Englewood, NJ

Alejandro created a high quality QMR using TechShare reporting on a customer's concern of Check Engine Light on- DTC: P0560 stored.

Alejandro's report included detailed diagnostic steps, high-quality photos, and video.

Please refer to the following link to review the TechShare QMR in detail.

<https://subarutechshare.com/qmrs/TS-240092>

In appreciation for going the extra mile and sharing his experience with us, Alejandro will be receiving the following from his District Service Quality Manager:

**\$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, Solterra and "Quality Driven" are Registered Trademarks.

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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.



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## 01 QMR of the Month (CONTINUED)

The other Regional winners selected from QMRs submitted during July 2022 were:

- **Perpetuo Silan** from **Farrish Subaru**
- **Michael Baier** from **Ramsey Subaru of Des Moines**
- **Yih Horng Lee** from **Puente Hills Subaru**
- **Darin Richey** from **Colonial Subaru**

Any Subaru Technician can participate in the TechShare QMR of the Month program. See the November 2022 issues of TechTIPS for full details. You just might see your name and photo in a future issue of TechTIPS!

## 01 QMR of the Month Award Presentations

As part of our “enhanced” QMR of the Month recognition program, we will include a photo (whenever available) of the recipient’s award presentation in TIPS. The winner selected from QMR of the Month submissions received during July 2023 was Alejandro Guerrero, Technician at Subaru of Englewood, Englewood, NJ.



*Alejandro is shown above (2nd from the left) after being presented with his \$500.00 Snap-On Gift Card, Neiko inspection light, and Neiko hood lamp. To Alejandro’s right is Subaru of Englewood Dealer Principal Ted Siebold. To Alejandro’s left is Subaru Distributors Corporation’s District Service and Quality Manager Greg Beach, Subaru of Englewood Service Manager John Simoes, and Subaru of Englewood General Manager John Lopes.*

*Congratulations and **THANK YOU** to our July 2023 QMR of the Month Award recipient!*

**Continued on the next page**

# TECH TIPS GREATEST TIPS

This series features TechTIPS articles frequently referred to by Techline. This month's feature is from February 2018.

## 01 UNDERSTANDING POWER SUPPLY

The Techline continues to receive calls from Technicians not understanding power supply. The power supply is found under Body & Electrical/WIRING SYSTEM. It is supplied to assist with identifying and tracing power flow. If unable to communicate with a specific module or, a vehicle comes in with multiple issues, check the power supply. MB= Main Box (under hood fuse box) FB= Fuse Box (in car fuse box).

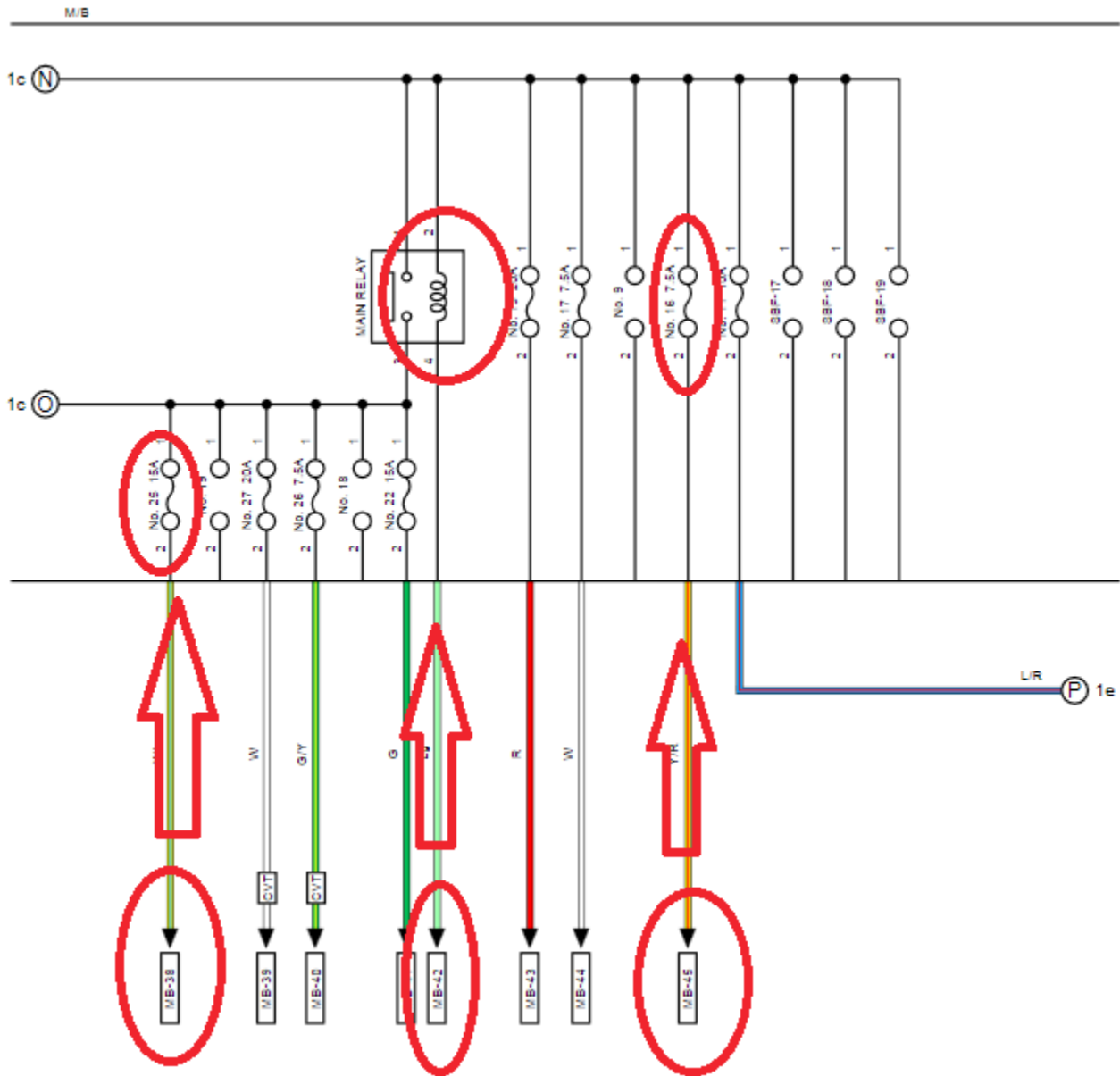
### EXAMPLE 1: 2015 Legacy-No start-No communication to ECM

After scanning all systems and finding no communication to the ECM, the Technician should be checking the power supply next. A quick review of the power supply shows MB-38, MB-42 and MB-45 all supply power to ECM. Find the circuits (MB-38, MB-42, MB-45) then follow up the page to see where they get powered. MB-38 is powered by fuse #25. MB-42 is power for the main relay coil side. MB-45 is powered by fuse # 16. The next step is check the fuses. In this example fuse #25 was blown.

