Service Bulletin

Bulletin No. 2015-16R2
OEM No. 2015-12R2

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Joystick Piloting for Outboard Command Control Module (CCM) and Thrust Vector Module (TVM) Calibration Update

NOTICE
This bulletin is no longer active and has been superseded by Mercury Outboard Service Bulletin 2016-11R3.
This bulletin supersedes Mercury Outboard Service Bulletin 2015-16R1 November 2015 and OEM Service Bulletin 2015-12R1.
Revision change: software version.

Models Affected

All Joystick Piloting for Outboard models

Scope

Worldwide

Situation

Joystick Piloting for Outboard software system performance and feature upgrades for the command control module (CCM) and thrust vector module (TVM) was updated in October 2015.

This reflash should be performed at the next customer service interval.

Software Supersession

Module	Software superseded from:	To:
CCM	CCM13ZAXXPAAA	CCM13ZAXXPAAF
	CCM13ZAXXPAAC	
TVM	TVM13XXXOPAAC	TVM13XXXOPAAE
	TVM13XXXOPAAD	

The new CCM and TVM software requires CDS G3 V1.6.4 or newer. To verify your current version of CDS G3, click on the word **Help** at the top of the G3 screen and select **About**. The current version will be displayed. Previous versions of the CDS G3 software can be upgraded by connecting your laptop PC to the Internet and opening CDS G3. CDS G3 will attempt to contact the Mercury server to look for updates.

NOTE: *After verifying CDS G3 is operating with the current version software, connect CDS G3 to the product and open the eBOM screen. Module software shown in red requires the software to be updated.*

Checklist

Use the following checklist to guide you through the process.

☐ Hull ID number _____

- ☐ Engine serial numbers:
  - ☐ Starboard _____
  - ☐ Port _____
  - ☐ Starboard inner _____
  - ☐ Port inner _____
- ☐ Current personality name:_____
- ☐ Requested and received new vessel personality file from Mercury Technical Service
- ☐ Record:
  - ☐ Starboard mechanical drive alignment:_____
  - ☐ Port mechanical drive alignment:_____
  - ☐ Starboard inner mechanical drive alignment:_____
  - ☐ Port inner mechanical drive alignment:_____
- ☐ Reflash:
  - ☐ Helm 1 starboard CCM
  - ☐ Helm 1 port CCM
  - ☐ Helm 1 starboard inner CCM
  - ☐ Helm 1 port inner CCM
  - ☐ Helm 2 starboard CCM
  - ☐ Helm 2 port CCM
  - ☐ Helm 2 starboard inner CCM
  - ☐ Helm 2 port inner CCM
  - ☐ Starboard TVM
    - ☐ Assign city ID
    - ☐ Lever adapt
  - ☐ Port TVM
    - ☐ Lever adapt
  - ☐ Starboard inner TVM
    - ☐ Lever adapt
  - ☐ Port inner TVM
    - ☐ Lever adapt
- ☐ Import new personality
- ☐ Perform steering wheel configuration
- ☐ Set mechanical drive offset for TVMs that were replaced or encountered a reflash error:
  - ☐ Starboard TVM
  - ☐ Port TVM
  - ☐ Starboard inner TVM
  - ☐ Port inner TVM
- ☐ Perform compass configuration
- ☐ Set the running drive alignment

Record Information

If a TVM or CCM requires replacement:

1. Select the proper eBOM for your application.
2. In CDS G3, record the vessel personality name:
   a. Go to the **Configuration** screen, and select **Personality**.

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Configuration screen

   b. Select **Vessel Personality**.

