For Subaru Field Service Engineer Use ONLY

Supplemental work procedures for 2019MY Ascent updated with the PAK file released April 12th, 2022.

Work Procedure Overview:

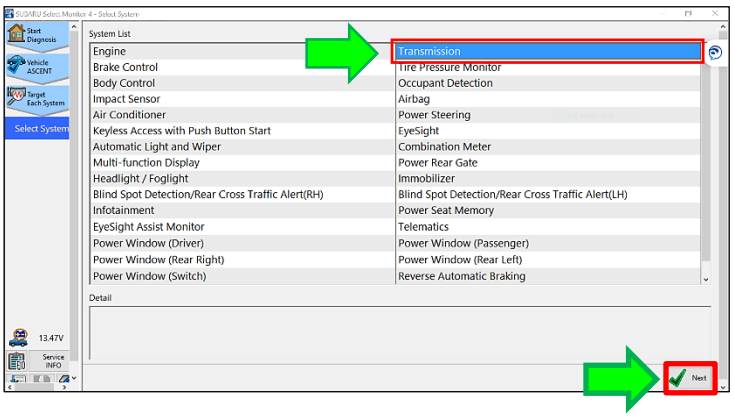
STEP 1-A: Reprogram the Transmission Control Module (TCM) with the **TEMPORARY** PAK file.

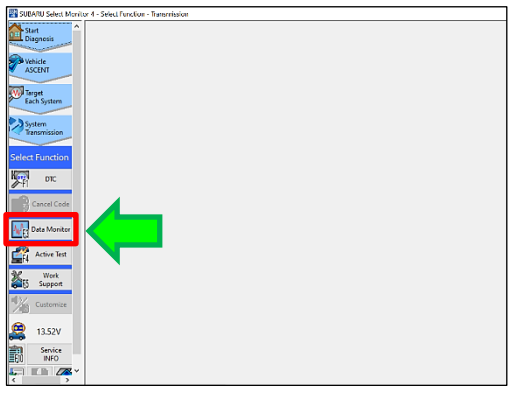
TEMPORARY PAK FILES					
Model	**MY**	**Specification**	**PAK file name**	**Decryption Keyword**	**New CID Number**
Ascent	19	2.4L DIT CVT **without** CVTF cooler	QMBT-0140_30919AF98D.pak	0520D600	R8FEE800
		2.4L DIT CVT **with** CVTF cooler	QMBT-0140_30919AF99D.pak	43DDD021	R8FEF800

NOTE: See **Appendix A** for additional information regarding control module reprograming**.**

STEP 1-B: Display the following data using the Subaru Select Monitor (SSM4).

- Switch the ignition switch to the OFF position and wait 30 seconds, then switch to the ON position.
- **IMPORTANT:** Restart the SSM application after the **TEMPORARY** PAK file is installed.
- Verify the VIN information and select “Diagnosis”.
- Select “Target Each System.”
- Select “Transmission” then select “Data Monitor”.





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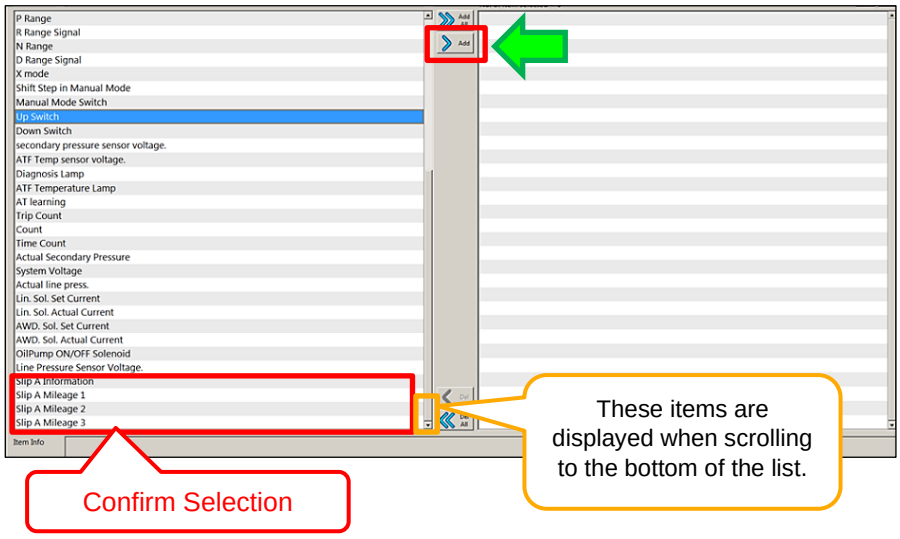
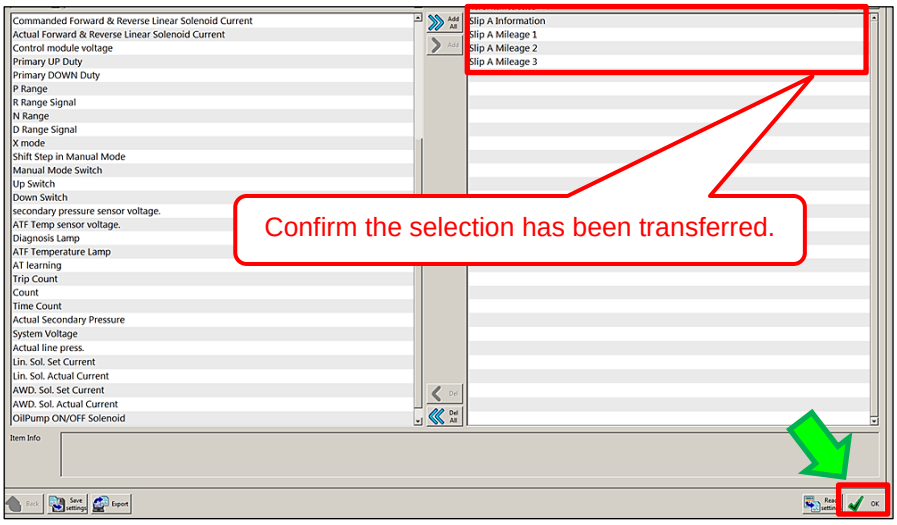
- Scroll through the select signal list and confirm the “Slip A Information, Slip A Mileage 1, Slip A Mileage 2, and Slip A Mileage 3” items are selected (Boxed in RED). Once the items are highlighted, click the “Add” button.

