

2022–2024 Cummins ECM Swaps

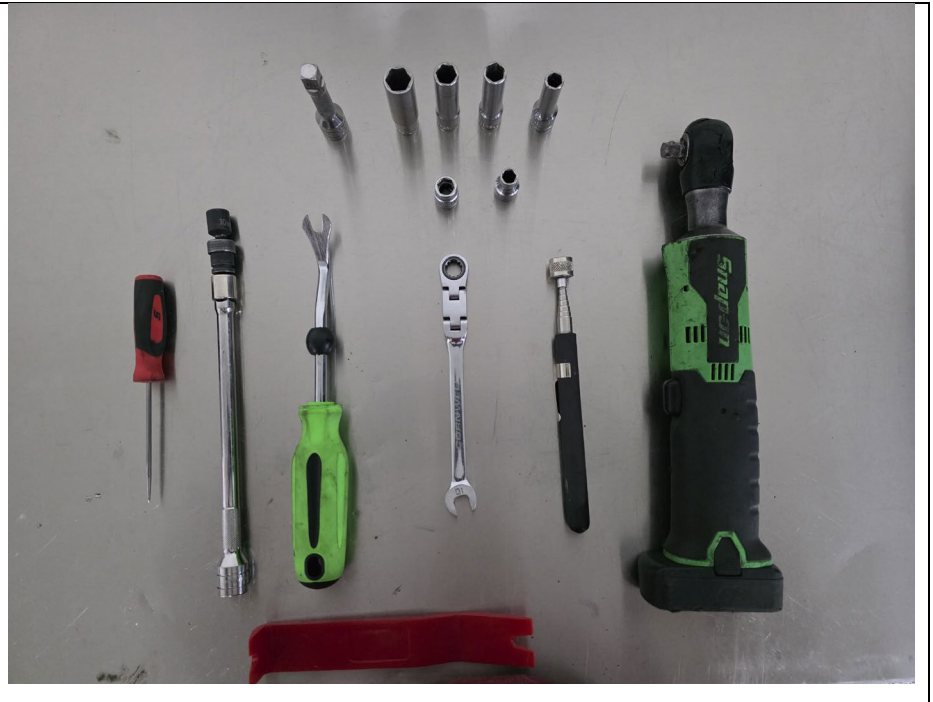
*****Ensure no parts are removed from the truck prior to performing the ECM swap. Failure to follow these instructions may result in error codes or messages that cannot be undone*****

Please be advised that no parts should be removed from the vehicle until the swap is completed and the process is confirmed successful. This is a time-sensitive procedure, as EZLYNK will not store the immobilizer data long-term. Please ensure you have dedicated enough time to complete the swap, as the truck will not run until the process is finished. Depending on your skill level, this should take approximately 1.5 hours.

Before we begin, you will need the following tools:

(While not required, a swivel 10mm socket and a 10mm ratchet wrench will make the job easier.)

- 10mm short and deep sockets
- 8mm short socket
- 11mm deep socket
- 13mm deep socket
- Clip removal tool
- 4" and 6" extensions
- Pick
- Ratchet or electric ratchet



***** STOP AND READ *****

- A battery charger must be connected to the truck at all times during the flashing and swapping process. If the truck loses proper voltage, you risk "bricking" or blanking one or both ECMs. The charger must be between 5 and 20 amps.
- Additionally, ensure you have excellent cell service. EZLYNK downloads data via cell service and shares it with the truck through its own Wi-Fi network; do not use a secondary Wi-Fi network or hotspot. If cell service is poor, you risk damaging the ECMs.

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Before beginning, we must ensure the new ECM is on hand and has the correct part number. Please verify the following:

- Cummins part number: 4384696 (usually found on the face of the ECM)
- MOPAR part number: 68363277AA

Be aware that several remanufactured units are being sold as 19-21 ECMs that are actually 22 units, which will not work. We prefer a new, blank ECM that has not been flashed or married to a vehicle. Most importantly, ensure you obtain a quality ECM from a reliable source; using an incorrect unit will make the swap impossible.

We will require the new EZLYNK 3.0 ECM, the security/SGM bypass cable, and the Cummins J19 cable.