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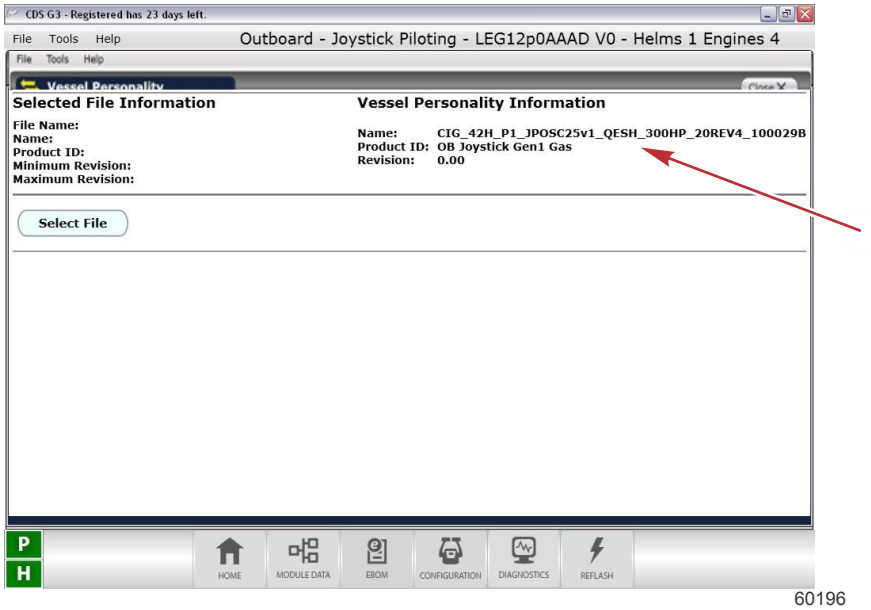
Personality screen

c. Record a screenshot of the configuration name. Go to **File** and select **Print Screen** or press **CTRL + F12** on the keyboard.



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Configuration name

d. Prior to beginning the software reflash, obtain the correct vessel personality. Contact Mercury Technical Service and supply them with the current configuration name.

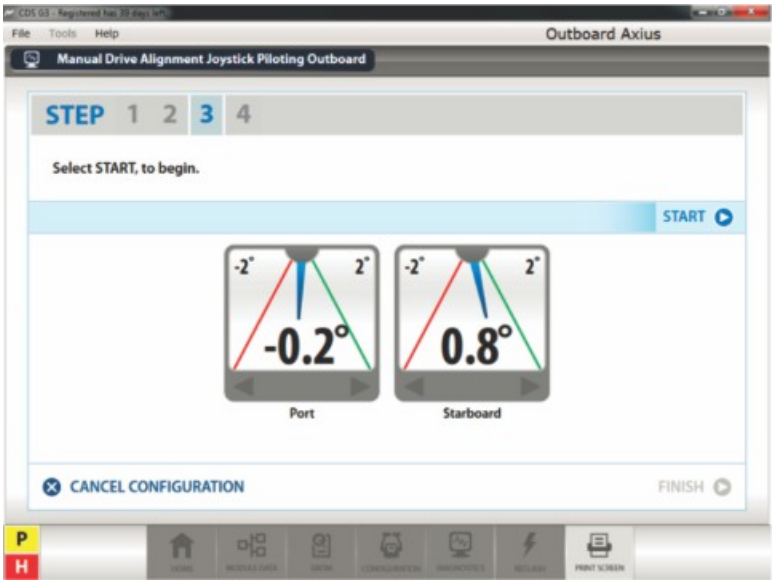
3. If a TVM is being replaced, record the mechanical drive offset value. This value must be entered into the new module:

   IMPORTANT: If replacing a TVM or if an error occurs during the reflash process, the Mechanical Drive Offset values will need to be entered. If they are not recorded, the procedure to set the values must be performed.

   NOTE: *To view the screen images of the following screens, refer to* ***Set the Mechanical Drive Offset (If Replacing a TVM)****.*

   a. Go to the **Configuration** screen.
   b. Select **Drive Configuration**.
   c. Select **Manual Drive Alignment**.

d. Select **Joystick Piloting Outboard**.



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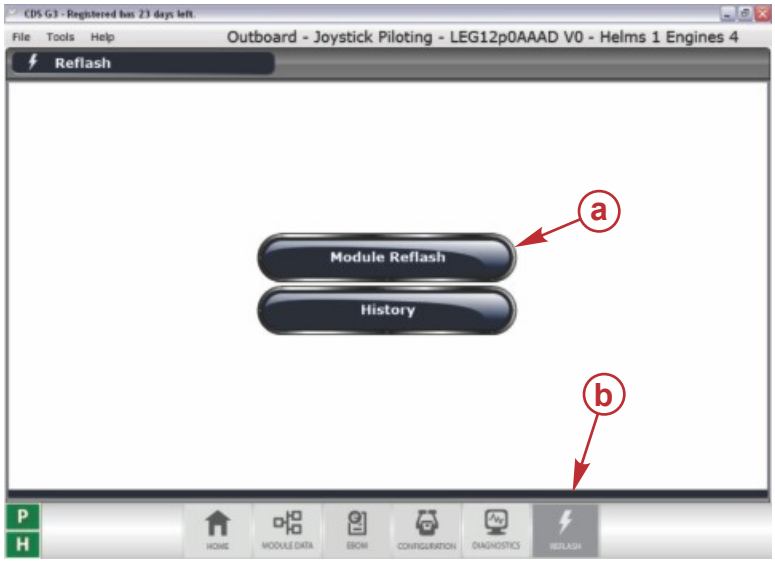
e. Record the port and starboard values from the screen. After recording the values, select the **Cancel Configuration** button.