SELECT SIGNAL ITEM
Slip A Information
Slip A Mileage 1
Slip A Mileage 2
Slip A Mileage 3



IMPORTANT: In the case of failed control module communication with SSM after the installation of the temporary PAK file, check and confirm the interface setting is matched to the equipment being used (SDI, DSTI, & DST 010).

- Confirm the selection is now transferred to the column on the right side. Continue by clicking the “OK” button.



SELECT SIGNAL ITEM
Slip A Information
Slip A Mileage 1
Slip A Mileage 2
Slip A Mileage 3

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STEP 2-A: Review the "Slip A Information" data value and apply the results to the table below.

Check item	Value	Result	Next step
Slip A Information	0	CVT is OK	Proceed to **STEP 3**
	1	Review the vehicle history	Proceed to **STEP 2-B**

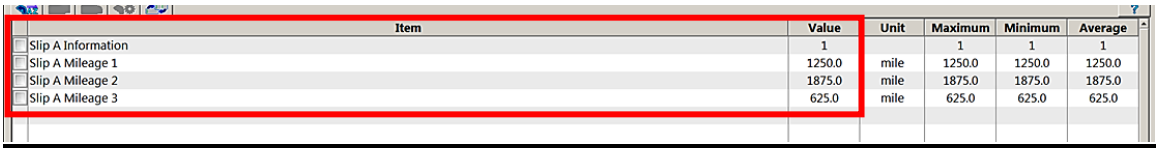
STEP 2-B: Review all vehicle repair history.

Has the CVT assembly been previously replaced?

YES – Proceed the **STEP 2-C.**

NO – Proceed to **STEP 4.**

STEP 2-C: Review the "Slip A Mileage 1, Slip A Mileage 2, and Slip A Mileage 3" data values.



Item	Value	Unit	Maximum	Minimum	Average
Slip A Information	1		1	1	1
Slip A Mileage 1	1250.0	mile	1250.0	1250.0	1250.0
Slip A Mileage 2	1875.0	mile	1875.0	1875.0	1875.0
Slip A Mileage 3	625.0	mile	625.0	625.0	625.0

Are **ALL** of the "Slip A" data mileage values higher than the mileage of the previous CVT assembly replacement?

YES – Proceed to **STEP 4** (CVT Replacement).

NO – Proceed to **STEP 3** (Chain Guide Inspection).

