

ATTENTION:GENERAL MANAGER ☐
CLAIMS PERSONNEL ☐PARTS MANAGER ☐
SERVICE MANAGER ☐

IMPORTANT - All Service Personnel Should Read and Initial

SUBARU **SERVICE PROGRAM BULLETIN**

APPLICABILITY: 2000~01MY Subaru Legacy and
Outback 4EAT
2000~02MY Impreza MT5 or 4EAT
2001~02MY Forester MT5 or 4EAT

NUMBER: WWF-89
DATE: 04/2002

SUBJECT: Engine Control Module (ECM)
Reprogramming

INTRODUCTION

Subaru of America, Inc. (SOA) has determined that some affected vehicles listed below may require ECM reprogramming. The ECM logic for the air/fuel ratio circuit may not be broad enough to accept the signal parameters of the A/F ratio sensor. Should the A/F ratio sensor signal repeatedly fluctuate beyond the parameters of the ECM logic, the CHECK ENGINE warning light / Malfunction Indicator Lamp (MIL) will illuminate steadily while the engine is running, advising the driver of a malfunction and the need to seek repair service. Reprogramming the ECM will broaden the allowable A/F ratio signal parameters and correct this condition.

This condition is a software issue and has no impact on vehicle emissions or driveability.

This service program will involve reprogramming the ECM on affected vehicles.

AFFECTED VEHICLES

- 2000-01 MY Subaru Legacy and Outback with H4 engine and 4EAT transmission only. (Legacy and Outback vehicles with the H6 engine or MT5 transmission are not affected.)
- 2000-02 MY Impreza with MT5 or 4EAT. (Impreza WRX models are not affected.)
- 2001-02 MY Forester with MT5 or 4EAT.

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**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.

Affected vehicles are identified in the VIN range chart below. NOTE: Prior to performing repairs, confirm coverage for potentially affected vehicles by using the Vehicle Coverage Inquiry in the Dealer Communication System (DCS).

	MODEL		FROM	TO
Legacy (*1)	2000MY	Sedan	Y7216796	Y7218478
		Wagon	Y7311191	Y7313778
		Outback	Y7658510	Y7674127
	2001MY	Sedan	17200013	17212059
		Wagon	17300038	17309150
		Outback	17600009	17658747
Impreza (*2)	2000MY	Coupe	Y*403351	Y*403888
		Sedan	Y*504668	Y*505796
	2001MY	Coupe	1*400001	1*402563
		Sedan	1*500003	1*503187
	2002MY	Sedan	2*500050	2*504423
		Wagon	2*800021	2*804023
Forester	2001MY		1*712940	1*769251
	2002MY		2*700001	2*705899

(*1) Legacy and Outback vehicles with the H6 engine or MT5 transmission are not affected.

(*2) Impreza WRX models are not affected.

* Various characters may occupy this position of the VIN.

OWNER NOTIFICATION

SOA will prepare and mail an Owner Notification Letter to owners of affected vehicles on or around April 24, 2002.

A copy of the Owner Notification Letter is included at the end of this bulletin.

DEALER PROGRAM RESPONSIBILITY

Dealers are to promptly service all vehicles subject to this service program at no charge to the vehicle owner regardless of mileage, age of the vehicle, or ownership.

For affected vehicles sold after the date on the dealer's computer list, dealers are to contact those owners and provide them with a copy of the owner notification letter. They should also arrange to make the required correction according to the instructions in the service procedure section of this bulletin.

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Dealers are also to promptly perform the applicable service procedures defined in this bulletin to correct all affected vehicles in their inventory (new, used, demo). Additionally, whenever a vehicle subject to this service program is taken into dealer new or used inventory, or is in the dealership for service, necessary steps should be taken to ensure the service program correction has been made before selling or releasing the vehicle.

SPECIAL TOOLS

Dealers will automatically be shipped the necessary special select monitor reprogramming cables and cartridges for this campaign at no charge. If additional reprogramming cables and cartridges are needed, please contact your District Service Operations Manager for ordering instructions.

Part numbers are as follows:

Select Monitor Reprogramming Cable - **22775Z0C00**

Select Monitor Reprogramming Cartridge - **24082X0A54**

SERVICE PROCEDURE

Using the Select Monitor Reprogramming Cable, Part Number 22775Z0C00, connect the Select Monitor to the vehicle's Diagnostic Link Connector (DLC) located in the vehicle's lower left dash panel. Insert the appropriate **"Diagnostic"** cartridge for the vehicle being serviced, and retrieve and record any diagnostic trouble codes previously stored in the ECM.

