MITSUBISHI MOTORS

SERVICE CAMPAIGN BULLETIN

SUBJECT:			
ECM REPROGRAMMING FOR ENGINE KNOCKING NOISE – SERVICE CAMPAIGN – REVISED		No:	**SC–16–001REV**
		DATE:	**March, 2016**
		MODEL:	**2014–15 Mirage**
CIRCULATE TO:	[X] GENERAL MANAGER	[X] PARTS MANAGER	[X] TECHNICIAN
[X] SERVICE ADVISOR	[X] SERVICE MANAGER	[X] WARRANTY PROCESSOR	[X] SALES MANAGER

This bulletin supercedes* SC–16–001*, issued February, 2016, to add a Code 209 Restriction on new engines, detailed procedures required by dealers before ordering a new engine, and a Sample customer letter. Revisions are italicized and indicated by ◀.

PURPOSE

During cold start, the engine ECU may order inappropriate fuel amounts which may cause engine noise.

This campaign bulletin instructs dealers to reprogram the ECM with new software on all affected vehicles. In rare cases, if the vehicle exhibits an engine knocking noise, the engine may need to be replaced.

▶ *In the rare case the engine needs to be replaced, dealers should do the following:*

- *Create a Techline case*
- *Attach a video recording of the engine noise to the Techline case*
- *Contact Techline*
- *Order a new engine (Code 209 Restriction, must be released by MMNA)*

AFFECTED VEHICLES

Certain 2014 — 2015 Mirage vehicles built **before** February 18, 2015

IMPORTANT

To maximize customer satisfaction with the quality of their vehicle, affected new or used inventory vehicles should be remedied before the vehicle is delivered. Dealers must check their inventory vehicles' VINs on the Warranty Superscreen to verify whether the vehicle is involved in this service campaign.

CUSTOMER NOTIFICATIONS

A letter will be sent to all owners of affected vehicles requesting they schedule an appointment with their local Mitsubishi dealer to have their vehicle remedied. ▶ *A sample copy of the customer notification letter appears at the end of this bulletin.*

REQUIRED OPERATIONS

Before starting this campaign procedure, **CHECK THE WARRANTY SUPERSCREEN** to verify if the vehicle is an affected VIN for this campaign and this campaign procedure has not already been completed.

1. Confirm your MUT—III is updated with the latest reprogramming database.
2. Reprogram the ECM with the new software. Refer to the ECM Reprogramming Chart for new software information.
3. ▶ *Confirm if engine requires replacement (only if knocking noise is present and verified).*

IMPORTANT: If an affected vehicle has a Malfunction Indicator Lamp (MIL) illuminated before reprogramming, and DTCs are listed in the ECM memory, diagnose and repair those DTCs per the service manual before reprogramming. **DO NOT** reprogram the ECM until the reason(s) for other DTCs being set is corrected.

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Continued

The information contained in this bulletin is subject to change. For the latest version of this document, go to the Mitsubishi Dealer Link, MEDIC, or the Mitsubishi Service Information website *(www.mitsubishitechinfo.com)*.

EQUIPMENT

The following equipment is needed to reprogram the ECM.

- VCI (Vehicle Communication Interface) or VCI Lite — MB991824 or MB992744.
- MEDIC Laptop/Tablet with A/C power adapter — 520924, or FZG1MK2.
- MUT—III main harness 'A' (blue connector at the DLC end) — MB991910 or MB992745.
- USB 2.0 cable — MB991827 or MB992747.
- "Engine Compartment/Control Module" label — p/n MSSF024G00.
- MEDIC 3/4 update at **363** or higher.
- For Standalone MUT—III units, MUT—III Reprogramming Database **N15112** or higher.

ECM REPROGRAMMING CHART

NOTE: The following information is for reference only.

Model	Engine	ECU Part Number	D/B Number	Software Part Number	
				Previous	New
2014–2015 Mirage	3A92 5MT	1860C141	1862C360	1860C14101 1860C14100	1860C14102
	3A92 CVT	1860C142	1862C361	1860C14202 1860C14201 1860C14200	1860C14203

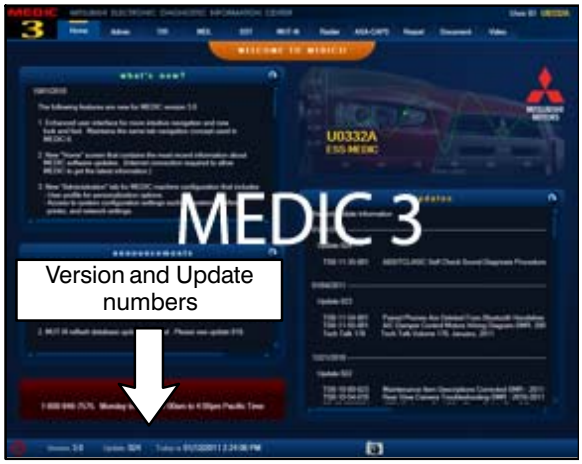
REPAIR PROCEDURE

A. CONFIRM LATEST DATABASE IN MUT–III

⚠ CAUTION **Any damage incurred, if an error is made during this procedure, may not be warrantable.**

NOTE: Reprogramming the ECM with the latest database (e.g., N15112) includes all past and current reprogramming for TSBs of affected vehicles. It is not necessary to reprogram the ECM for each previous TSB.

1. Check the underside of the hood to verify there is no "Authorized Modification" label (see step 19 in the Reprogramming Procedure for example) previously installed to indicate this reprogramming has already been completed. If a label is present and the "ROM ID #" on the label matches the "New S/W Part No." in the table above, the ECM is at the latest level and reprogramming is not necessary. Conduct normal diagnosis for the described condition.

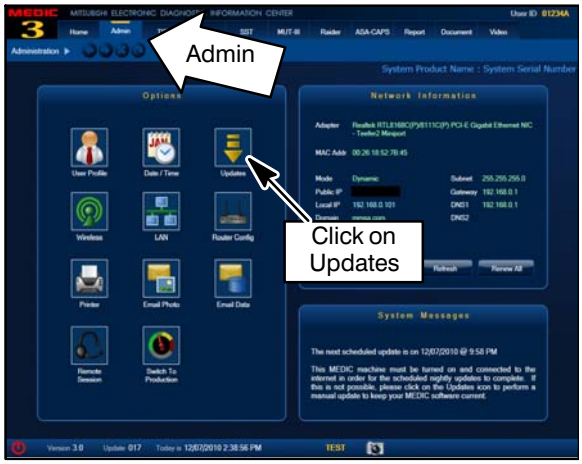


<u>For MEDIC 3/4 users only: (MUT–III users go to step 5)</u>

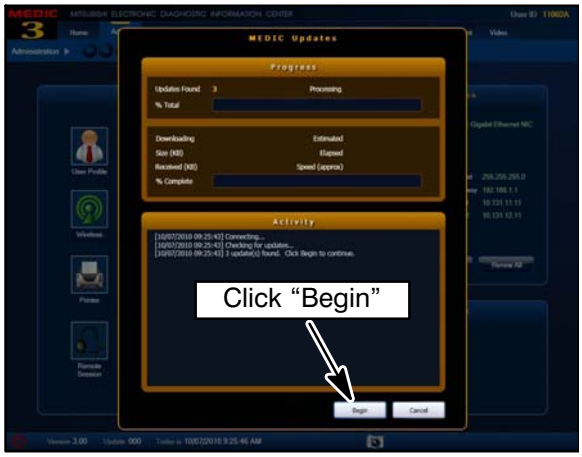
2. Verify the MEDIC 3/4 is at version 3.5 and at update **363** or higher.