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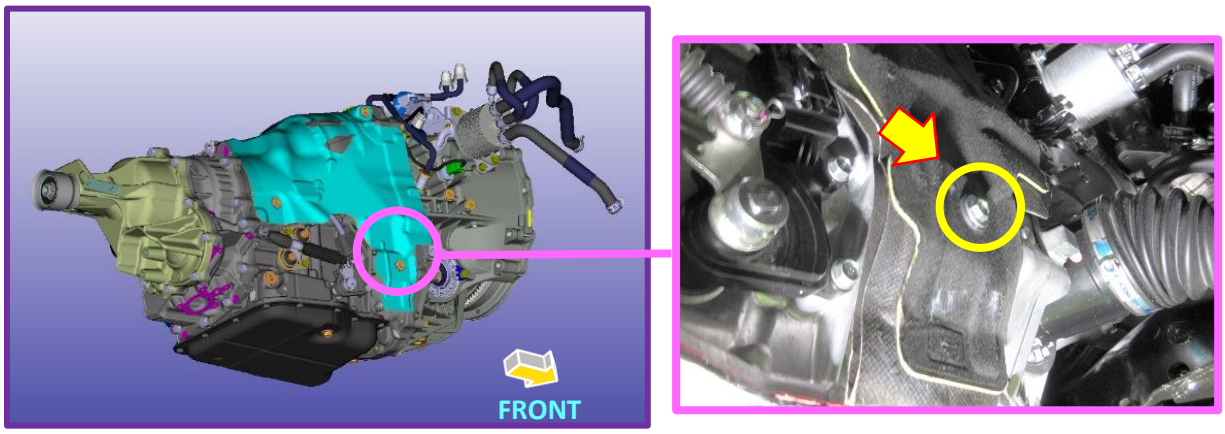
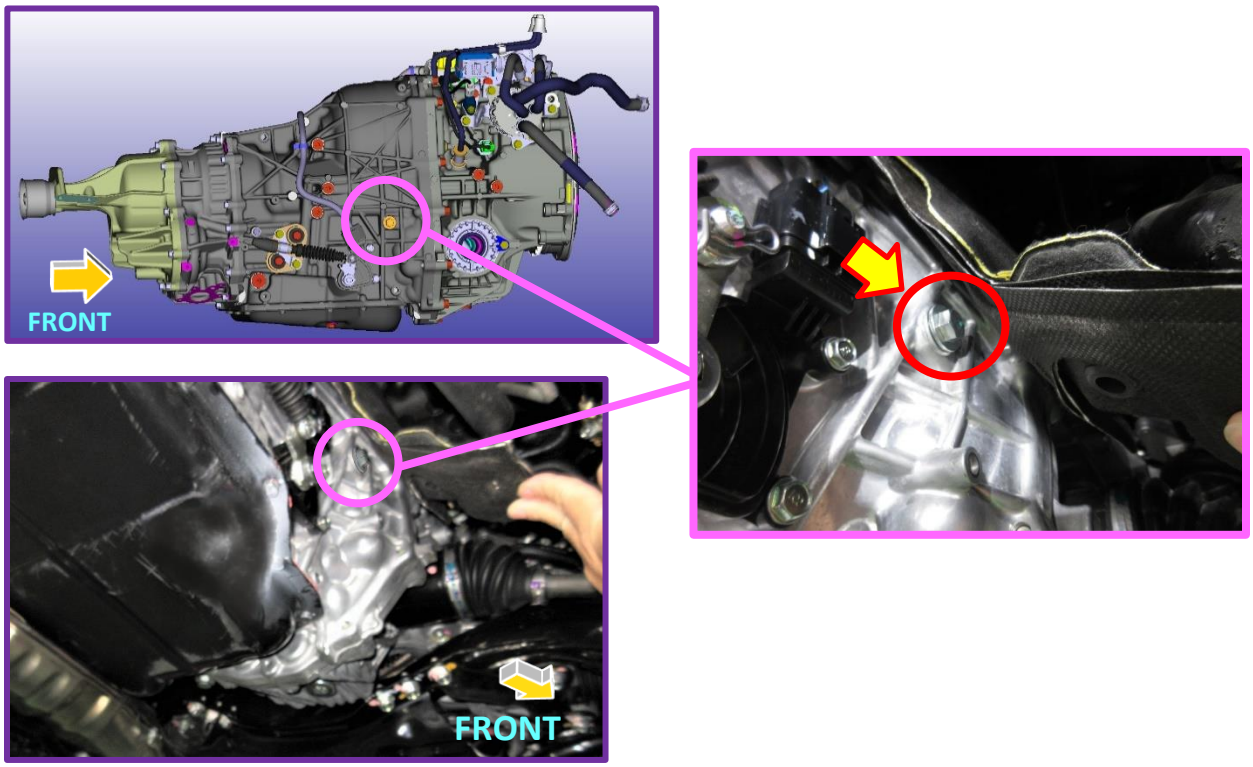
STEP 3A: Disconnect the vehicle from the SSM at this time**.** Remove the 10mm bolt retaining the insulator cover on the right side of the CVT.



STEP 3B: **CAREFULLY** lift the insulation only as far as necessary to expose the plug as shown below.



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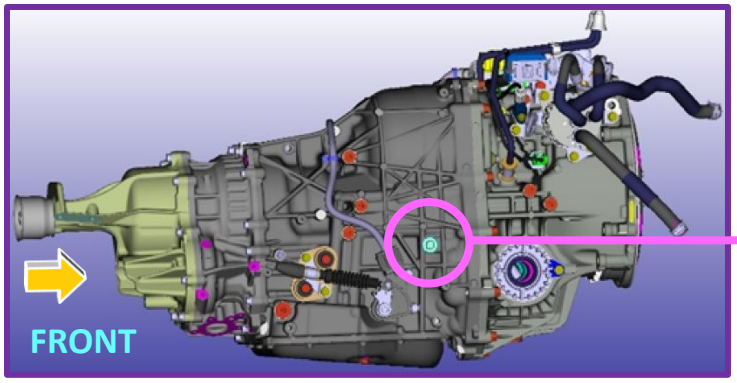
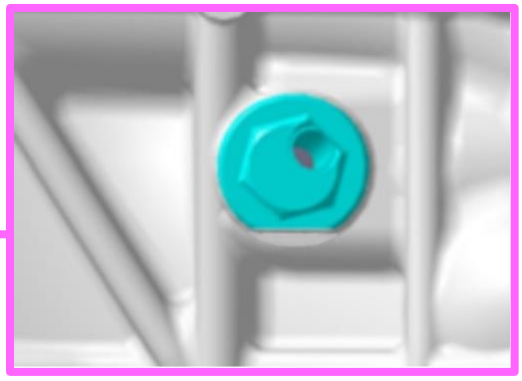
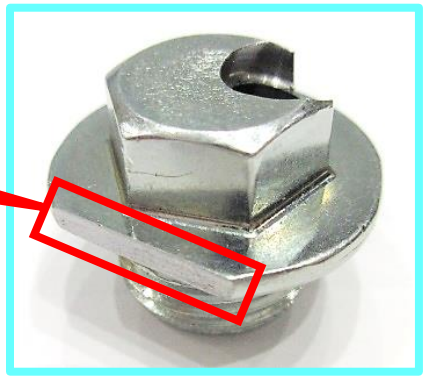
STEP 3C: Install and align the specialty plug / holder (**18361AA090**) as shown below.