If no codes are found, proceed to the "ECM Reprogramming Precautions and Instructions" section of this bulletin, beginning on Page 4.

If trouble codes are found, refer to the following table for the correct repair procedure. Make any necessary repairs and clear all codes prior to reprogramming the ECM. **Important: Only use the specified Select Monitor Programming Cable for reprogramming. The Select Monitor should remain "off" until instructed to turn "on" while following the reprogramming instructions.**

DIAGNOSTIC TROUBLE CODE	REPAIR PROCEDURE
No Codes	Reprogram the ECM.
P0133	Clear codes and reprogram the ECM
P0031, P0130 (or) P1133	Replace the Front Oxygen (A/F) Sensor (refer to the applicable service manual for replacement procedure), clear codes and reprogram the ECM.
Any other code or combination of codes not listed above.	Refer to applicable service manual for additional diagnostic procedures. After completing repairs, clear codes and reprogram the ECM.

NOTE: The front oxygen (A/F) sensor should ONLY be replaced when trouble code P0031, P0130 or P1133 is present and should not be replaced for any other reason. Front Oxygen (A/F) Sensors that have been replaced should not be returned unless requested through the Service Part Return System.

ECM Reprogramming Precautions

Before reprogramming the ECM, the following precautions must be observed:

- 1) Only use the appropriate reprogramming cable P/N 22775Z0C00 for ECM reprogramming.
- 2) Keep the vehicle at least 150 feet (50 meters) from high voltage power lines.
- 3) Keep the vehicle at least 30 feet (10 meters) from any machinery that creates high voltage.
- 4) Keep the vehicle at least 6 feet (2 meters) away from other vehicles that may generate electrical “noise”. (Example: Other vehicle being checked for ignition spark, etc.)
- 5) Keep the vehicle at least 6 feet (2 meters) away from any electrical device that can generate an electronic wave, such as mobile phones, pagers, radios, etc.
- 6) Turn off all electronic devices that can generate electromagnetic waves (mobile phones, pagers, etc. – no radios).
- 7) Turn off the vehicle’s electrical devices before reprogramming (every light, seat heater, audio system. Do not use the cigarette lighter, power seat switch, etc. during reprogramming).
- 8) Do not attempt ECM reprogramming if the vehicle’s under hood temperature is below 32° F (0° Celsius).

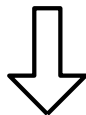
ECM Reprogramming Instructions

Tools needed: Select Monitor, short programming cable, P/N 22775Z0C00, and Select Monitor Reprogramming Cartridge P/N 24082X0A54.

Important: Only use the specified Select Monitor Programming Cable for reprogramming.

STEP 1

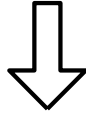
Ensure the select monitor remains off. Bring the engine to normal operating temperature. Ensure that all vehicle electrical accessories are turned off.



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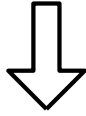
STEP 2

Connect the vehicle's green D-check connectors located under the dash near the steering column.



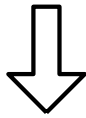
STEP 3

Important: Do not turn the Select Monitor on at this time. Work through the open driver's window; do not open the driver's door during the reprogramming process; this will turn on the interior light creating a voltage surge. **Any voltage surge will erase all ECU information and permanently damage the ECU.**



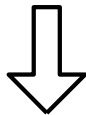
STEP 4

Turn the ignition switch to the "On" position. Do not start the engine. **Note: The engine cooling fans will cycle periodically throughout the reprogramming procedure.**



STEP 5

Insert the special "Reprogramming Cartridge" into the Select Monitor.



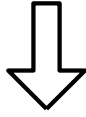
STEP 6

Turn the Select Monitor on.

continued...

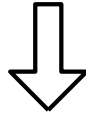
STEP 7

The "Main Menu" will appear on the screen. Scroll to "Re-write data in Flash ROM" and press the "yes" button.



