

Classification:

EC13-022

Reference:

ITB14-002

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PROGRAMMING PROCEDURE FOR BLANK ECMs

APPLIED VEHICLES: All Infiniti vehicles using replacement "Blank" ECMs

SERVICE INFORMATION

Replacement Engine Control Modules (ECMs) for many newer Infiniti vehicles are now "Blank" ECMs.

Blank ECMs come without software and must be programmed (not reprogrammed) before they will function.

When ordering a replacement ECM, the electronic parts catalog (FAST or equivalent) will list the part number for a Blank ECM if it is available for the vehicle you are working on.

- All 2014 M/Y and newer vehicles, that use an ECM, have Blank ECMs available as replacements.
- Blank replacement ECMs are being phased in for 2013 to 2009 vehicles.

This bulletin contains details for:

- Saving / copying information from the old/current ECM and applying it to the new/replacement Blank ECM.
- Obtaining and installing program information into the new/replacement Blank ECM when it cannot be copied from the old/current ECM.

Infiniti Bulletins are intended for use by qualified technicians, not 'do-it-yourselfers'. Qualified technicians are properly trained individuals who have the equipment, tools, safety instruction, and know-how to do a job properly and safely. NOTE: If you believe that a described condition may apply to a particular vehicle, DO NOT assume that it does. See your Infiniti dealer to determine if this applies to your vehicle.

Blank ECM Programming Procedure (summary)

Below is a summary of the steps for Blank ECM programming. For details, go to page 3.

For vehicles where the ECM can be accessed (ECM P/N can be read) with C-III plus:

- a. Connect and launch C-III plus:
 - From the C-III plus home page, Select **Re/Programming, Configuration**.
 - Proceed to Re/programming.
 - Select **Programming** (not reprogramming).
- b. Select **Before ECM Replacement**.
- c. Save the current ECM P/N and VIN.
- d. Replace the ECM with the new Blank ECM.
- e. Select **Programming**.
- f. Select **After ECM Replacement**.
- g. Select **Program ECM**.
- h. Once programming has completed, perform Throttle Valve Closed Position, Idle Air Volume Learn (IAVL), Accelerator Closed Position, and DTC erase.
- i. Verify the VIN is registered.
- j. Close C-III plus.

For vehicles where the old/current ECM cannot be accessed (ECM P/N cannot be read) with C-III plus:

- a. Obtain the ECM software P/N by using the VIN in the electronic parts catalog.
When using the VIN, the parts catalog will display both the Blank ECM part number and the part number for the software program.
- b. Install the replacement Blank ECM in the vehicle.
- c. Connect C-III plus, and then get to the screen that shows the selection Programming and select **Programming**.
- d. Select **After ECM Replacement**.
- e. Type in the VIN.
- f. Select the P/N from the list that matches the one taken from the parts catalog.
 - Double-check and make sure the correct P/N has been selected.
 - Confirm that the description matches the vehicle's system applications i.e. ABS, CVT, ASCD, etc.
- g. Select **Program ECM**.
- h. Once programming has completed, perform Throttle Valve Closed Position, Idle Air Volume Learn (IAVL), Accelerator Closed Position, and DTC erase.
- i. Verify the VIN is registered.
- j. Close C-III plus.

Blank ECM Programming Procedure (details)

NOTE:

- **Always** enter the VIN into the Infiniti electronic parts catalog (FAST or equivalent), when ordering (looking up) a replacement ECM.
- The first five digits of a replacement Blank ECM's P/N will start with **23703-xxxxx**.
- **Do not replace/install the new ECM until told to do so in the Service Procedure.**

Can the old/current ECM (the one that will be replaced) be accessed with C-III plus?

NOTE: To determine if the old/current ECM can be accessed with C-III plus: Select Diagnosis (One System) > Engine, and then read the ECM Part number. Can the ECM part number be accessed and read?

YES – go to Program Blank ECM (When ECM is Accessible With C-III plus) on the **next page**.

If the vehicle's old/current ECM can be accessed with C-III plus, its current internal Part Number (P/N) and Vehicle Identification Number (VIN) can be saved and then applied to the Blank ECM.

NO – go to Program Blank ECM (When ECM is not Accessible With C-III plus) on **page 18**.

If the vehicle's old/current ECM **cannot** be accessed with C-III plus, the software program P/N to be programmed into the Blank ECM will need to be determined by entering the VIN into the Electronic Parts Catalog (FAST or equivalent). When using the VIN, the parts catalog will display both the Blank ECM part number and the part number for the software program.

PROGRAM BLANK ECM (When ECM is Accessible With C-III plus)

NOTE:

- Do not replace/install the new ECM until told to do so in the Service Procedure.
- Use this procedure if the vehicle's old/current ECM can be accessed with CONSULT-III plus.

IMPORTANT: Before starting the program procedure, make sure:

- ASIST on the CONSULT PC has been freshly synchronized (updated).
- All C-III plus software updates (if any) have been installed.

NOTE: The CONSULT PC automatically gets applicable ECM programming data during ASIST synchronization.

- A screen print for Warranty documentation can be done from the CONSULT PC during this process while still connected to the vehicle.
- If possible, take the vehicle for a 10 minute drive in order to meet the following conditions:
 - Engine coolant temperature: 70 – 100°C (158 – 212°F)
 - Battery voltage: More than 12.9V (At idle)
 - Transmission: Warmed up



Figure A

NOTE:

- After programming is complete, you will be required to perform Throttle Valve Closed Position, Idle Air Volume Learn (IAVL), Accelerator Closed Position, and DTC erase. The above conditions are required for the IAVL to complete.

1. Connect the C-III plus Vehicle Interface (plus VI) to the vehicle.
 - Make sure to use the correct VI for C-III plus (plus VI).

CAUTION: Make sure the plus VI is securely connected to the DLC. If the plus VI connection is loose during programming, the process will be interrupted and the **ECM may be damaged**.

2. Connect the AC Adapter to the CONSULT PC.

CAUTION: Be sure to connect the AC Adapter. If the CONSULT PC battery voltage drops during programming, the process will be interrupted and the **ECM may be damaged**.

3. Connect a battery charger to the vehicle battery:

- Set the battery charger at a low charge rate.

NOTE: The GR-8 (Battery and Electrical Diagnostic Station) set to "Power Supply" mode is recommended.

CAUTION: Be sure the battery charger is connected securely to the battery. Make sure the battery voltage stays between 12.0V and 15.5V during programming. If the battery voltage goes out of this range during programming, the **ECM may be damaged**.

4. Turn off all external Bluetooth® devices (e.g., cell phones, printers, etc.) within range of the CONSULT PC and the VI.

CAUTION: Make sure to turn off all external Bluetooth® devices. If Bluetooth® signal waves are within range of the CONSULT PC and the plus VI during programming, programming may be interrupted and the **ECM may be damaged**.

5. Turn the ignition ON (engine OFF / Not Ready).

- The engine must not start or run during the reprogramming procedure.

6. Turn OFF all vehicle electrical loads such as exterior lights, interior lights, HVAC, blower, rear defogger, audio, NAVI, seat heater, steering wheel heater, etc.

IMPORTANT: Make sure to turn OFF all vehicle electrical loads. Make sure the battery voltage stays between 12.0V and 15.5V during programming. If the battery voltage goes out of this range during programming, the **ECM may be damaged**.

7. Open / start C-III plus.
 - You will be accessing the old/current ECM.
8. Wait for the plus VI to be recognized.
 - The serial number will display when the plus VI is recognized.

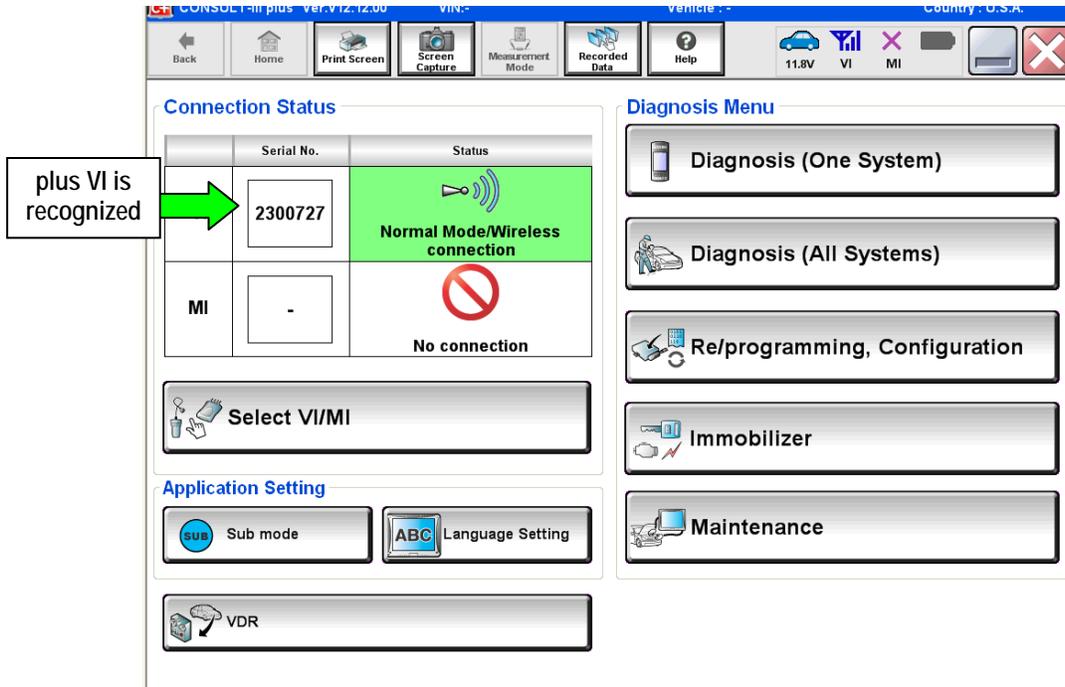


Figure 1

9. Select Re/programming, Configuration.

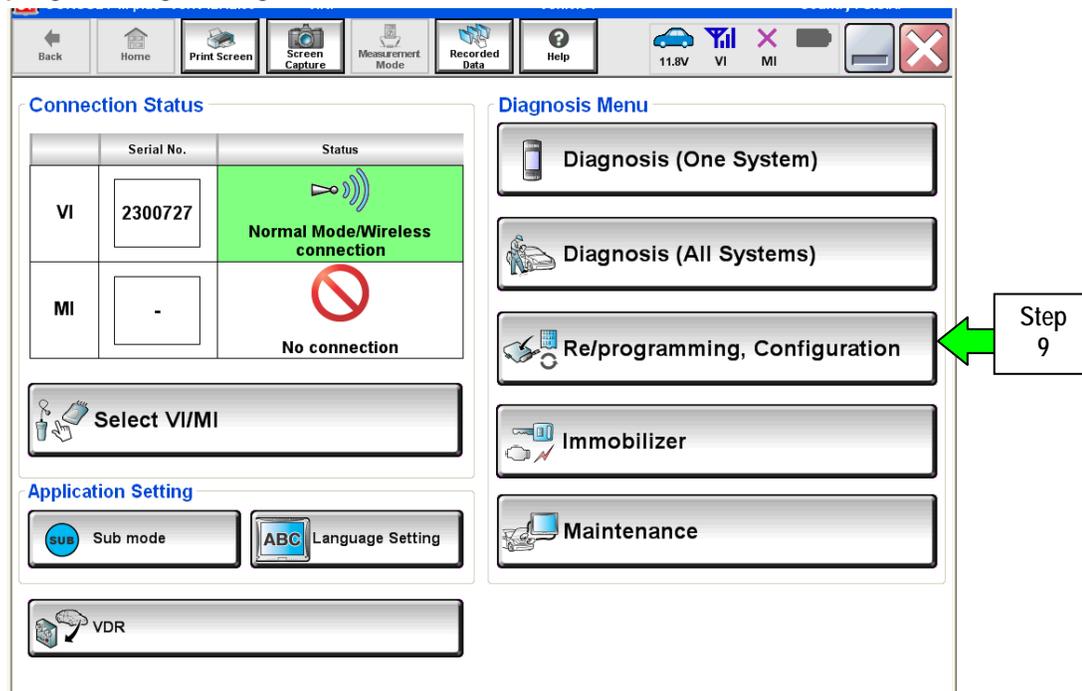


Figure 2

10. Use arrows (if needed) to view and read all precautions.
11. Check the box confirming the precautions have been read.
12. Select **Next**.

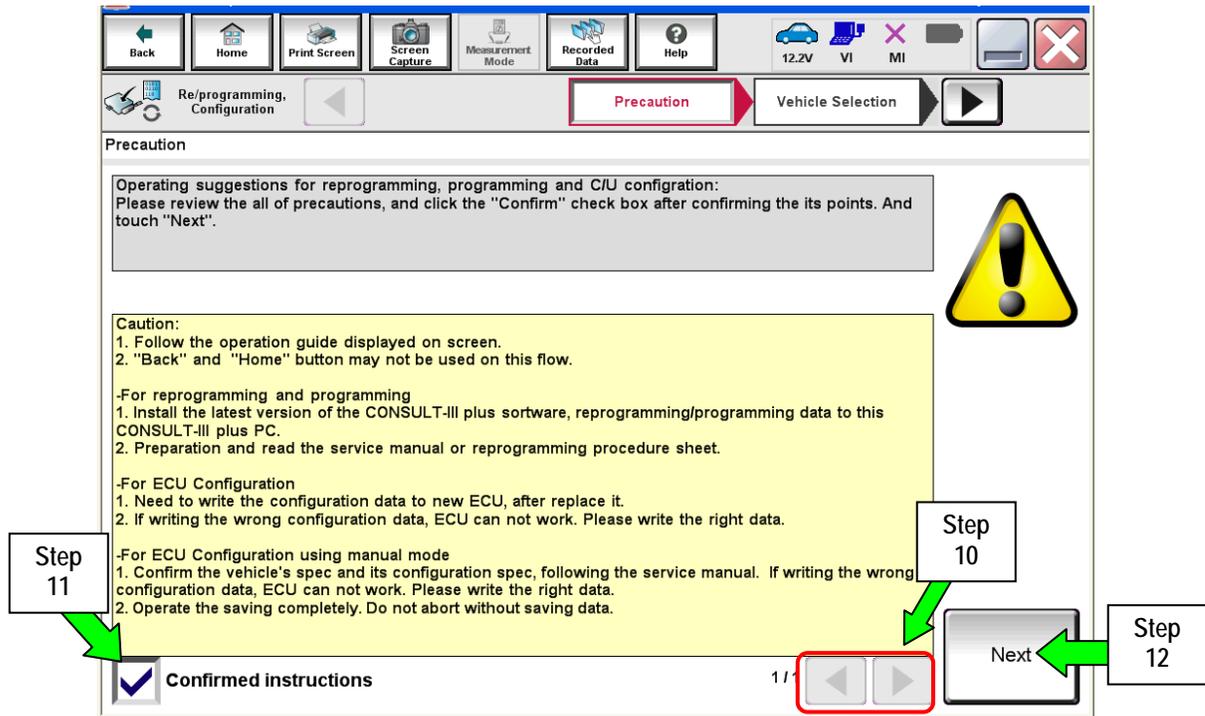


Figure 3

13. Select **Infiniti**, **Vehicle Name**, and then the correct **Model Year**.
 - If the screen in Figure 4 does not display, skip to step 14.