- The holder is designed to provide the proper insertion angle for the videoscope camera.
- Install the tool by tightening the holder down **BY HAND ONLY**.
- Slightly loosen the holder so the flat section of the tool is facing downward (parallel to the floor). See the example illustrations below.





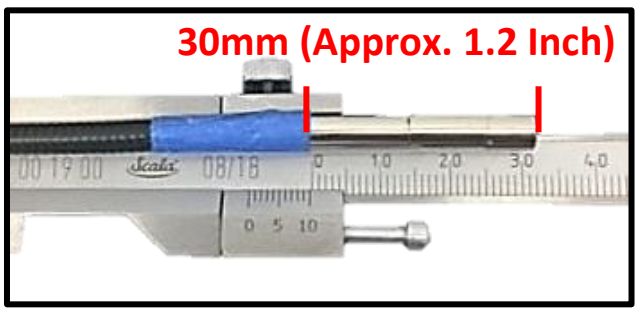
Flat Section of the Holder
18361AA090



NOTE: **NEVER** use any wrench, socket, etc. when tightening the plug / holder tool. Teflon Tape can be applied to the holder threads for added stability.

STEP 3D: Perform a visual inspection of the chain guide rail.

- Make sure the OTC threaded camera tip is screwed on tight prior to usage. Prepare the videoscope camera by measuring and marking approximately 5mm (0.2inch) from where the metal section of the scope tip meets the flexible portions. This section can be marked using a marker or tape. Use the example photos below as a guide.



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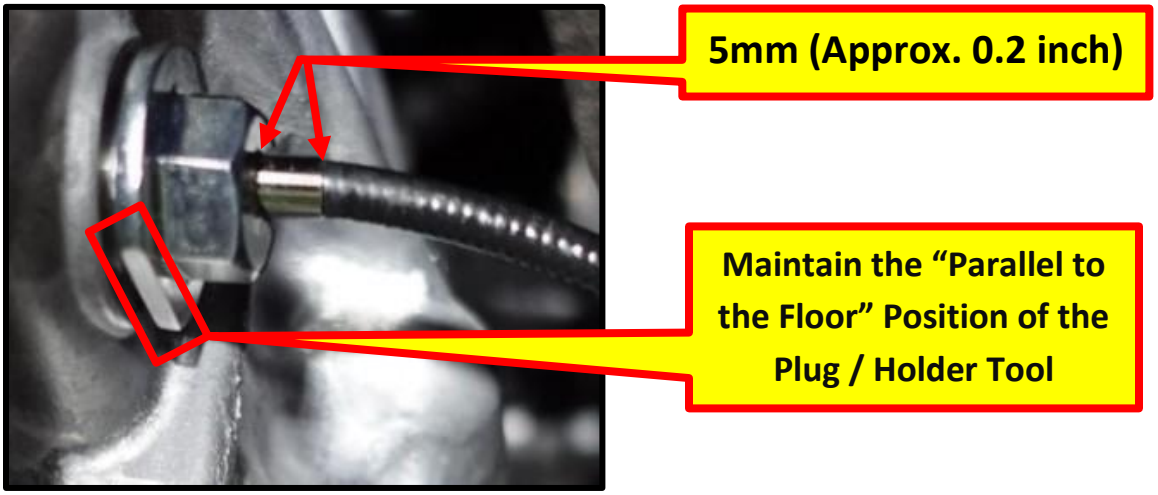
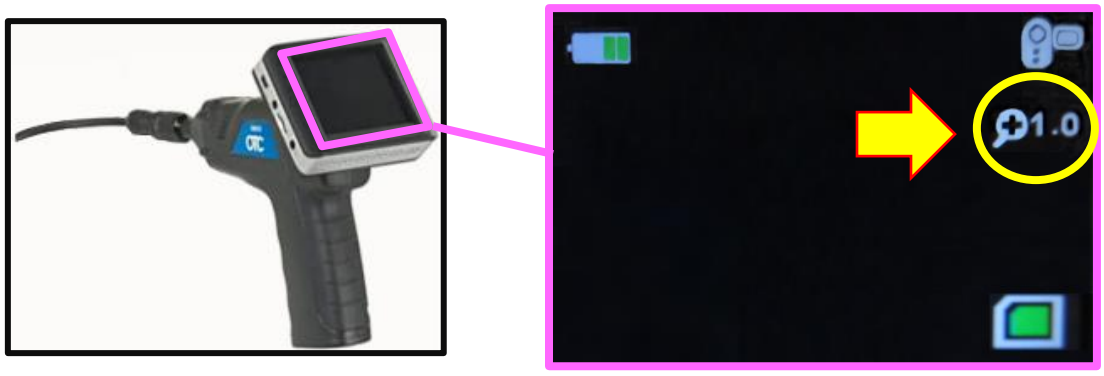
- Identify the top section of the scope camera lens while performing a function test of the scope. This can help for the scope view positioning.
- Insert the scope camera into the plug / holder up to the previously marked line.