Once you have confirmed that these items are on hand, you can proceed forward.



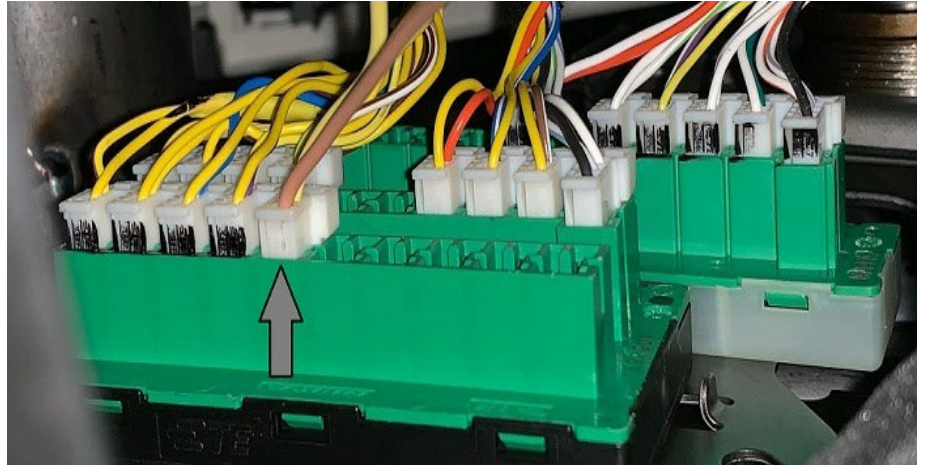
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Step 1

Connect the security/SGM bypass cable into the OBD port. Next, connect it to the green SGM strip located under the dash. We recommend using slot 5, as it provides the most direct connection to the CAN circuit.

Once the bypass cable is installed, open the hood to install the J19 cable

The connector for this cable is located on the driver side of the engine on the main engine harness, typically near the intake horn. You will see a small connector with a dummy plug; remove the dummy plug and install the J19 plug from your kit in its place.



Step 2

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Now that both cables are installed, plug the EZ LYNK and the EZ LYNK harness into the OBD port. The harness includes provisions for the SGM cable to ensure everything is properly connected.

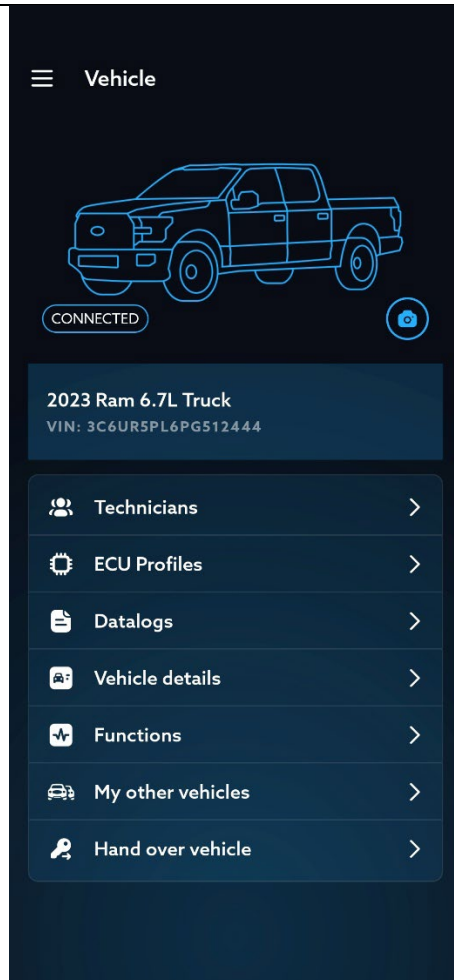


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Step 3

Now that all connections are secure, open the EZLYNK app. You should see the vehicle displayed in the main menu.

*****It is critical that you follow all steps and directions exactly as provided. If the process is not completed properly, you will have to reinstall the original ECM and start the entire procedure over again*****



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Step 4

From the main menu, select the "Functions" tab. Once there, scroll to the bottom and select "Replace and Reprogram."