Body & Electrical/WIRING SYSTEM	MB-38	ECM
EXTERIOR BODY PANELS		EGR control valve
POWER REAR GATE SYSTEM		ELCM
CRUISE CONTROL SYSTEM		Fuel injector No. 1
EyeSight		Fuel injector No. 2
SUBARU REAR VEHICLE DETECTION		Fuel injector No. 3
WIRING SYSTEM		Fuel injector No. 4
Basic Diagnostic Procedure		Mass air flow & intake air temperature sensor
Working Precautions		Purge control solenoid valve
Fuse And Relay	MB-39	TCM
Power Supply Circuit	MB-40	Primary speed sensor
WIRING DIAGRAM		Secondary speed sensor
Ground Circuit		Turbine speed sensor
Active Grille Shutter	MB-41	Electronic throttle control relay
Airbag System	MB-42	ECM
Air Conditioning System	MB-43	Fuel pump relay
Audio System	MB-44	Data link connector
Back-up Light System	MB-45	Battery sensor
		ECM
		TCM

Continued on the next page

# 01 UNDERSTANDING POWER SUPPLY (CONTINUED)

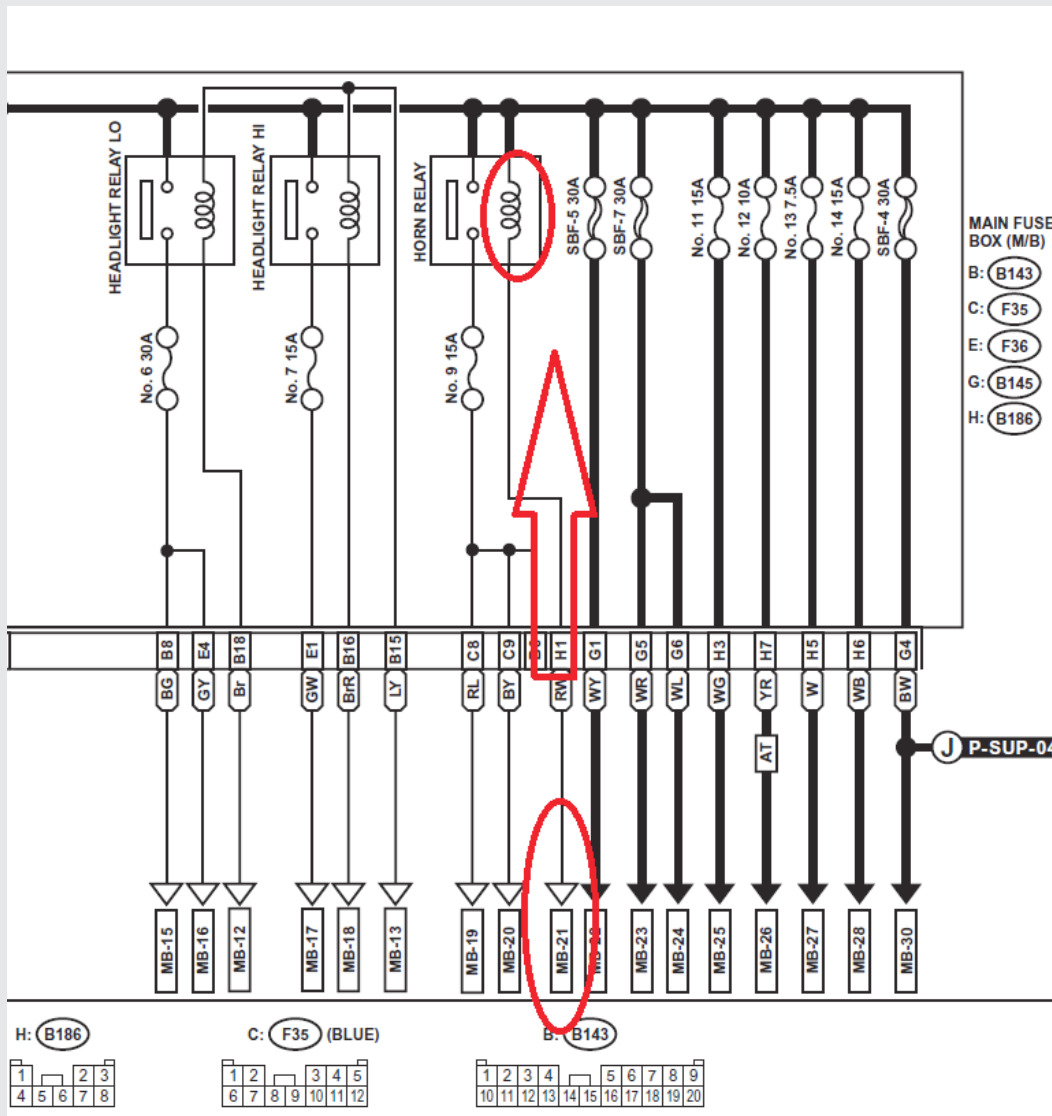


WI-65429

## EXAMPLE 2: 2010 Forester-RES Inoperative-Horn inoperative-No communication to BIU

A quick review of the Power supply reveals all three affected circuits are on MB-21. MB-21 is supplied power by the horn relay. A continuity check on the coil side of the horn relay yielded a faulty horn relay.

EXTERIOR/INTERIOR TRIM	MB-18	Body integrated unit
EXTERIOR BODY PANELS	MB-19	Horn
CRUISE CONTROL SYSTEM	MB-20	Horn
WIRING SYSTEM		Horn switch
Basic Diagnostic Procedure	MB-21	Body integrated unit
Working Precautions		Remote engine start CM
Power Supply Circuit	MB-22	A/F oxygen sensor relay
WIRING DIAGRAM		Main relay
Ground Circuit	MB-23	IG relay
Engine Electrical System		A/F oxygen sensor relay
Radiator Fan System	MB-24	Electronic throttle control relay
Charging System	MB-25	Fuel pump relay
Starter System	MB-26	TCM
Remote Engine Start System		
AT Control System		

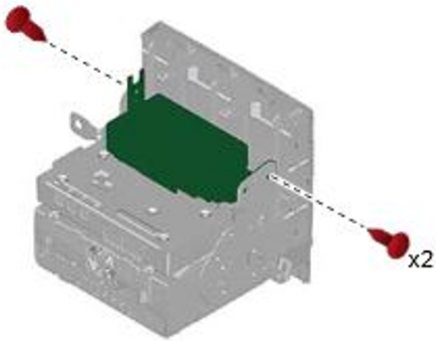


Techline has been receiving an increase of calls with a concern of the power door locks being inoperative. Some Technicians have noticed with the vehicle running, the door locks will work normally. Once the vehicle is shut off, the door locks may work a few times and then become inoperative again. This will affect both the master door lock switch and the key fob buttons. The August 2021 TechTIPS explains the operation of the battery Backup Unit and its location.

That TechTIP is shown below:

Techline has received calls about identifying a newly implemented device for the door lock system. The battery Backup Unit was implemented into vehicles outlined in the chart below. The Backup Unit provides power to the door locks in the event of a collision that disables the standard 12v power source. When the vehicle receives a strong impact, all the doors and the rear gate are automatically unlocked, to prevent passengers from being trapped. The device is mounted above or near the Audio Unit in most cases. Please refer to STIS for specific model removal/installation, and inspection.