   If your **<u>MEDIC 3/4 update is at least 363</u>**, continue with the Reprogramming Procedure.

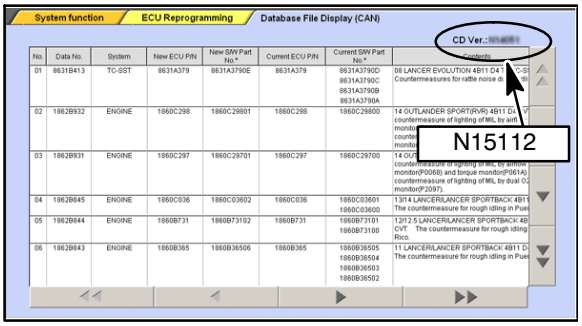
   If your **<u>MEDIC 3/4 update is below 363</u>**, update your MEDIC as follows.



3. Select the MEDIC 3/4 Admin tab and click on "Updates."



4. IF the MEDIC update screen advises updates are available, click the "Begin" button. After all updates are complete, **<u>GO TO THE REPROGRAMMING PROCEDURE.</u>**



5. **STANDALONE MUT–III SCAN TOOL VIEWER (STV) ONLY: (MEDIC 3 USERS GO TO THE REPROGRAMMING PROCEDURE).** Verify that your MUT–III has the most current version of the reprogramming database:
From the MUT–III Main Page:
   - Select “Special Function”
   - Select “ECU Reprogramming”
   - Select “Database File Display–CAN”
   - Confirm the database number displayed at the top right of the chart is N15112 **or higher**
   - If the database number displayed on your MUT–III is N15112 or greater, continue to the Reprogramming Procedure.
   - If the reprogramming database number displayed on your MUT–III is lower than N15112, locate the reprogramming CD containing database N15112 and follow the instructions provided with the CD to update your MUT–III.

B. REPRODGRAMMING PROCEDURE

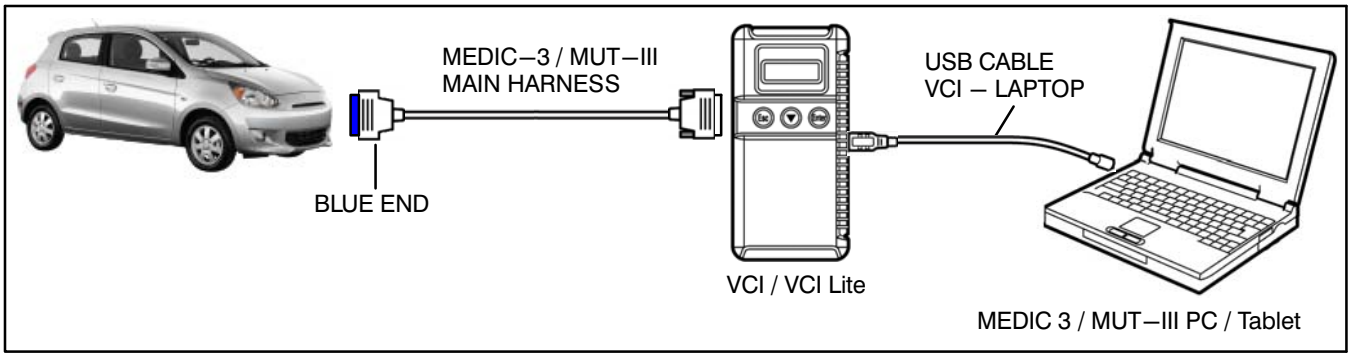
⚠ CAUTION

CONNECT A BATTERY CHARGER TO THE VEHICLE’S BATTERY DURING THE REPROGRAMMING PROCEDURE. DO NOT ALLOW THE BATTERY CHARGER TO TIME OUT. BATTERY VOLTAGE (AS MEASURED AT THE BATTERY POSTS WITHOUT ELECTRICAL LOAD) MUST BE KEPT AT 12.4V OR HIGHER IN ORDER TO REPROGRAM THE ECM. MEASURE THE BATTERY VOLTAGE AND CHARGE AS NECESSARY.

NOTE: VCI Stand–alone reprogramming is not available for this procedure. The laptop and the VCI must remain connected for the entire procedure.

1. Connect the equipment as follows:
   - Turn the MEDIC PC/tablet on. If the battery indicator in the lower right hand corner of the screen does not show a full charge, it is recommended that either the battery be charged prior to beginning, or be used with the A/C power adaptor connected.
   - Connect the USB cable to the VCI/VCI Lite.
   - When the laptop/tablet displays the MUT–III main screen, connect the USB cable to the device.
   - Connect the MUT–III main harness with the blue DLC connection to the VCI/VCI Lite.
   - Connect the blue connection of the MUT–III main harness to the vehicle’s data link connector.
   - Turn the VCI power switch ON . Verify that the indicator lamp in the upper right corner of the screen is green.

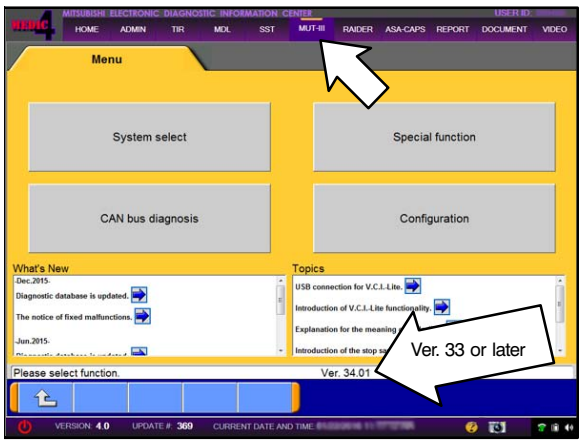
     NOTE: VCI and MEDIC 3.5 Laptop shown for illustration purposes only.



