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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SUBARU

QUALITY DRIVEN® SERVICE

SERVICE BULLETIN

APPLICABILITY: 2022-24MY BRZ

SUBJECT: DTCs P2404, P0016-19, P0021, & U0100 Diagnostic Procedures

NUMBER: 09-128-24R
DATE: 10/08/24
REVISED: 11/14/24

INTRODUCTION:

This bulletin announces availability of new reprograming files for the Engine Control Module (ECM) developed to remedy the following DTCs:

- **P0016:** Crankshaft Position - Camshaft Position Correlation Bank 1 Sensor A
- **P0017:** Crankshaft Position - Camshaft Position Correlation Bank 1 Sensor B
- **P0018:** Crankshaft Position - Camshaft Position Correlation Bank 2 Sensor A
- **P0019:** Crankshaft Position - Camshaft Position Correlation Bank 2 Sensor B
- **P2404:** Evap System Leak Detection Pump Sense Circuit Range/Performance
- **P0011**: "A" Camshaft Position - Timing Over-Advanced or System Performance Bank 1
- **P0012:** "A" Camshaft Position - Timing Over-Advanced or System Performance Bank 2
- **U0100:** Lost Communication with ECM/PCM "A"

These new files contain the following enhancements:

- Enhanced logic for the self-diagnosis program of the ECM and to optimize stabilization of fuel pressure.
- Optimized fuel trim providing stabilized engine combustion during Exhaust Gas Recirculation (EGR) valve operation.
- Enhanced logic to prevent the ELCM pump from seizing.
- Self-shutdown logic for the starter motor relay program, eliminating the possibility frozen relay contacts.

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.

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PFC FILE INFORMATION:

Model	Model Year	Transmission	File Description	Old Part Number	New CID/ROMID
BRZ	2022MY	AT	22765AR283.pfc	22765AR280 22765AR281 22765AR282	ZF2L500D00G
		MT	22765AR293.pfc	22765AR290 22765AR291 22765AR292	ZF2L500C00G
	2023MY	AT	22765AT543.pfc	22765AT540 22765AT541 22765AT542	ZF2M500D00G
		MT	22765AT553.pfc	22765AT550 22765AT551 22765AT552	ZF2M500C00G
	2024	AT	22765AU492.pfc	22765AU490 22765AU491	ZF2P300D00G
		MT	22765AU502.pfc	22765AU500 22765AU501	ZF2P300C00G

The files listed above can be found on SSM5-R

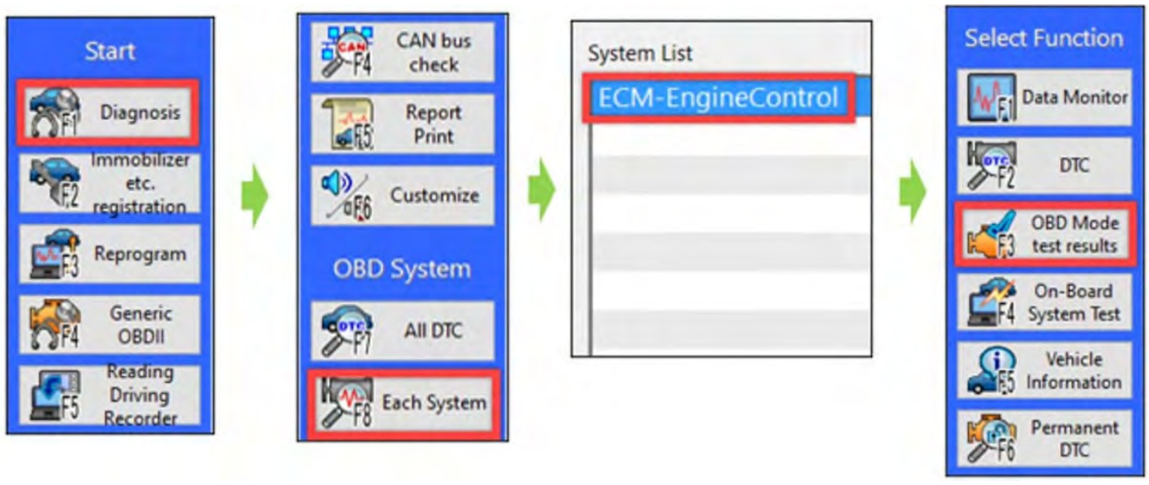
SERVICE PROCEDURE INFORMATION:

Perform a DTC scan. Refer to the table below for the next course of action.