**NOTE:** When the ignition is turned on, the capacitor in the device is charged for 90 seconds.



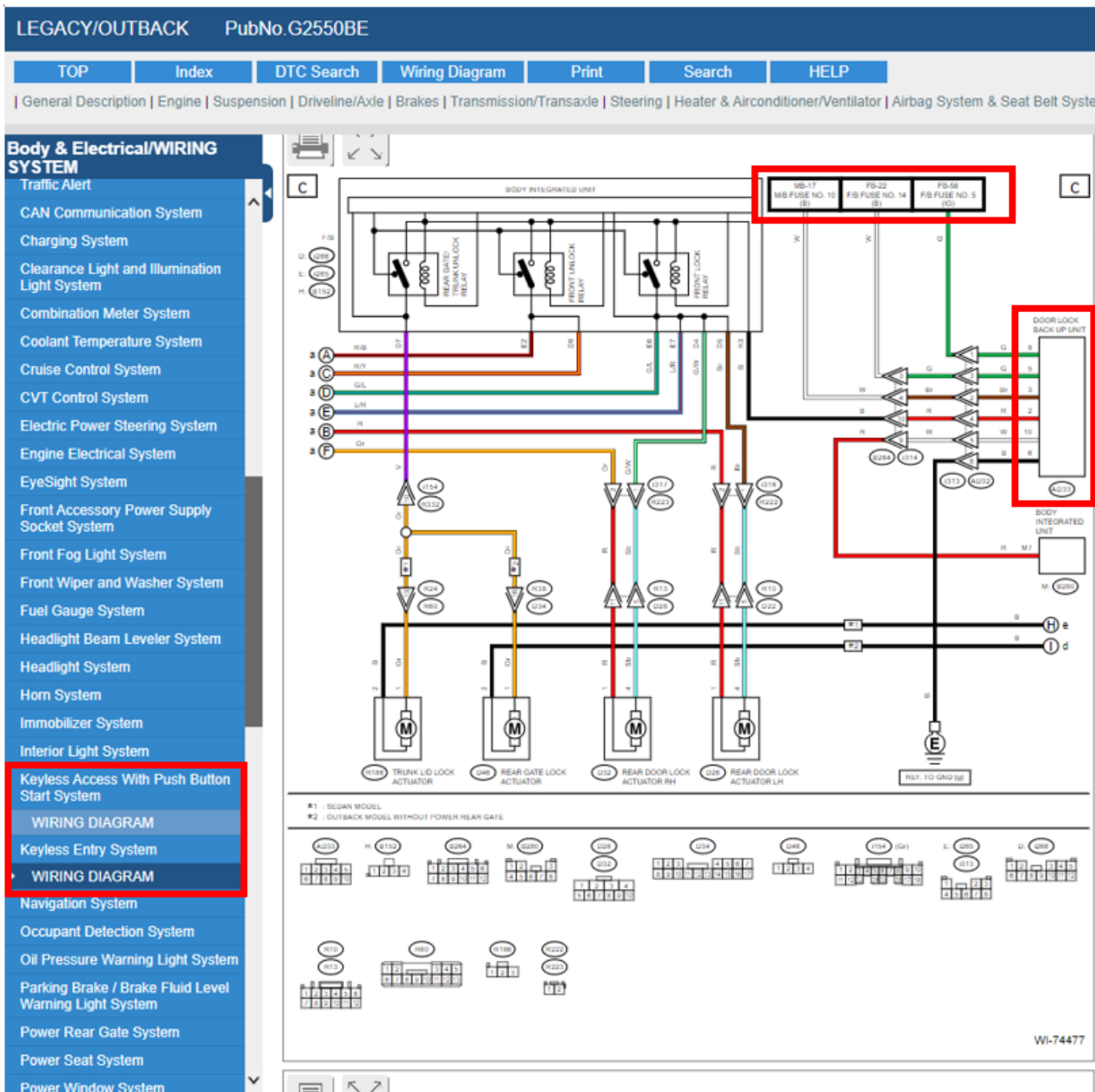
Ascent	MY19 and Newer
Outback/Legacy	MY18 and Newer
Impreza/Crosstrek	MY20 and newer (does not include WRX/STI)
WRX	MY22 and Newer
Forester	MY19 and Newer

### **When Diagnosing the door locks and the Backup Unit, check the fuses!**

When a vehicle is presented with a concern of inoperative door locks, the first step is to determine if the door locks work when the vehicle is running. If they work normally with the vehicle running but stop working once the vehicle is shut off, or only a few times and then operate slowly, the fuses for the Backup Unit should be inspected. If the door locks are inoperative all the time from any input (switch or key fob), use STIS to diagnose the concern.

Below is a wiring diagram from a '19 Outback. Always use STIS to verify the wiring diagram for the vehicle being repaired.

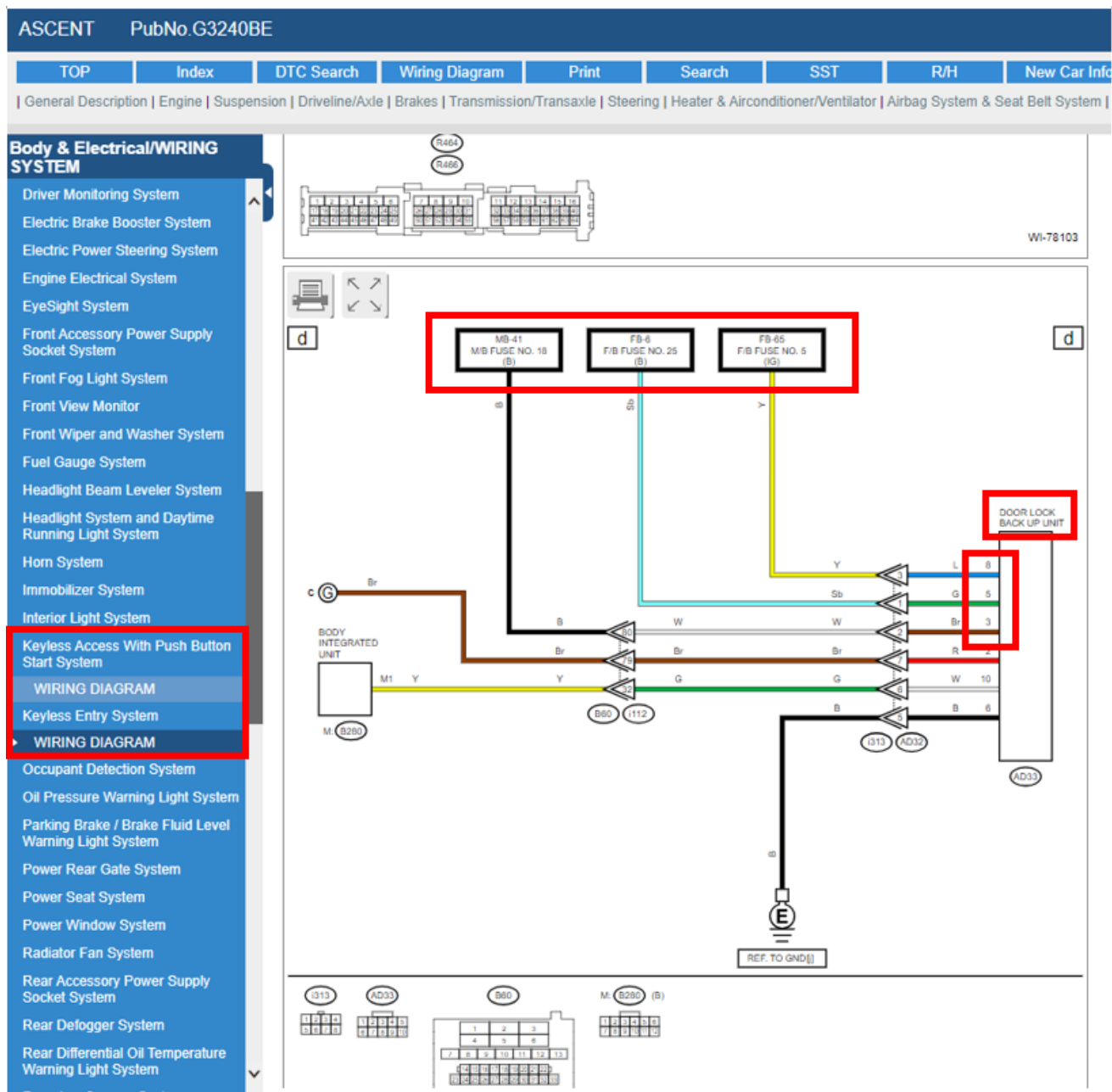
Continued on the next page



On this '19 Outback, the 3 fuses powering the Backup Unit are the same for Push Button (Keyless Access) or turn-key (Keyless Entry) vehicles. Techline has found in almost all cases **one of these 3 fuses is missing or blown** causing the door rear locks to become inoperative after the engine is shut off and the Backup Unit capacitor is depleted.