< Functions

Front Fog Lamps Dropout

Height Level

Height Sensor Check

Idle Shutdown Time

IO Control Features

Max Cruise Speed

Max Vehicle Speed

PTO Settings

Radio Hub Relearn

Replace and Reprogram

Reprogram PI-Curve

Set Fuel Tank Capacity

Set Tire Pressure Monitoring System

Set Tire Size

Stationary Desoot/DPF Regeneration

Write Height Values

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Step 5

Once you are in the Remove and Replace (R&R) menu, follow the prompts to continue the function. The screen will display a log containing your truck's current VIN, serial number, and immobilizer data.

Take a screenshot of this data. In the event of an issue, a technician may need this information to recover the truck's ECM.

✕ Replace and Reprogram EXIT

Warning: This feature requires an EZ Lynk 100EE00C07 Cummins OBDII Diagnostic Cable to connect to the Diagnostic Connector on engine harness under hood. Please consult your technician on using the cable to connect to the vehicle.

Note: It's highly recommended to swap in a new ECU with a matching ECU Part Number.

Current ECU VIN is Blank.

Warning: You will be unable to use this feature and must flash the ECU exiting boot mode before the old values can be written to the new ECU.

Vehicle's Current ECU PN: 52370331AG

Vehicle's Current ECU Boot Software Year: 2018

Replacement file found.

Vehicle's Original ECU VIN: 3C6UR5PL6PG512444

Vehicle's Original ECU PN: 3C6UR5PL6PG512444

Vehicle's Original ECU Boot Software Year: 2021

Warning: If the new ECU is blank then it is currently in boot mode. In this mode you will be unable to use this feature and must flash the ECU before the old values can be written to the new ECU.

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Step 6

Once you have saved the screenshot, click the "Continue" button to proceed. When prompted to create a file, select "Yes" and then click "Run" in the top right corner.

The app will indicate that it is beginning the procedure. If the procedure fails or does not start, please check your cable connections, as this is the most likely cause of the issue.

At this stage, please remove the battery charger, shut off the ignition, and disconnect both batteries. You are now ready to swap the ECM.

✕ **Replace and Relearn**

Beginning procedure, please wait.

✕ **Replace and Relearn**

EXIT

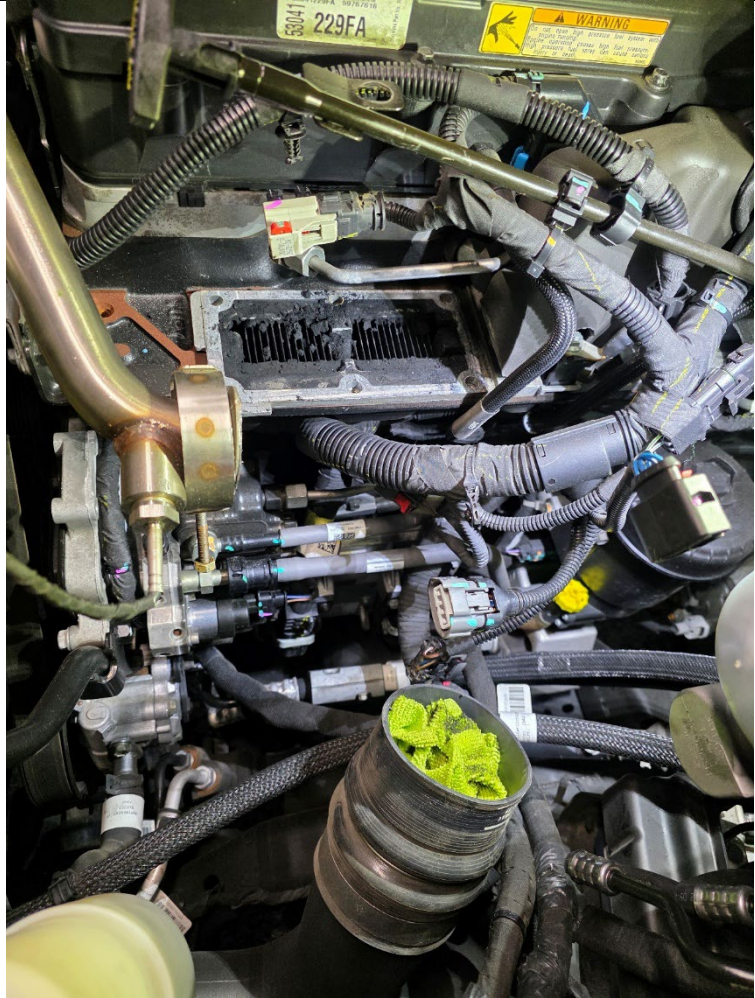
Finished reading the current ECU values. Replacement and Recovery files created.