- Set the magnification of the videoscope to 1.0.



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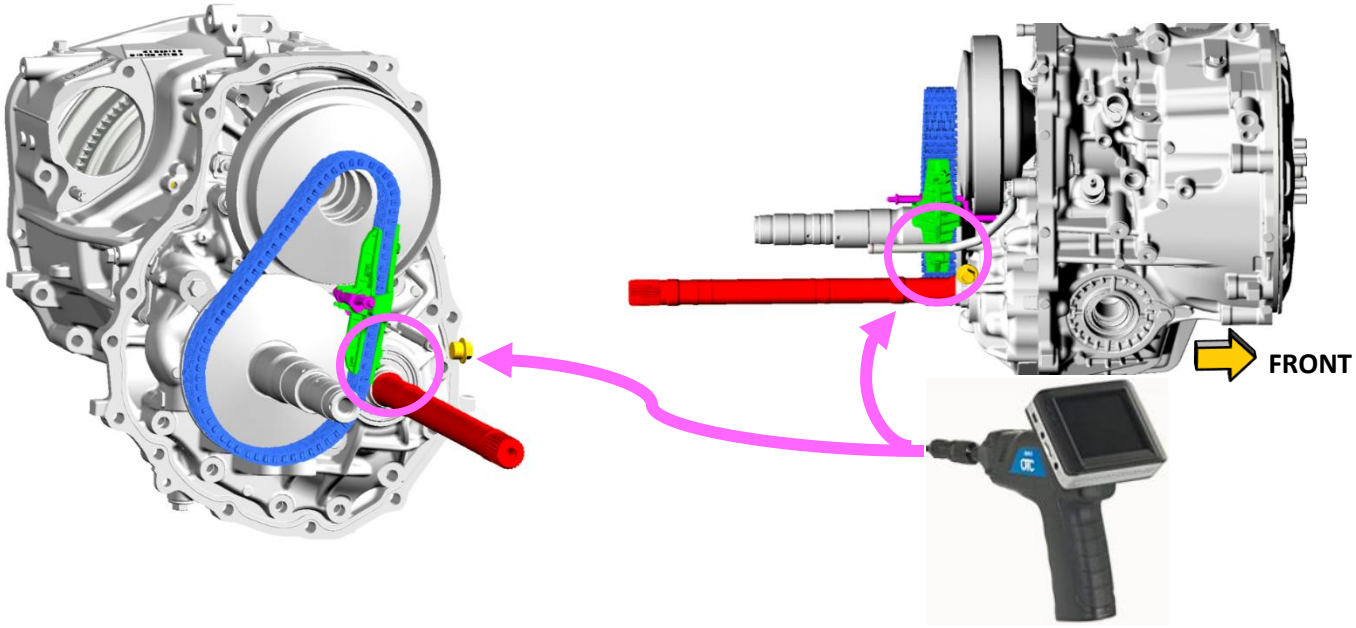
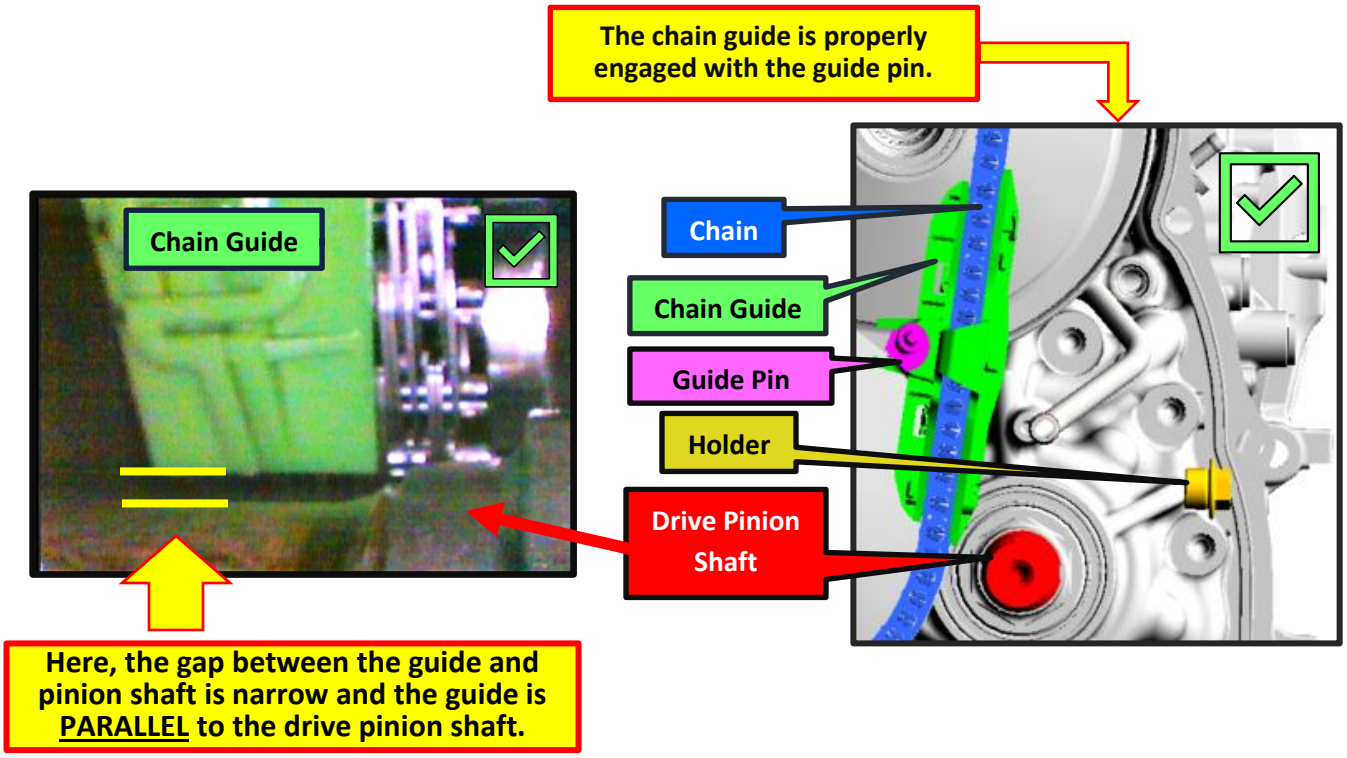
STEP 3E: Inspect the position of the lower end of the chain guide rail and the drive pinion shaft**.**