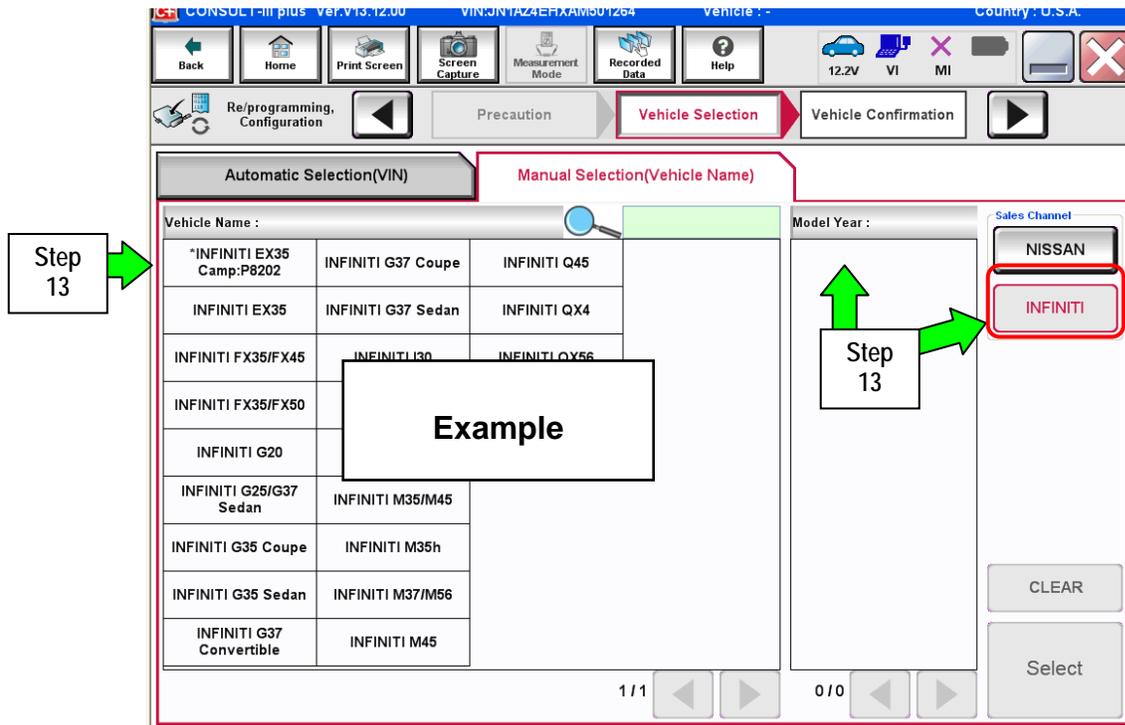


Figure 4

14. Make sure **VIN or Chassis #** matches the vehicle's VIN.

15. If the correct VIN is displayed, select **Confirm**.

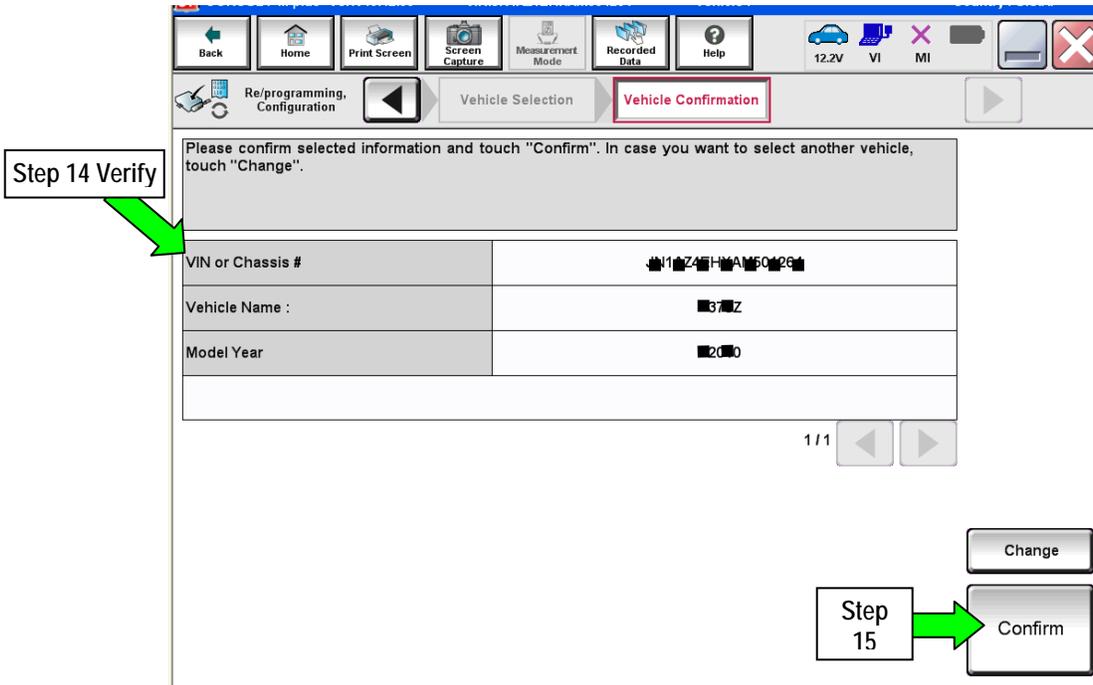


Figure 5

16. Select **Confirm**.

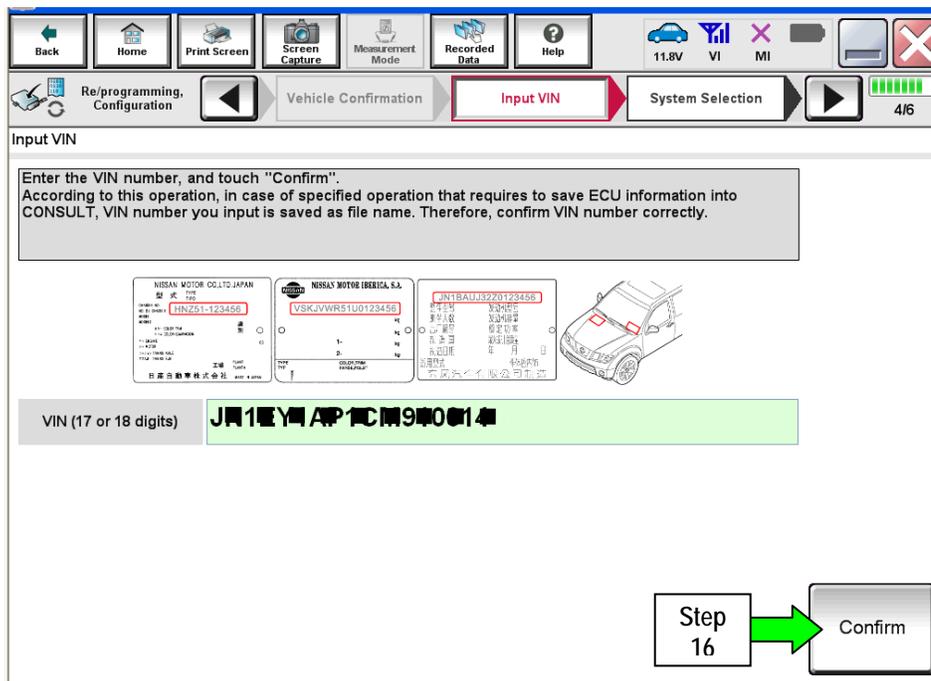


Figure 6

17. Select ENGINE.

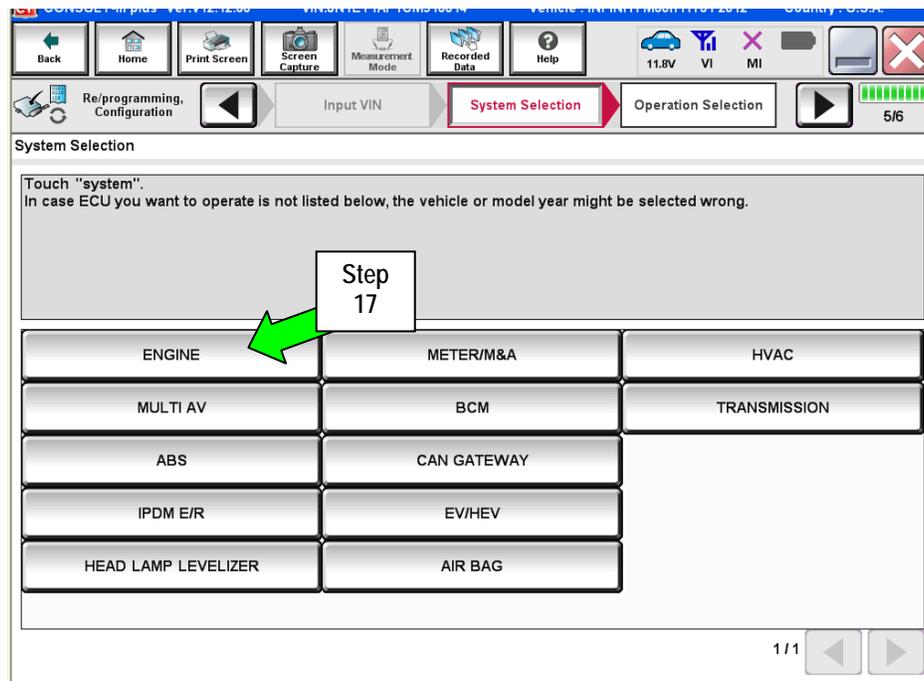


Figure 7

NOTE: If the old/current ECM cannot be accessed with C-III plus, go to Program Blank ECM (When ECM is not Accessible With C-III plus) on page 18.

18. Select **Programming**. (Do not select Reprogramming.)

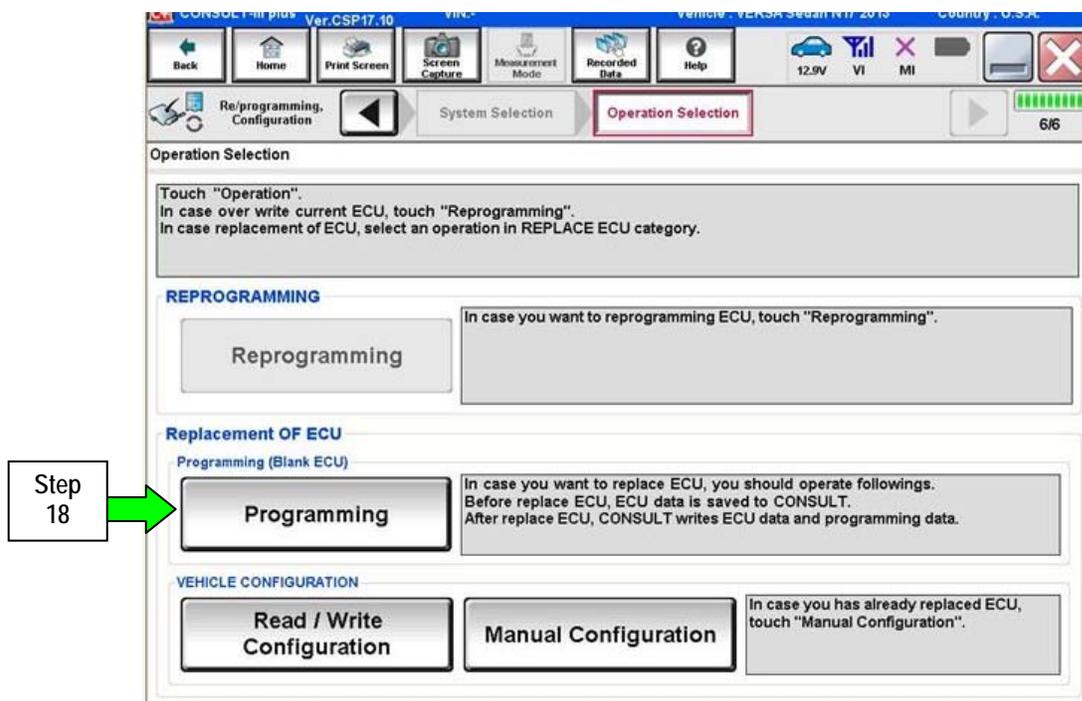


Figure 8

19. Select Before Replace ECU.

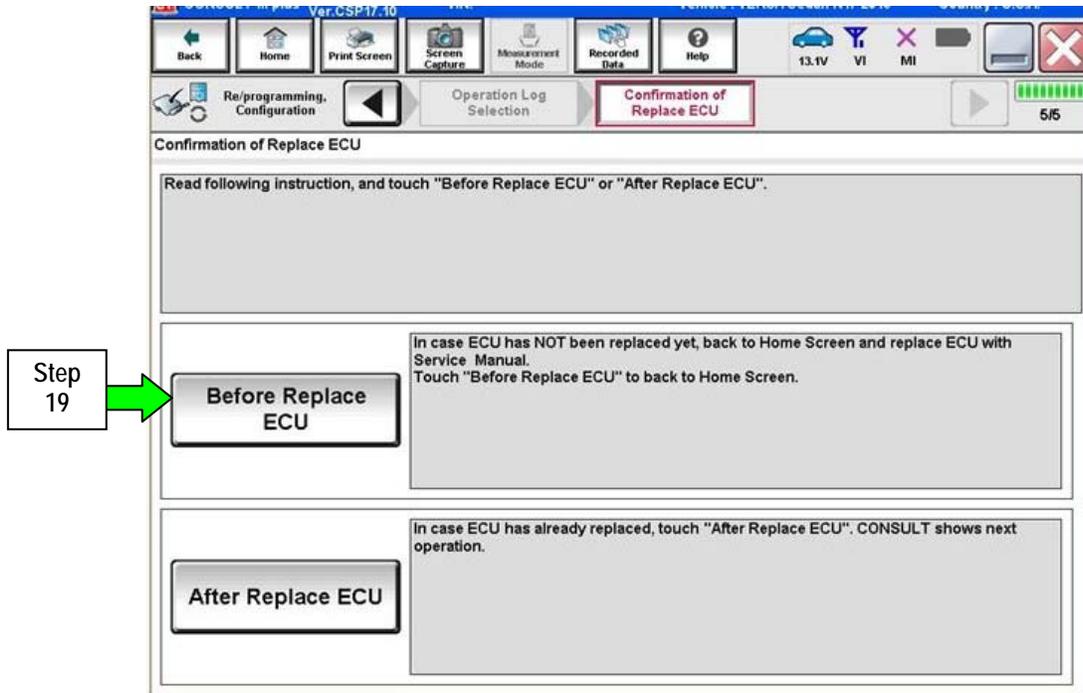


Figure 9

20. Select Save.

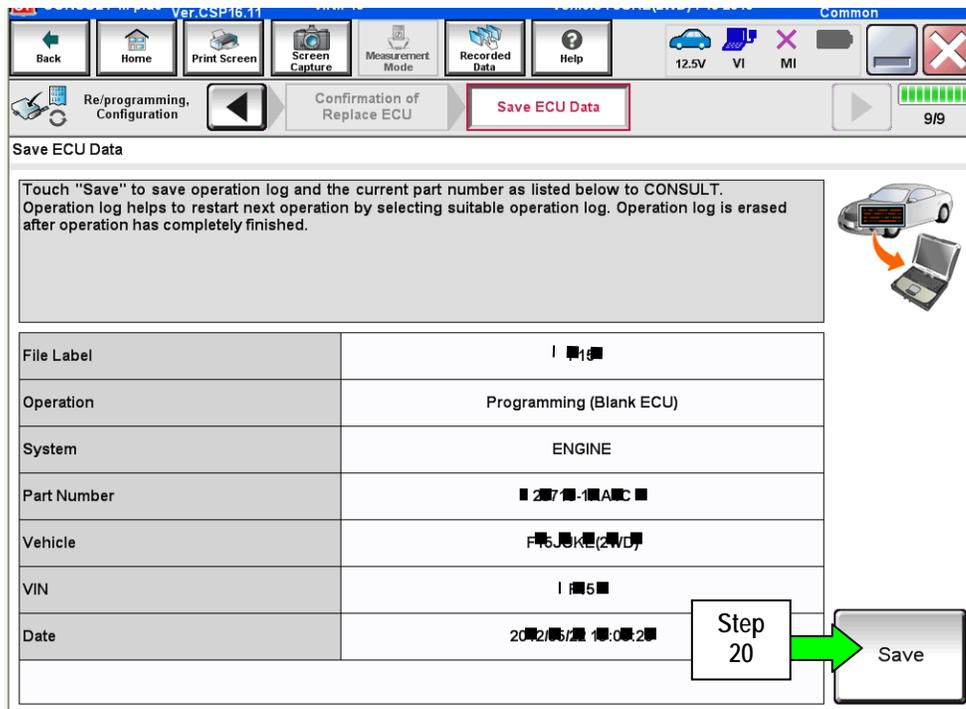


Figure 10

21. Select Next.

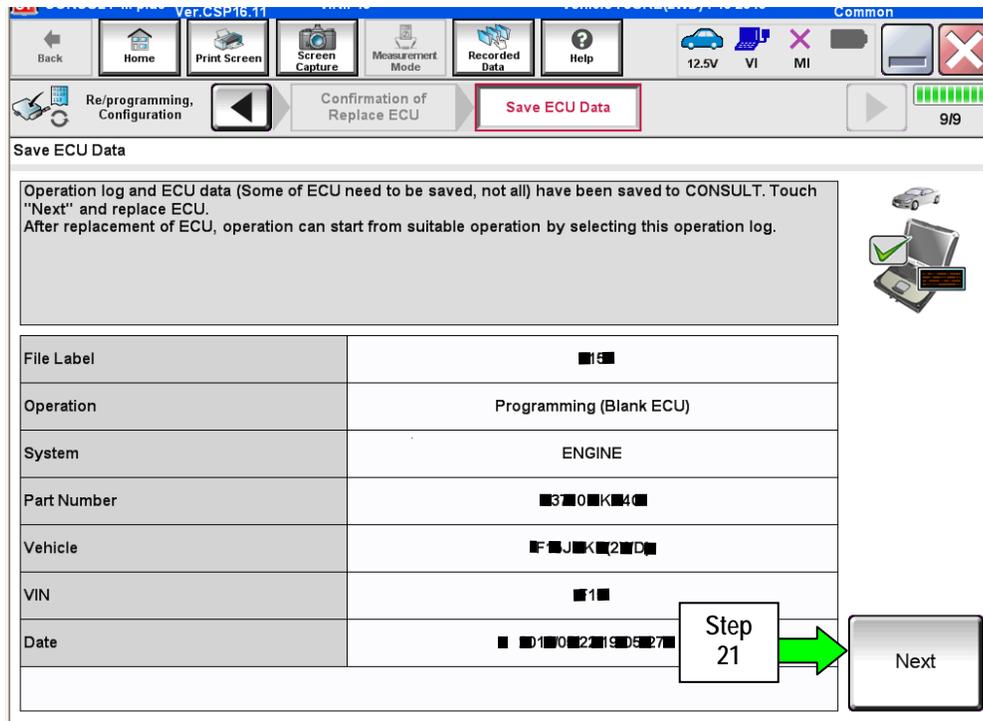


Figure 11

22. Make sure the VIN in the **Saved Data List** (Figure 12) matches the vehicle's VIN.

- If the VIN is not correct, select Delete and then start over from the C-III plus Home screen.