DTC	Course of Action
P0016-19	Proceed to **SECTION A**
P2404	Proceed to **SECTION B**
U0100	Proceed to **SECTION C**
P0011-12	Connect the vehicle to a recommended power supply. See **APPENDIX A** for additional information regarding power supply. Reprogram the ECM following the normal SSM5-R procedure. Detailed information regarding the SSM5-R reprograming procedures can be found in TSB **14-28-21R**.

SECTION A - DTC P0016-19 SERVICE PROCEDURE INFORMATION:

(*1) IMPORTANT: Use the following instructions to perform and read the OBD MODE test results. This procedure will be required when performing the diagnostic steps outlined below.



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Read the following data monitor values:

1. **MID - $35 TID - $8B**
2. **MID - $35 TID - $8C**
3. **MID - $35 TID - $8D**
4. **MID - $35 TID - $8E**
5. **MID - $36 TID - $8B**
6. **MID - $36 TID - $8C**
7. **MID - $36 TID - $8D**
8. **MID - $36 TID - $8E**

MID	TID	Scaling ID	Value	Unit	Minimum	Maximum	Result
$31	$BE	$17	0.05	psi	0.00	5.56	OK
$31	$BF	$17	0.14	psi	0.00	3.65	OK
$35	$8B	$9D	308.0	°	0.0	4000.0	OK
$35	$8C	$9D	-291.5	°	-4000.5	0.0	OK
$35	$8D	$9D	228.0	°	0.0	4500.0	OK
$35	$8E	$9D	-284.5	°	-4500.0	0.0	OK
$35	$D3	$9D	1.0	°	-10.5	10.0	OK
$35	$D5	$9D	-1.0	°	-10.5	10.0	OK
$35	$D6	$9D	-0.5	°	-10.5	10.0	OK
$36	$8B	$9D	327.5	°	0.0	4000.0	OK
$36	$8C	$9D	-285.0	°	-4000.5	0.0	OK
$36	$8D	$9D	324.0	°	0.0	4500.0	OK
$36	$8E	$9D	-132.0	°	-4500.0	0.0	OK
$36	$D3	$9D	1.0	°	-10.5	10.0	OK

STEP 1: Confirm DTCs P0016, P0017, P0018, or P0019 displayed in the ECM fault memory.

STEP 2: Review the battery charging information supplied in **APPENDIX A**. Reprogram the ECM following the normal SSM5-R procedure. Detailed information regarding the SSM5-R reprograming procedures can be found in TSB **14-28-21R**.

STEP 3: Start the vehicle and allow to idle. Using the SSM, read the value the following four data monitor items (ALWAYS Save SSM Data):

1. VVT Initial Position Learning Value #1
2. VVT Initial Position Learning Value #2
3. VVT EX Initial Position Learning Value #1
4. VVT EX Initial Position Learning Value #2

	Item	Value	Acceptable Range
EGI	VVT Initial Position Learning Value #1	78.7	53-71
EGI	VVT Initial Position Learning Value #2	81.0	53-71
EGI	VVT Ex Initial Position Learning Value #1	111.1	78-96
EGI	VVT Ex Initial Position Learning Value #2	109.2	78-96

Continued...

Are all of the data monitor item values within the acceptable range listed in the table above?

YES - proceed to STEP 5.

NO - proceed to STEP 4.

STEP 4: Perform the procedures outlined in **"#7 INSPECTION MODE N"** and **"#11 INSPECTION MODE T"**. Then re-check the threshold values in STEP 3 along with the OBD MODE test results **(*1)**

"#7 INSPECTION MODE N" procedure.

Using the applicable Service Manual, refer to: DIAGNOSTICS > ENGINE> Inspection Mode> #7 DRIVE CYCLE N

A. Confirm the battery voltage is 12 Volts or more and the fuel tank is at least half full.

B. Using SSM, clear the fault memory. Prepare the SSM to be kept in the vehicle during the following road test.

C. With gear selector in the park position (neutral for MT models), idle the engine at approximately 2500 rpm for 40 seconds or more.

D. Move the gear selector into the drive position (appropriate gear range for MT models. Accelerate the vehicle to 31 mph or more.

E. When the vehicle speed is 31 mph or more, release the accelerator pedal and brake pedal (and clutch for MT models) and allow the vehicle to decelerate without any gear shift changes. Maintain the engine speed between 2500 rpm to 1900 rpm for 5 seconds during this deceleration.

NOTE: Depending on road conditions, an appropriate gear might have to be selected to maintain the desired engine speed. The vehicle speed is not important as long as the engine speed is within range during the declaration.

F. In a suitable area, safely bring the vehicle full stop and allow it to idle for 5 minutes.

"#7 INSPECTION MODE N" procedure is complete. Proceed to **"#11 INSPECTION MODE T"** procedure**.**

"#11 INSPECTION MODE T" procedure.