Below is an example of a '23 Ascent wiring diagram showing the fuses that need to be inspected.

Continued on the next page



Below is an example of a '20 Outback. On this vehicle, determining which fuses power the Backup Unit using the wiring diagram is more difficult. The Backup Unit can only be found in the Power Supply wiring diagram. The Backup Unit is shown in other wiring diagrams, but those diagrams do not show the fuses that need to be inspected.

Continued on the next page



TOP Index DTC Search Wiring Diagram Print Search SST R/H New Car Info

General Description | Engine | Suspension | Driveline/Axle | Brakes | Transmission/Transaxle | Steering | Heater & Airconditioner/Ventilator | Airbag System & Seat Belt System | B

**Body & Electrical/WIRING SYSTEM**  
 Eyesight  
 Blind Spot Detection/Rear Cross Traffic Alert  
 REVERSE AUTOMATIC BRAKING  
 WIRING SYSTEM  
 How To Read Wiring Diagrams  
 List of Signal Name  
 Harness Repair Kit  
 Fuse And Relay  
**Power Supply Circuit**  
**WIRING DIAGRAM**  
 Ground Circuit  
 Active Grille Shutter  
 Airbag System  
 Air Conditioning System  
 Audio and Navigation System  
 Auto Start Stop  
 Back-up Light System  
 Blind Spot Detection/Rear Cross Traffic Alert  
 CAN Communication System  
 Charging System  
 Clearance Light and Illumination Light System  
 Combination Meter System  
 CVT Control System  
 Daytime Running Light System  
 Door Lock Control System  
 Driver Monitoring System  
 Electric Power Steering System  
 Engine Electrical System  
 EyeSight System  
 Front Accessory Power Supply

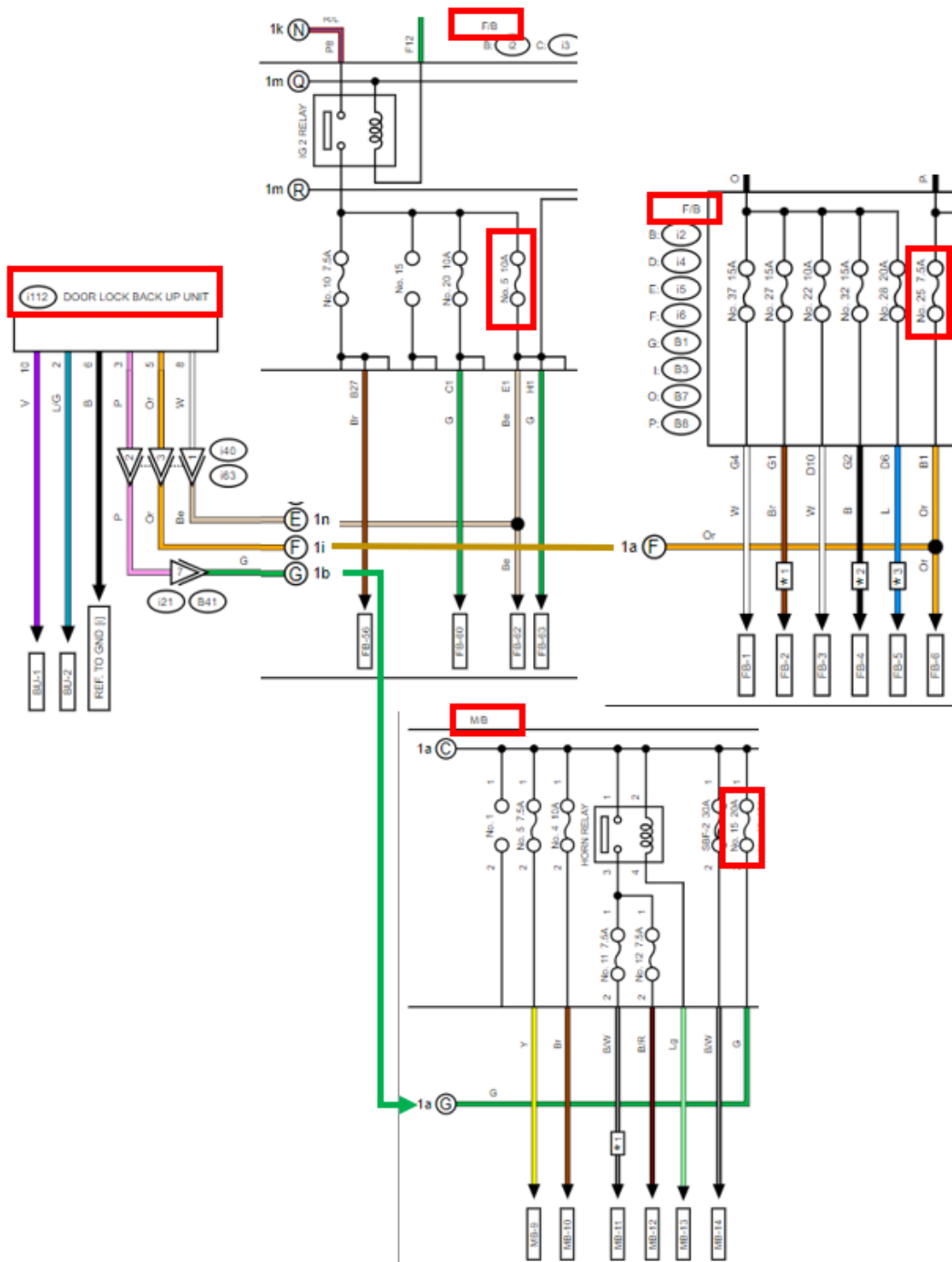
**WIRING SYSTEM > Power Supply Circuit**  
**WIRING DIAGRAM**

▼ Please select see

**1. ENGINE TYPE FB WITHOUT PUSH BUTTON START**

The diagram illustrates the power supply circuit for an engine type FB without push button start. Key components include the BATTERY, TERMINAL MAIN FUSE (SBF 80A, MAIN SBF 140A), GENERATOR, and various relays (M/B, STOP LIGHT RELAY). The DOOR LOCK BACK UP UNIT (112) is highlighted with a red box, showing its connections to terminals 1k, 1r, 1f, and 1t. The diagram also shows the wiring for the STOP LIGHT RELAY and various fuses (No. 3, 7, 8, 9, 10). The battery is connected to the main fuse, which then branches out to various components. The generator is connected to the battery through a diode (B11). The STOP LIGHT RELAY is connected to the battery through a fuse (No. 3) and a switch (Sb). The M/B relays are connected to the battery through fuses (No. 7, 8, 9, 10) and are used to control the door lock backup unit and other components. The diagram is labeled '1a' in the top left and right corners.

Following the wires highlighted above will lead to the 3 fuses needing to be inspected. Please see the wiring diagram shown below showing those 3 fuses.



Techline has found that in almost all cases **one of these 3 fuses is missing or blown** causing the door locks to become inoperative after the engine is shut off and the Backup Unit capacitor is depleted.

After verifying the 3 fuses to the Backup Unit are not missing or blown, the next step would be to verify power is received at the Backup Unit on the 3 pins listed in the vehicles wiring diagram.