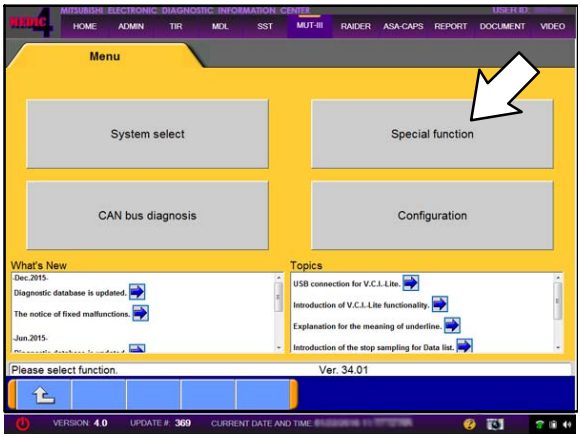
⚠ CAUTION

DO NOT DISTURB THE HARNESS CABLES OR CONNECTIONS DURING THE REPROGRAMMING PROCESS AS IT COULD CAUSE THE CONTROL UNIT TO LOSE DATA OR PREVENT FUTURE REPROGRAMMING. IF THE USB CABLE IS DISCONNECTED DURING THIS PROCEDURE, A WARNING MESSAGE WILL DISPLAY.

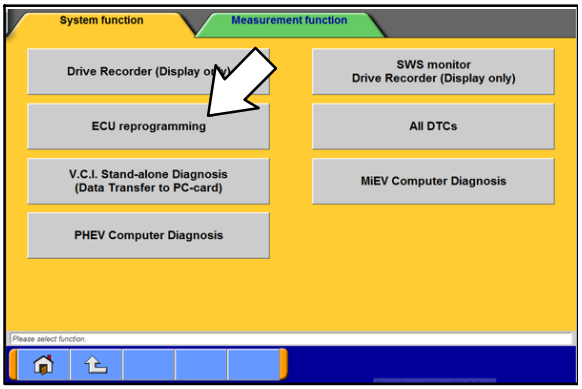
2. Turn the ignition switch to the “ON” position.
   - If the vehicle is equipped with the F.A.S.T. System, the transmitter must remain in the vehicle for the entire procedure.
   - For vehicles equipped with OSS, press the START/STOP button twice without applying the brake. The LED in the button should be green.



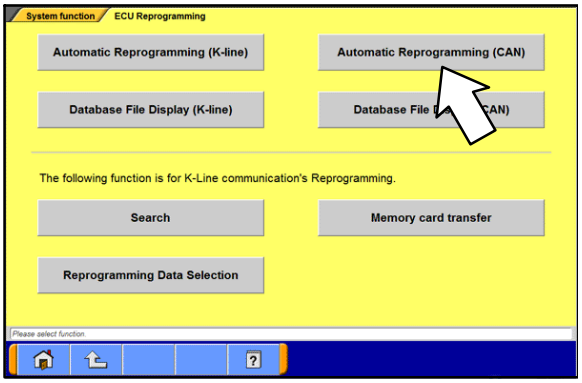
3. If using MEDIC, from the main page, click the MUT–III STV icon at the top center of the screen to open MUT–III.



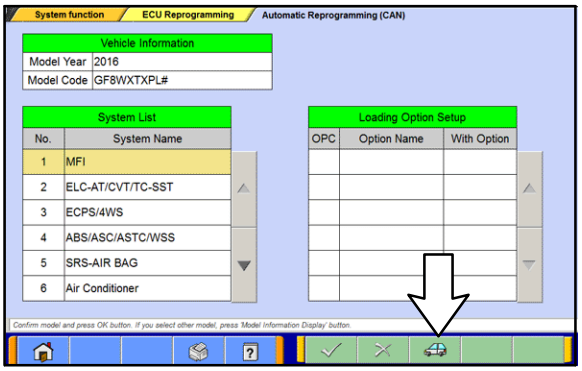
4. Go to the MUT–III home screen and click on “Special function.”



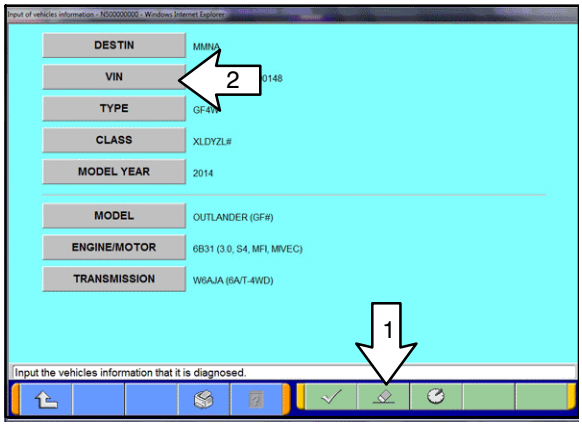
5. Select “ECU reprogramming.”



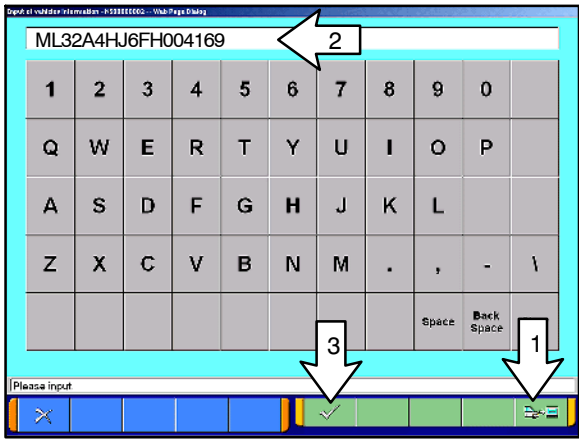
6. In ECU reprogramming, select “Automatic Reprogramming (CAN).”



7. Press the model information display button (car icon) and verify that all vehicle information is correct.
   - If vehicle information is NOT correct, follow steps a – e below.
   - If vehicle information is correct, click the check mark at the bottom of the page, then go to step 8.



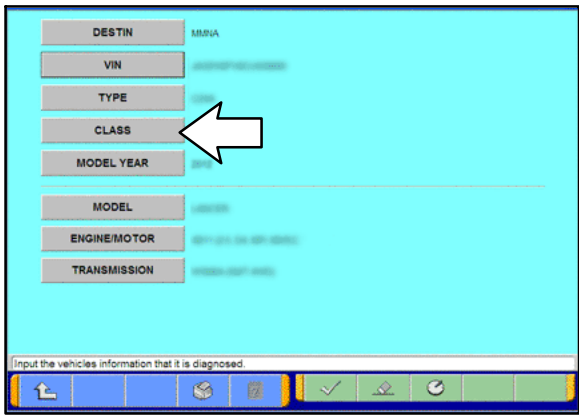
a. If the VIN or vehicle description displayed does not match the vehicle you are working on, click the eraser icon at the bottom of the page to erase vehicle data.
Then click the “VIN” button.