Using the applicable Service Manual, refer to: DIAGNOSTICS > ENGINE> Inspection Mode > #11 INSPECTION MODE T

A. Confirm the battery voltage is 12 Volts or more the fuel is at least half full.

B. Start the engine.

C. Allow the engine to idle for at least 3 minutes.

Continued...

D. Accelerate the vehicle speed to approximately 37 mph.

E. While maintaining approximately 37 mph, cycle the accelerator from a 0% to 20% opening angle. Try to keep these cycles within 5 second intervals. Maintain this driving pattern for 20 minutes or more.

NOTE: It is acceptable to stop the vehicle if needed depending on road/traffic conditions during this driving pattern.

F. Release the accelerator pedal and brake pedal (and clutch for MT models) and allow the vehicle to decelerate with any gear shift changes.

G. In a suitable area, safely bring the vehicle full stop and turn off the engine.

"#11 INSPECTION MODE T" procedure is complete**.**

Read the threshold values from STEP3 (pictured below) and the OBD MODE test results (*1)

Are all of the data monitor item values within the acceptable range listed in the table below? Are the threshold values between -1000 to + 1000?

MID	TID	Scaling ID	Value	Unit	Minimum	Maximum	Result
$31	$BE	$17	0.05	psi	0.00	5.56	OK
$31	$BF	$17	0.14	psi	0.00	3.65	OK
$35	$8B	$9D	308.0	°	0.0	4000.0	OK
$35	$8C	$9D	-291.5	°	-4000.5	0.0	OK
$35	$8D	$9D	228.0	°	0.0	4500.0	OK
$35	$8E	$9D	-284.5	°	-4500.0	0.0	OK
$35	$D3	$9D	1.0	°	-10.5	10.0	OK
$35	$D5	$9D	-1.0	°	-10.5	10.0	OK
$35	$D6	$9D	-0.5	°	-10.5	10.0	OK
$36	$8B	$9D	327.5	°	0.0	4000.0	OK
$36	$8C	$9D	-285.0	°	-4000.5	0.0	OK
$36	$8D	$9D	324.0	°	0.0	4500.0	OK
$36	$8E	$9D	-132.0	°	-4500.0	0.0	OK
$36	$D3	$9D	1.0	°	-10.5	10.0	OK

YES - The procedure is FINISHED.

NO - Repeat STEP 4 ONE TIME ONLY and if the result answer is still "NO", proceed to STEP 6.

STEP5: Perform the **"#7 INSPECTION MODE N"** and **"#11 INSPECTION MODE T"** procedure.

"#7 INSPECTION MODE N" procedure.

Using the applicable Service Manual, refer to: DIAGNOSTICS > ENGINE> Inspection Mode > #7 INSPECTION MODE N

A. Confirm the battery voltage is 12 Volts or more the fuel is at least half full.

B. Using SSM, clear the fault memory. Prepare the SSM to be kept in the vehicle during the following road test.

C. With gear selector in the park position, idle the engine at approximately 2500 rpm for 40 seconds or more.

Continued...

D. Move the gear selector into the drive position. Accelerate the vehicle to 31 mph or more.

E. When the vehicle speed is 31 mph or more, release the accelerator pedal and brake pedal, allow the vehicle to decelerate without any gear shift changes. Maintain the engine speed between 2500 rpm to 1900 rpm for 5 seconds during this deceleration.

NOTE: Depending on road conditions, an appropriate gear might have to be selected to maintain the desired engine speed. The vehicle speed does is not important as long as the engine speed is within range during the declaration.

F. In a suitable area, safely bring the vehicle full stop and allow it to idle for 5 minutes.

"#7 INSPECTION MODE N" procedure is complete. Proceed to **"#11 INSPECTION MODE T"** procedure**.**

"#11 INSPECTION MODE T" procedure.

Using the applicable Service Manual, refer to: DIAGNOSTICS > ENGINE> Inspection Mode > #11 INSPECTION MODE T

G. Confirm the battery voltage is 12 Volts or more the fuel is at least half full.

H. Start the engine.

I. Allow the engine to idle for at least 3 minutes.

J. Accelerate the vehicle speed to approximately 37 mph.

K. While maintaining approximately 37 mph, cycle the accelerator from a 0% to 20% opening angle. Try to keep these cycles within 5 second intervals. Maintain this driving pattern for 20 minutes or more.