Continued on the next page

## 10 Air Conditioning Refrigerant Types

When servicing an A/C system, it is IMPERATIVE to know the type of refrigerant you are dealing with and what vehicles each type is found in. The chart below can be used to identify this. This information is also on the A/C label found on the underside of the hood, along with the compressor oil type and system capacity.

Model	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Legacy/Outback	HFC-134a			HFO-1234yf							
Tribeca											
Impreza	HFC-134a						HFO-1234yf				
Crosstrek	HFC-134a						HFO-1234yf				
Crosstrek Hybrid	HFC-134a							HFO-1234yf			
WRX/STI	HFC-134a						HFO-1234yf				
Forester	HFC-134a						HFO-1234yf				
BRZ	HFC-134a						HFO-1234yf				
Ascent							HFO-1234yf				
Solterra							HFO-1234yf				

The picture below shows how to find this information when using the Service Manual. This is also where the compressor oil type can be found. This is especially important when servicing BEV and Hybrid vehicles as the oil used in these systems is specifically designed to be non-conductive.

**NOTE:** When servicing a BEV or Hybrid vehicle, see click path [Subarunet > Service Operations & Technical > Service Tools and Equipment > Subaru Minimum Retailer Equipment List](#) for a list of required tools.

FORESTER PubNo.G8310BE			
TOP Index DTC Search Wiring Diagram Print Search SST R/H New Car Info			
[ General Description   Engine   Suspension   Driveline/Axle   Brakes   Transmission/Transaxle   Steering <b>Heater &amp; Airconditioner/Ventilator</b>   Airbag System & Seat Belt System   DIAGNOSTICS ]			
<b>Heater &amp; Airconditioner/Ventilator</b>			
AIR CONDITIONER			
General Description			
SPECIFICATION			
LOCATION			
COMPONENT			
CAUTION			
PREPARATION TOOL			
Air Conditioning System			
Refrigerant Pressure with Manifold Gauge Set			
Refrigerant Recovery Procedure			
Refrigerant Charging Procedure			
Refrigerant Leak Check			
Refrigerant	Type	HFO-1234yf (CH <sub>2</sub> = CFCF <sub>3</sub> ) [0.41±0.025 kg (0.91±0.06 lb)]	RECIRC • Air flow control position: VENT
Compressor	Type	Variable capacity (VCS-14E)	—
	Discharge	140 cc (8.54 cu in)/rev	—
	Max. permissible speed	9,000 r/min	—
	Oil	Recommended materials: VC100YF Capacity: 100 cm <sup>3</sup> (6.10 cu in)	—

**NOTE:** Always follow the Service Manual directions for handling of refrigerant.

For handling of refrigerant see:

**Heater & Air Conditioner/Ventilator > HVAC System > General Description > Caution**

For A/C specifications see:

**Heater & Air Conditioner/Ventilator > HVAC System > General Description > Specification**  
Continued on the next page

## 15 All Vehicles Equipped With CP 1.5, Auxiliary Port Noise

This applies to all CP 1.5 equipped vehicles, currently that includes:

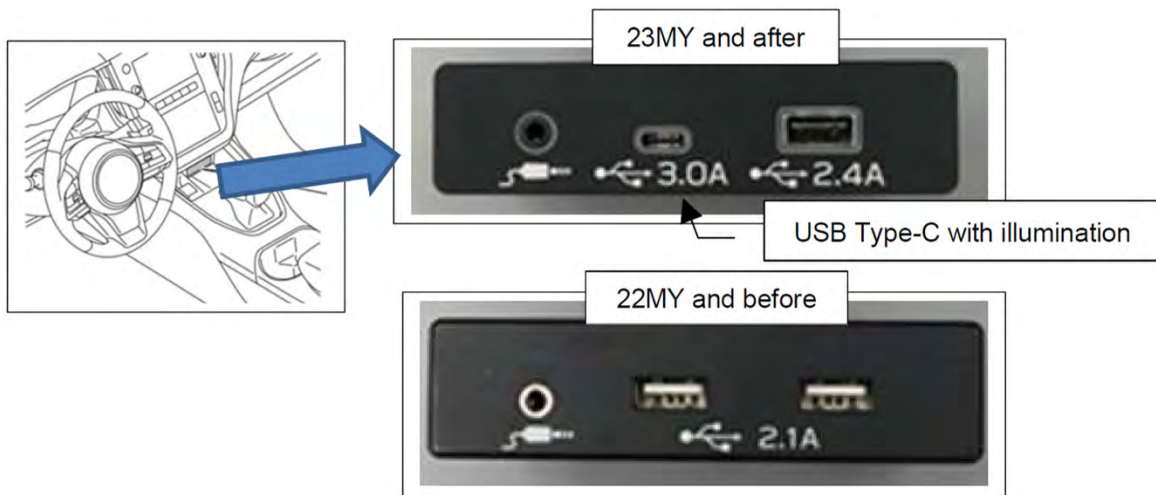
**MY23+ Legacy/Outback**      **MY23+ Ascent**      **MY24+ Crosstrek/Impreza**

The auxiliary USB port has changed for CP 1.5 equipped vehicles. If “AUX” is selected as the source while nothing is plugged into the port, there may be an abnormal noise heard through the speakers.

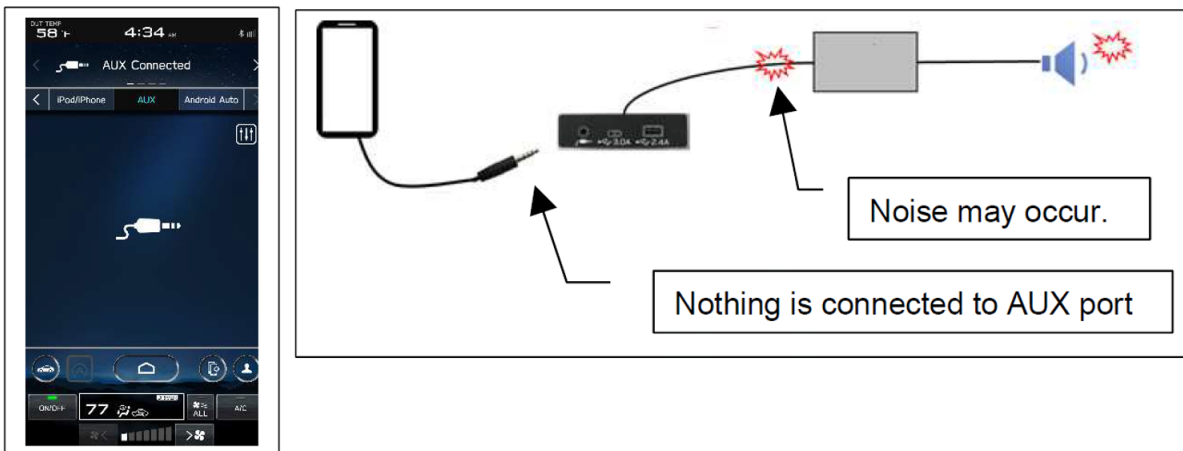
***This condition is normal, and no parts should be replaced for this concern.***

To prevent this noise, do not select “AUX” as the source without a device plugged into that port.

Starting with 23MY Legacy/Outback and Ascent, a new UNIT-AUX TERMINAL with illuminated USB-type C port is incorporated as part of the CP1.5 infotainment system.



On this type of AUX port, when AUX is selected as audio source without any device connected to UNIT-AUX TERMINAL, a buzzer type noise may be heard from the audio system while the illumination light is turned on.



If the customer reports a noise coming from the audio system while the headlights are turned on, the above-mentioned characteristics may be the cause.

