

**ATTENTION:**

- GENERAL MANAGER
- PARTS MANAGER
- CLAIMS PERSONNEL
- SERVICE MANAGER

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


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QUALITY DRIVEN® SERVICE

**SERVICE BULLETIN**

**APPLICABILITY:** 2019-22MY Forester

**NUMBER:** 09-89-22

**SUBJECT:** P0890 TCM Power Relay Sense Circuit  
 P030x Random/Multiple Cylinder Misfire Detected  
 DTC 0116 Engine Coolant Temperature Sensor 1  
 Circuit Range/Performance

**DATE:** 05/12/22

**INTRODUCTION:**

This bulletin announces availability of new reprogramming files for the Engine Control Module (ECM). These files have been developed to address certain limited concerns of the starter motor not operating. This concern is heavily dependent upon specific driving and fuel conditions, and it can occur under any of the three specific driving scenarios outlined below. It is **IMPORTANT** to fully review the details below to accurately confirm the concern and perform the Reprogramming procedure when necessary.

**DESCRIPTIONS OF CONCERN:**

**Scenario A:**

While attempting a restart after a short drive cycle in low ambient temperatures (less than 0 Degrees Celsius / 32 Degrees Fahrenheit), the starter motor may not operate. DTC P0890 (TCM Power Relay Sense Circuit Low) will likely be stored in the ECM under this condition. Condensed moisture in the ignition relay can cause the contact points to freeze under these conditions. The new logic enhances the relay self-shutdown program, eliminating the possibility of frozen relay contacts..

**Scenario B:**

When running the engine after an initial start-up, DTC P030x (Random /Multiple Cylinder Misfire Detected) may be stored in the ECM. The combination of the cylinder head tolerance combined with carbon deposits may cause a disturbed tumble vortex resulting in a misfire. The new logic optimizes the injection timing program to reduce engine misfire.

**Scenario C: (Vehicle Fitted with Engine Block Heater ONLY)**

When the engine coolant is heated by the engine block heater, the ECM may detect DTC P0116 (Engine Coolant Temperature Sensor 1 Circuit Range/Performance). This occurs when the ECM detects a temperature reading conflict from the sensor data. This can result in increased effort when starting the engine due to an undesired fuel mixture accompanied by insufficient heater output.

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

Subaru Service Bulletins are intended for use by professional technicians ONLY. They are written to inform those technicians of conditions that may occur in some vehicles, or to provide information that could assist in the proper servicing of the vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do the job correctly and safely. If a condition is described, DO NOT assume that this Service Bulletin applies to your vehicle, or that your vehicle will have that condition.

**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.

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**NOTE:** Reprogram the ECM ONLY after confirming any of the scenarios as described above are present.

## **SERVICE PROCEDURE / INFORMATION:**

**REMINDER:** Customer satisfaction and retention starts with performing quality repairs.

- Reprogram the ECM following the normal FlashWrite procedure.
- See the information below for pak file applicability.

Subaru of America, Inc. (SOA) highly recommends connecting either the Subaru Midtronics DCA8000 Dynamic Diagnostic Charging System or the Subaru Midtronics GR8-1100 Diagnostic Battery Charger to the vehicle and utilizing the Power Supply Mode feature anytime a vehicle control module is being reprogrammed. Once the Midtronics charger is connected to the vehicle, if the battery is fully charged, it takes less than three (3) minutes to boot-up the charger, select the Power Supply Mode, and have the battery voltage stabilized and ready for reprogramming.