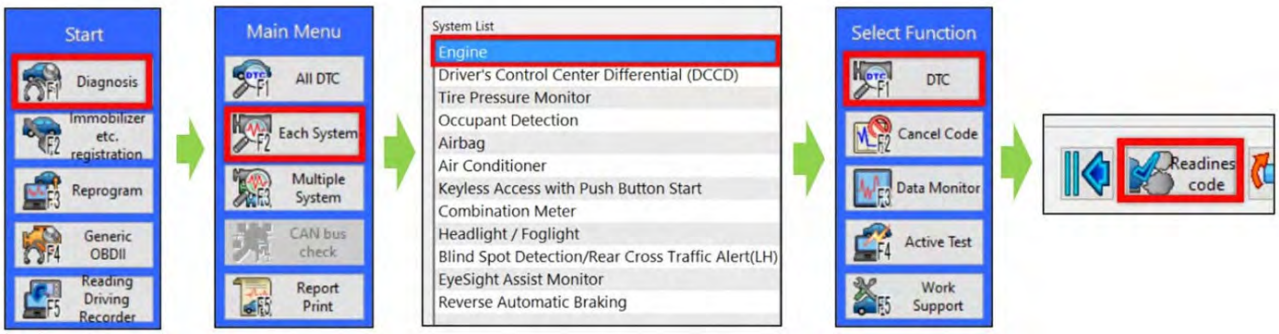
NOTE: It is acceptable to stop the vehicle if needed depending on road/traffic conditions during this driving pattern.

L. Release the accelerator pedal and brake pedal (and clutch for MT models) and allow the vehicle to decelerate with any gear shift changes.

M. In a suitable area, safely bring the vehicle full stop and turn off the engine.

"#11 INSPECTION MODE T" procedure is complete**.**

N. Using SSM, select Diagnosis > Each System > Engine > DTC > Readiness Code



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O. Read the readiness codes for P0016, P0017, P0018, P0019, P000A, P000B, P000C, and P000D. Confirm the self-diagnosis is complete and that the codes are not pending.

Status	Code	
Readiness code: self-diagnosis is not completed		
Readiness	P000A	"A" Camshaft Position Slow Response Bank 1
Readiness	P000B	"B" Camshaft Position Slow Response Bank 1
Readiness	P000C	"A" Camshaft Position Slow Response Bank 2
Readiness	P000D	"B" Camshaft Position Slow Response Bank 2
Readiness	P0016	Crankshaft Position - Camshaft Position Correlation Bank 1 Sensor A
Readiness	P0017	Crankshaft Position - Camshaft Position Correlation Bank 1 Sensor B
Readiness	P0018	Crankshaft Position - Camshaft Position Correlation Bank 2 Sensor A
Readiness	P0019	Crankshaft Position - Camshaft Position Correlation Bank 2 Sensor B

P. Check the DTC and data monitor threshold values. Using SSM, select Diagnosis > Select Vehicle > OBD System – Each System > ECM-EngineControl > OBD MODE test results (*1)

Are there **NO** DTCs present and the threshold values between -1000 to + 1000?

YES - The procedure is FINISHED.

NO - Proceed to STEP 6

STEP 6: Inspect the engine oil level and condition.

IMPORTANT: If the engine oil and filter were replaced prior to diagnosis, there is no need for inspection. Proceed to STEP: 7.

Is there any abnormal condition or inappropriate oil level??

YES - Perform the engine oil and filter change. Repeat STEP 4 or STEP 5, then continue diagnosis.

NO – Proceed to STEP 7

STEP 7: Performed the outlined timing chain inspection outlined below:

IMPORTANT: If the timing chain was replaced prior to diagnosis, there is no need to perform the inspection. Proceed to STEP 8.

A. Using SSM, clear the fault memory.

B. Switch the ignition to the “OFF” position.

C. Disconnect the oil control solenoid valve connector on the bank with associated DTC.

D. Switch the ignition switch to the “ON” position.

Continued...

E. Using SSM and the engine not running, read the "VVT Advance Angle Value" data monitor value.

F. Start the engine and read the "VVT Advance Angle Value" data monitor value for a duration of 10 seconds.

G. Switch the ignition to the "OFF" position.

Is the "VVT Advance Angle Value" data monitor value out of -10 degrees to +10 degrees?

YES - Adjust and / repair the timing chain as needed. Repeat STEP 4 and STEP 5, then continue diagnosis.

NO - Proceed to STEP 8.

STEP 8: Perform a visual inspection of the engine harness and the connectors specified below for any physical damage.

IMPORTANT: If the engine harness was replaced prior to diagnosis, there is no need to perform the inspection. Proceed to STEP 9.

Connectors:

- **ECM**
- **Oil Control Solenoid**
- **CAM Position Sensor**
- **Crank Position Sensor**

Was there any damage found?

YES - Repair the damaged harness and / or connector. Repeat STEP 4 and STEP 5, then continue diagnosis.