**Continued on the next page**

This diagnostic flow chart has been created to help Technicians understand the power flow of the overhead console microphone used for Bluetooth, projection applications (Apple CarPlay/Android Auto), Telematics calls and the Voice Recognition System. The microphone is supplied power (5 volts) by the DCM and is used by both the DCM and the Infotainment system in most vehicles. If the vehicle does not have Telematics, the Audio unit will be the 5V power supply. For older vehicles equipped with a Denso F10 or Clarion audio unit, Technicians will need to reference STIS closely for similar wiring. These diagnostics incorporate points of failure Techline has previously experienced. The customer does not need a Telematics subscription for the DCM to provide power to the microphone, but the Technician will not be able to make an outbound Telematics call for testing.

The Telematics, Bluetooth, and Voice Recognition System only use the front tweeter speakers to broadcast sound inside the vehicle. The speakers can be tested using the SSM4 Active Test in the “Telematics”, Audio”, “Navigation” or “Infotainment” (depending on vehicle equipment). The front tweeters also have individual DTCs that may set. Always perform an all-DTC scan before beginning these diagnostics. *These diagnostics do not apply to Solterra.*

**Caution: The DCM should NEVER be swapped between vehicles.**

*\*Note: If the vehicle being diagnosed is not equipped with Telematics or does not have a current STARLINK subscription, when the testing below directs a Technician to perform an outbound Telematics call, an outbound Bluetooth or projection app call should be made instead.*

1. Make an outbound call via Bluetooth or projection app (CarPlay or Android Auto). Can the called individual hear you clearly?

**Yes**, the called person can hear you clearly, proceed to Step 3.

**No**, proceed to Step 2.

2. What is the value selected for “Microphone Volume” or “Call Volume”? Refer to page 7 of the [March 2022 TechTIPS](#) to checking these settings.

- a. Adjust the setting to zero and make another outbound Bluetooth or projection app call, does the system operate as designed? Can the called person hear you clearly?

**Yes**, review March 2022 TechTIPS and educate the customer on the microphone volume settings, proceed to Step 8.

**No**, proceed to Step 3 (Microphone operational test).

Techline recommendation, this would be the ideal time to test both the customer’s phone and the Technician’s phone.

3. Perform the microphone operational test. Does the Infotainment system register sound?
  - a. On Harman equipped vehicles, enter Factory mode by pressing and holding the “Home” button while pressing the “Tune” knob twice. Speak sternly from a seated position as this audio unit also has the ability to play back what was spoken into the microphone.

**Continued on the next page**

- b. On CP 1 and CP 1.5 equipped vehicles, enter Factory mode by holding the passenger side temperature up and down buttons and pressing the “Tune” knob twice. Navigate to the microphone check. Speak sternly. This should generate 1 bar, clapping will generate 2-3 bars.

**Yes**, the microphone functions as designed, proceed to Step 8 (complete a Telematics call\*).

**No**, proceed to Step 4 (checking the voltage at the microphone).

*Techline recommends using the wiring diagram for Telematics to locate the three fuses that provide power. Reference “Fuse and Relay” and make sure that the fuses listed are in the correct locations. Verify there is voltage on both sides of all three fuses. **BLOWN OR MISSING FUSES ARE THE MOST COMMON POINT OF FAILURE.***

Model	Year	ACC Fuse	IG Fuse	Batt Fuse
Ascent	19 - 22	FB-54 Fuse #4	FB-44 Fuse #8	MB-40 Fuse #5
Forester	19 - 22	FB-54 Fuse #4	FB-44 Fuse #8	MB-41 Fuse #5
Imprezza	17 - 22	FB-54 Fuse #4	FB-44 Fuse #8	MB-41 Fuse#18
Legacy / Outback	20 - 22	FB-51 Fuse #4	FB-41 Fuse #8	MB-1 SBF-3
Crosstrek ICE / Hybrid	18 - 23	FB-54 Fuse #4	FB-44 Fuse #8	MB-41 use #18
WRX	22-23	FB-51 Fuse #4	FB-41 Fuse #8	MB-1 SBF-3
BRZ	22-23	FB-28 Fuse #13	FB-70 Fuse #29	MB-23 Fuse #9
Crosstrek ICE / Hybrid	16-17	FB-25 Fuse #24	FB-37 Fuse #12	MB-34
Imprezza	16	FB-25 Fuse #24	FB-37 Fuse #12	MB-34
Legacy / Outback	16-19	FB-48 Fuse #4	FB-58 Fuse #5	MB-52 Fuse #9
Forester	16-18	FB-25 Fuse #24	FB-37 Fuse #12	MB-34
WRX	17-21	FB-25 Fuse #24	FB-37 Fuse #12	MB-34
WRX	17-21	X	X	MB-33

- 4. Using STIS, follow directions for CAREFULLY removing the overhead console. Using STIS, locate the appropriate wiring diagram. If the vehicle is equipped with Telematics, use the “Telematics” wiring diagram, if the vehicle is not equipped with Telematics, use the “Overhead”, “Stereo Camera” or “Antenna” page in the “Audio”, “Navigation” or “Infotainment” wiring diagram (depending on vehicle equipment).
  - a. Open the I/O chart for Telematics, Cockpit Control, or Infotainment (depending on vehicle equipment). Determine which pin is the 5V reference from the DCM or Audio unit (typically the red wire at the overhead console).

Continued on the next page

- b. With the appropriate tools, back probe the microphone power supply at the red wire and prepare to measure the available voltage.

With the ignition on, what is the available voltage at the red wire?

If the microphone has 4.5 – 5V, proceed to Step 5.

If the microphone has 1.1 - 3.4V, proceed to Step 6.

If the microphone has 0 - .6V, proceed to Step 7 (check power at the DCM).

5. With the red wire still back probed and the DVOM displaying the voltage, make an outbound Telematics call\*.

- a. Is the available voltage 4.5V or higher consistently **AND** the Starlink operator can hear you clearly?

**Yes**, complete the call and prepare to make an outbound Bluetooth or projection app call. At this point the system is working correctly, the Technician will need to determine if the vehicle is repaired or if it is a customer phone concern.

6. If the static microphone voltage measured was 1.1 - 3.4V, monitor the voltage while making an outbound Telematics call\*. Push the i-button once and speak with the STARLINK operator. Does the voltage at the red wire jump to approximately 5V while on the call?

**Yes**, this may indicate a more advanced problem. Perform an all-DTC scan and collect 15 seconds of Telematics data from the SSM then contact Techline. **All test results up to this step should be documented for review.**

**No**, the voltage does not change from 1.1 - 3.4V when making an outbound call. Using STIS, find the I/O chart for Telematics (or the Audio unit if not equipped with Telematics) in STIS. Measure the output voltage at the back of the DCM (or from the Audio unit if not equipped with Telematics). Inspect the wiring and connectors between the DCM (or from the Audio unit if not equipped with Telematics) and overhead console. The 5V power from the DCM or Audio unit needs to be restored to the overhead console. Voltage drop and split half techniques should be used here.

7. The microphone has 0 - .6V. Inspect for power at the DCM (or from the Audio unit if not equipped with Telematics), typically pins A8, A10, and A20. Connector number and color may vary. Use the “Telematics”, “Audio”, “Navigation” or “Infotainment” wiring diagram (depending on vehicle equipment) to find the correct connector and pins.

- a. Before removing the interior trim, use the wiring diagram for “Telematics”, “Audio”, “Navigation” or “Infotainment” wiring diagram (depending on vehicle equipment) to locate the fuses that supply power. Reference the “Fuse and Relay” diagram to confirm the fuses listed are in fact in the correct locations. Using a DVOM, verify there is battery voltage on both sides of the fuses before moving to Step 7b.