23. If the VIN is correct, select **Confirm**.

- This step will save the vehicle's existing ECM information.

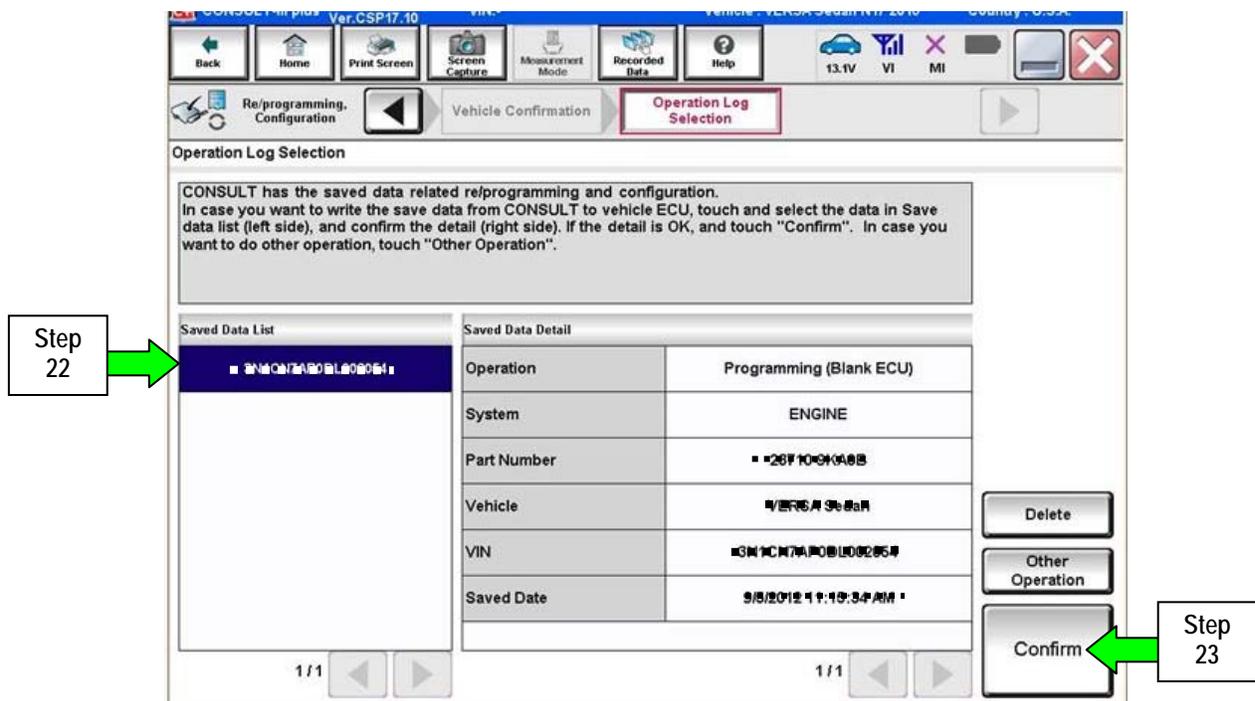


Figure 12

24. After **Confirm** is selected in step 23, the screen in Figure 13 will display.

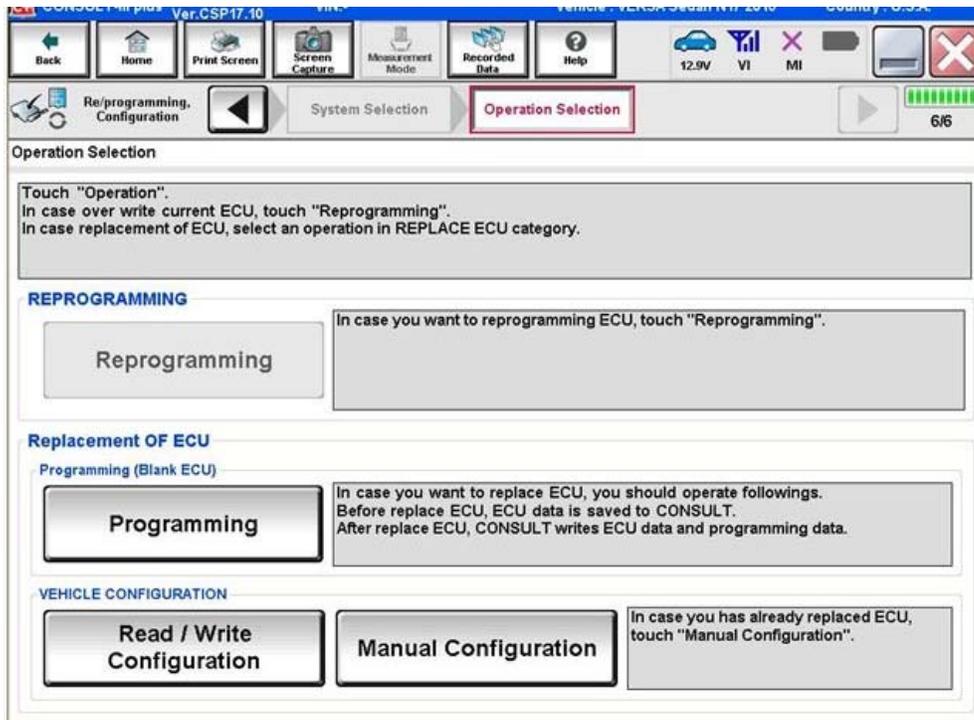


Figure 13

25. Replace the ECM now:

- Leave C-III plus turned on (it should continue to display the screen in Figure 13 while replacing the ECM).
- Make sure the CONSULT PC A/C power supply is connected.
- Turn the ignition OFF.
- Refer to the appropriate Service Manual for ECM replacement information.

26. After the ECM has been replaced (Blank ECM is now installed).

- a. Turn the ignition ON (engine OFF / Not Ready).
 - The engine must not start during the programming procedure.
- b. Make sure the GR8 / battery charger is connected.

27. Select Programming.

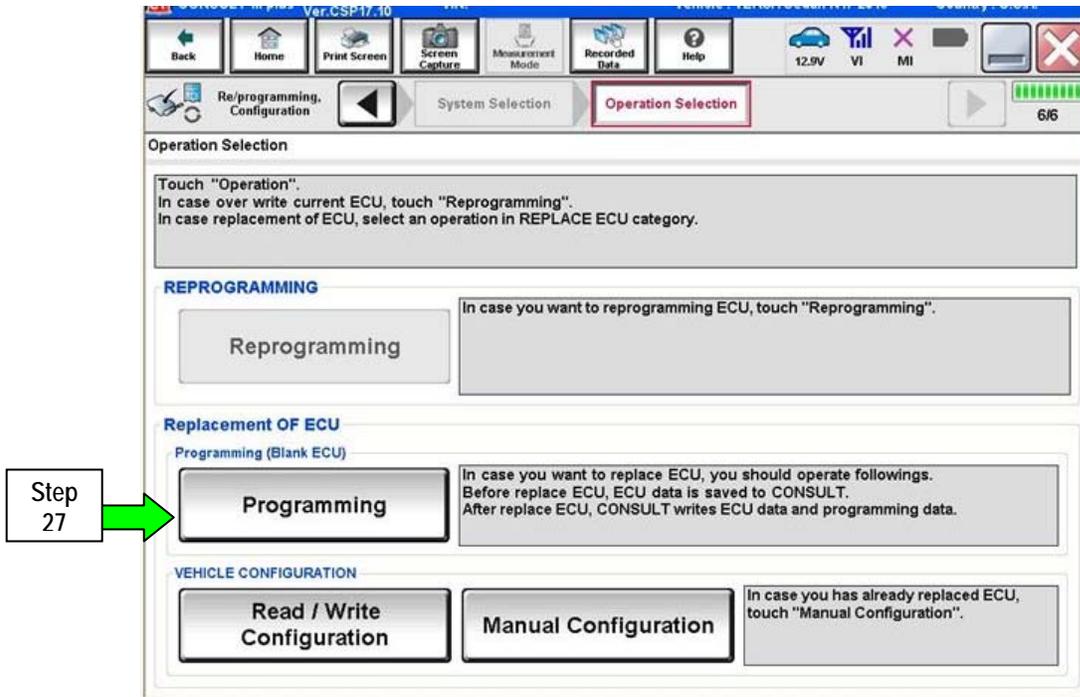


Figure 14

28. Select After Replace ECU.

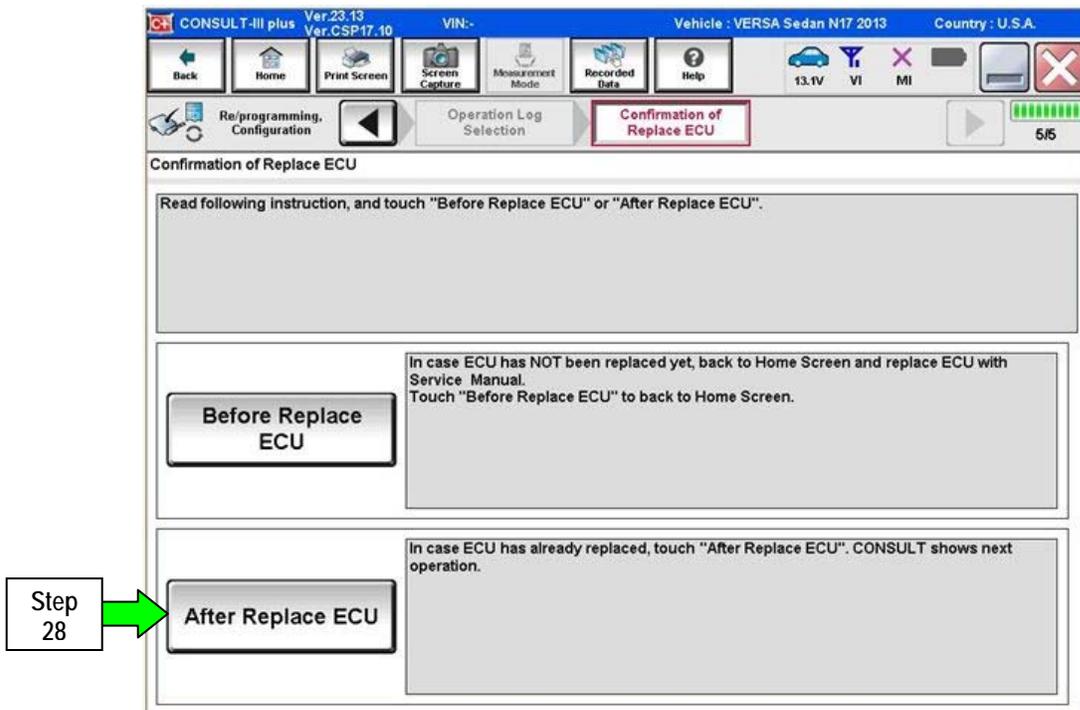


Figure 15

- 29. Use arrows to view and read all precautions.
- 30. Check the box confirming the precautions have been read.
- 31. Select Next.

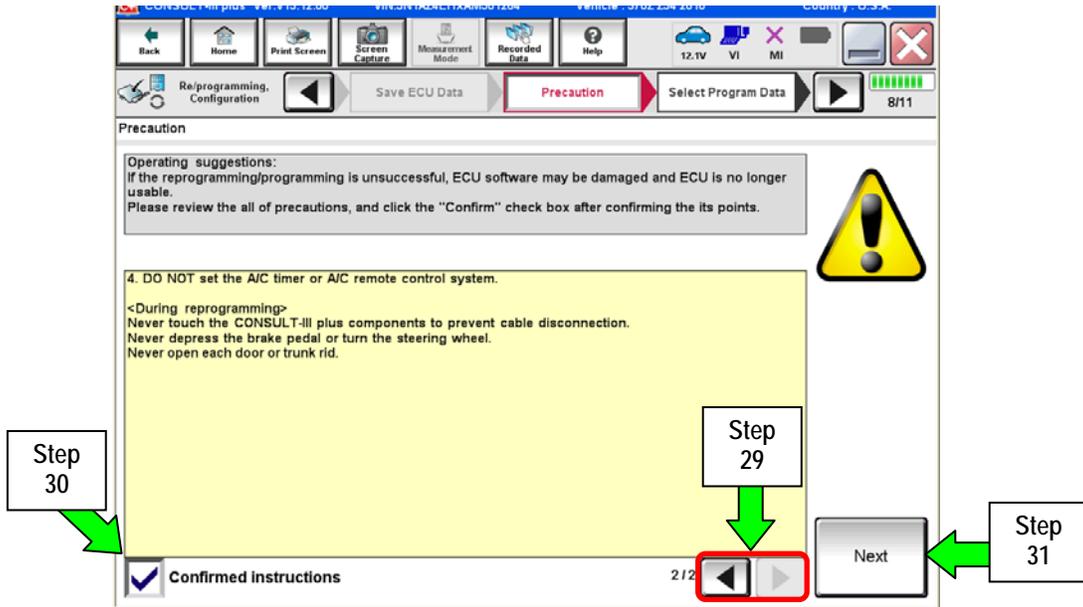


Figure 16

- 32. Make sure OK is highlighted green (battery voltage must be between 12.0 and 15.5 Volts).

- 33. Select Next.

IMPORTANT: Battery voltage must stay between 12.0 and 15.5 Volts during programming or ECM programming may be interrupted and the ECM may be damaged.