NO – Proceed to STEP 9.

STEP 9: Perform the following Ohm tests:

A. Switch the ignition to the "OFF" position.

B. Disconnect the ECM and the Crank Position Sensor. Disconnect the Oil Control Valve and Cam Position Sensor associated with the DTC.

C. Measure the resistance between the following connectors specified in the tables below and record the results:

P0016												
	Right Intake Oil Control Solenoid				Right Intake Camshaft Position Sensor				Crankshaft Position Sensor			
	ECM		Solenoid		ECM		Sensor		ECM		Sensor	
	Connector	Terminal	Connector	Terminal	Connector	Terminal	Connector	Terminal	Connector	Terminal	Connector	Terminal
BRZ	E53	99	E105	2	E53	78	E61	2	E53	66	E65	1

Continued...

P0017												
	Right Exhaust Oil Control Solenoid				Right Exhaust Camshaft Position Sensor				Crankshaft Position Sensor			
	ECM		Solenoid		ECM		Sensor		ECM		Sensor	
	Connector	Terminal	Connector	Terminal	Connector	Terminal	Connector	Terminal	Connector	Terminal	Connector	Terminal
BRZ	E53	108	E107	2	E53	65	E63	2	E53	66	E65	1

P0018												
	Left Intake Oil Control Solenoid				Left Intake Camshaft Position Sensor				Crankshaft Position Sensor			
	ECM		Solenoid		ECM		Sensor		ECM		Sensor	
	Connector	Terminal	Connector	Terminal	Connector	Terminal	Connector	Terminal	Connector	Terminal	Connector	Terminal
BRZ	E53	100	E106	2	E53	77	E62	2	E53	66	E65	1

P0019												
	Left Exhaust Oil Control Solenoid				Left Exhaust Camshaft Position Sensor				Crankshaft Position Sensor			
	ECM		Solenoid		ECM		Sensor		ECM		Sensor	
	Connector	Terminal	Connector	Terminal	Connector	Terminal	Connector	Terminal	Connector	Terminal	Connector	Terminal
BRZ	E53	109	E108	2	E53	64	E64	2	E53	66	E65	1

Are there resistance values 1 Ohm or higher?

YES - Replace the damaged harness. Repeat STEP 4 and STEP 5, then continue diagnosis.

NO - Proceed to STEP 10.

STEP 10: Perform and engine oil pressure test as per the applicable Service Manual: Engine > Mechanical > Engine Oil Pressure > INSPECTION

Was the engine oil pressure found to be within specification?

YES - Repeat STEP 4 and STEP 5, then continue diagnosis.

NO - Proceed to inspect the items listed below in the following order. Clean or replace the needed parts depending on the inspection results. Repeat STEP 4 and STEP 5, then continue diagnosis.

- **Engine Oil Strainer**
- **Oil Passages in the Chain Cover**
- **Oil Passages in the Cam Sprocket**
- **Cam Carriers (possible scoring)**

Continued...

SECTION B - DTC P2404 SERVICE PROCEDURE / INFORMATION:

STEP 1: Using Subaru Select Monitor (SSM), check for diagnostic trouble codes. Confirm P2404 is stored and proceed to the next step.

NOTE: Always save SSM data and record the results of the following tests.

STEP 2: Are any of the diagnostic trouble codes listed below also stored withing the ECM?

- P2419 - Evap System Switching Valve Control Circuit Low
- P2420 - Evap System Switching Valve Control Circuit High
- P2401 - Evap System Leak Detection Pump Control Circuit Low
- P2402 - Evap System Leak Detection Pump Control Circuit High
- P24BA - Evap System Leak Detection Pump Pressure Sensor Circuit Low
- P24BB - Evap System Leak Detection Pump Pressure Sensor Circuit High
- P24B9 - Evap System Leak Detection Pump Pressure Sensor Circuit Range/Performance

NO – Proceed to STEP 3.

YES – Perform diagnosis of the DTC(s) following the procedures outlined in the applicable Service Manual.

STEP 3: Refer to the applicable Service Manual and review: General Description > Repair Contents> Action required before & after Battery Disconnect. Additionally, record any stored seat position(s) before proceeding. Relearn any seat position memory after work is complete. If the power rear gate (PRG) height has been customized, that position must also be noted and relearned. **CAREFULLY** disconnect the ground terminal from the battery sensor.

STEP 4: CAREFULLY Raise the vehicle and locate the ELCM located behind the fuel tank.

STEP 5: CAREFULLY disconnect the ELCM drain tube. Inspect for signs of water or oil.