IMPORTANT: If either of these values equal 2.0, contact Mercury Technical Service.

Module Reflash

1. Connect the laptop PC to an AC power source to ensure that the power is not interrupted during the reflash procedure.
2. With the key switches on, the engines off, the handles in neutral, and CDS G3 connected and running, select **Reflash**; then select **Module Reflash** to begin the reflash process.



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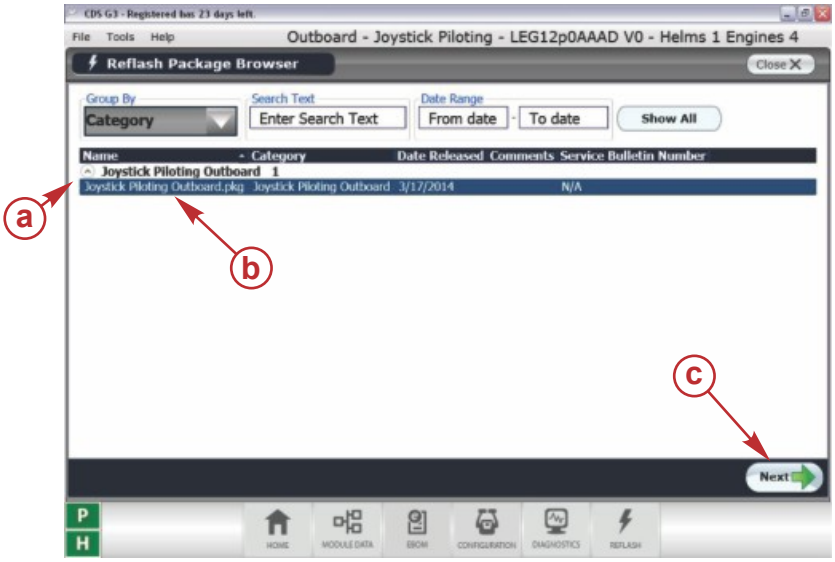
Module Reflash screen

a - **Module Reflash** button

b - **Reflash** tab

3. From the **Reflash Package** screen, select the appropriate package for your application; then select the drop-down arrow.



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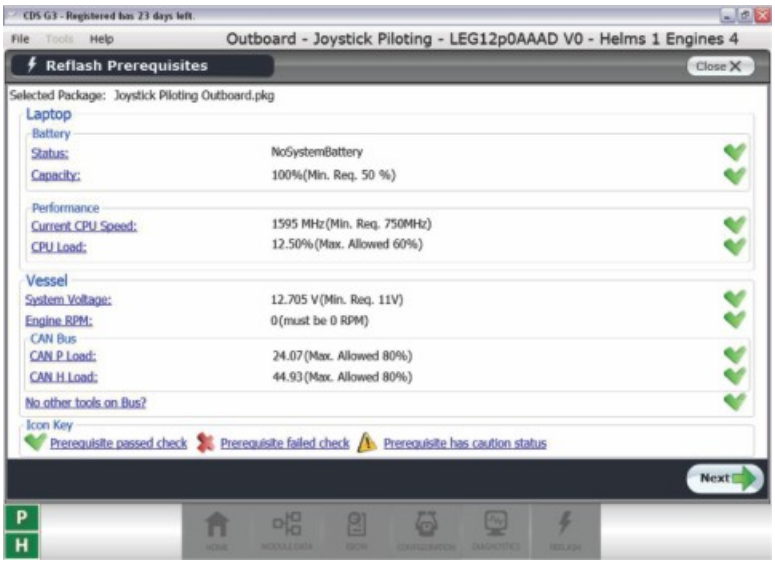
a - Drop-down arrow
b - Reflash package
c - **Next** button

4. Press **Next** to continue.
5. A **Reflash Prerequisites** screen will show if all prerequisites have been met. Ensure that your system meets the prerequisites. Address any errors that appear.