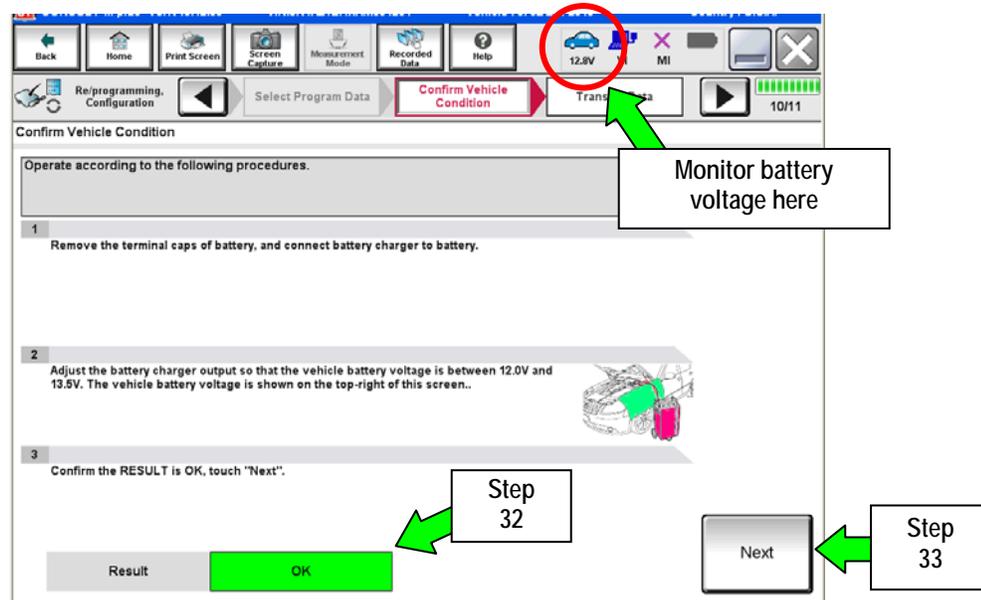


Figure 17

NOTE: In the next step, the programming process will begin when **Start** is selected.

CAUTION: DO NOT stop programming after selecting **Start**, doing so may damage the ECM. Allow programming to complete.

34. Select **Start**.

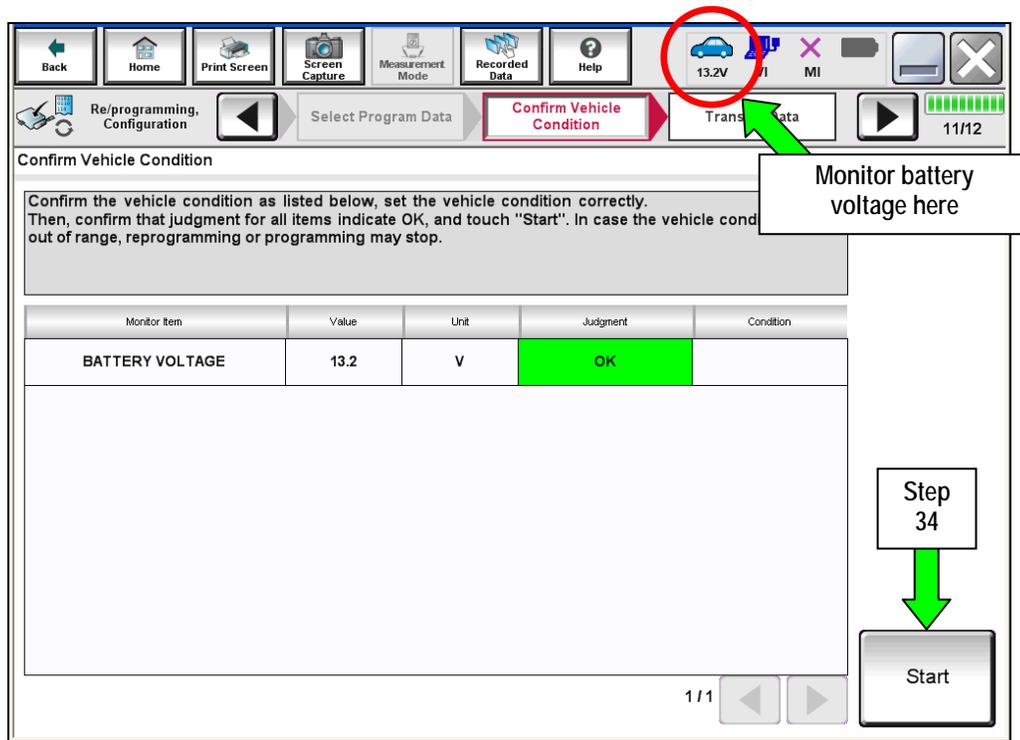


Figure 18

35. Wait for both progress bars to complete.

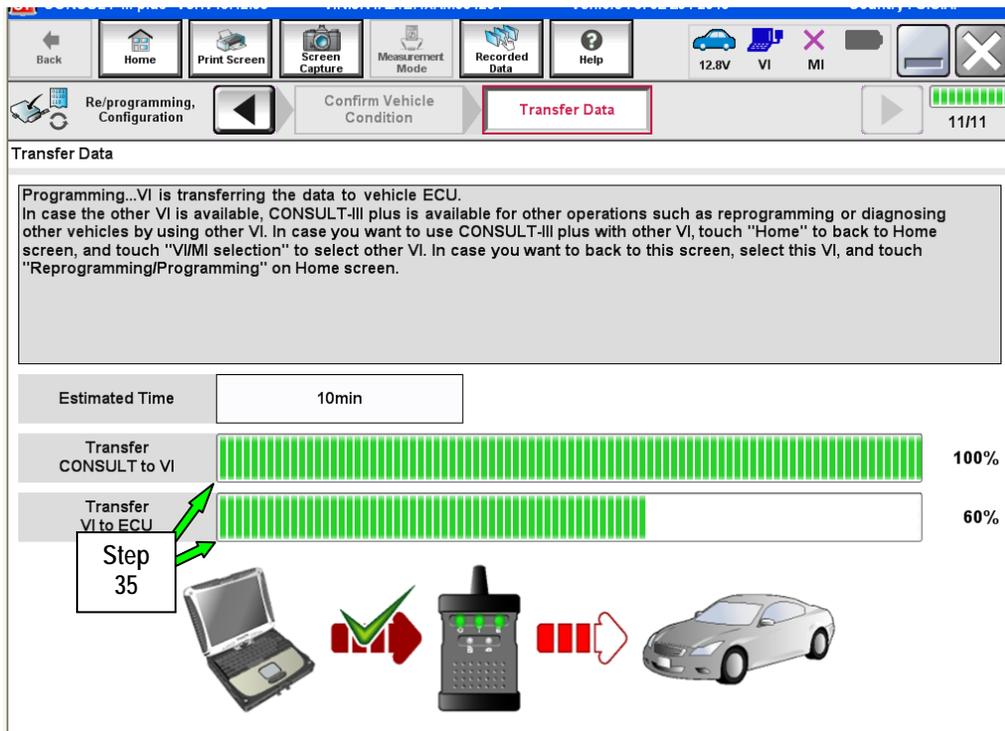


Figure 19

36. When the screen in Figure 20 displays, programming is complete.

NOTE: If the screen in Figure 20 does not display (programming does not complete), refer to the information on the next page.

37. Disconnect the GR8 / battery charger from the vehicle.

38. Select **Next**.

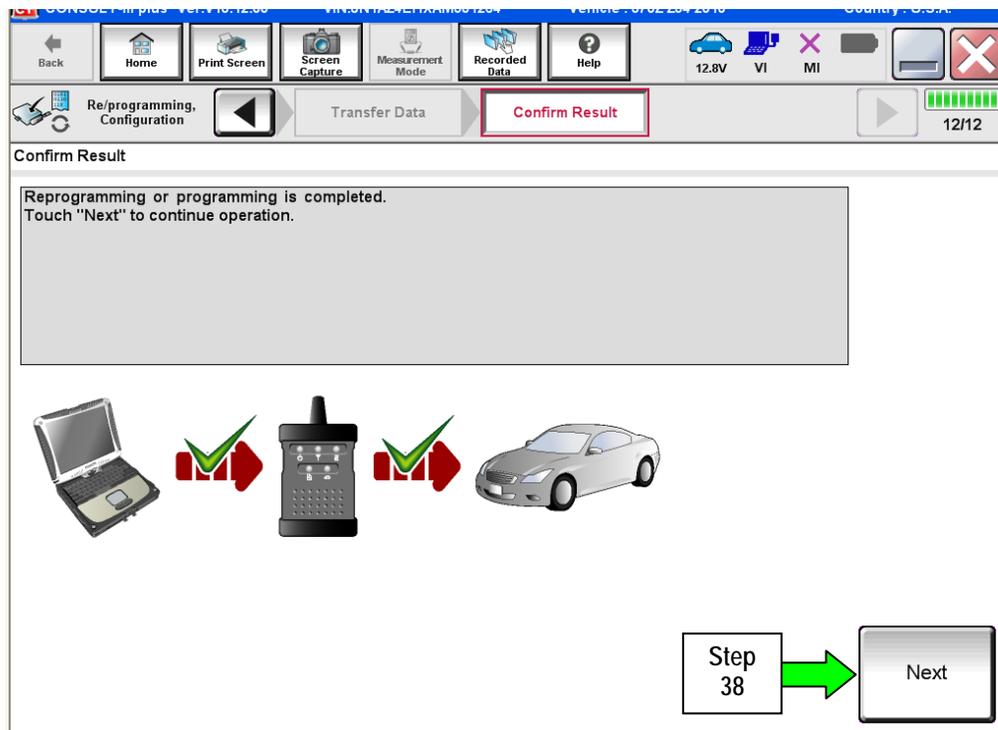


Figure 20

39. Go to After Programming has Completed on page 33.

NOTE: Additional steps / operations are required before C-III plus will provide the final programming confirmation report. Go to **After Programming has Completed** on page 33.

If programming does not complete and the “!?” symbol displays as shown in Figure 21:

- Check battery voltage (12.0 – 15.5V).
- The ignition is ON and the engine is OFF.
- External Bluetooth® devices are OFF.
- All electrical loads are OFF.
- Select **Retry** and follow the on screen instructions.

NOTE: Retry may not go through on the first attempt. It can be selected more than once.

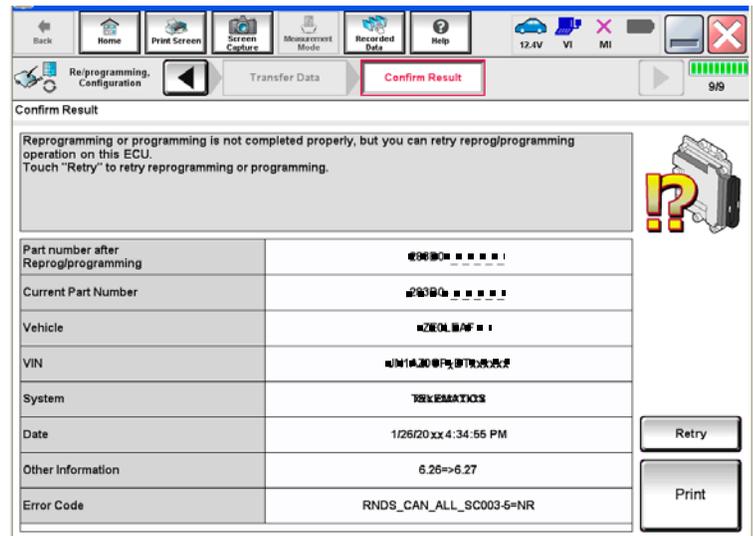


Figure 21

If programming does not complete and the “X” symbol displays as shown in Figure 22:

- Do not disconnect the plus VI or shut down C-III plus if reprogramming does not complete.
- Check battery voltage (12.0 – 15.5V).
- The CONSULT A/C adapter is plugged in.
- The ignition is ON and the engine is OFF.
- The transmission is in Park.
- All C-III plus / plus VI cables are securely connected.
- All C-III plus updates are installed.
- Select **Home**, and then restart the program procedure from the beginning.

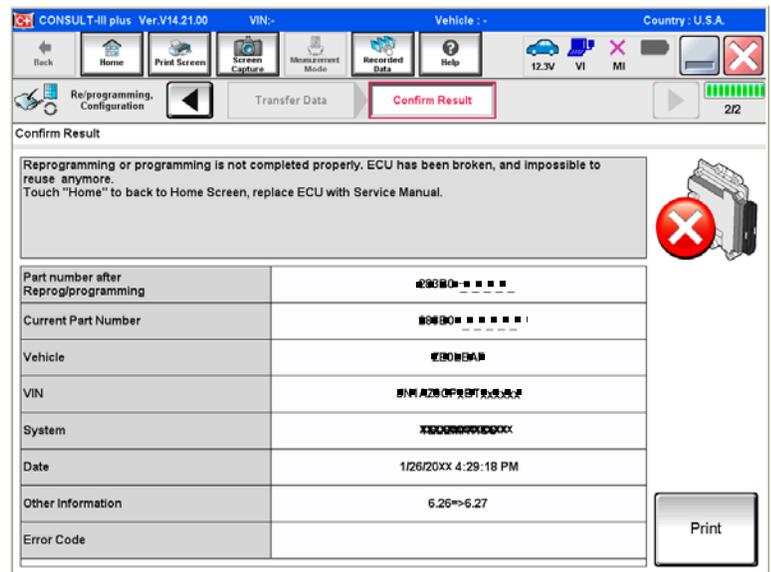


Figure 22

PROGRAM BLANK ECM (When ECM is not Accessible With C-III plus)

NOTE: Use this procedure if the vehicle's old/current ECM cannot be accessed with CONSULT-III plus.

IMPORTANT: Before starting the program procedure, make sure:

- ASIST on the CONSULT PC has been freshly synchronized (updated).
- All C-III plus software updates (if any) have been installed.

NOTE: The CONSULT PC automatically gets applicable ECM programming data during ASIST synchronization.

- A screen print for Warranty documentation can be done from the CONSULT PC during this process while still connected to the vehicle.
- If possible, take the vehicle for a 10 minute drive in order to meet the following conditions:
 - Engine coolant temperature: 70 – 100°C (158 – 212°F)
 - Battery voltage: More than 12.9V (At idle)
 - Transmission: Warmed up



Figure B

NOTE: After programming is complete, you will be required to perform Throttle Valve Closed Position, Idle Air Volume Learn (IAVL), Accelerator Closed Position, and DTC erase. The above conditions are required for the IAVL to complete.

1. Install the new "Blank" ECM now.

- Refer to the appropriate Service Manual for ESM replacement information.

2. Determine the software program part number that will be used during the programming operation as follows:

- a. Go to your Infiniti electronic parts catalog (FAST or equivalent).

NOTE: FAST sample screens are shown in the next few steps. Other brand electronic catalogs may view and operate differently.

- b. Enter the VIN of the vehicle being repaired.

- **Always** enter the VIN.

- c. Select OK.

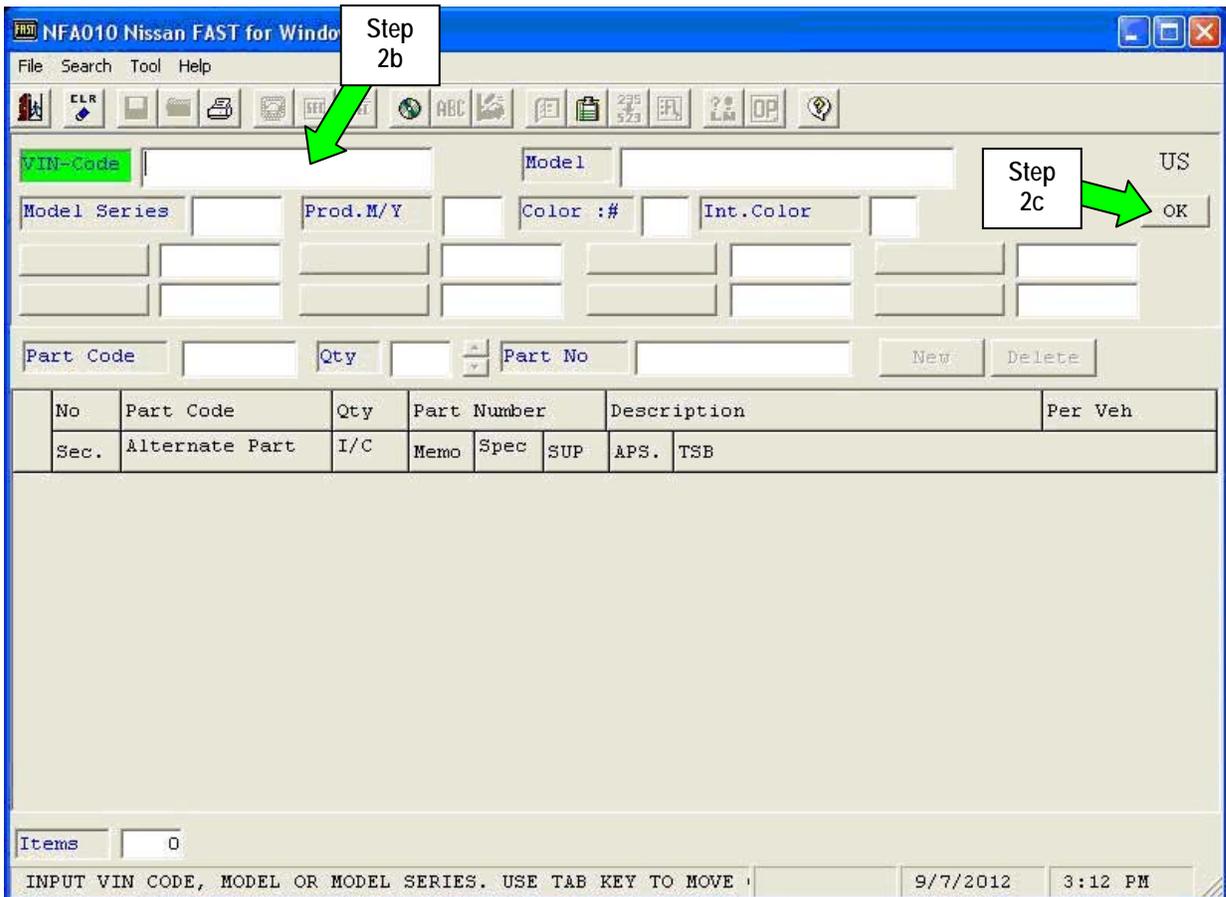


Figure 1a

d. Select SEC.