CORRECT GUIDE POSITIONING:



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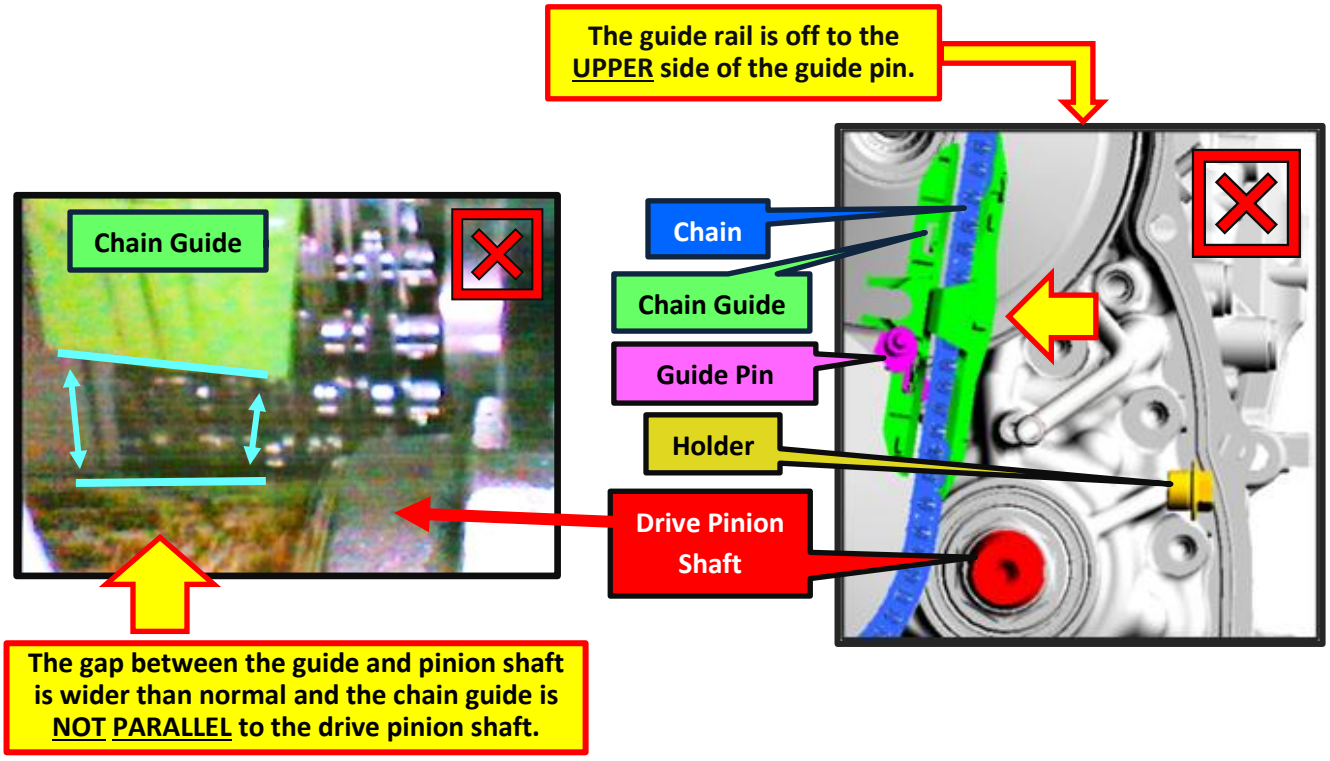
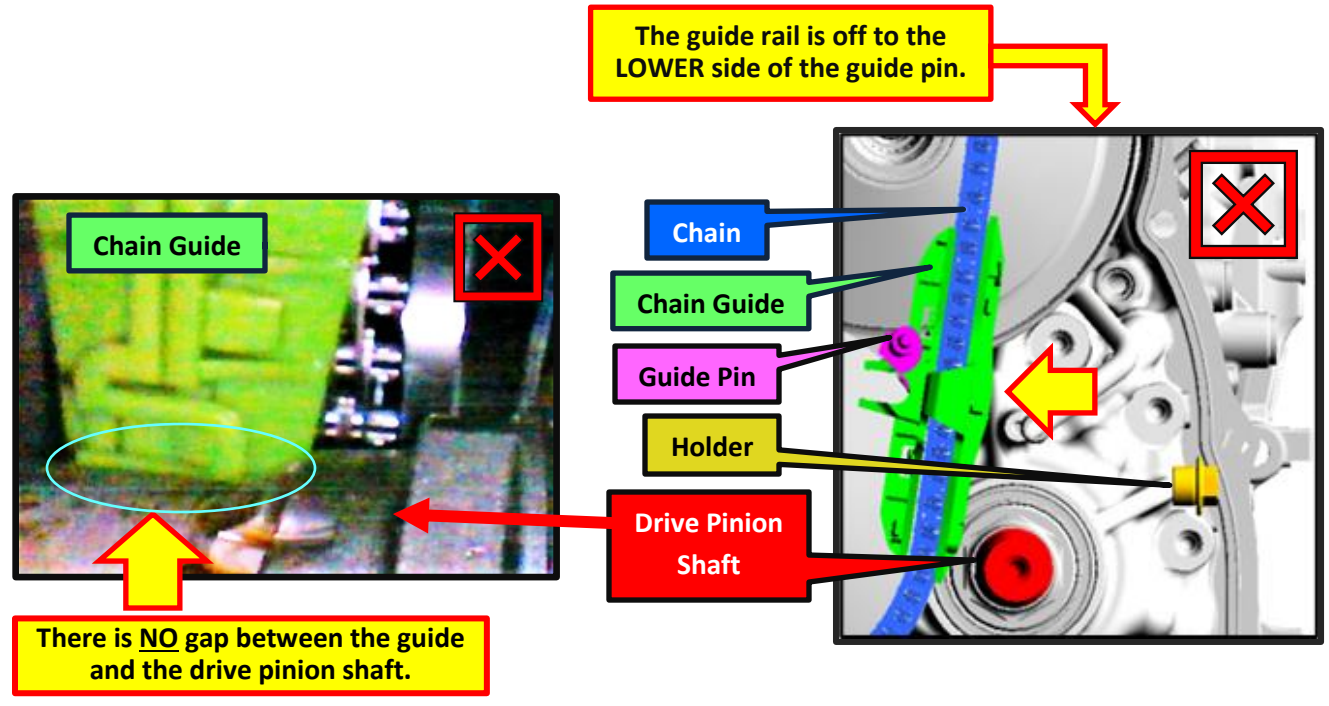
INCORRECT GUIDE POSITIONING 1:



INCORRECT GUIDE POSITIONING 2:



STEP 3F: Remove the holder (**18361AA090**).

- Reinstall the original plug **with a NEW gasket**.
  Tightening torque: 35 N·m (25.8ft-lbs.)

- Install the bolt retaining the insulator cover.
  Tightening torque：8 N·m (5.9ft-lbs.)

STEP 3G: Using the inspection results from **STEP 3E**, use the table below to determine the next course of action.

Result	Next step
CORRECT POSITION	Proceed to **STEP 5**
INCORRECT POSITION 1 OR 2	Proceed to **STEP 4**

STEP 4A: Replace the CVT assembly.

The service procedures for CVT assembly replacement remain unchanged. Always refer to the applicable Service Manual and review the full requirements of the repair being performed. The Service Manual procedures contain information critical to performing an effective repair the first time, every time. This includes but is not limited to important SAFETY precautions, proper inspection criteria, necessary special tools, required processes and related one-time-use parts needed for a complete and lasting repair.

Refer to STIS: Transmission/Transaxle > CONTINUOUSLY VARIABLE TRANSMISSION > Transmission Assembly > Removal/Installation

STEP 4B: Proceed to **STEP 5.**

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STEP 5: Reprogram the Transmission Control Module (TCM) with the **CORRECTION** PAK file.

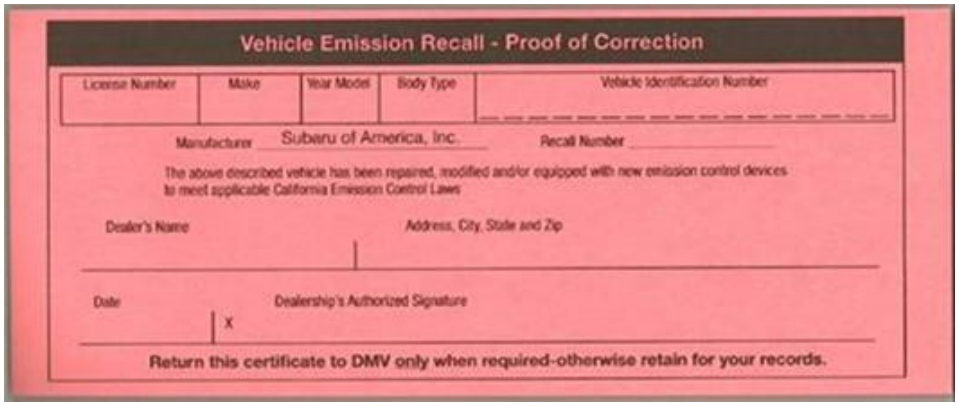
WRK-21 CORRECTION PAK FILES							
Model	**MY**	**Specification**	**PAK file name**	**New ECU Part #**	**Old ECU Part #**	**Decryption Keyword**	**New CID Number**
Ascent	19	2.4L DIT CVT **without** CVTF cooler	30919AF98E.pak	30919AF98E	30919AF98D	347BBBA5	R8FEE900
		2.4L DIT CVT **with** CVTF cooler	30919AF99E.pak	30919AF99E	30919AF99D	AFAE5A81	R8FEF900
	20	2.4L DIT CVT **without** CVTF Air cooler	30919AH13F.pk2	30919AH13F	30919AH13E	8002B571	Q9FEEA00
		2.4L DIT CVT **with** CVTF Air cooler	30919AH14F.pk2	30919AH14F	30919AH14E	FA07ACF9	Q9FEFA00
Legacy	20	2.4L DIT CVT	30919AG75D.pk2	30919AG75D	E12DA33D	33FBC182	C7FEC840
Outback	20	2.4L DIT CVT	30919AG76D.pk2	30919AG76D	F615CC67	7D5D504A	C7FEF840