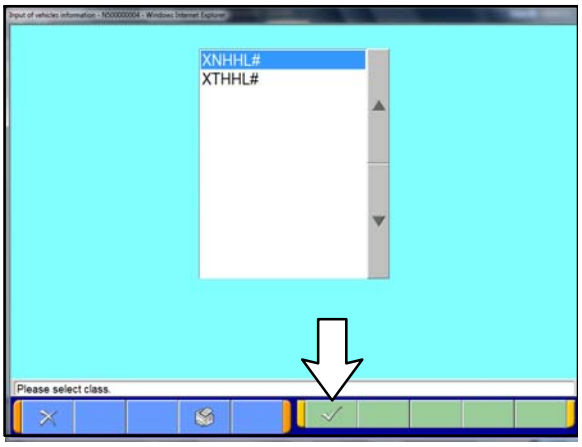
b. Click the icon in the lower RH corner of the screen to have MUT–III automatically read the VIN.

If a message appears saying the VIN cannot be input automatically, manually enter the 17 digit VIN into the VIN field at the top of the page.

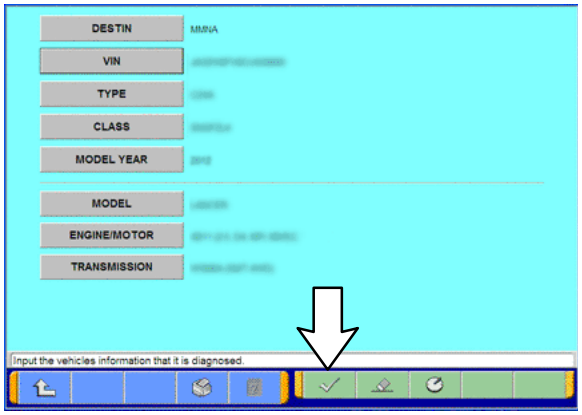
Make sure the VIN is correct and click the check mark.



c. Click the CLASS button.

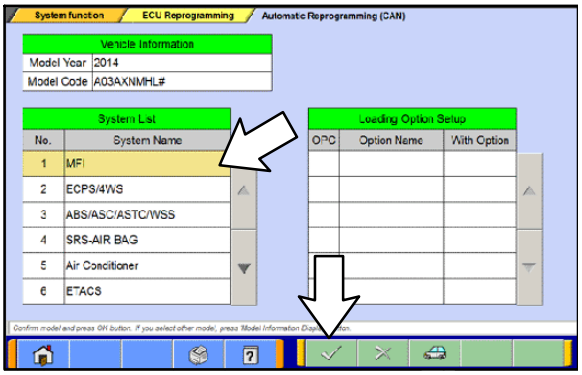


d. Look at the label on the passenger side B–pillar to identify the appropriate class. Select it and click the check mark at the bottom of the page.



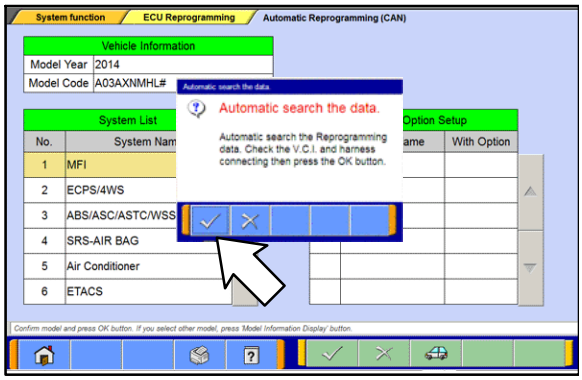
e. Confirm all data matches the vehicle, then click the check mark at the bottom of the page.

IMPORTANT: If an affected vehicle has a Malfunction Indicator Lamp (MIL) illuminated before reprogramming, and DTCs are listed in ECM memory, diagnose and repair those DTCs per the applicable service manual before reprogramming. DO NOT reprogram the ECM until the reason(s) for other DTCs being set is corrected.



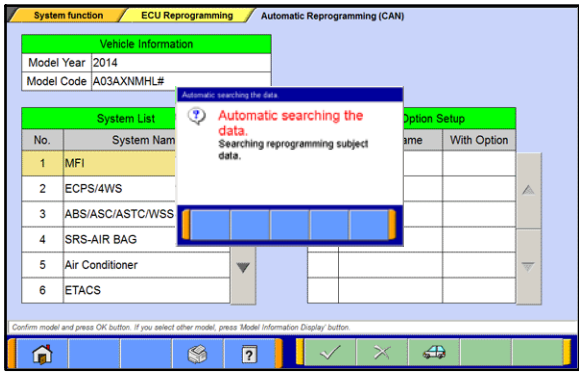
8. “MFI” should be highlighted by default. If not, click on it to highlight it. Click the **check mark** to continue**.**

NOTE: In the next step, if the “pop–up” box does not appear, change Tab to TIR then back to MUT–III (the pop–up box should then appear).

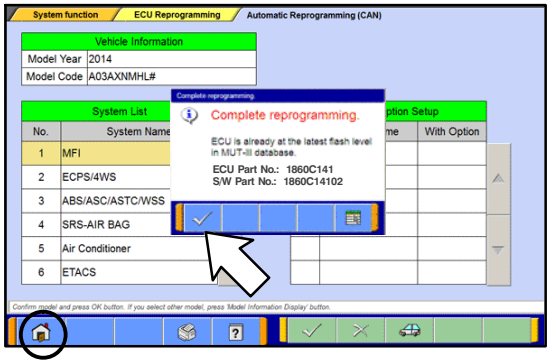


9. A message will advise the system will “Automatic search the data.”

   Click the check mark to continue.



IF ECU IS ALREADY AT LATEST VERSION

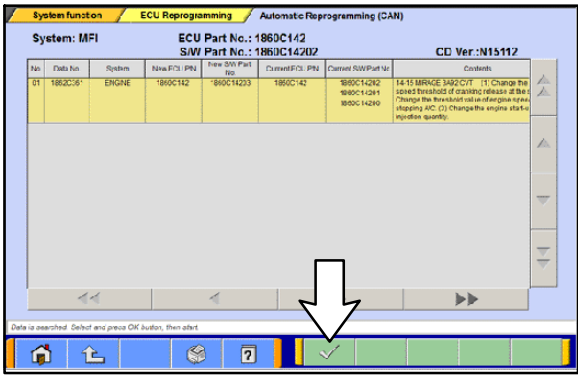


If the message seen at left is displayed, the ECU software is already at the most current level. Do not continue with the reprogramming procedure. This TSB does **not** apply.

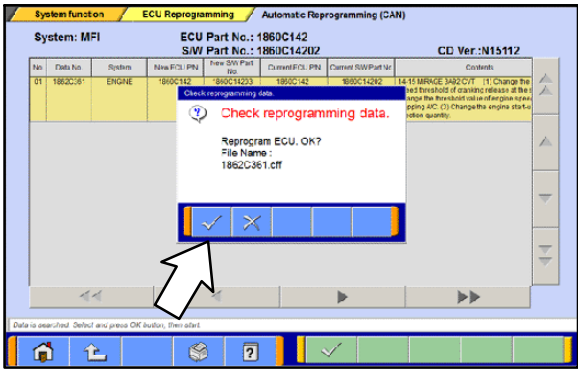
Click the check mark to clear the window, then click the Home icon at the lower left corner of the screen to return to the System Select main page.