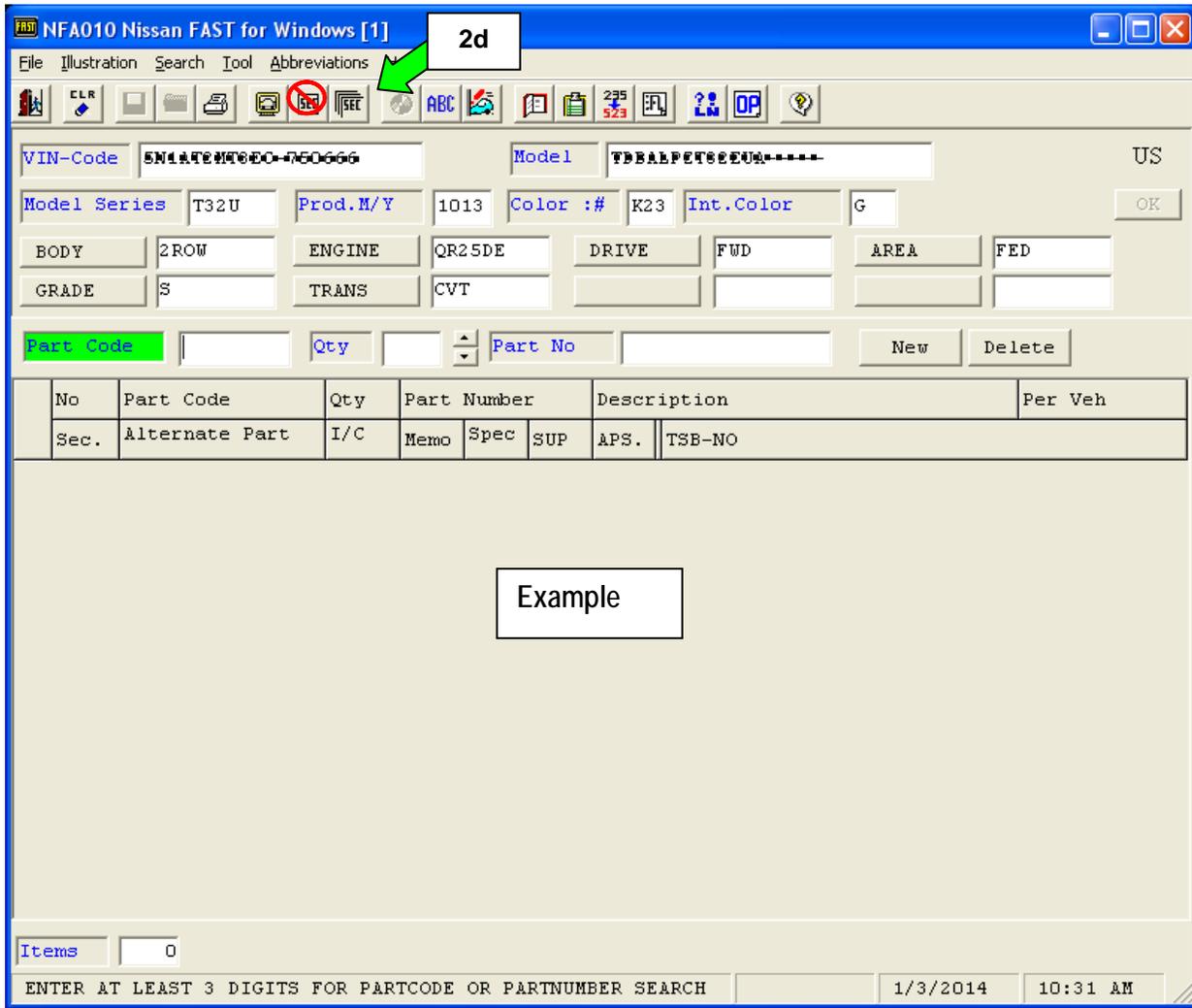


Figure 2a

- e. Scroll down the list and select Sec-No 226, Description ENGINE CONTROL MODULE.
- f. Select the down arrow.
- g. Select OK.

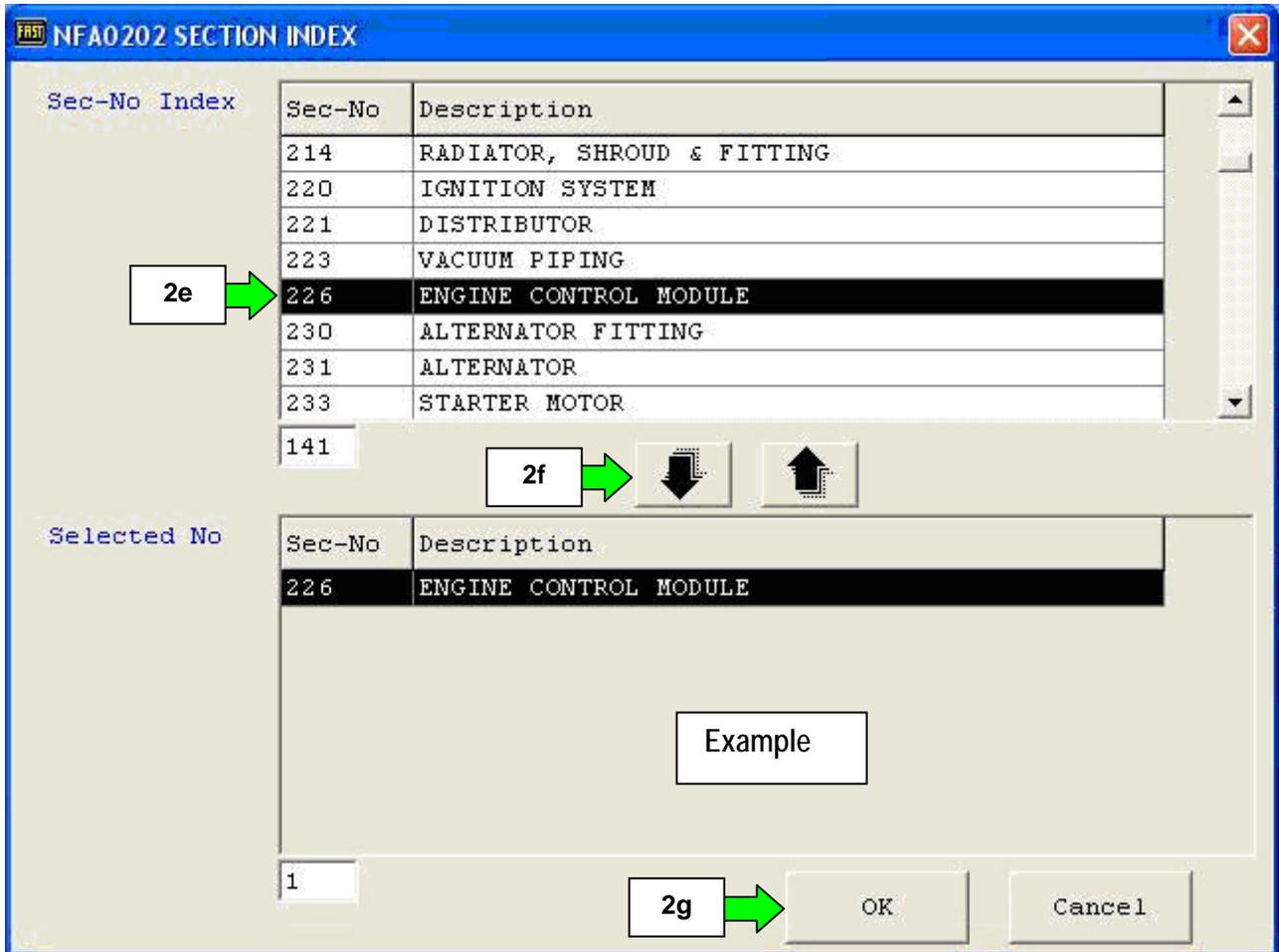


Figure 3a

h. Click twice on the 23701 number.

- After clicking twice the number should highlight in red. If another P/N is clicked, the first will change to green. Green or Red will make the P/N display in the P/N search in the next step.

i. Select the P/No (part number) search button.

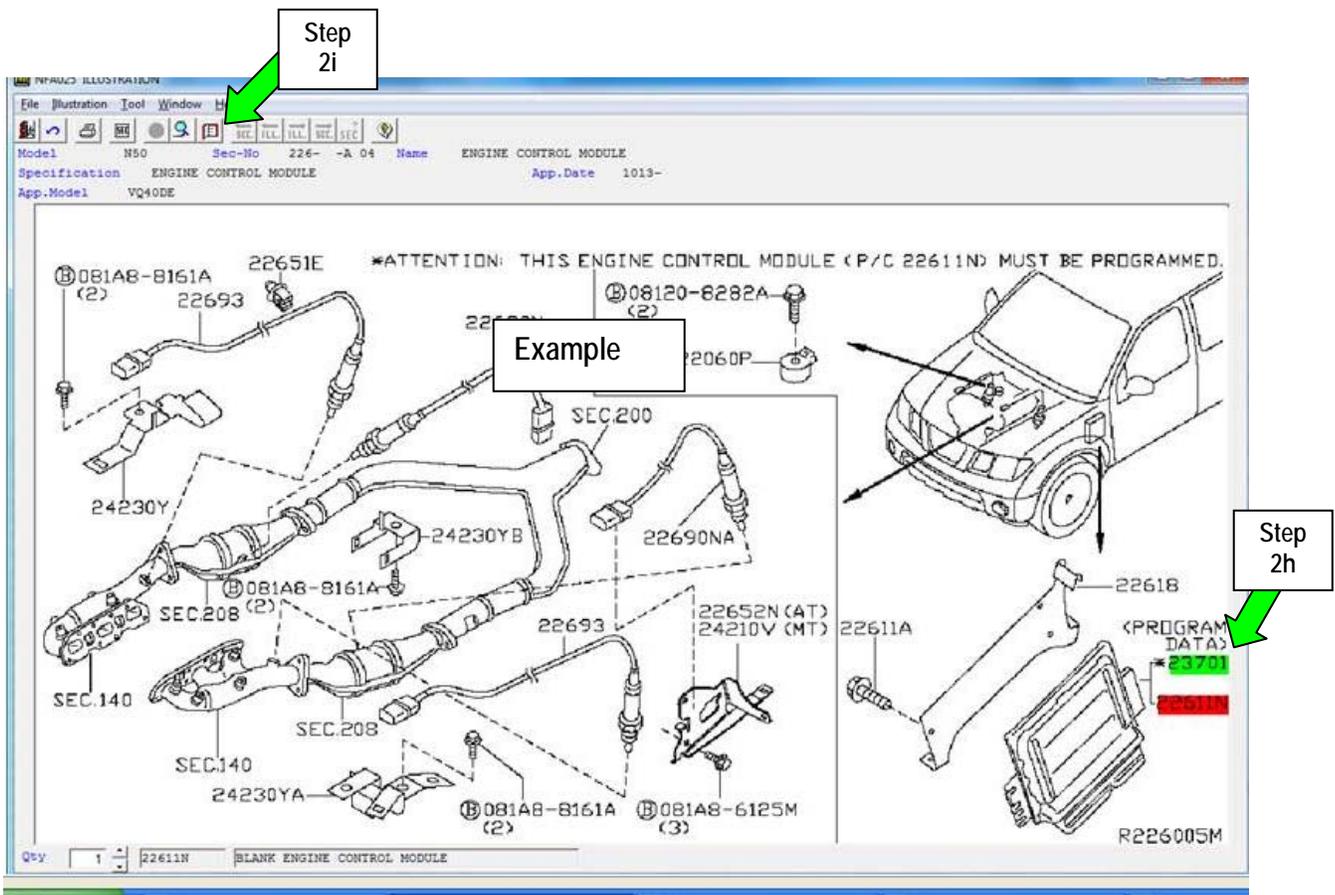


Figure 4a

j. From the screen show in Figure 5a, write down the ECM software P/N listed for **ROM-DATA ID, ID NO FOR PROGRAMMING**.

- The first five digits of this number are 23701-xxxxx.



NOTE: The last five digits are specific to the vehicle you are working on (based on the VIN), and are used to select the correct program in C-III plus later in this procedure.

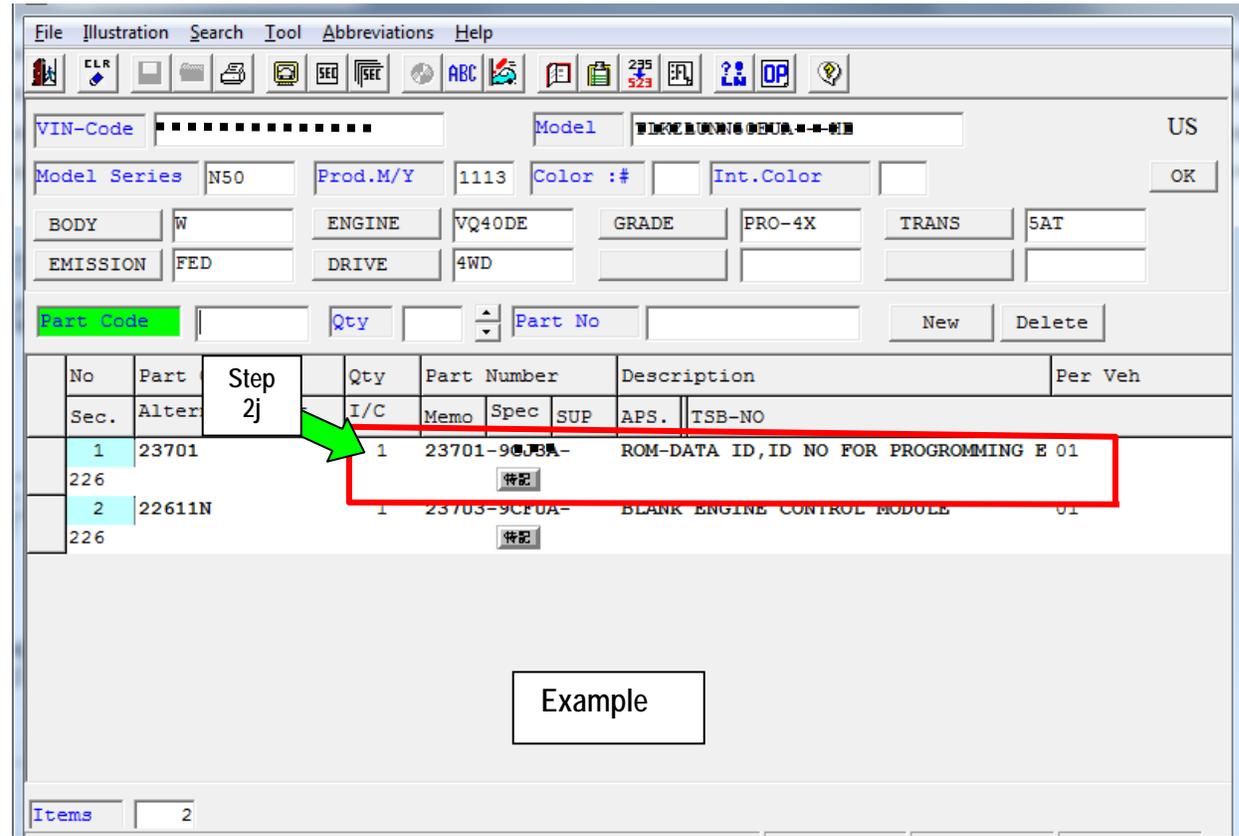


Figure 5a

3. Connect the C-III plus Vehicle Interface (plus VI) to the vehicle.
 - Make sure to use the correct VI for C-III plus (plus VI).