   NOTE: *During module reflash, the system may launch the prerequisite screen again prior to letting you proceed with a particular module to ensure that all items are still showing passed checks.*



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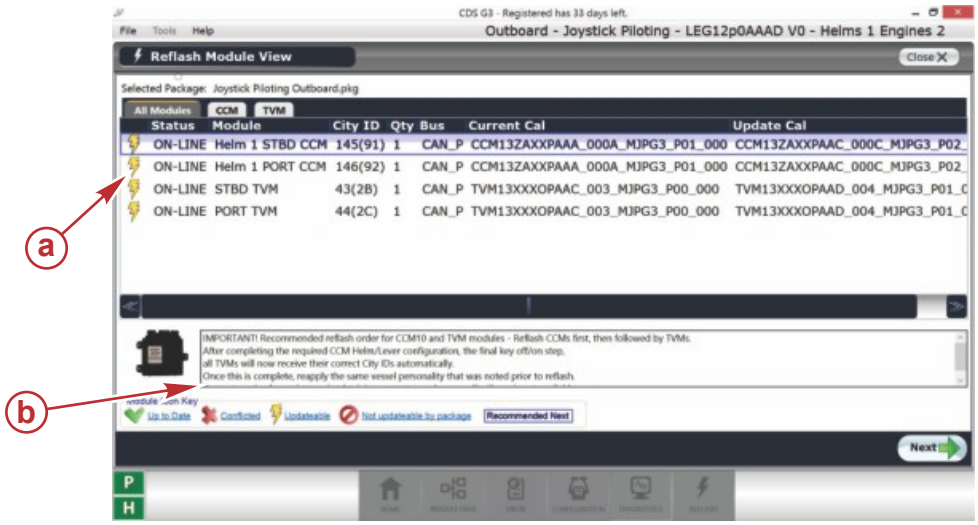
Reflash Prerequisites screen

6. Select **Next** to begin the reflash process. You will be required to enter the hull I.D. and engine serial numbers before proceeding.
7. The **Reflash** screen will list the modules to be reflashed. The on-screen instructions will list the correct order to reflash the modules. Reflash the command control modules (CCMs) first, then the thrust vector modules (TVMs).
   - Reflash the starboard CCM before the other CCMs. After reflashing, each CCM is assigned a Helm 1 STBD city ID 145.

- Reflash the starboard TVM before the other TVMs. After reflashing, each TVM is assigned a starboard city ID 43.



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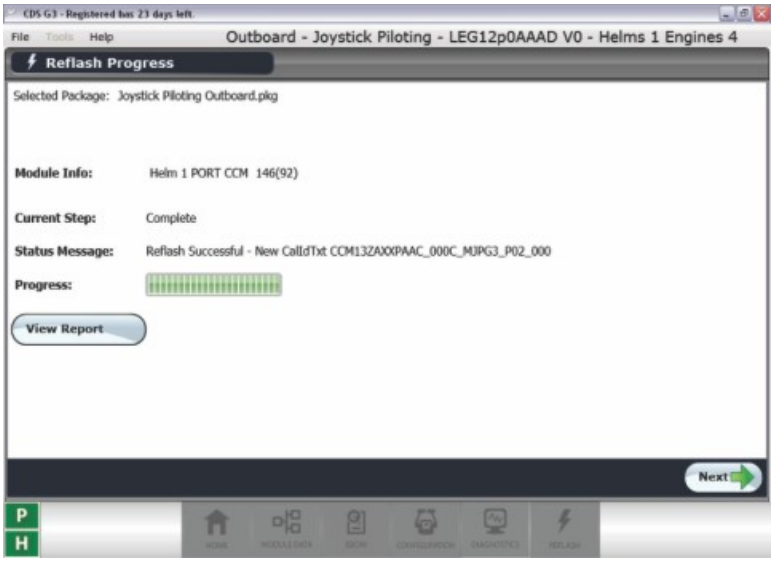
a - Modules to be reflashed