Turn the ignition switch to the OFF position and disconnect the MUT–III. Turn off and disconnect the battery charger. Conduct normal diagnosis per the service manual.

If a “Complete Reprogramming” message **<u>does not</u>** appear, continue with the reprogramming procedure.



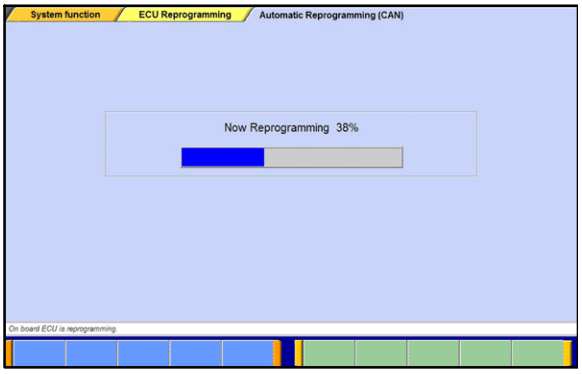
10. The Automatic Reprogramming (CAN) database screen will display.
    - Verify that the new ECU and S/W part numbers are listed in the table.
    - Confirm the database number at the top right of the table is N15112 or higher.
    - If more than one row is displayed in the table, refer to the ECM Reprogramming Chart on page 2 to highlight and select the correct row.
    - Click the check mark to continue.



11. The “Check reprogramming data” window should appear with the new file name.

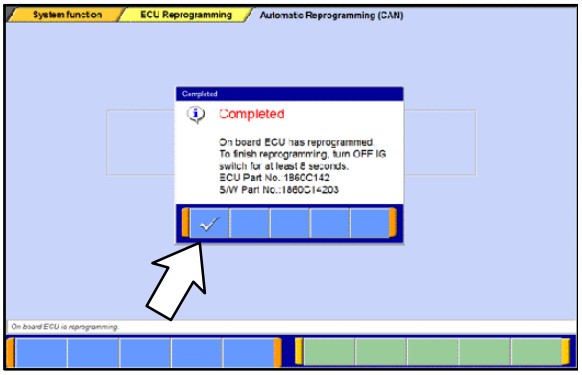
    NOTE: Refer to the ECM Reprogramming Chart on page 2 for the new file names.

12. Click on the check mark in the pop–up box to initiate the reprogramming.

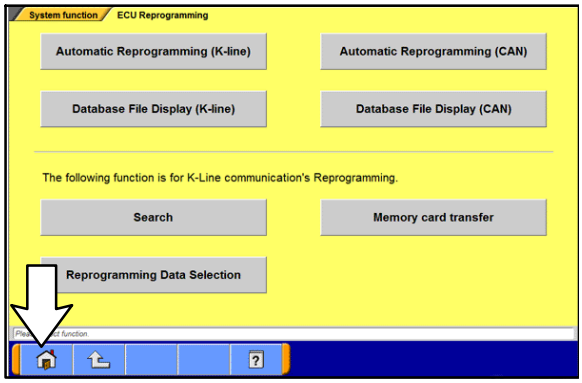


13. Once the reprogramming is initiated, the screen as shown will indicate the reprogramming progress.

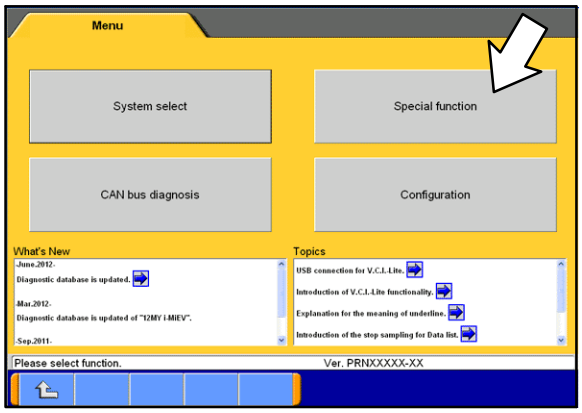
    NOTE: Do not disturb the cables or turn off the ignition during reprogramming.



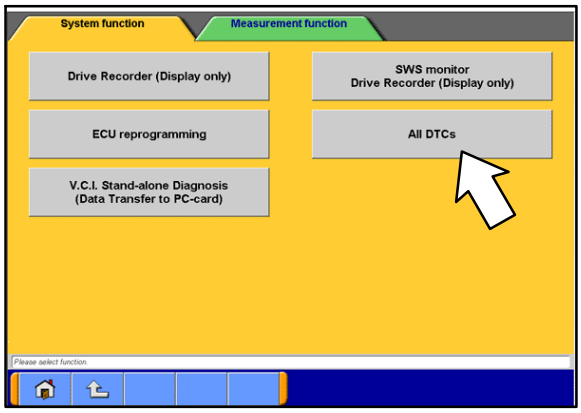
14. Reprogramming is completed.
    a. Verify that the S/W Part No. Is correct.
    b. Click on the check mark.
    c. Turn OFF ignition switch for at least 8 seconds.
    d. Turn ignition switch ON, then proceed to the next step.



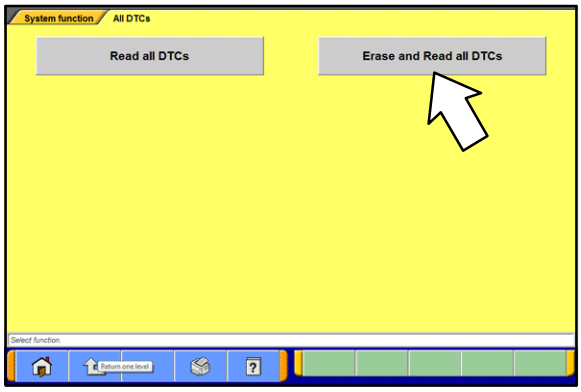
15. Click on the “home” button.



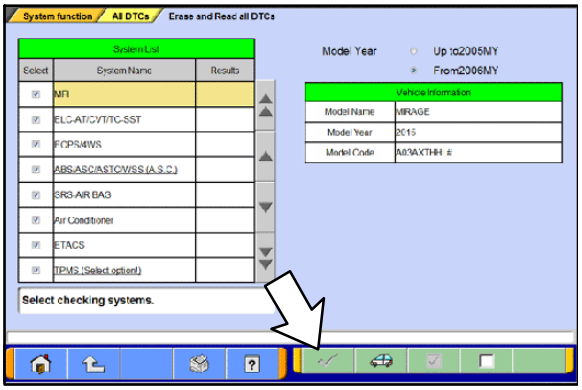
16. Perform an “Erase and Read all DTCs.”
    a. Select “Special function.”



    b. Select “All DTCs.”