CAUTION: Make sure the plus VI is securely connected to the DLC. If the plus VI connection is loose during programming, the process will be interrupted and the **ECM may be damaged**.

4. Connect the AC Adapter to the CONSULT PC.

CAUTION: Be sure to connect the AC Adapter. If the CONSULT PC battery voltage drops during programming, the process will be interrupted and the **ECM may be damaged**.

5. Connect a battery charger to the vehicle battery:

- Set the battery charger at a low charge rate.

NOTE: The GR-8 (Battery and Electrical Diagnostic Station) set to "Power Supply" mode is recommended.

CAUTION: Be sure the battery charger is connected securely to the battery. Make sure the battery voltage stays between 12.0V and 15.5V during programming. If the battery voltage goes out of this range during programming, the **ECM may be damaged**.

6. Turn off all external Bluetooth® devices (e.g., cell phones, printers, etc.) within range of the CONSULT PC and the VI.

CAUTION: Make sure to turn off all external Bluetooth® devices. If Bluetooth® signal waves are within range of the CONSULT PC and the plus VI during programming, programming may be interrupted and the **ECM may be damaged**.

7. Turn the ignition ON (engine OFF / Not Ready).

- The engine must not start or run during the reprogramming procedure.

8. Turn OFF all vehicle electrical loads such as exterior lights, interior lights, HVAC, blower, rear defogger, audio, NAVI, seat heater, steering wheel heater, etc.

IMPORTANT: Make sure to turn OFF all vehicle electrical loads. Make sure the battery voltage stays between 12.0V and 15.5V during programming. If the battery voltage goes out of this range during programming, the **ECM may be damaged**.

9. Open / start C-III plus.
10. Wait for the plus VI to be recognized.
 - The serial number will display when the plus VI is recognized.

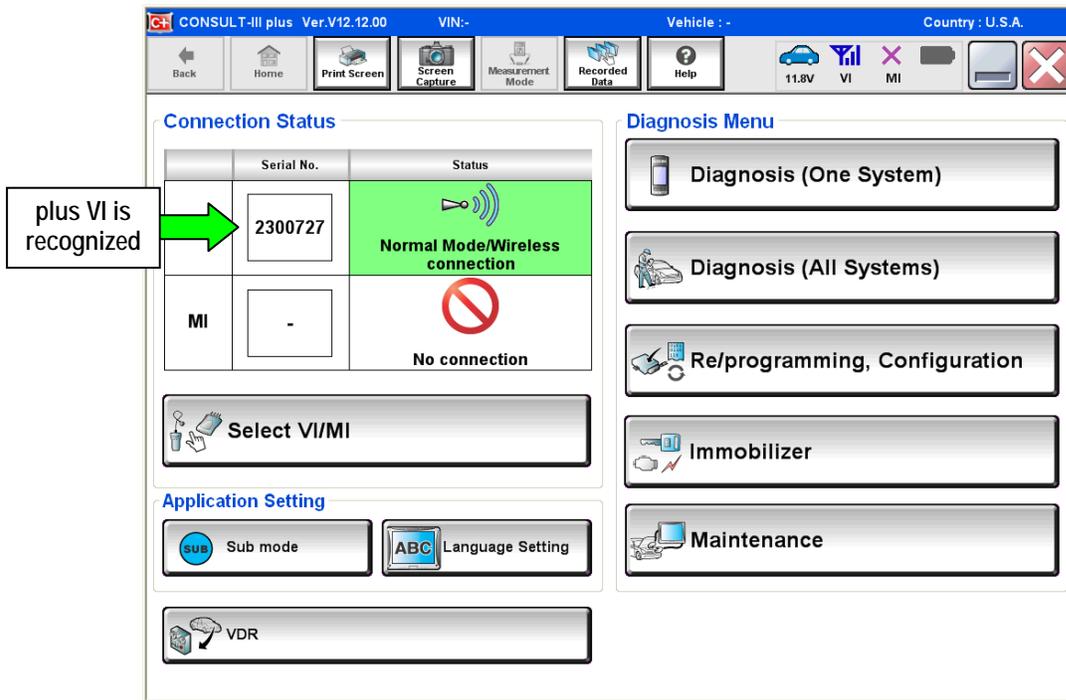


Figure 6a

11. Select Re/programming, Configuration.

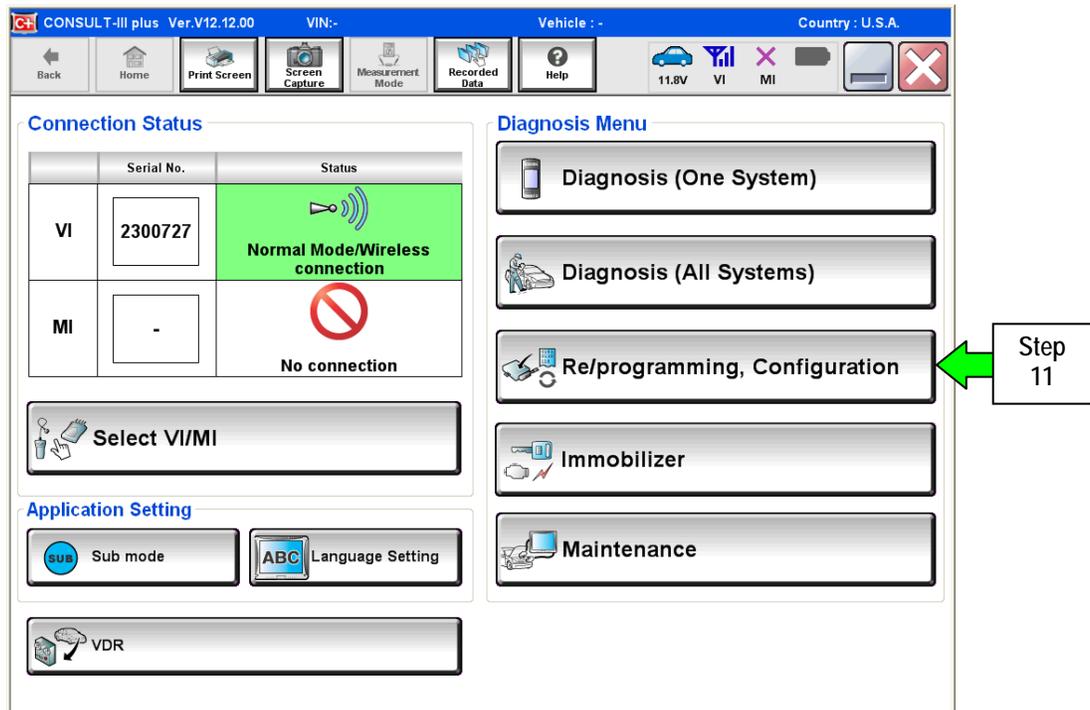


Figure 7a

12. Use arrows to view and read all precautions.
13. Check the box confirming the precautions have been read.
14. Select Next.