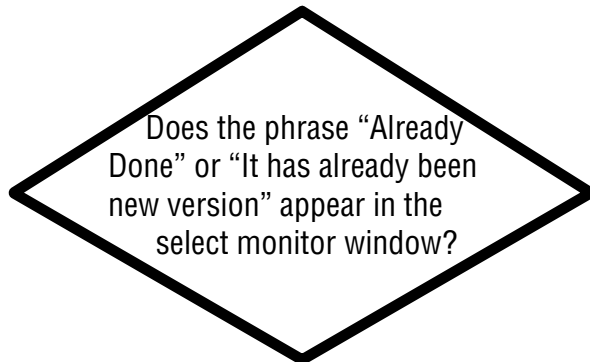
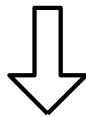
STEP 8

The "System Selection Menu" will appear on the screen. Scroll to the "Engine Control System (PU)", and press the "yes" button. "Cartridge is Now Being Initialized, Please Wait." will flash on the screen momentarily.

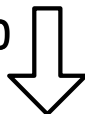


STEP 9

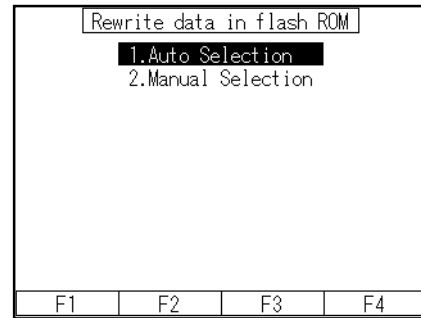
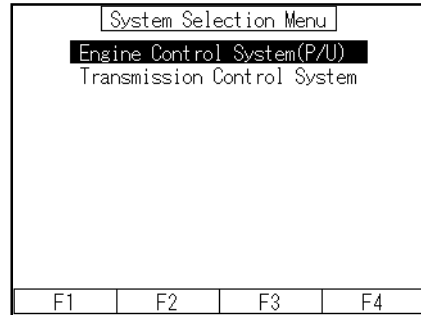
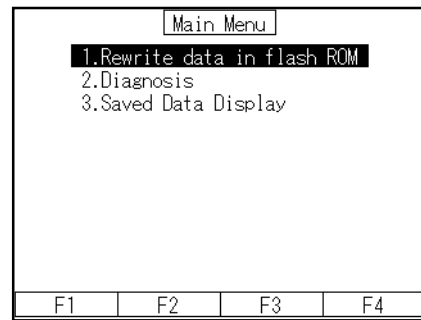
When initialization is complete, "Rewrite data in flash ROM" will appear on the screen. Select "Auto Selection" and press the "yes" button.



NO

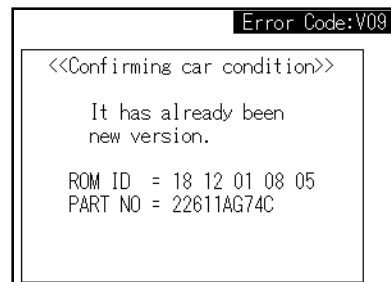


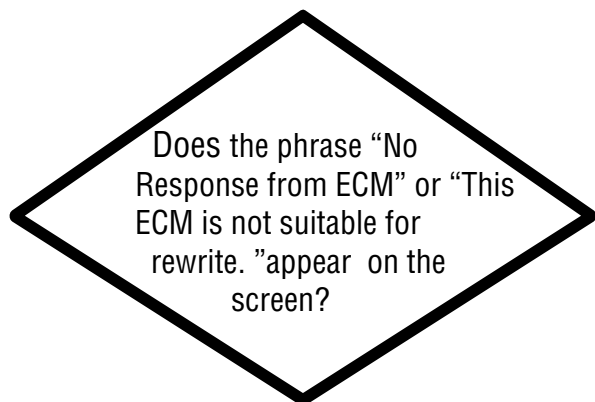
continued...



YES →

Proceed to STEPS 14 through 16.



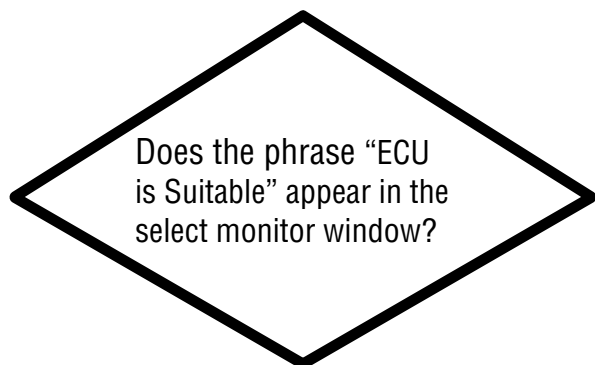


YES →

Turn off the ignition key and the select monitor. Contact the Subaru Tech Line (800-762-8324) for further instructions.