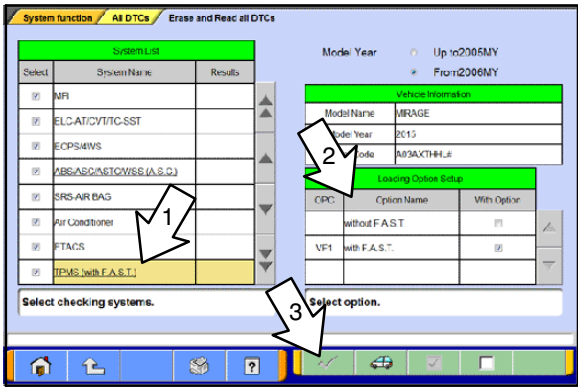


    c. Select “Erase and Read All DTCs.”



d. The "System List" on the left side of the screen will have all selections checked. <u>Do not</u> change these selections. DTCs may be set if the vehicle is equipped with options that are unchecked.

e. Click the check mark to continue.



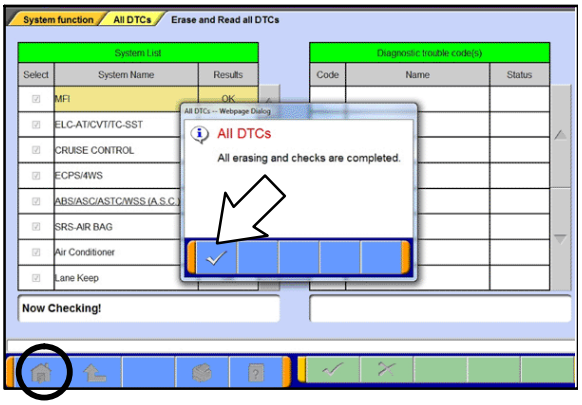
NOTE: If, in some cases, the check mark button at the bottom is not active, perform the following:

1) Select the System name that is underlined (for example, TPMS, as shown on left).

2) Select the appropriate option for the vehicle. Repeat steps 1 and 2 for all underlined systems.

3) Click on the check mark. Wait until MUT-III is finished and click the check mark again to confirm.

f. A window will pop up asking you to confirm DTC erasing. Click the check mark for DTC erasing and reading to begin.



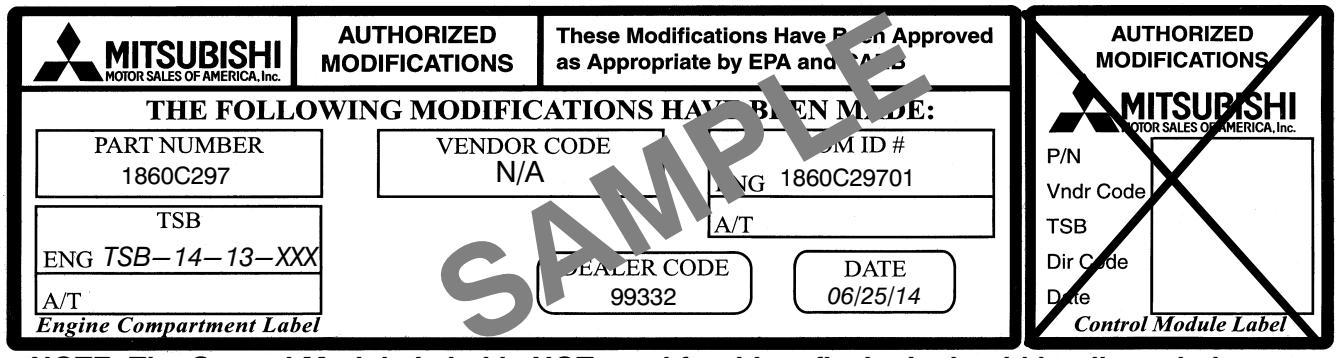
17. When DTC erasing is completed, click the check mark in the pop–up message that reads "All erasing and checks are completed."

    a. If DTCs return after reprogramming, click the check mark to clear the window. Diagnose and repair per the Service Manual.

    b. If DTCs do not return, click the check mark to clear the window, then click the home icon at the lower left of the screen to return to the main menu.

18. Turn off the ignition switch and disconnect the MUT–III. Turn off and disconnect the battery charger.

19. Using a ball–point pen, enter the appropriate ECU part number, Software Part Number (ROM ID#), this Technical Service Bulletin number, your dealer code, and the current date on the Engine Compartment / Control Module Label (p/n MSSF024G00). The Vendor Code is not applicable. The label is available from your facing PDC.



NOTE: The Control Module Label is NOT used for this reflash. It should be discarded.

20. Carefully remove all dirt and oil from a vacant area near the VECI label on the underside of the hood and affix the Engine Compartment Label (LH side, above) to that area.
21. Test drive the vehicle to confirm proper operation. Diagnose and correct any DTCs that return.
22. Does the vehicle exhibit the engine knocking noise condition?
    - ***YES –*** *Go to ENGINE REPLACEMENT VERIFICATION PROCEDURE.*
    - **NO –** Repair is complete. Return vehicle to customer.

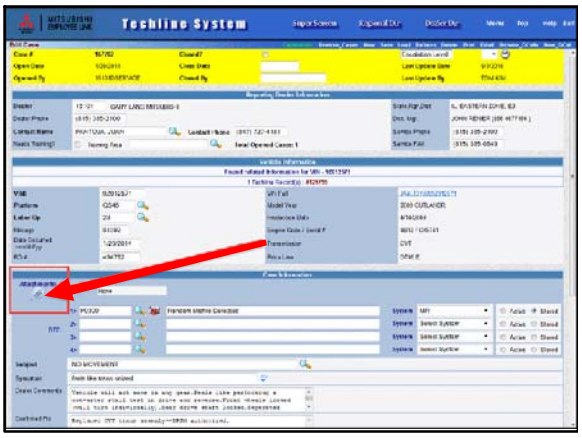
C. ENGINE REPLACEMENT VERIFICATION PROCEDURE (Only if Engine Knocking Noise Is Reported)

If customer has reported engine noise, follow the steps below to confirm the noise, then create a video recording of the noise, open a Techline case, and attach the recording file to the Techline case.