b - On-screen instructions



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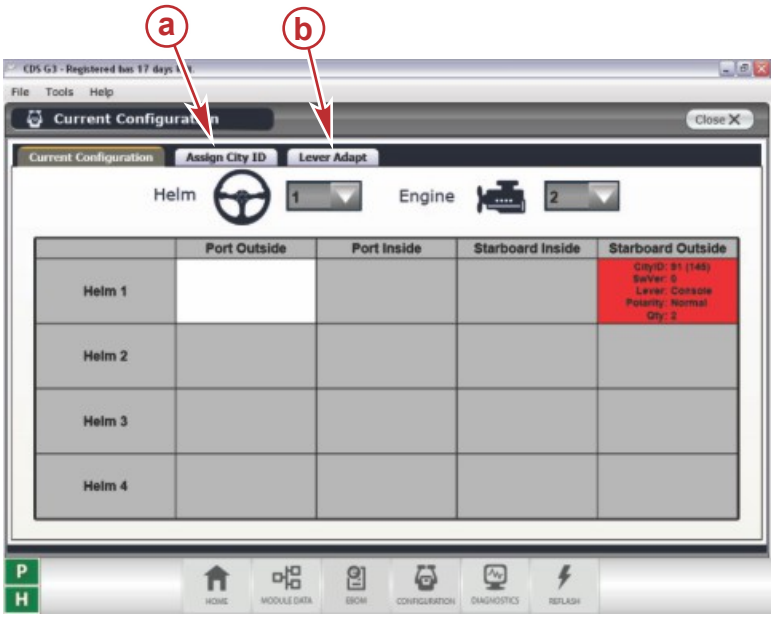
After reflashing a module

8. After the CCMs and the starboard TVM have been reflashed, CDS G3 will take you to the **Helm Configuration** screen, where it is necessary to assign a city ID, and then perform a lever adapt.

IMPORTANT: If the helm configuration screen is closed before the City ID and Lever Adapt procedures are complete, additional steps will be required. Refer to the procedure: If an Error Occurs During Lever Adapt.



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Before performing city ID assignment

a - Assign City ID tab

b - Lever Adapt tab

a. Assign city IDs using the tab marked **Assign City ID**.

b. Follow the on-screen directions to complete the city ID assignment.

c. After completion, each CCM is assigned a unique city ID. Each module city ID corresponds to its helm and engine location.

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After city IDs have been assigned

9. Perform lever adapt.

IMPORTANT: After the correct city ID is assigned, CDS G3 will write the mechanical drive offset values to the module. Failure to perform the lever adapt process will require the numbers to be entered manually.

a. Select the **Lever Adapt** tab, select the correct remote control type, and follow the on-screen directions to complete the process.

IMPORTANT: Triple and quad shadow ERCs require that the Shadow Mode box be checked.

56153

Shadow Mode box

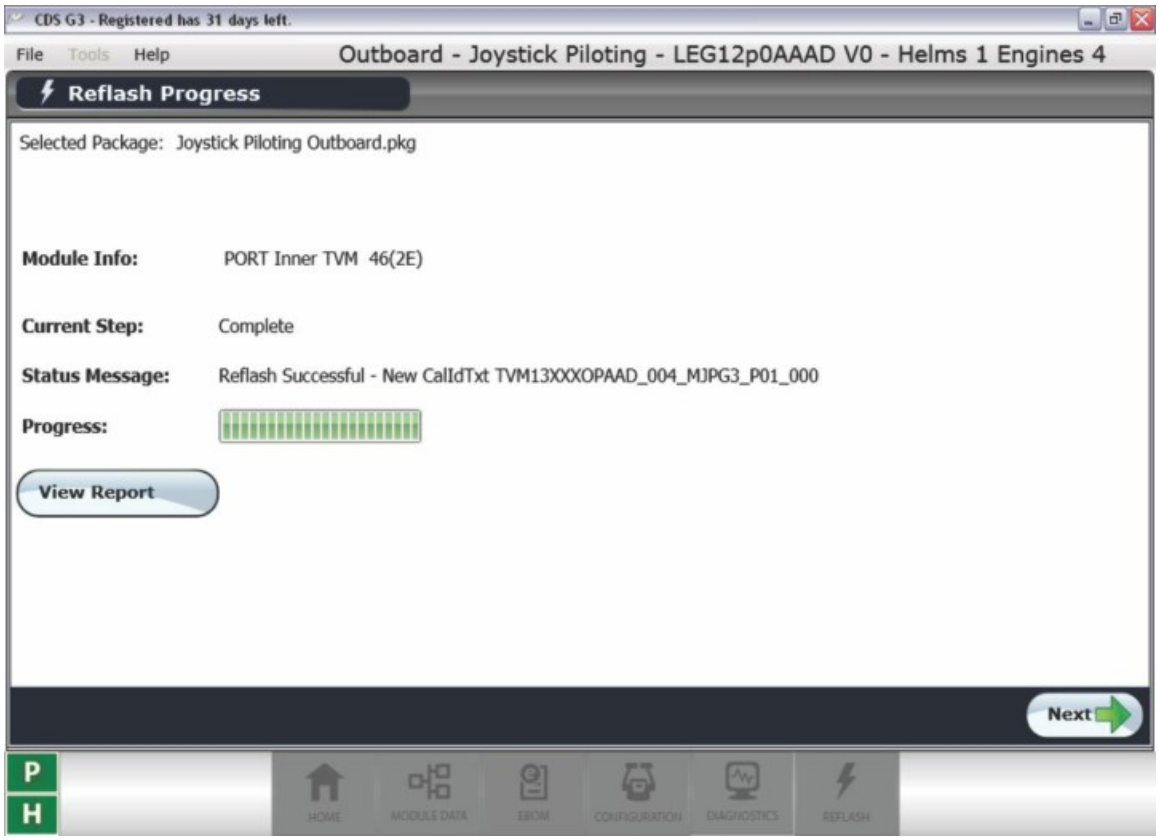
b. Perform the lever adapt process for each helm separately.