Prior to contacting Subaru, it will be necessary to obtain the "Calibration Identification Number (CID)" from the ECM. Refer to page 10 for instructions on how to retrieve the CID from the ECM.

NO ↓



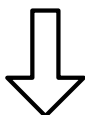
NO ↗

YES ↓

STEP 10
Press the "yes" button and allow the select monitor to run through its downloading data procedure. The download will take approximately 10 minutes to complete.

<<Confirming car condition>>

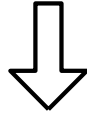
This ECM is suitable for rewrite
ROM ID = 18 12 01 05 05
PART NO = 22611AG74A
Press "YES" to rewrite
or
press "NO" not to rewrite



continued...

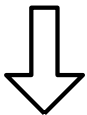
STEP 11

When the reprogramming is completed, "Turn The Ignition Switch Off" will appear on the screen. Turn the ignition switch off and press the "yes" button, wait 3 seconds.



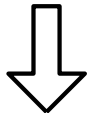
STEP 12

After 3 seconds, "Turn The Ignition Switch On" will appear on the screen. Turn the ignition switch on and press the "yes" button.



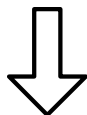
STEP 13

The Select Monitor screen should read, "Renewal was finished normally."



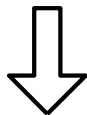
STEP 14

Turn off the Select Monitor.



STEP 15

Turn the ignition switch to the "off" position.



continued...

<<Procedure for turning off>>

Turn IG. SW off
then
press "YES"

(Please wait during 3 seconds)
(after pressing "YES")

<<Procedure for turning off>>

Turn IG. SW on

Turn IG. SW on
then
press "YES"

<<Procedure for turning off>>

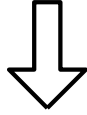
Renewal was finished normally

Do fixed confirmation
after turn off IG. SW once

PART NO. 22611AG74C

STEP 16

Unplug the green D-check connectors.



STEP 17

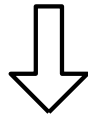
Start the vehicle to insure proper performance:

- Run engine about 5 minutes at normal operating temperature to initiate A/F compensation.
- Idle about 1 minute with the A/C off for A/F compensation and ISC compensation.
- Idle about 1 minute with the A/C on for A/F compensation and ISC compensation.

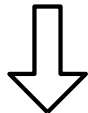
INSTRUCTIONS FOR OBTAINING THE CALIBRATION IDENTIFICATION NUMBER (CID) FROM THE ECM

The following procedure should only be followed when ECM reprogramming is not possible and you must contact Subaru Tech Line.

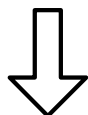
Insert the proper "Diagnostic"
Select Monitor cartridge in to the
Select Monitor for the specific
vehicle.



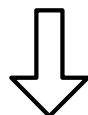
The Main Menu screen will appear
– scroll to # 2. **"Each system
check"** – press the "yes" button.



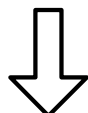
System Selection Menu will appear
on the screen - scroll to "Engine
control system" – press the "yes"
button.



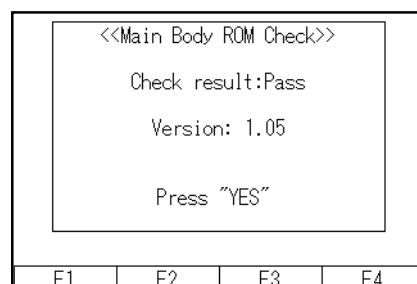
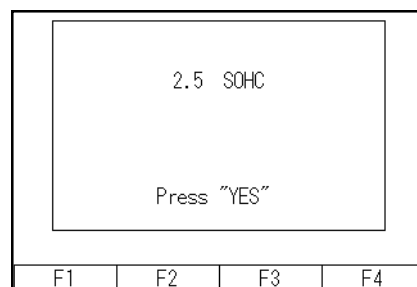
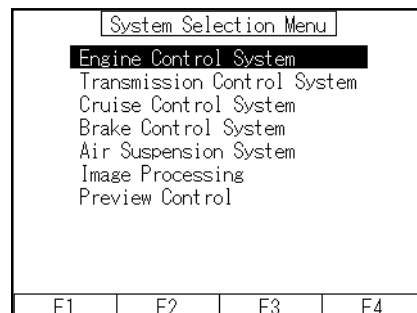
"2.5 SOHC" will appear on the
screen - press the "yes" button.