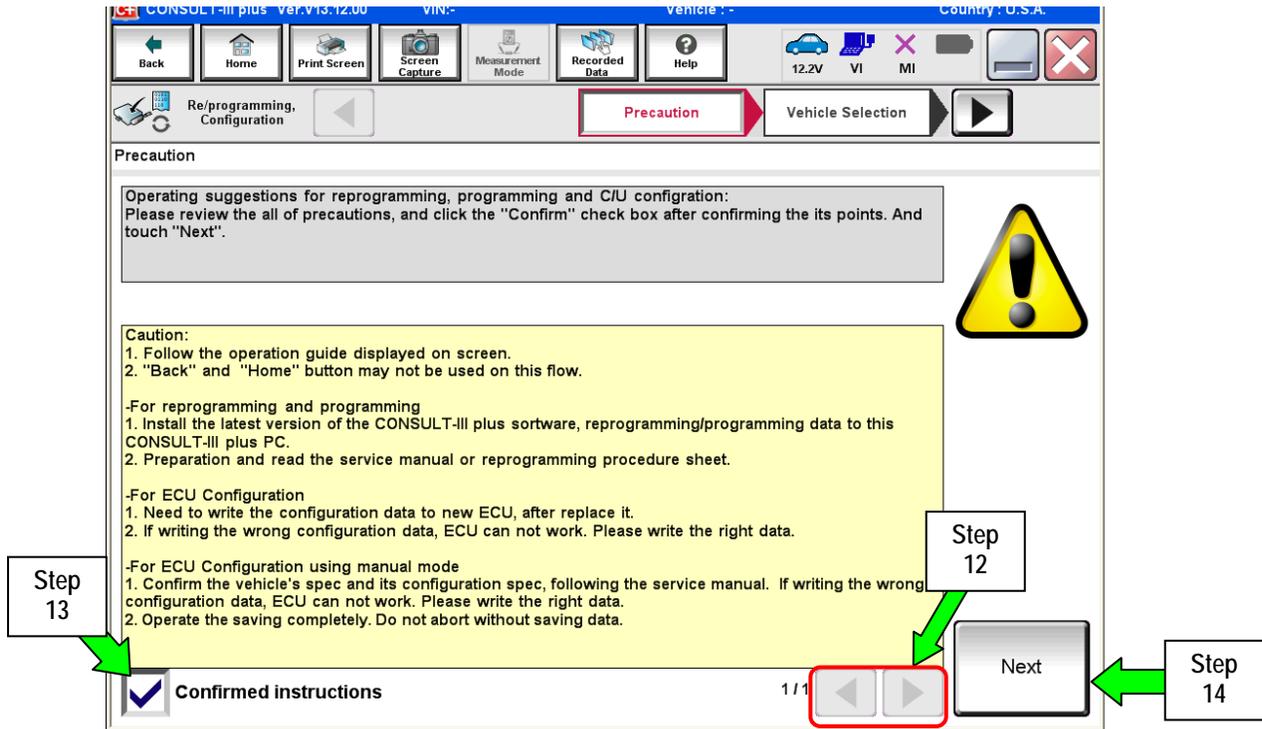


Figure 8a

15. Select Infiniti, Vehicle Name, and then the correct Model Year.

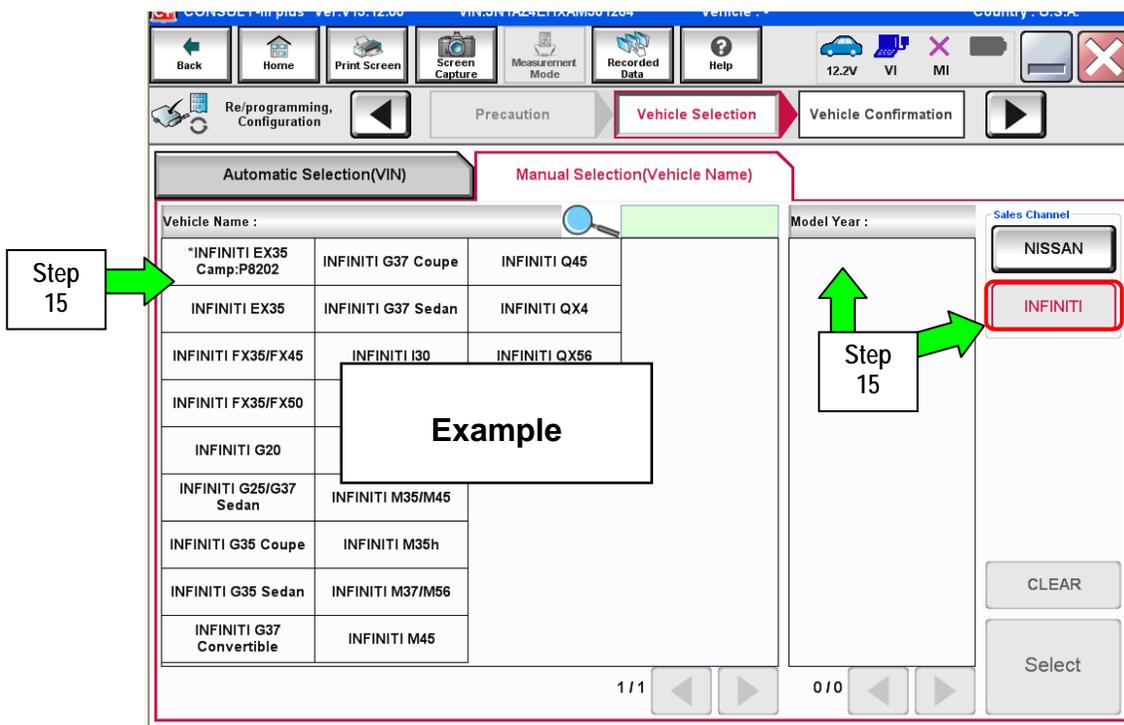


Figure 9a

16. Select **Programming**. (Do not select Reprogramming.)

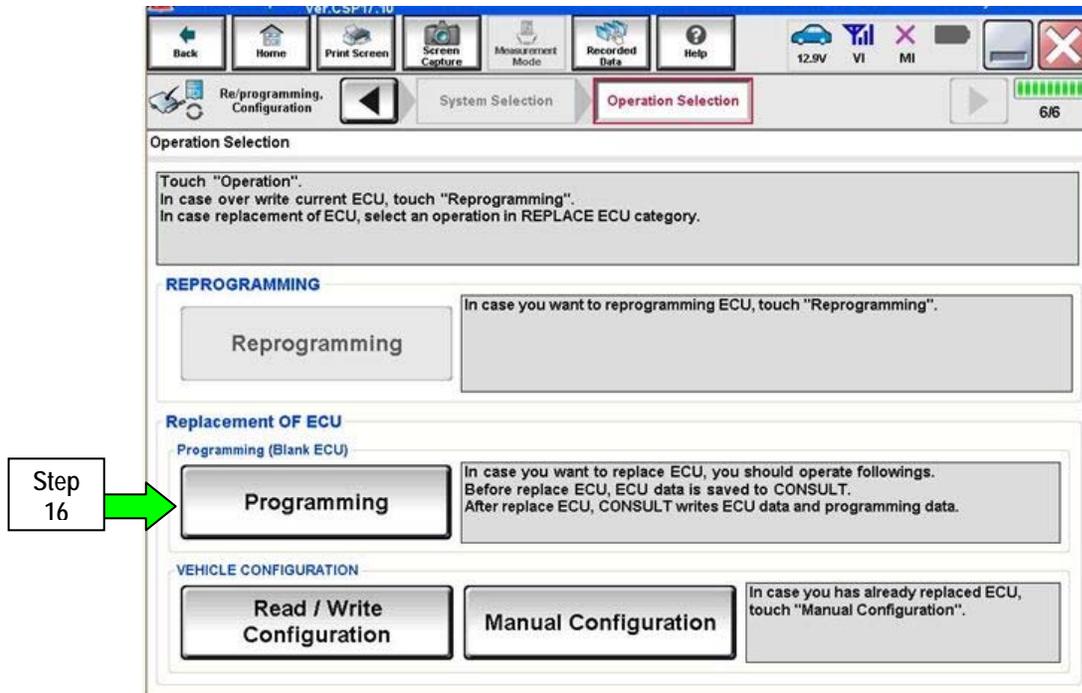


Figure 10a

17. Select **After Replace ECU**.

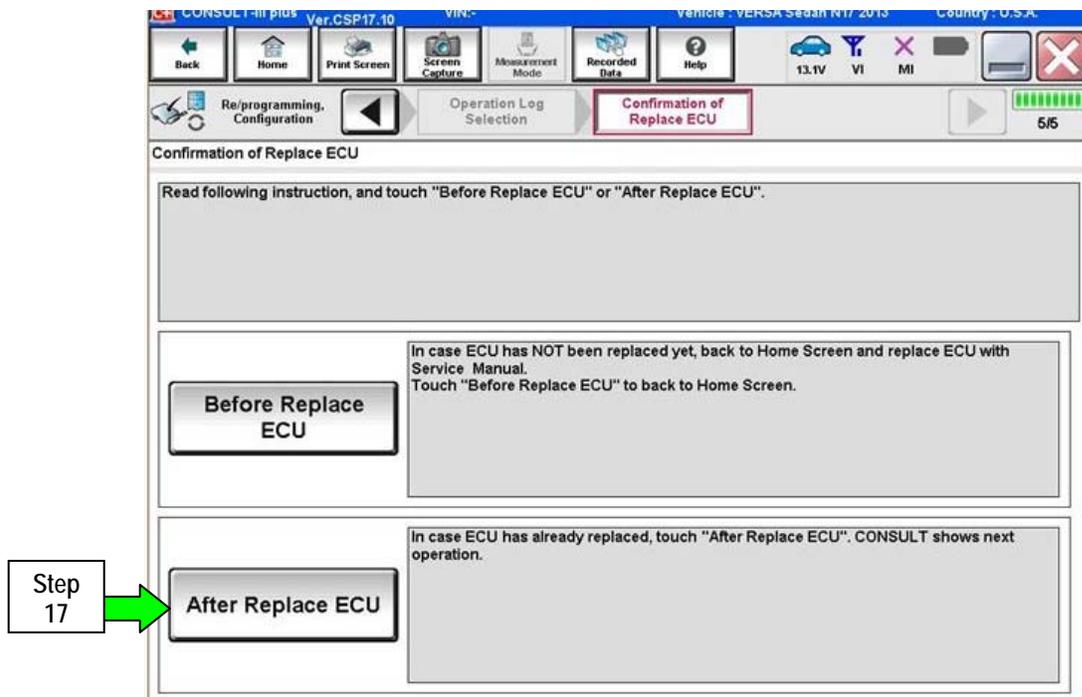


Figure 11a

18. Type in the VIN, and then select **Confirm**.

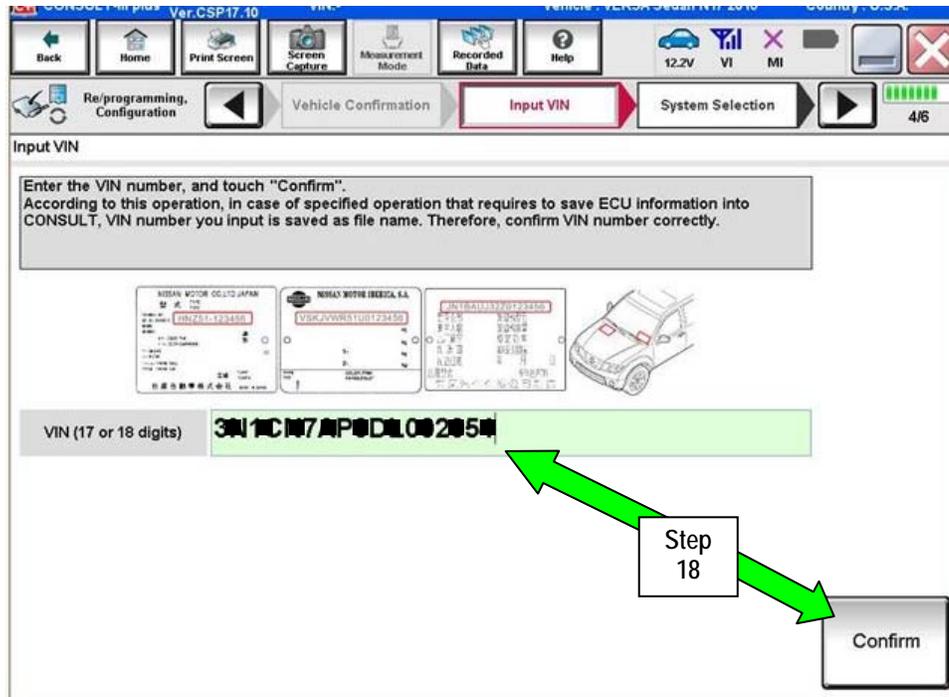


Figure 12a

19. Select the ECM software P/N that matches the last 5 digits of the P/N written down in step 2j) on page 23, and then select **Next**.

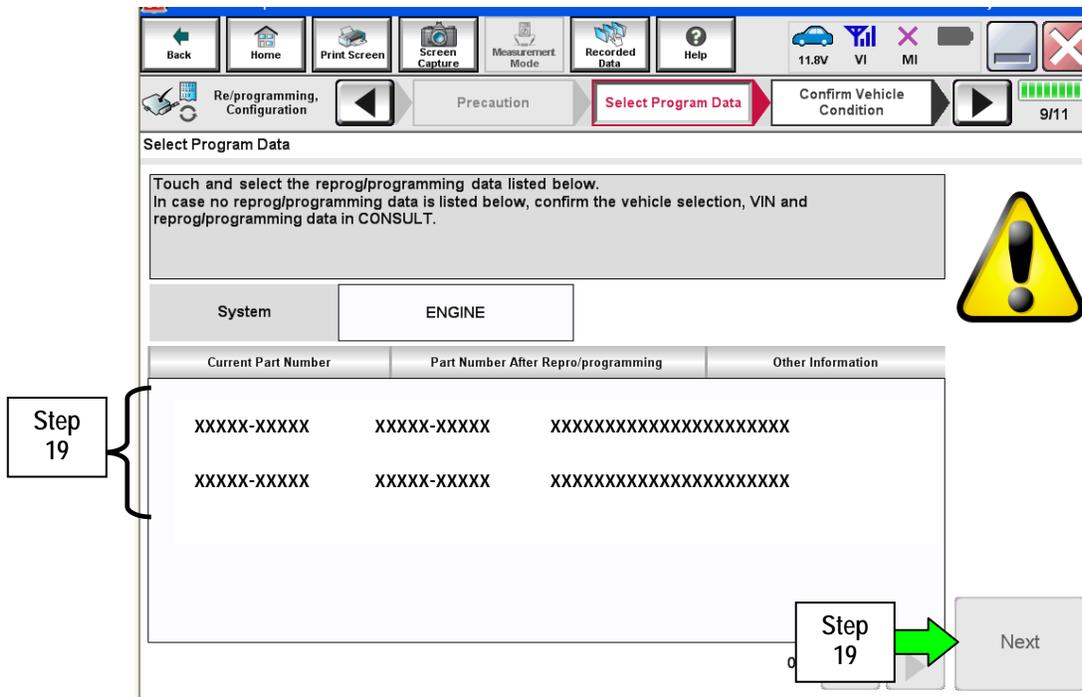


Figure 13a

20. Use arrows to view and read all precautions.
21. Check the box confirming the precautions have been read.
22. Select Next.

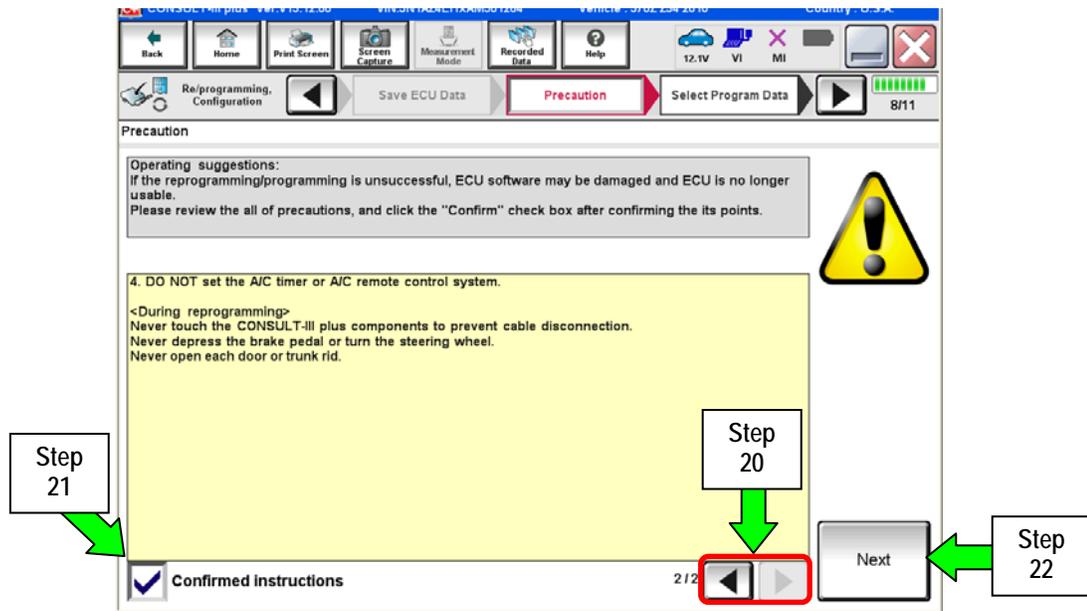


Figure 14a

23. Make sure OK is highlighted green (battery voltage must be between 12.0 and 15.5 Volts).
24. Select Next.

IMPORTANT: Battery voltage must stay between 12.0 and 15.5 Volts during programming or ECM programming may be interrupted and the ECM may be damaged.

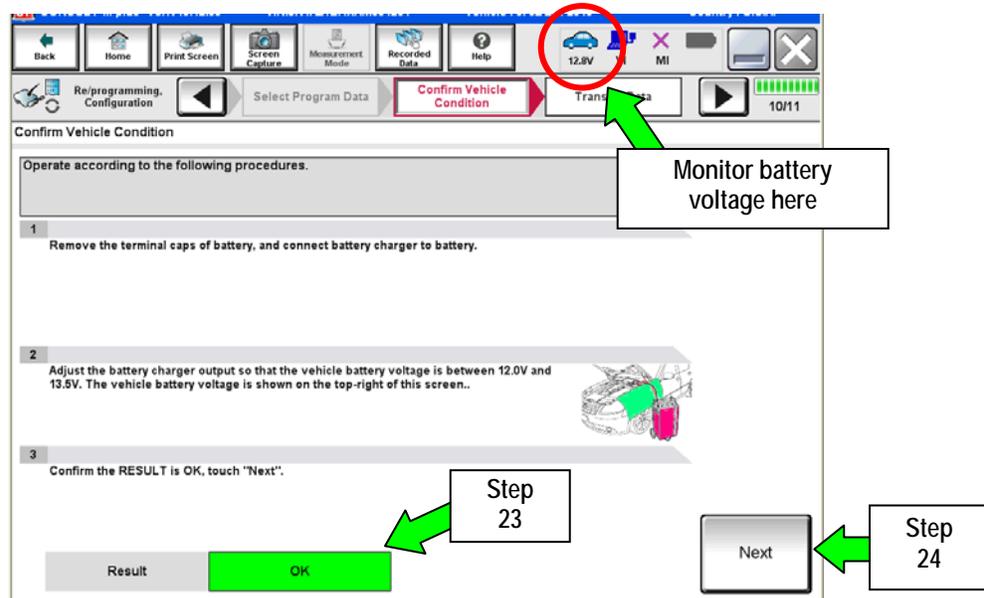


Figure 15a

NOTE: In the next step, the programming process will begin when **Start** is selected.

CAUTION: DO NOT stop programming after selecting **Start**. This may damage the ECM. Allow programming to complete.

25. Select **Start**.

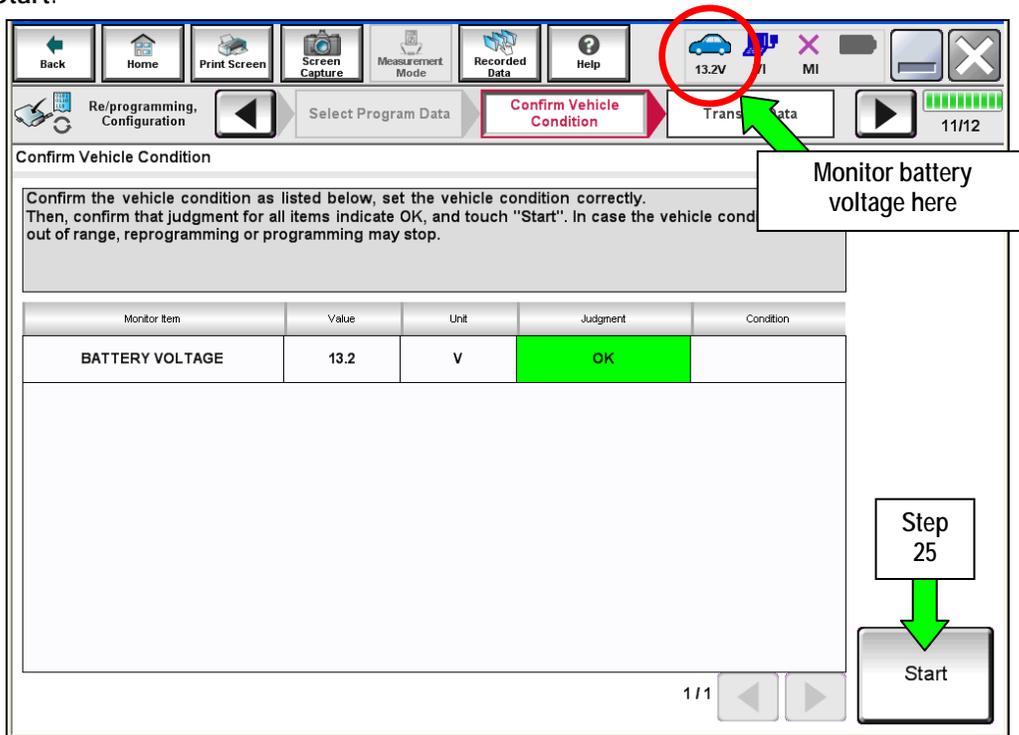


Figure 16a

26. Wait for both progress bars to complete.

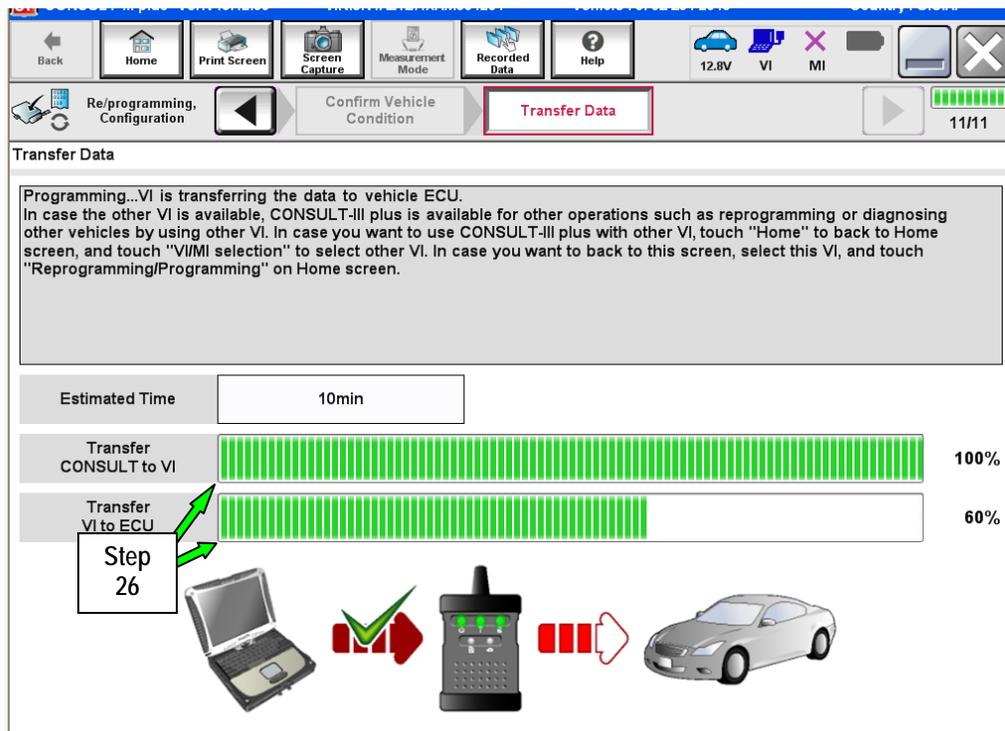


Figure 17a

27. When the screen in Figure 18a displays, programming is complete.

NOTE: If the screen in Figure 18a does not display (programming does not complete), refer to the information on the next page.