### **NOTES:**

- For instructions on using the power supply mode, reference the applicable User Manual for the Midtronics DCA-8000 Dynamic Diagnostic Charging System and the Midtronics GR8-1100 Diagnostic Battery Charger on STIS.
- Confirm all electrical loads such as lights, audio, HVAC, seat heaters, and rear defroster are all switched OFF before setting up the charger for Power Supply Mode.
- Select the correct battery type (Flooded, EFB, Gel, AGM or AGM Spiral).
- Input the CCA which matches the vehicle's battery. NOTE: OE and replacement batteries have different CCA ratings. Always confirm the battery's CCA rating before proceeding.
- If using a DCA-8000 Dynamic Diagnostic Charging System, set the power supply voltage to 13.5 volts.
- DO NOT connect the DST-010, DST-i or SDI until the Power Supply mode function has completed its battery test mode and the Charging Voltage has dropped to and shows a steady 13.5 Volts on the display.
- Once Power Supply Mode reaches a steady 13.5 volts, connect the DST-010, DST-i or SDI to the OBD connector and proceed with initiating the normal FlashWrite reprogramming process.
- Amperage will fluctuate based upon the vehicle's demand for power. NOTE: If the voltage rises beyond 14V while programming is in process, the procedure will abort. This can indicate a need to test or charge the vehicle battery before any further attempt at programming is made.

**REMINDER:** If the DCA-8000 or GR8-1100 indicates the vehicle's battery must be charged, charge the battery fully before proceeding to reprogram the vehicle while using the Power Supply Mode.

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**NOTE:** Control module failures resulting from battery discharge during reprogramming are not a matter for warranty. Should any DTCs reset after the reprogramming update is performed, diagnose per the procedure outlined in the applicable Service Manual.

**VERY IMPORTANT:**

This information is applicable to the Subaru Midtronics DCA-8000 Dynamic Diagnostic Charging System and the Subaru Midtronics GR8-1100 Diagnostic Battery Charger **ONLY**. It does not apply to any other brand / type of “generic” battery charger whatsoever. **ONLY** the DCA-8000 and the GR8-1100 and their Power Supply Mode feature have been tested and approved by SOA.

**PAK FILE APPLICABILITY:**

Model	MY	Specification	Old CID #	File Name	Decryption Keyword	New CID #
Forester	19	2.5L NA CVT	XE1F200A	22765AL824.pak	D295B7C5	XE1F800A
			XE1F20ZA			
			XE1F201A			
			XE1F202A			
			XE1F20YA			
			XE1F20XA			
			XE1F202A			
			XE1F500A			
	XE1F501A					
	20	2.5L NA CVT	XE1M010a00G	22765AN463.pak	E2B38132	XE1M500a00G
			XE1M100a00G			
			XE1M300a00G			
			XE1M301a00G			
	21	2.5L NA CVT	XE1P100a00G	22765AR672.pak	7BA8F183	XE1P500a00G
			XE1P101a00G			
22	2.5L NA CVT	XE1R000k00G	22765AR601.pak	262C8512	XE1R200k00G	
		XE1R000a00G	22765AR551.pak	D412BC85	XE1R200a00G	
		XE1R000z00G	22765AR611.pak	70B7BBA5	XE1R200z00G	

**WARRANTY / CLAIM INFORMATION:**

For vehicles within the Basic New Car Limited Warranty period, this repair may be submitted using the following claim information:

Labor Description	Labor Operation #	Fail Code	Labor Time
MFI OBDII ECM Reprogramming	A455-288	UPG-48	0.4

**IMPORTANT:** Always note the original Calibration Identification number (CID) the vehicle came in with on the repair order **before** reprogramming and, make sure to list the **NEW** CID for any newly-installed programming (as confirmed from the actual control module **AFTER** installation). The **NEW** CID **MUST** also be noted on the repair order as this information is required for entry in the Miscellaneous Detail field during claim submission.

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**NOTE:** The pak file listings provided in this bulletin are the latest available at the time of publishing. Updates are often released thereafter without revision to the original bulletin. For this reason, it is critical to always have the latest version of Select Monitor software installed on your system. You can confirm if a later version is available by entering the CID listed in this bulletin into FlashWrite. If a newer CID is shown as available in FlashWrite, reprogram using that file.

**IMPORTANT REMINDERS:**

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