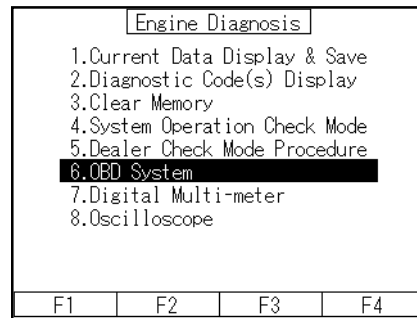
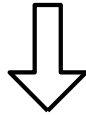
"<Main Body ROM Check>" will
appear on the screen – press the
"yes" button.



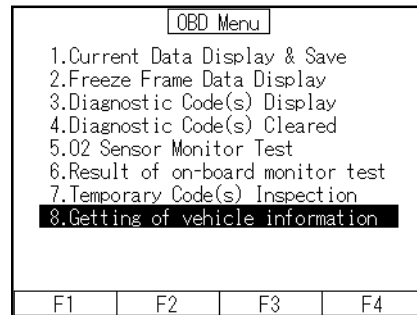
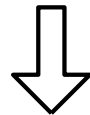
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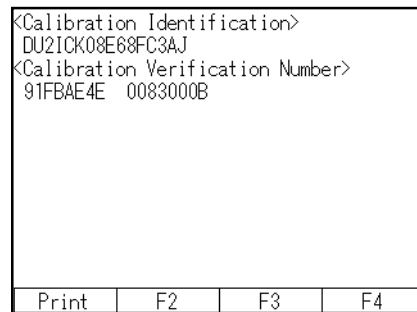
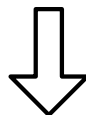
Engine Diagnosis will appear on the screen – scroll to No. 6. “OBD System” – press the “yes” button.



OBD Menu will appear on the screen – scroll to No. 8. “Getting of vehicle information” press the “yes” button.



“<Calibration identification>” will appear on the screen along with the code (example: **DU21CK08E68FC3AJ**). This is the CID #.



Provide the **CID#** to the Tech Line for assistance.

STATE EMISSION TESTING ADVISORY

After ECM reprogramming, the OBD system's readiness code monitors will set to "incomplete". Normally, the vehicle needs to be driven under a variety of conditions before the readiness code monitors will indicate "complete". (See page 3 of the November 1999 Subaru Technical Support T.I.P.S. and the State I/M Program Advisory Bulletin, number 11-68-02, dated 3/5/02 for details.)

SERVICE PROGRAM IDENTIFICATION LABEL

Type or print the necessary information on a Service Program identification label. The completed label should be attached to the vehicle's upper radiator support.

A quantity of labels is provided to each dealer with this bulletin. Additional labels are available through your Area / Distributor Service Office.

SUBARU
Campaign Code
WWF-89
COMPLETED
DIST./DEALER NO.
SERIAL NO.
DO NOT REMOVE

CALIFORNIA / MASSACHUSETTS "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 states of California and Massachusetts a completed "Vehicle Emission Recall - Proof of Correction" certificate. Vehicle owners should be advised to retain this certificate because the California / Massachusetts Department of Motor Vehicles may require they provide proof this service program repair has been completed.

Vehicle Emission Recall - Proof of Correction				
License Number	Make	Year Model	Body Type	Vehicle Identification Number
Manufacturer <u>Subaru of America, Inc.</u>		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		
_____		_____		
Return this certificate to DMV <u>only</u> when required-otherwise retain for your records.				

CLAIM REIMBURSEMENT AND ENTRY PROCEDURES

Credit to perform this Service Program will be based on the submission of properly completed repair order information. Dealers may enter the applicable claim information through their Dealer Communications System.

ECM Reprogramming Only – Use the applicable claim submission information for Reprogramming the ECM.

For ECM Reprogramming enter labor operation 145-580 for 0.6 labor hours.

Replacement of the Front Oxygen (A/F) Sensor and ECM Reprogramming – Use the applicable claim submission information when trouble codes P0031, P0130 or P1133 were found and the Front Oxygen (A/F) Sensor is replaced and the ECM reprogrammed.