Continued on the next page

## 15 Microphone Troubleshooting (CONTINUED)

- b. CAREFULLY remove the interior trim following STIS then reference the “Telematics” wiring diagram for pins A8, A10, and A20 or the correct pins supplying power to the Audio unit using the “Audio”, “Navigation” or “Infotainment” wiring diagram (depending on vehicle equipment). Pay close attention to which pin is ignition (IG), accessory (ACC), and battery power (B) at all times.

What is the available voltage at the DCM or the Audio unit?

A8 -                    A10 -                    A20 -

If you are missing a power supply at one of these wires, correct the condition and retest starting at STEP 3.

8. If any of the DCM connectors or overhead microphone connectors have been serviced, please complete a Telematics call\*. Reference [TSB 15-266-20](#) page 6/7 for the proper i-Button operational test to confirm the system is working normally. If the Technician can confirm the system is working as designed, no repair should be made to the vehicle. The Technician should attempt to duplicate the concern with the customer’s phone and consider duplicating the concern in a like vehicle with the same Infotainment system.

**Optional method for microphone testing** - Another option for testing the microphone operation is to use the vehicle’s “Voice Recognition System”, this does not need a phone paired/connected or a Telematics subscription. Make sure to say a command the vehicle can understand, for example “Turn music on”, “FM radio”, “Increase the fan speed” or “Go to preset 3”.

*\*Note: If the vehicle being diagnosed is not equipped with Telematics or does not have a current STARLINK subscription, when the testing directs a Technician to perform an outbound Telematics call, an outbound Bluetooth or projection app call should be made instead.*

**If all testing has been performed and there is still no resolution to the concern, call Techline and be prepared to review all the electrical and outbound call testing performed.**

## 15 Repairing STARLINK Telematics DTCs

### What does it take to repair Starlink Telematics?

It is reasonable to think automotive systems utilizing a lot of technology require high-tech tools to repair these systems. Let’s take a minute to look at the categories of DTCs and problems, to demonstrate Telematics repairs require nothing more than knowing how to test electrical circuits, a DVOM, the SSM4 scan tool and possibly a phone call to Techline.

Continued on the next page



### Classification of DTCs or Customer Concerns

**Circuit:** These codes or concerns are electrical. These issues include power, ground, wiring, and components.

**Performance:** These DTCs indicate a difference between what Subaru wants and what happens.

**Component:** These DTCs are rare and indicate only one potential problem that requires component replacement.

**System:** These DTCs indicate an observed condition outside the acceptable range but rely on the technician to find the root cause.

### Categories of Telematics DTCs

**Circuit:** B2A01, B2A02, B2A03, B2A04, B2A05, B2A06, B2A08, B2A09, B2A0A, B2A0B, B2A0E

**Performance:** B2A07, B2A0D, B2A0F, B2A10

**Component:** B2A0C, B2A14

**System:** B2A00, B2A15, B2A16, Customer concerns regarding remote services operation failure when no DTC or error messages on the MySubaru application are present.

### Now that I know the categories of DTCs, what's next?

#### **Circuit**

These problems likely indicate an open, short, no power, or poor ground. The Technician must test the circuit as described in the STIS trouble tree. Most often, these problems do not result in component replacement but a connection or harness repair. Technicians should make an extra effort to be sure of any test results before replacing components.

#### **Performance**

These problems indicate a circuit or component is not performing as expected. The root cause of the performance degradation can only be determined by circuit and component testing as directed in STIS. A Technician who immediately jumps to component replacement may find themselves in a situation where parts replacement fails to repair the root cause of the performance DTC.

#### **Component**

These DTCs are indicating a faulted component. If the DTC is current, they suggest component replacement. What may not be addressed in the trouble trees is, there is an assumption that the following conditions exist with the vehicle.

Continued on the next page

- The battery and charging system are performing within the manufacturer's specifications.
- There are no aftermarket devices in use in the vehicle.
- Power and Ground directly feeding the component have been verified by the Technician.
- The DCM has been registered with the Immobilizer successfully when applicable.
- The LAN registration procedure has been completed successfully when applicable.
- The VIN is written to the DCM.
- Signal Strength has been verified.
- Subscription Status has been verified.

## System

These DTCs are indicating unexpected behavior. Often the trouble tree will point to a component failure. Technicians can be misled if they fail to satisfy the following assumptions about the system problems.

- The battery and charging system are performing within the manufacturer's specifications.
- There are no aftermarket devices in use in the vehicle.
- Power and Ground directly feeding the component have been verified by the technician.
- The DCM has been registered with the Immobilizer successfully.
- The LAN registration procedure has been completed successfully when applicable.
- The VIN is written to the DCM.
- Signal Strength has been verified.
- Subscription Status has been verified.

Customer concerns about error messages on the MySubaru application or the failure of remote service requests to complete successfully also fall under the System. A call to Techline is usually required to resolve these concerns. Component replacement is only a reliable repair with an understanding of what the back-end Telematics systems indicate about the failed behavior.

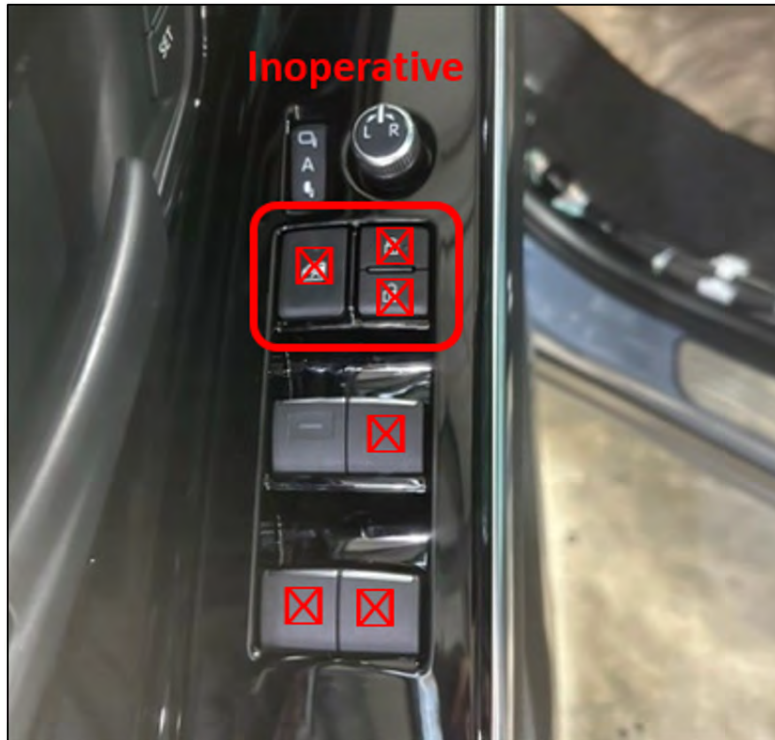
The most current Telematics repair information is always contained in TSBs and TechTIPS. Technicians should always start a Telematics system repair by searching these documents on STIS.

All Telematics repairs require the Technician to confirm the customer complaint, correct the customer concern, which may only be possible with the help of Techline, and confirm the repair through testing the Telematics system.

The best way for Technicians to ensure they get the information needed to diagnose all generations of Telematics concerns efficiently is to complete QMRs with a high level of detail to ensure a steady flow of information to the field.