28. Disconnect the GR8 / battery charger from the vehicle.

29. Select **Next**.

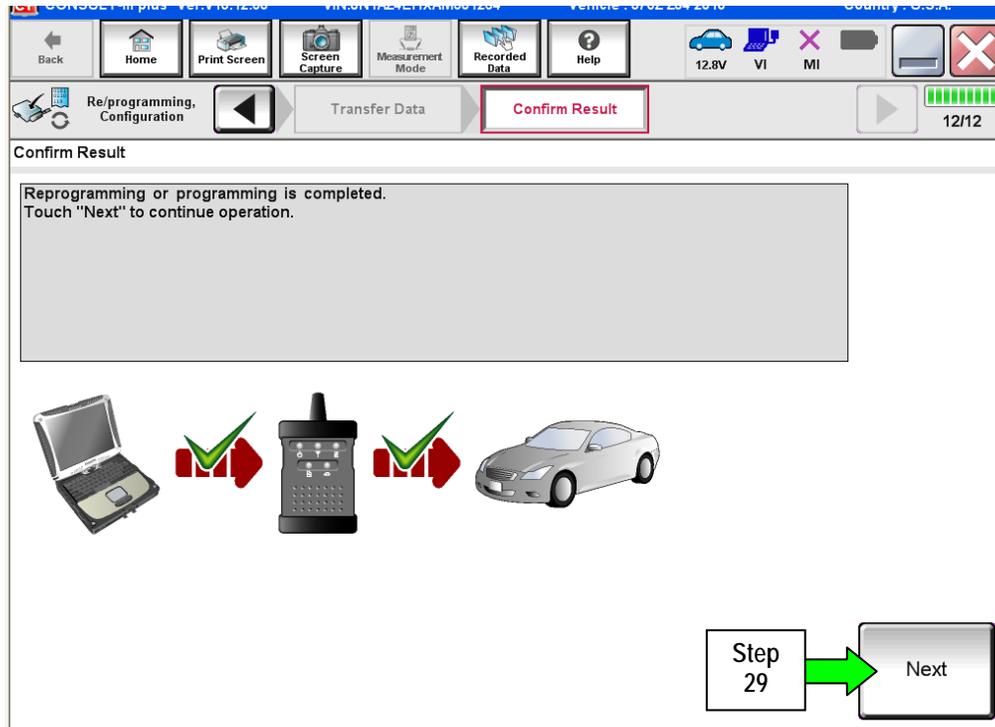


Figure 18a

30. Go to After Programming has Completed on page 33.

NOTE: Additional steps / operations are required before C-III plus will provide the final programming confirmation report. Go to **After Programming has Completed** on page 33.

If programming does not complete and the “!?” symbol displays as shown in Figure 19a:

- Check battery voltage (12.0 – 15.5V).
- The ignition is ON and the engine is OFF.
- External Bluetooth® devices are OFF.
- All electrical loads are OFF.
- Select **Retry** and follow the on screen instructions.

NOTE: Retry may not go through on the first attempt. It can be selected more than once.

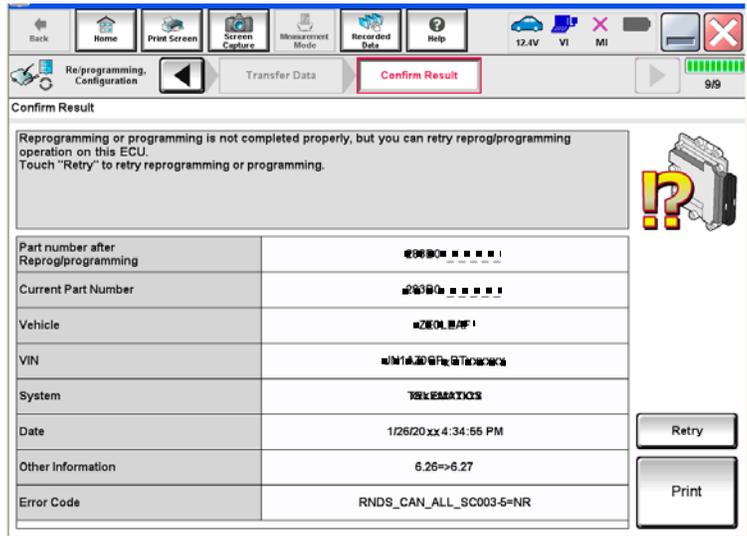


Figure 19a

If programming does not complete and the “X” symbol displays as shown in Figure 20a:

- Do not disconnect the plus VI or shut down C-III plus if reprogramming does not complete.
- Check battery voltage (12.0 – 15.5V).
- The CONSULT A/C adapter is plugged in.
- The ignition is ON and the engine is OFF.
- The transmission is in Park.
- All C-III plus / plus VI cables are securely connected.
- All C-III plus updates are installed.
- Select **Home**, and then restart the program procedure from the beginning.

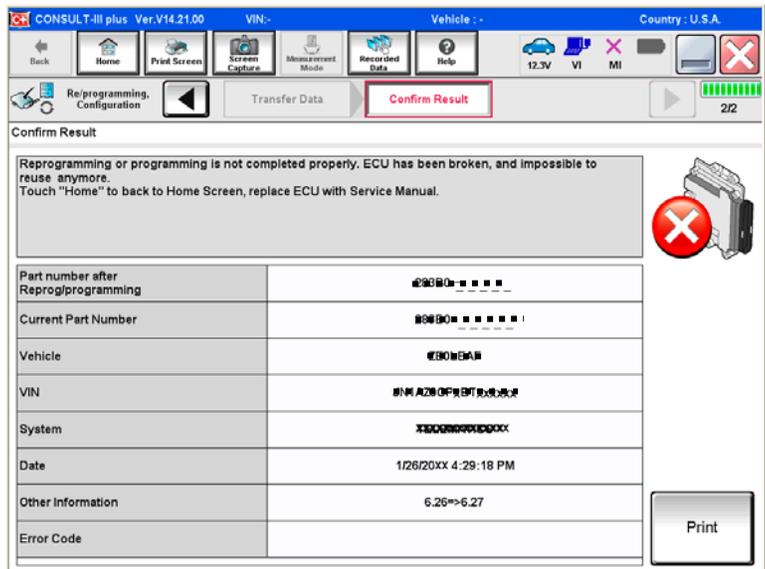


Figure 20a

After Programming has Completed

After completing ECM programming, the following steps are required before C-III plus will provide the final programming confirmation report:

1. Follow the C-III plus on-screen instructions to perform the following:

- **Throttle Valve Closed Position**

- **Idle Air Volume Learn (IAVL)**

NOTE:

- Listed below are common conditions required for IAVL to complete.
- If IAVL does not complete within a few minutes, a condition may be out of range.
- Refer to the appropriate Electronic Service Manual (ESM) for specific conditions required for the vehicle you are working on.
 - Engine coolant temperature: 70 -105° C (158 -221°F)
 - Battery voltage: More than 12.9V (At idle)
 - Selector lever: P or N
 - Electric load switch: OFF (Air conditioner, headlamp, rear window defogger)
 - Steering wheel: Neutral (Straight-ahead position)
 - Vehicle speed: Stopped
 - Transmission: Warmed up

- **Accelerator Pedal Close Position Learning**

- **Erase DTCs**

Continue to the next page.

2. Verify the before and after part numbers are different (see Figure 21a).
3. Print a copy of this screen (Figure 21a) and attach it to the repair order.
4. Select **Confirm**.

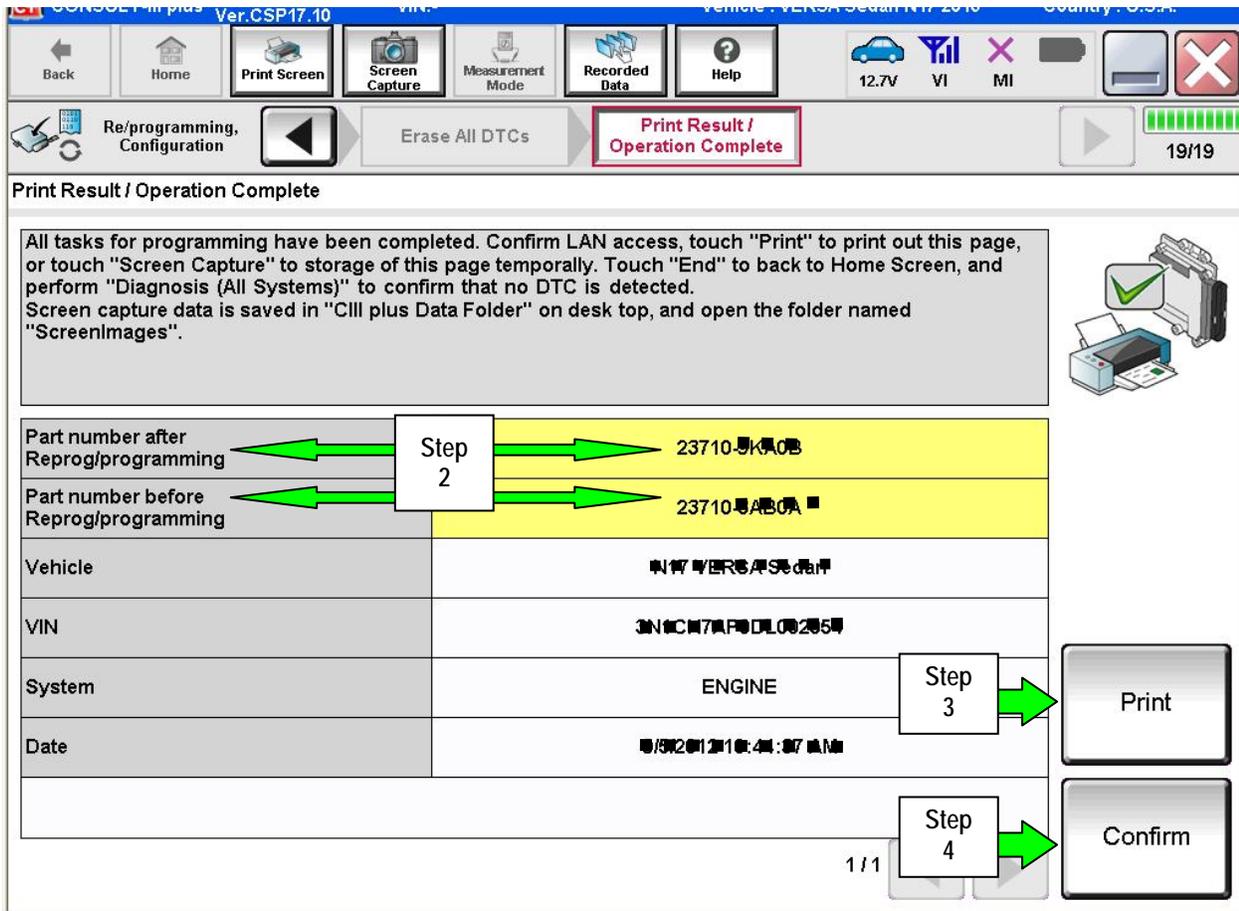


Figure 21a

NOTE: If you cannot print the above screen:

- a. Select Screen Capture.
- b. Name the file.
- c. Save the file in My Documents.
 - A copy of the screen is now saved in the CONSULT PC. It can be retrieved and printed at a later time.

5. Select Home and return to the C-III plus home screen.
6. Go to Verify VIN is Registered on the next page.

Verify VIN is registered

1. Select Diagnosis (One System) > ENGINE > Work support > VIN Registration (see Figure 22a).

2. Select Start.

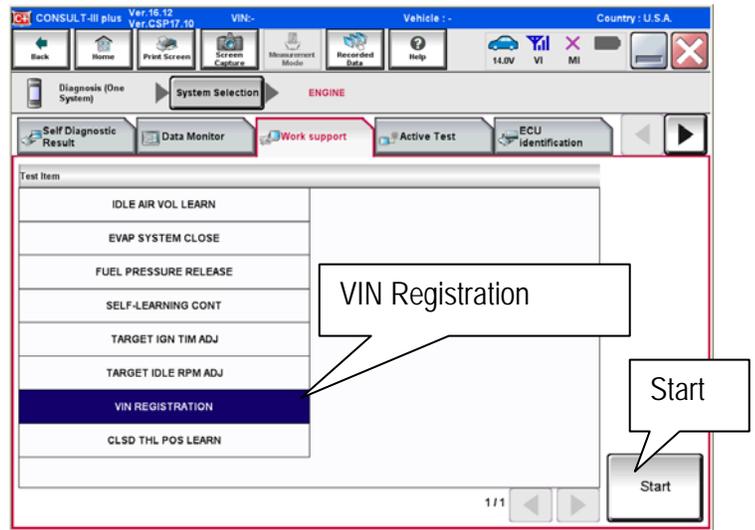


Figure 22a

3. Check the VIN (see Figure 23a):

- If the VIN matches the vehicle, the procedure is complete
- If the VIN is blank or incorrect, continue to the next step.

4. Enter the vehicle's VIN in both the boxes:
VIN(1ST TIME) and
VIN (2ND TIME)

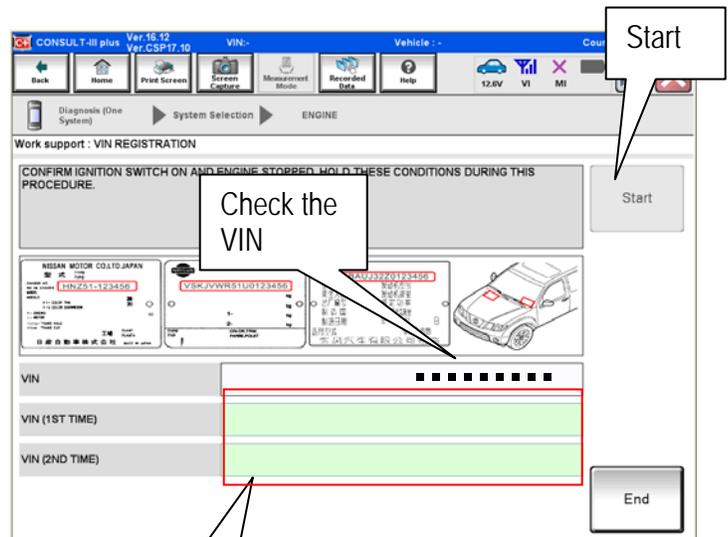


Figure 23a

5. Select Start

Enter VIN into both boxes.

6. When VIN registration is complete, COMMAND SUCCEEDED will display (see Figure 24a).
7. Turn the ignition OFF.
8. Wait 10 seconds.
9. Turn the ignition back ON.
10. Select "READ VIN" and confirm that the VIN is correct.

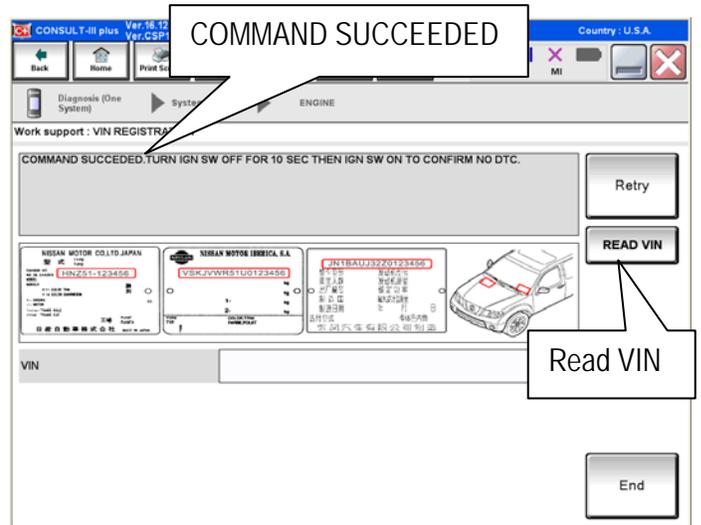


Figure 24a

NOTE: If the VIN does not display, it can also be checked by selecting the "RE/programming, Configuration" on the Home screen.

11. Select Home and return to the C-III plus home screen.
12. Close C-III plus.
13. Turn the ignition OFF.
14. Disconnect the plus VI from the vehicle.
15. Test drive the vehicle to make sure it operates correctly.