For Replacement of the Front Oxygen (A/F) Sensor and ECM reprogramming enter Labor Operation Number 145-515 for 0.9 labor hours. Parts will be reimbursed at dealer cost plus the applicable handling allowance.

CLAIM TYPE	CAMPAIGN CODE	LABOR	LABOR DESCRIPTION	PART NUMBER
RC	WWF-89	145-580 – 0.6	Reprogram ECM Only	None
		145-515 – 0.9	Replace Front Oxygen (A/F) Sensor and reprogram ECM	22791AA00A

Subaru of America, Inc.
Subaru Plaza
P.O. Box 6000
Cherry Hill, NJ 08034-6000
www.subaru.com

SERVICE PROGRAM WWF-89

APRIL 2002

DEAR SUBARU OWNER:

SUBARU OF AMERICA, INC. has determined that the Engine Control Module on your Subaru vehicle may require reprogramming.

Vehicles covered by this service program include certain:

- 2000-2001 MY 2.5L Subaru Legacy and Outback models with automatic transmission
- 2000-2002 MY 2.2L & 2.5L Impreza models with manual or automatic transmission
- 2001-2002 MY 2.5L Forester models with manual or automatic transmission

THE REASON FOR THIS NOTICE

The On-Board Diagnostic System, which is part of your vehicle's engine control system and contained in the Engine Control Module, is designed to monitor your vehicle's engine/emission control system. If a problem is detected, the "CHECK ENGINE" warning light/Malfunction Indicator Lamp, located on the instrument panel, will illuminate and alert the driver of the need for vehicle service.

The Engine Control Module software logic for the circuit that controls the front oxygen (air/fuel ratio) sensor in your vehicle may have been programmed incorrectly during production. As a result of this condition, the "CHECK ENGINE" light may illuminate without cause. It will be necessary to have the Engine Control Module software reprogrammed to correct this condition.

WHAT YOU SHOULD DO

You should immediately contact your Subaru Dealer for an appointment to have the Engine Control Module software checked and reprogrammed even if you have not experienced the condition described above. Your Subaru dealer will perform this repair at no cost to you. The approximate time to perform this repair is 45 minutes. However, it may be necessary to leave your vehicle the full day of your scheduled appointment to allow your dealer flexibility in scheduling. Please present this letter to your Subaru Dealer at the time this repair procedure is performed.

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RESIDENTS OF CALIFORNIA / MASSACHUSETTS

The Departments of Motor Vehicles in the states of California and Massachusetts require that all emission related service program repairs be completed before a vehicle registration is renewed. They also require Subaru of America, Inc. to periodically provide a list of vehicles that have not had the service program repairs performed. The state will know that this service program may not have been completed if your vehicle is on that list.

Your dealer will provide you with a "Vehicle Emission Recall – Proof of Correction" certificate after the service program repair has been completed. You should retain this certificate because the California / Massachusetts Department of Motor Vehicles may require you to provide proof the service program repair has been completed.

These states also require that every vehicle pass an emission test (Smog Check) every two years and before it is sold. Failure to have this no-cost repair service performed may result in the vehicle failing an emission test and the vehicle may require future costly repairs.

CHANGED YOUR ADDRESS OR SOLD YOUR SUBARU?

If you have changed your address, or if you have sold your Subaru vehicle, please complete the enclosed prepaid postcard and mail it to us.

IF YOU NEED FURTHER ASSISTANCE

To locate the nearest Subaru Dealer you can access our web site at www.Subaru.com and go to the dealer locator function. Or, you may call us at 1-800-SUBARU3 (1-800-782-2783) during normal business hours for assistance. Please call us immediately if the dealer fails or is unable to make the necessary repairs free of charge or write to us at the address listed on the first page of this letter.

Your continued satisfaction with Subaru is important to us. Please understand that we have taken this action to assure your vehicle's proper performance. We sincerely apologize for any inconvenience this matter may cause and urge you to schedule an appointment as soon as possible to have this repair performed.

Sincerely,
Subaru of America, Inc.

Notice to Lessors

The lessor of a vehicle who receives this letter should provide a copy of it to the vehicle lessee(s). The lessor should also keep a record of the lessee(s) to whom this letter is sent, the date sent, and the applicable vehicle identification number (VIN). (For these purposes, a lessor means a person or entity that in the last twelve months prior to the date of this notification has been the owner, as referenced on the vehicle's title, of any five or more leased vehicles. A leased vehicle is a vehicle leased to another person for a term of at least four months.)