c. After completion, the TVM that was just reflashed will have its city ID assigned. Go to the **Current Configuration** tab in **Helm Setup** and ensure that all CCMs report their location correctly and show white statuses instead of red.

56122

After assigning city IDs

10. Select **Close** to be taken back to the **Reflash** screen. After the city ID is set in the TVM, CDS G3 will write the **Mechanical Drive Offset** and **Drive Offset** data to the module.



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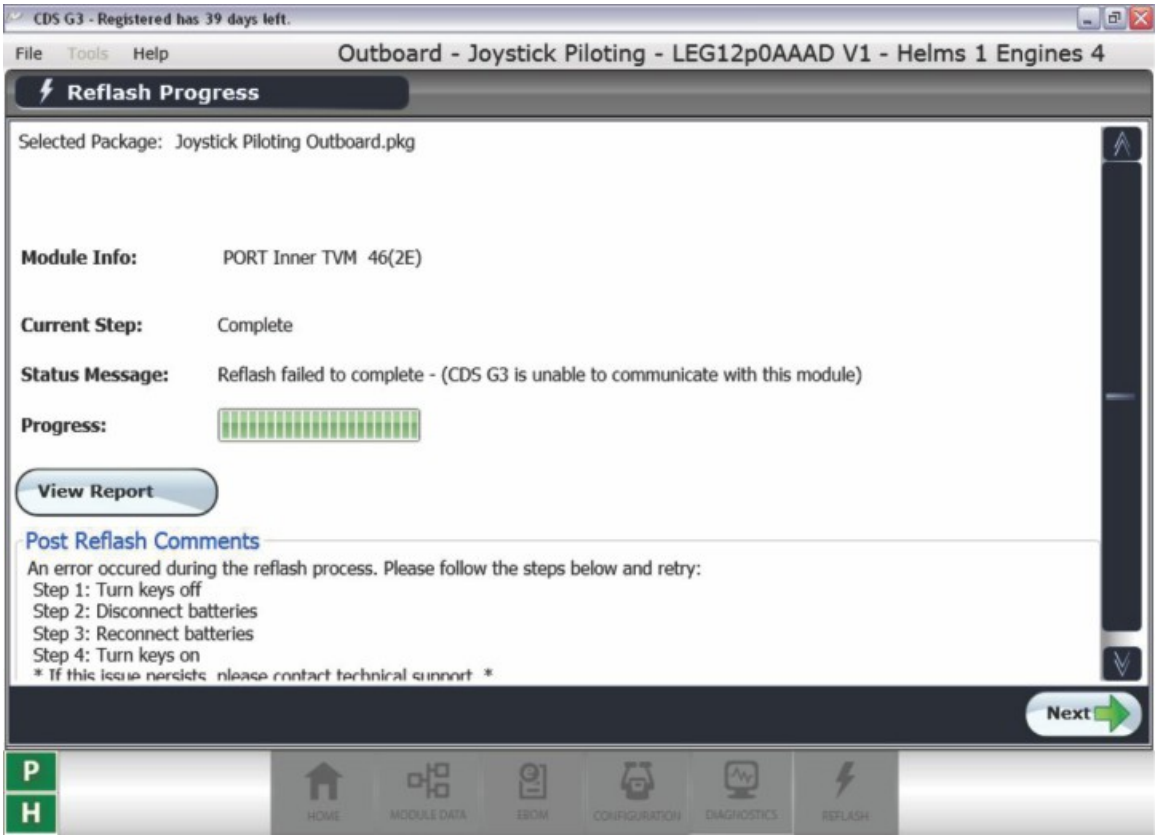
Showing successful reflash