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Step 7

We recommend removing the intake horn to provide more room for the ECM removal and replacement. While this is not strictly required, it is highly recommended, especially for those less familiar with the process. To remove the intake horn, you will need to remove several 10mm bolts and the 11mm nut on the intercooler boot clamp.

Ensure you place a cover over the intercooler tube and the intake plenum to prevent any debris from entering the engine.



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Please follow these instructions to remove the ECM

Step 8

ECM Mounting: The ECM is secured to the engine block by four 10mm bolts.

Connector Removal: There are two ECM connectors held in place by bolts. One connector uses two 8mm bolts, and the other uses two 10mm bolts. Remove these connector bolts first.

Disconnecting: Once the bolts are removed, gently loosen the latch-style connectors. Please be extremely careful with these latches; if they are damaged, you will not be able to achieve a secure connection, which will cause significant issues. These can be challenging, so please take your time.

Cleaning: If the connectors do not move easily, apply WD-40 to the slides and let them soak. Gently move them back and forth until they move freely.

Final Removal: After the connectors are detached, move them aside and remove the four 10mm bolts holding the ECM to the block.



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When removing the ECM, follow these steps to ensure a safe and successful extraction:

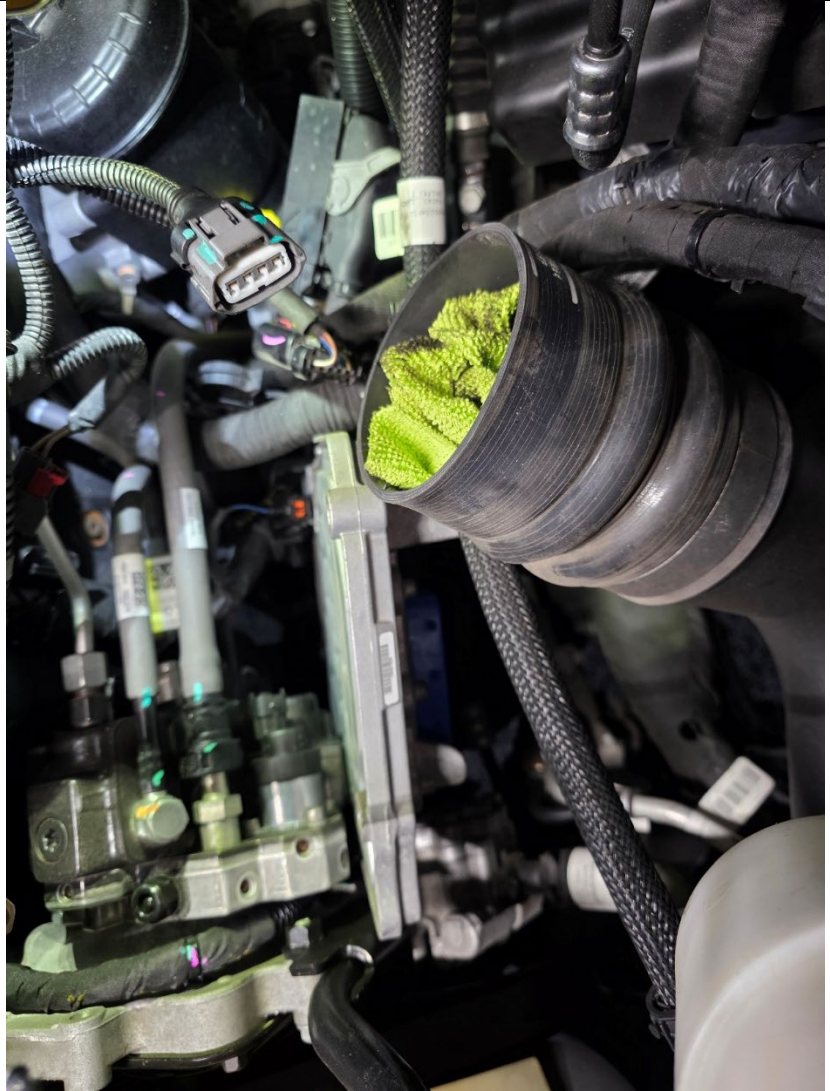
Step 9

Preparation: It is highly recommended to disconnect the FCA connector on the back of the injection pump first. This is a tight area, and the connector or sensor can be easily damaged if left connected.

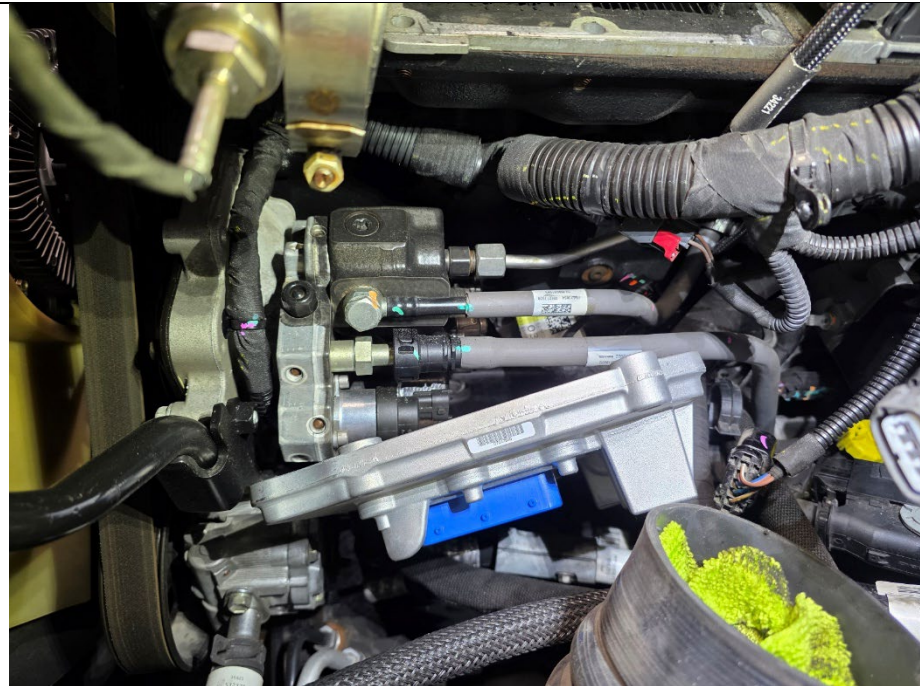
Removal Technique: Rotate the ECM clockwise as you pull it up through the space typically occupied by the intake horn and intercooler tube.

Orientation: As you pull the ECM upward, ensure the blue connector is positioned closest to the top.

Caution: Given the high density of electrical harnesses and lines in this area, please be patient and work the unit out carefully to avoid any damage.



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Now that the original ECM has been removed, compare it to the new unit. Ensure that the part numbers are correct on the new ECM and inspect both for any broken or bent pins and tabs, particularly if the replacement ECM is a used part.



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Step 10

We are now ready to install the new ECM. Follow the same steps used during removal, ensuring the green connector is facing down at the start of the installation.

Be careful when navigating the ECM back into place to avoid damaging the pins. A bent pin will cause performance issues, and a broken pin will render the ECM unusable.

Your new ECM is now in its proper location. Bolt the ECM in place, reconnect all previously disconnected connectors, and ensure all tabs and harnesses are returned to their original positions.