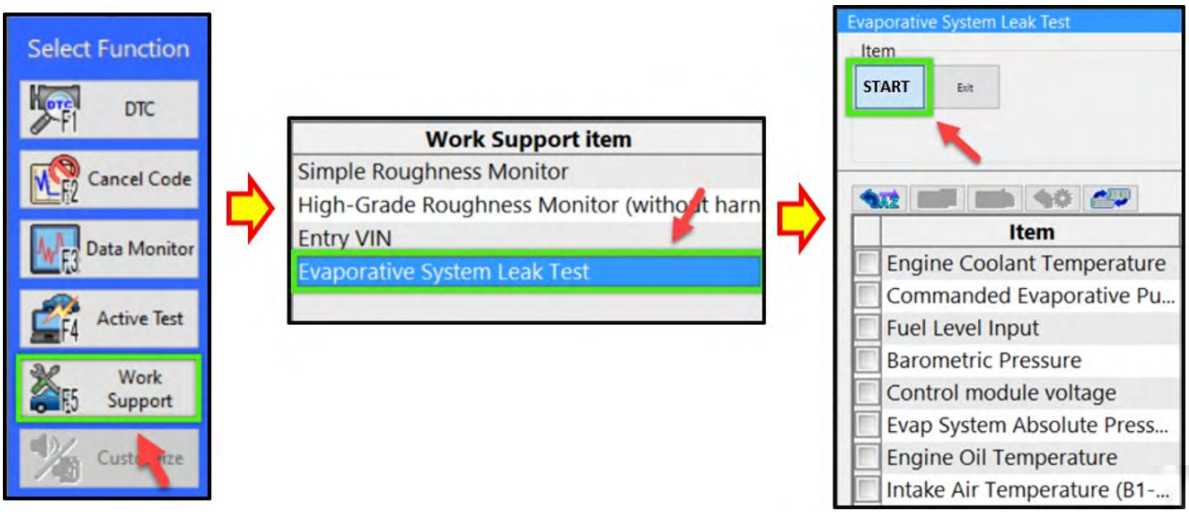
Have signs of water or oil been detected withing the ELCM drain tube?

YES – Clean and dry the drain tube using a non-alcohol base cleaner. Proceed to STEP 6.

NO – Proceed to STEP 6.

Continued...

STEP 6: Connect the vehicle to a recommended power supply. See **APPENDIX A** for additional information regarding power supply. Using SSM, perform the Evaporative System Leak Test. Collect and save all data.



Once the evaporative system leak test is complete, check the DTCs and examine the vacuum value results. Record the value shown in the row labeled MID: $3C, TID: $C4, and Scaling ID: $FE. This value should be lower than -0.26 PSI.

MID	TID	Scaling ID	Value	Unit	Minimum	Maximum	Result
$3C	$C1	$FE	0.00	psi	0.00	0.00	OK
$3C	$C2	$FE	0.00	psi	0.00	0.00	OK
$3C	$C3	$FE	0.00	psi	0.00	0.00	OK
$3C	$C4	$FE	0.00	psi	0.00	0.00	OK
$3C	$C5	$FE	0.00	psi	0.00	0.00	OK
$3C	$C6	$35			0.00	0.00	OK
$3C	$C7	$FE			0.00	0.00	OK
$3C	$C8	$FE			0.00	0.00	OK
$3C	$C9	$FE	0.00	psi	0.00	0.00	OK
$3C	$CA	$FE	0.00	psi	0.00	0.00	OK

Value Must Be Lower Than -0.26 PSI

Is DTC P2404 stored within the ECM?

NO – Proceed to STEP 7.

YES – Proceed to STEP 8.

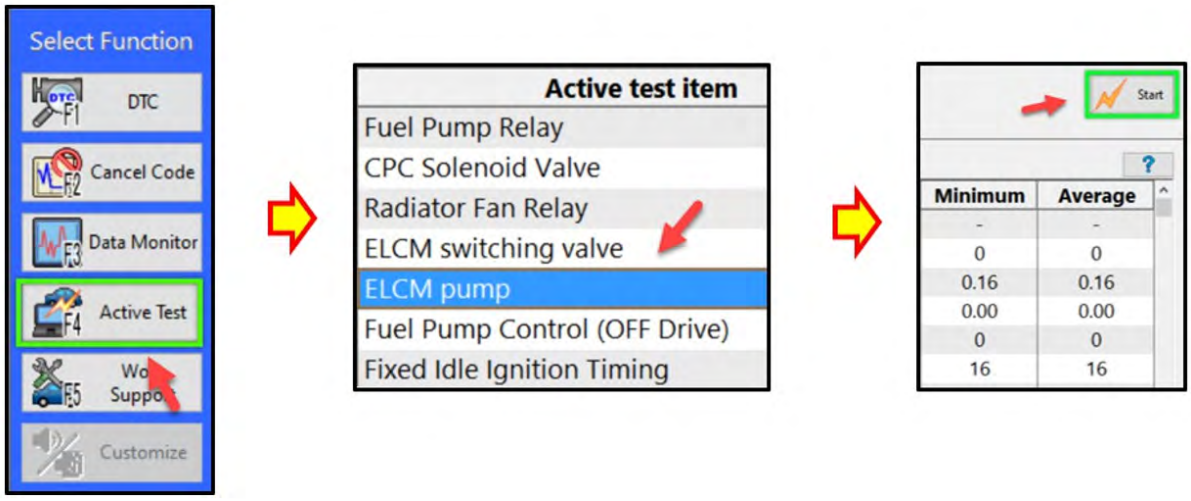
STEP 7: Was the vacuum value result observed in STEP 6 found to be lower than -0.26 PSI?