NOTE: See **Appendix A** for additional information regarding control module reprograming**.**

CAUTION: Confirm the ATF oil temp warning light stays off after all reprograming has been performed.

CALIFORNIA "VEHICLE EMISSION RECALL - PROOF OF CORRECTION" CERTIFICATE

The California Air Resources Board and the Department of Motor Vehicles Registration/Recall Program requires that all emission related Recall/Campaign or Service Program repairs be completed before a vehicle registration is renewed. Please provide owners of vehicles registered in the state of California a completed "Vehicle Emission Recall - Proof of Correction" certificate. Vehicle owners should be advised to retain this certificate because the California Department of Motor Vehicles may require they provide proof this service program repair has been completed. Additional certificates are available through normal parts ordering channels using part number MSA6P1301. Quantity 1 = 1 booklet of 50 certificates.



Vehicle Emission Recall - Proof of Correction

License Number | Make | Year Model | Body Type | Vehicle Identification Number

Manufacturer Subaru of America, Inc. Recall Number

The above described vehicle has been repaired, modified and/or equipped with new emission control devices to meet applicable California Emission Control Laws

Dealer's Name Address, City, State and Zip

Date Dealership's Authorized Signature

X

Return this certificate to DMV only when required-otherwise retain for your records.

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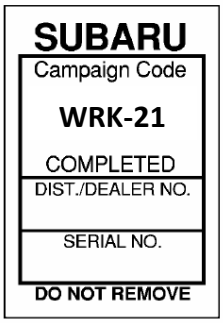
SERVICE PROGRAM IDENTIFICATION LABEL:

Type or print the necessary information on a Campaign Identification Label. The completed label should be attached to the vehicle's upper radiator support. Additional labels are available through normal parts ordering channels. The part number is **MSA6P1302**, which comes as one sheet of 20 labels.

Part Number	Applicability	Description	Order Quantity
MSA6P1302	All Models	Campaign Completion Labels (contains one sheet of 20 labels)	1



Claim Reimbursement and Entry Procedures:

Credit to perform this recall will be based on properly completed repair order information. Retailers may submit claims through Subarunet.com.

IMPORTANT: The **FINAL** Calibration Identification number (CID) for the **CORRECTION** programming (not the testing file) **MUST** be noted on the repair order as this information is required for claim submission.

Labor Description	Labor Operation #	Labor Time	Fail Code	Claim Type
TCM REPROGRAMMING, SSM DATA CHECK & VEHICLE INSPECTION WITH VIDEOSCOPE	A103-008	1	WRK-21	RC
TCM REPROGRAMMING, SSM DATA CHECK & CVT ASSEMBLY REPLACEMENT	A103-000	5.3		
TCM REPROGRAMMING, SSM DATA CHECK, VEHICLE INSPECTION WITH VIDEOSCOPE & CVT ASSEMBLY REPLACEMENT	A103-010	5.5		

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.

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Appendix A

STEP A-1: Subaru of America, Inc. (SOA) highly recommends connecting either the Subaru Midtronics DCA-8000 Dynamic Diagnostic Charging System or the Subaru Midtronics GR8-100 Diagnostic Battery Charger to the vehicle and utilizing the Power Supply Mode feature to supply a stable **13.5 volts** 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-I, DST 010, 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-I, DST 010, 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.

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.

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

NOTES:

- 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.

For Subaru Field Service Engineer Use ONLY

- **IMPORTANT:** The **FINAL** Calibration Identification number (CID) for the **CORRECTION** programming (not the testing file) **MUST** be noted on the repair order as this information is required for claim submission.

- The testing and correction pack 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.

- AT Learning Procedure is **ONLY** required with CVT replacement.

STEP A-2: (**ONLY IF CVT HAS BEEN REPLACED**) Using the SSM4, clear the AT Learning Data using the following procedure:
• Start > Diagnosis > Vehicle Selection > Each System > Transmission > Work Support > Clear AT Learning Data.
• Click “YES” and when “Execute Clear AT Learning” is displayed, click “YES” again.
• Turn the ignition OFF, wait at LEAST 30 seconds then turn the ignition back ON. At this point, the AT Temp light will start blinking; 4 times in 2 seconds to signify the Clear AT Learning procedure has completed successfully. If the AT Temp light does not flash as described, repeat Step 2 again from the beginning.