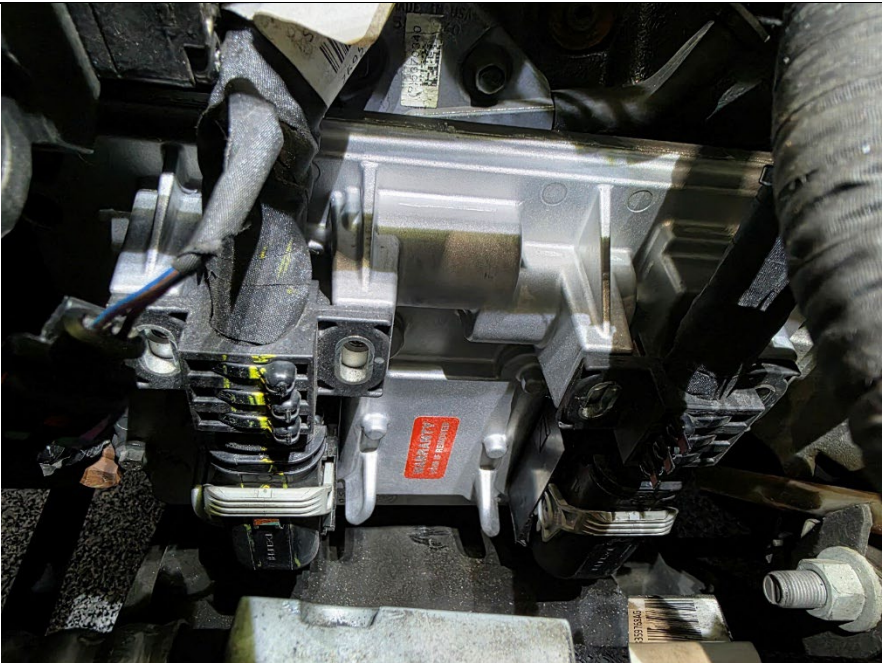
At this stage, we recommend cleaning the intake plenum of any soot, installing any EGR upgrades, and reinstalling the intake horn. Most importantly, ensure all block-off covers are removed to prevent them from being sucked into the engine upon startup.



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Step 11

Taking the time to ensure this R&R is completed correctly will help prevent issues in the future.



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It is now time to program your new ECM by following the instructions below:

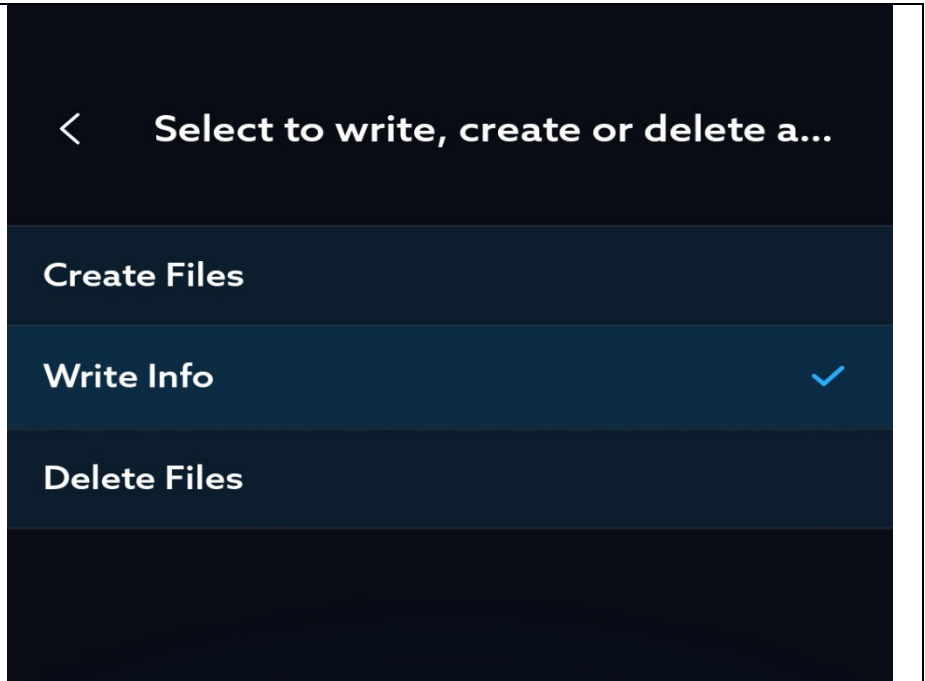
Step 12

Preparation:

1. Connect both batteries.
2. Ensure a charger is connected to the truck with the proper voltage.
3. Confirm that your J19 cable and security bypass cable are installed.