Continued on the next page

When diagnosing an inoperative power window master switch on a Solterra, first check to see if the vehicle is equipped with the accessory Illuminated Side Sill Plates. If the vehicle is NOT equipped with the accessory Illuminated Sill Plates, use STIS to continue normal diagnostics. If the vehicle is equipped with the OE Subaru accessory Sill Plates, begin by inspecting the LH connector housing behind the LH kick panel to verify proper Bridge Connector orientation. The port accessory installation directions found [here](#) have directions for the removal of the kick panel. It has been found if the Left and Right Bridge Connectors are installed in the wrong locations, power window/lock functions will not operate properly from the driver side master window switch and other issues may occur as well.

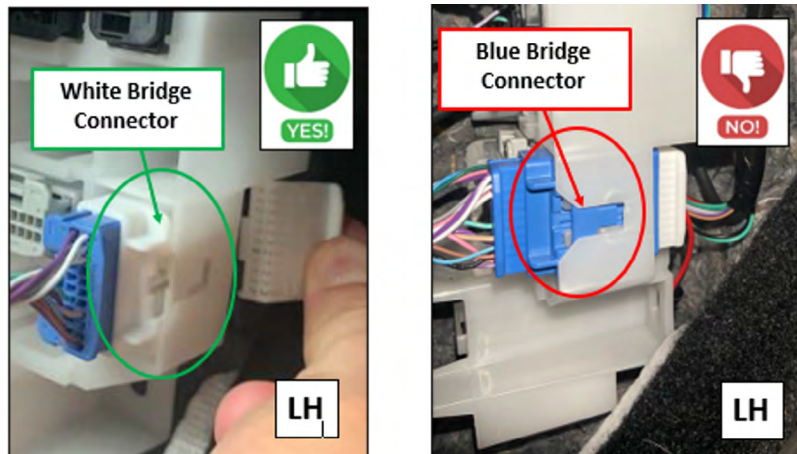


Correct Bridge Connector orientation shown below:

The left-side accessory Bridge Connector should be White with a Blue OE body harness connector.

Continued on the next page

The right-side Bridge Connector should be Blue with a White OE body harness connector.



If the Bridge connectors are found to be in the wrong locations, refer to the [Solterra Illuminated Side Sill accessory installation instructions](#) to correct the condition (see page 10 - 14 for the correct installation process). Once corrected, re-check power window and lock functions on the master window switch.

In some cases, it was found the inoperative power window symptoms remain after the Bridge Connector error has been corrected. In this case, and after the Bridge Connectors have been properly installed, you must clear any DTC's that may have been set and perform the window initialization procedure below on the sub switches of each door to restore proper operation.

b. Procedure A  
i. Perform window position initialization (fully closed, fully open) and sliding resistance learning.

Operation Procedures	Door Glass Position (Door is closed)	Purpose
1. Connect the auxiliary battery. 2. Turn the ignition switch to ON. (Make sure the window lock switch is off.)	Any	Initialization preparation
3. Push down and hold the switch to fully open the power window.* + Continue holding the switch for 1 second or more after the power window is fully opened. (The switch may be operated to either the manual down or auto down position.)	Any ↓ Fully open	
4. Pull up and hold the switch at the auto up position to fully close the power window. + Continue holding the switch for 1 second or more after the power window is fully closed. 5. Initialization complete.	Fully open ↓ Fully closed	

**HINT:**

\*: Even if the door glass is in the fully open position before performing step 3, push down and hold the switch for 1 second or more.

If the Bridge connectors are found to be in the correct locations, refer to the applicable Service Manual for further diagnosis.

Continued on the next page

ITEM CODE	ITEM TYPE	TITLE	CREATED DATE
13-106-23	Technical Service Bulletin	2024 MY Paint Coding Informati...	9-Aug-23
C1010VC001	Accessory Installation Guide	2022MY WRX - STI Leather Shift...	3-Aug-23
C1010FN001	Accessory Installation Guide	2024MY Impreza RS & Crosstrek ...	3-Aug-23
SOA567X090	Accessory Installation Guide	2023MY Solterra - Crossbars	3-Aug-23
01-168-09R	Technical Service Bulletin	Replacement Key and Immobilize...	1-Aug-23
WRB-23R	Subaru Product/Campaign Bulletin	Telematics Data Communications...	1-Aug-23
07-222-23R	Technical Service Bulletin	Climate Control Settings / Und...	1-Aug-23
07-207-22R	Technical Service Bulletin	Subaru Battery Drain Product L...	31-Jul-23
15-304-22R	Technical Service Bulletin	Procedure for Techline Infotai...	31-Jul-23
15-313-23	Technical Service Bulletin	2024 Audio/Navigation & Power ...	27-Jul-23
J101SSJ900	Accessory Installation Guide	2022MY+ Forester Door Cladding...	25-Jul-23
F501SFN000	Accessory Installation Guide	2024MY Impreza/Crosstrek 2nd ...	25-Jul-23
09-109-23	Technical Service Bulletin	DTC P2404 / Reprogramming File...	25-Jul-23
J201SXC100	Accessory Installation Guide	2024MY Ascent Exterior Auto Di...	25-Jul-23
09-108-23	Technical Service Bulletin	DTC P2404 / Reprogramming File...	18-Jul-23
09-107-23	Technical Service Bulletin	DTC P2404 / Reprogramming File...	18-Jul-23
L101SFN000	Accessory Installation Guide	PORT INSTALLATION: XXXX-XXMY (...)	17-Jul-23
15-285-21R	Technical Service Bulletin	Gen 2-4 Head Unit Identificati...	13-Jul-23
07-223-23R	Technical Service Bulletin	New Genuine Subaru Replacement...	13-Jul-23
12-249-23R	Technical Service Bulletin	Cleaning of Painted Surfaces A...	11-Jul-23
09-106-23	Technical Service Bulletin	Exhaust Pipe Front (EPF) Desig...	11-Jul-23
16-141-23R	Technical Service Bulletin	DTC P0711 / TCM Reprogramming F...	11-Jul-23
TIPS1222	TechTIPS NewsLetter	2022 December TechTIPS Newslet...	10-Jul-23
12-250-23	Technical Service Bulletin	Rushing Wind Sounds from Front...	10-Jul-23
09-103-23	Technical Service Bulletin	DTC P2404 / Reprogramming File...	10-Jul-23
15-246-19R	Technical Service Bulletin	New Immobilizer Registration P...	30-Jun-23
15-297-22R	Technical Service Bulletin	Reprogramming File Availabilit...	30-Jun-23
06-87-22R	Technical Service Bulletin	Electric Parking Brake Connect...	29-Jun-23
15-240-19R	Technical Service Bulletin	New Harman Audio Amplifiers	29-Jun-23
WRH-23R	Subaru Product/Campaign Bulletin	Safety Recall/STOP SALE - Tire...	29-Jun-23
02-190-22R	Technical Service Bulletin	Proper Diagnosis of Oil Level ...	29-Jun-23
02-131-12R	Technical Service Bulletin	Oil Seepage Diagnosis and Repa...	29-Jun-23
02-136-12R	Technical Service Bulletin	Oil Seepage Diagnosis and Repa...	29-Jun-23
16-132-20R	Technical Service Bulletin	Diagnostic Information for All...	28-Jun-23
09-102-23	Technical Service Bulletin	Diagnosis Procedures for DTCs ...	28-Jun-23
15-312-23R	Technical Service Bulletin	Data Control Module (DCM) Dark...	28-Jun-23
15-311-23	Technical Service Bulletin	FOTA (Firmware Over-The-Air) R...	23-Jun-23

**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:** \_\_\_\_\_

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**Your suggestion for repair procedure, product improvements, etc.:** \_\_\_\_\_

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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.

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

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

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

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

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