YES – Proceed to STEP 11.

NO – Proceed to STEP 8.

Continued...

STEP 8: Using SSM, perform the ELCM Pump Active Test for a period of 35 minutes or more. See **APPENDIX A** for additional information regarding power supply.



Once the ELCM Pump Active Test has been performed for a period of 35 minutes or more, repeat the Evaporative System Leak Test outlined in STEP 6. Check the DTCs and the vacuum value results.

Is DTC P2404 stored within the ECM?

NO – Proceed to STEP 9.

YES – Proceed to STEP 10.

STEP 9: Was the vacuum value result observed during the second Evaporative System Leak Test found to be lower than -0.26 PSI?

YES – Proceed to STEP 11.

NO – Proceed to STEP 10.

STEP 10: Replace the Evaporate Leak Check Module and repeat the Evaporative System Leak Test outlined in STEP 6. Check the DTCs and the vacuum value results.

Is DTC P2404 stored within the ECM?

NO – Proceed to STEP 11.

YES – Contact Subaru Techline with ability to provide SSM data and the testing results attained using this bulletin.

STEP 11: Reprogram the ECM following the normal SSM5-R procedure. See **APPENDIX A** for addition information regarding power supply.

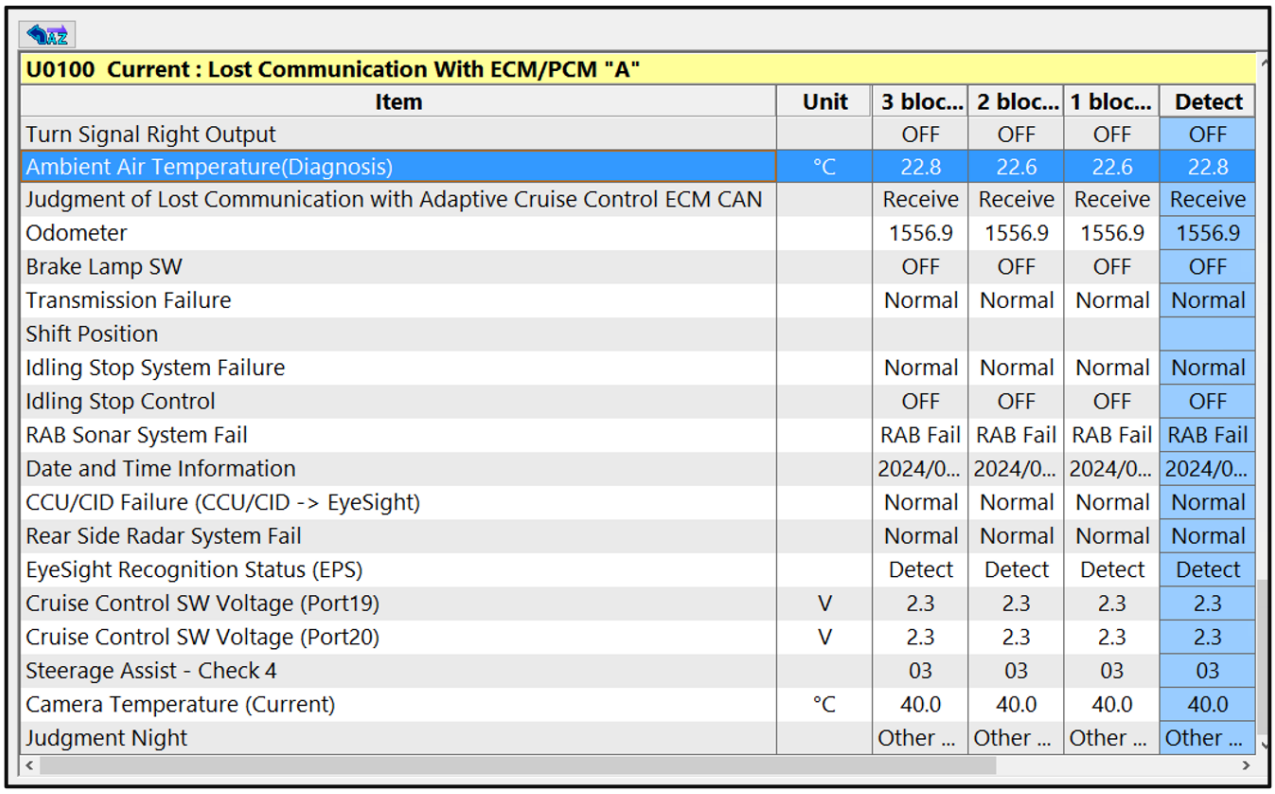
NOTE: If DTC U0100 is stored after reprogramming, proceed to **SECTION C**.