Programming Steps:

1. Turn the key to the "Run" position (do not start the vehicle).
2. Open the app and use the chat function to notify your technician that the ECM is swapped and you are ready for tune files.
 - Note: The technician will send the file directly to you via your account. You will need to load them. Select your preferred tune from the "ECU profiles" menu and follow the in-app download steps.
 - Once the file is loaded, return to the main menu and select the "Replace and Reprogram" function.
3. Click "Continue" to start the process.
4. When you reach the menu with the options "Create file," "Write info," or "Delete files," select Write info.



Important: Do not select any other option. Doing so will erase your stored information, requiring you to reinstall the original ECM and restart the entire process.

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Step 13

Once the information is written, you will see a notification stating: "Finished writing the old ECU values to the new ECU. The Auto Agent will continue to detect this vehicle until the delete files command is run."

If you do not receive this message, please ensure that you loaded a tune file first as instructed. If the process fails to initiate, check your cable connections.

At this stage, keep the Auto Agent and J19 cables connected and the app open, then start the truck. It should start without issues; let it run for at least two minutes to ensure the immobilizer is programmed correctly.

Once you have verified the truck runs, perform the write function at least three more times to ensure the immobilizer is fully programmed. It is critical to perform this write function a minimum of three consecutive times. Please note that you do not need to download a tune file each time; simply repeat the write process itself



Replace and Relearn

EXIT

Finished writing the old ECU values to the new ECU.
The AutoAgent will continue to detect this vehicle until the delete files command is run.

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Please follow these instructions to complete the process

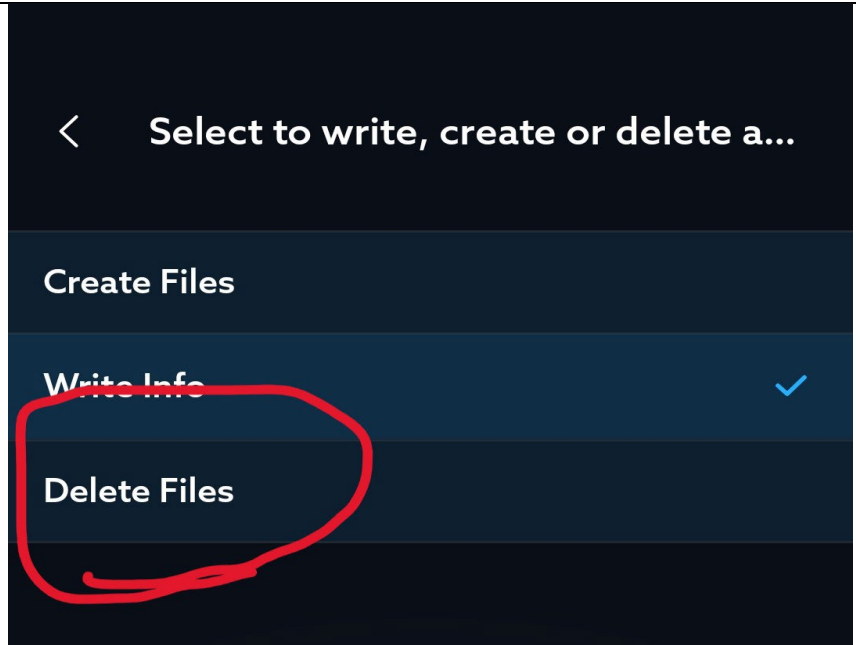
Step 14

Once the write info has been completed at least three times, verify that the truck starts and runs one last time.

After confirming the truck starts, return to the "Replace and Reprogram" menu and click "Continue" until you are back at the "Write, Create, or Delete Files" queue.

Select "Delete Files" and follow the on-screen prompts to complete the process.

It is important to follow these steps accordingly. If this final step is not completed, the EZLYNK app will incorrectly indicate that the truck is in recovery mode and prompt you to load a file every time you connect



As long as you follow all directions and have the proper tools and ECM, this should be a fairly simple process. If you run into any issues, please reach out to your technician rather than EZLYNK directly, as their ability to assist is limited.