1. *Start the engine, and let idle.*
    - *If no knocking noise is heard, go to step 2.*
    - *If a knocking noise is heard, go to step 3.*
2. *Put selector lever in D position, apply the emergency brake and service brake, and raise engine speed gradually to 1,500 RPM.*
    - *If a knocking noise is heard, go to step 3.*
    - *If engine noise is normal, do **NOT** replace the engine. Return vehicle to customer.*
3. *Create a Techline case.*
4. *Open the hood, and keep the engine running at idle. If noise is only heard at 1,500 RPM, have a second person in driver's seat gradually increase engine speed to 1,500 RPM during the recording.*
5. *Using a video recording device (smartphone, camera, etc.), start the video recording by clearly filming the VIN on the FMVSS Label on the B–Pillar. Then stand near the open hood, and record the knocking noise, for approximately 5 seconds.*

    NOTE: *To keep file size more manageable, total filming time should be less than 10 seconds. File size may be reduced by adjusting video recording resolution to a lower setting, or by using a video compression software on your PC (such as Microsoft Movie Maker, Wondershare Video Converter, etc.).*

6. *Save the video recording with the following naming convention: the last 8 digits of the VIN **AND** the Techline case number (for example: EH004169_187621.mp4).* ◀
7. *Attach the video file to the Techline case using the instructions below.* ◀
   a. *Download the video file to the device you will be accessing the Techline System from:* ◀
      - *From MEDIC: Copy the video file to a flash drive and connect to the USB port of the Toughbook/Toughpad.*
      - *From any device other than MEDIC: Copy the video file to the hard drive of the PC (or a flash drive may be used if desired).*

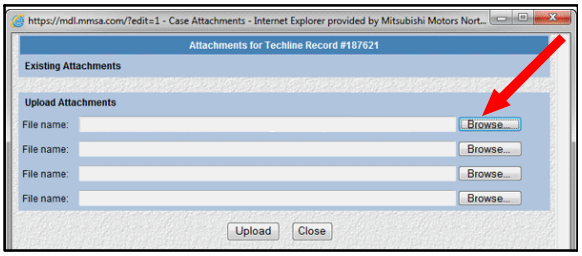


   b. *Navigate to the Techline System (through MDL). Find and open the previously created Techline case.* ◀

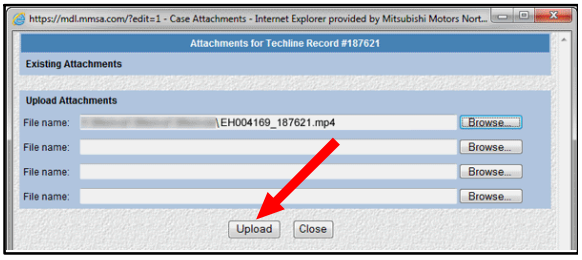
      Click on the Attachment icon (paper clip).

      NOTE: *This icon is only available when a Techline case is NOT closed.*

      NOTE: *Current Techline video file size limit for attachments is 25 MB.*

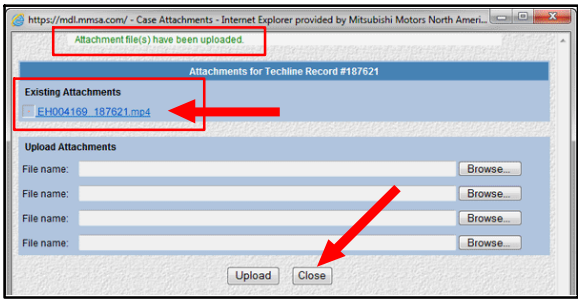


   c. *A pop–up window will open. Click on Browse to find the file you want to attach.* ◀
   d. *Navigate to the location of the video file, select it, and click "Open."* ◀
      - *On MEDIC: Navigate to the flash drive.*
      - *On another device (other than MEDIC): Locate the file on the hard drive (or flash drive).*



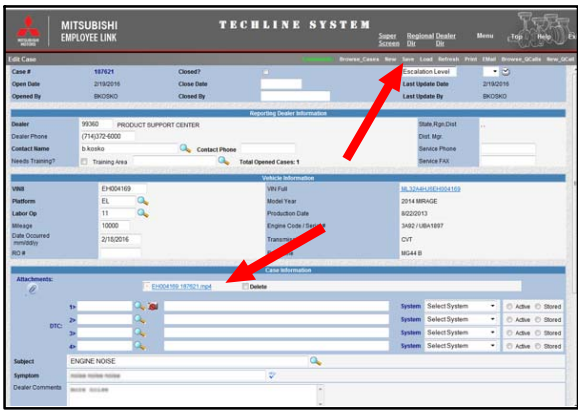
   e. *The chosen file path will be displayed, as shown.* ◀

      Click on "Upload" to attach the file to the Techline case.



f. The file will be shown as attached.

Click on "Close" to go back to the Techline case.



g. From the Techline case, click on "Save" to save the attachment to the case.

Verify the file is showing in the Attachments section at the bottom of the Techline case.

8. Contact Techline for assistance (1–800–446–6064).

9. Order the new engine assembly (209 restriction applies, must be released by MMNA).

PARTS INFORMATION

Use the genuine Mitsubishi Parts listed below:

Description	Part Number	Quantity
Label, Engine Compartment	MSSF024G00	1

<u>ONLY</u> replace the Engine Assembly if engine noise is verified, and all instructions in the ENGINE REPLACEMENT VERIFICATION PROCEDURE, in this bulletin, have been completed.

Description	Part Number	Quantity
Engine Assy, Long	1000C848	1

WARRANTY INFORMATION

There are 2 repair scenarios for this campaign number.

If involved in C1602A

Scenario #	Campaign Op#	Labor Time	Repair Description	Part Number
1	C1602A01	.4 hrs.	Reflash the ECU	MSSF024G00 (label)
2	C1602A02	8.3 hrs.	Reflash the ECU and Check engine for noise per TSB - Replace if needed	MULTIPLE