Continued...

SECTION C - DTC U0100 SERVICE PROCEDURE INFORMATION:

During low ambient temperatures, DTC U0100 can become stored within the EyeSight, VDC, etc. This is caused by the relay contacts within the main relay not operating during low temperatures. Using SSM, check the Freeze Frame Data (FFD) of DTC U0100. If the ambient air temperature in the FFD is higher than 0°C (32°F), further diagnosis will be required. If the ambient air temperature in the FFD is 0°C (32°F) or lower, the fault is cause by insufficient main relay operation. Reprogram the ECM following the normal SSM5-R procedure. See **APPENDIX A** for addition information regarding power supply.

EXAMPLE: EyeSight ECM FFD (22.8 Degrees Celsius is shown)



U0100 Current : Lost Communication With ECM/PCM "A"

Item	Unit	3 bloc...	2 bloc...	1 bloc...	Detect
Turn Signal Right Output		OFF	OFF	OFF	OFF
Ambient Air Temperature(Diagnosis)	°C	22.8	22.6	22.6	22.8
Judgment of Lost Communication with Adaptive Cruise Control ECM CAN		Receive	Receive	Receive	Receive
Odometer		1556.9	1556.9	1556.9	1556.9
Brake Lamp SW		OFF	OFF	OFF	OFF
Transmission Failure		Normal	Normal	Normal	Normal
Shift Position					
Idling Stop System Failure		Normal	Normal	Normal	Normal
Idling Stop Control		OFF	OFF	OFF	OFF
RAB Sonar System Fail		RAB Fail	RAB Fail	RAB Fail	RAB Fail
Date and Time Information		2024/0...	2024/0...	2024/0...	2024/0...
CCU/CID Failure (CCU/CID -> EyeSight)		Normal	Normal	Normal	Normal
Rear Side Radar System Fail		Normal	Normal	Normal	Normal
EyeSight Recognition Status (EPS)		Detect	Detect	Detect	Detect
Cruise Control SW Voltage (Port19)	V	2.3	2.3	2.3	2.3
Cruise Control SW Voltage (Port20)	V	2.3	2.3	2.3	2.3
Steerage Assist - Check 4		03	03	03	03
Camera Temperature (Current)	°C	40.0	40.0	40.0	40.0
Judgment Night		Other ...	Other ...	Other ...	Other ...

WARRANTY / CLAIM INFORMATION:

For vehicles within the Basic New Car Limited Warranty period or covered by an active Subaru Added Security Classic or Gold plan, this repair may be submitted using the following claim information:

Labor Description	Labor Operation #	Labor Time	Fail Code
OBDII OIL CHANGE TO FIX AVCS OPERATION	A455-443	1.0	BAT-42
MFI OBDII ECM Reprogramming	A455-288	0.4	UPG-48
ECM REPROGRAMMING & DRAIN TUBE CLEAN / EVAP TESTING	A455-223	1.0H	
LEAK CHECK MODULE R&R AND ECM REPROGRAMMING	A455-244	1.9H	

Continued...

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 claim specific data field during claim submission.

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.

Continued...

APPENDIX A

BATTERY CHARGING INFORMATION

Subaru of America, Inc. (SOA) highly recommends utilizing 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 (Enhanced Flooded, Flooded, 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-i or DST-010 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-i or DST-010 to the OBD connector and proceed with initiating the normal SSM5-R reprogramming process.
- Amperage will fluctuate based upon the vehicle's demand for power. **NOTE:** If the voltage rises beyond 14 Volts 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.
- ALWAYS set the power supply voltage to 13.5 Volts when using Power Supply Mode. NEVER turn the ignition switch on when charging at voltages 15 Volts or higher

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.

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.