Warranty/Recall Campaign Claim Information

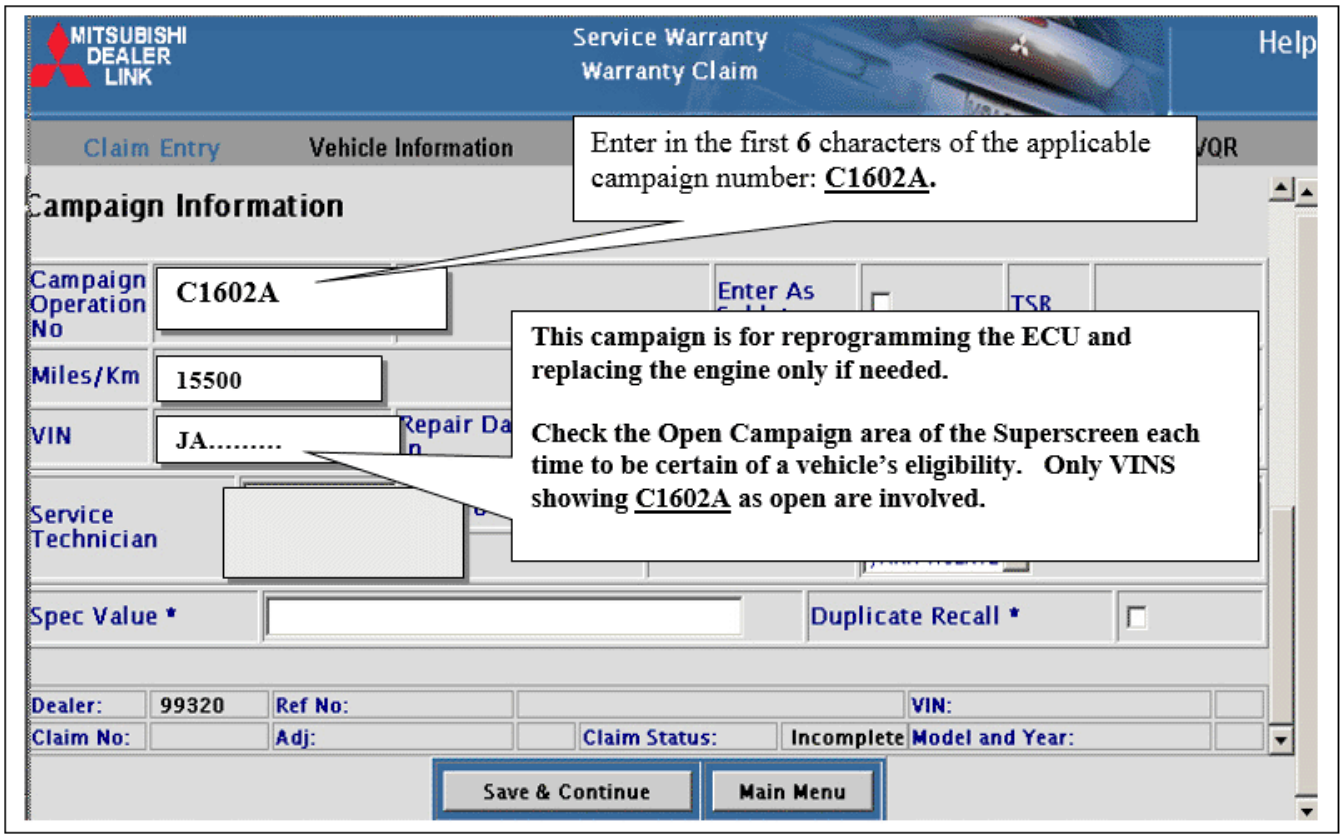
Enter all claims as claim type "C" — Recall/Campaign Claims.

Please follow the campaign instructions when entering each claim in order to select the applicable operation code that correctly matches up with the work that was actually performed. A claim example is provided below.

Certain 2014—2015 MY Mirage models.

Required Operation to be performed	Labor Operation	Labor Time
1. 2014—15 MY Mirage — Reflash ECU only	C1602A01	0.4 hrs
2. 2014—15 MY Mirage — Reflash ECU & Replace Engine	C1602A02	8.3 hrs

Claim Header Section:



After entering the required customer data, vehicle information, selecting the applicable repair campaign and scenario performed (please note there are 2 possible repair scenarios for this campaign), and then hitting the "**Save and Continue**" button, the system will automatically fill–in several fields. See the Labor and Parts examples below.

Labor and Parts

Labor:

There are 2 possible repair scenarios for this campaign: Inspect Only and Inspect and Replace Engine. This campaign requires reprogramming the ECU then, in rare cases, **if the engine is making noise (as per the TSB), replace the engine**.

Scenario 1

Delete	Sublet	Labor Op	Labor Operation Description	Qty	Hours / Sublet Amt
		C1602A01	Reflash ECU	1	0.4

Scenario 2

Delete	Sublet	Labor Op	Labor Operation Description	Qty	Hours / Sublet Amt
		C1602A02	Reflash ECU and Replace Engine Assy Due to Noise	1	8.3

Parts:

1. Reflash the ECU: Only the engine compartment flash label (#MSSF024G00).
2. Reflash and Replace Engine Assembly: Use only engine “long block” part #1000C848 and other parts as needed along with engine compartment label (MSSF024G00).

Rental Cars and Return Freight Costs

If there is a need to provide the owner with a rental car or return freight charges, claim the applicable charges in this section of the claim on the lower portion of the labor entry screen.

Special Sublet Selection

Select	Labor Operation	Labor Operation Description		Amount
☐	SHO	SPECIAL HANDLING ORDER	SHO Parts Order	
☐	RENTACAR	RENTAL CAR CHARGES	Days Reason <Select one> Rental Company Invoice Number	
☐	95300040	FREIGHT CHARGES	Freight Company Invoice Number	
☐	95200040	TOWING CHARGES	Towing Company Invoice Number	

Replaced Parts Retention and Return of Replaced Engine Assembly

Retain all replaced parts for the normal retention period and return parts if requested by a warranty parts return letter.

Mitsubishi Motors North America, Inc.
6400 Katella Avenue
Cypress, CA 90630
Telephone: 714-372-6000
www.mitsubishicars.com

AFFECTED VEHICLES
MODEL: 2014 - 2015 Mirage

This notice applies to your vehicle, _____.

Date: February, 2016

Re: Customer Satisfaction Campaign SC-16-001

Dear Mitsubishi Owner,

Mitsubishi Motors always strives to build vehicles with the highest level of quality, and continuously improve that quality with every vehicle built. To help assure continued satisfaction with your Mitsubishi vehicle, we are recommending that the following product improvement be performed on certain 2014 - 2015 Mirage vehicles built before February 18, 2015.

Recommended Product Improvement:
During a cold start, the engine ECU may order inappropriate fuel amounts to the engine, which may cause engine noise.

What your dealer will do:
Your local Mitsubishi dealer will reprogram the engine control module (ECM). This repair will take approximately **0.4** hours to complete. In extreme cases, an engine exhibiting engine noise may need to be replaced. This repair will take approximately **8.3** hours. However, the dealer may need your vehicle for a longer period of time due to scheduling. Every effort will be made to minimize your inconvenience. Product improvements will be completed free of charge.

What you should do:
Please contact your local Mitsubishi dealership to schedule an appointment. Although not required, it is recommended to bring this letter when you take your vehicle into the dealership.

There is also a Safety Recall associated with your vehicle, regarding possible water intrusion and corrosion of a connector to the left of the driver's foot rest. You were previously sent a letter that your vehicle is also part of this recall. If you have yet to schedule an appointment for the remedy, please ask the dealer to perform the recall remedy and this campaign at the same time when you take your vehicle in.

If you have any questions regarding this customer satisfaction campaign, please contact us:

Mitsubishi Customer Relations Department
P.O. Box 6400
Cypress, CA 90630-0064
Phone 1-888-648-7820
Hours: Monday – Friday 7 a.m. – 4 p.m. Pacific Time

If you have already encountered a problem with the engine as a result of this specific condition and have paid for the repair, you may send your original repair order or invoice, **and** original receipt/proof of payment to the following address for reimbursement consideration:

Mitsubishi Customer Relations Department, P.O. Box 6400, Cypress, CA 90630-0064

We appreciate your prompt attention to this matter, and apologize for any inconvenience.

Sincerely,

Mitsubishi Motors North America, Inc. C1602A

SAMPLE