11. If an error occurs during the lever adapt, an error screen will be displayed. Select **Next** to continue.



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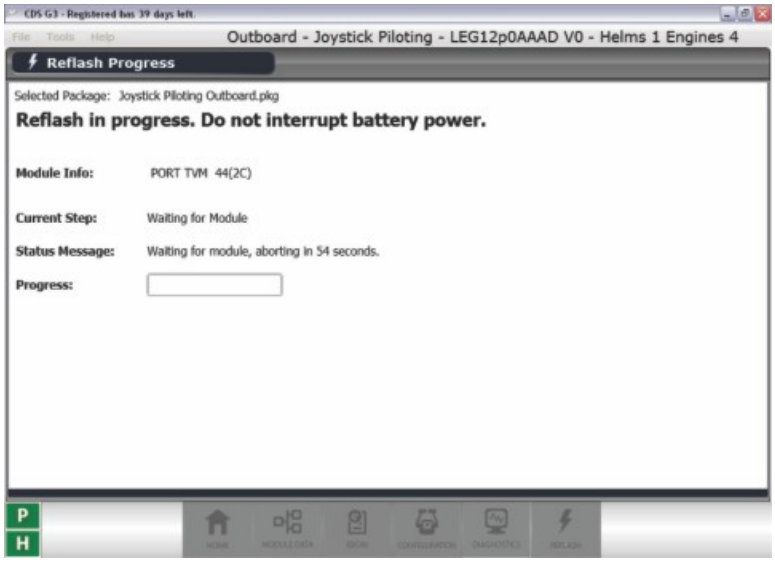
TVM reflash error screen

After the reflash of the next TVM, you will be taken back to the **Helm Configuration** screen. Repeat the **Lever Adapt** process (steps 9–10). Note that it is only necessary to lever adapt helm 1.

12. After all TVMs are reflashed, select **Finish**.
13. Select the new eBOM and proceed to **Import Vessel Personality**.

If an Error Occurs During Lever Adapt

If the **Helm Configuration** page is closed before the lever adapt is completed or if an error occurs during the process, the reflash page will appear with a 60-second countdown display during which time CDS G3 will not accept any input.



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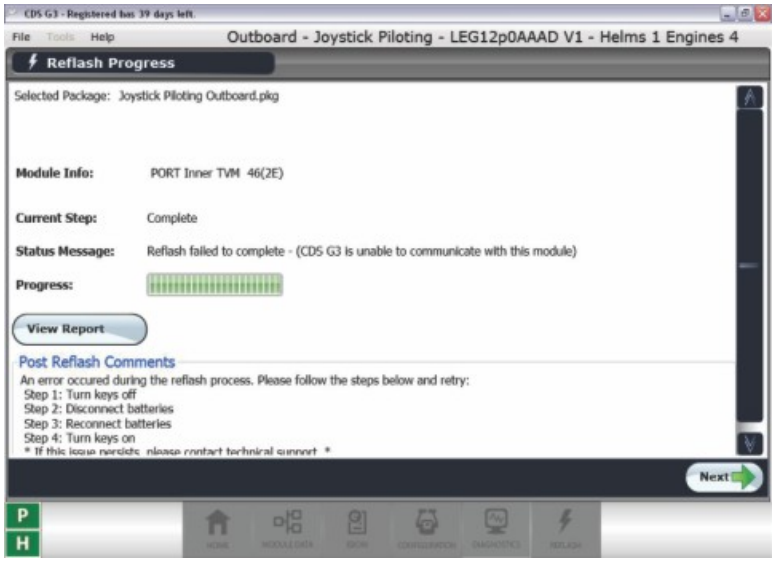
Countdown screen

When the countdown has expired, the following reflash error message will appear. After the reflash process has been completed, it will be necessary to manually enter the **Mechanical Drive Offset** and **Drive Offset** values recorded in step 3 under **Record Information**.



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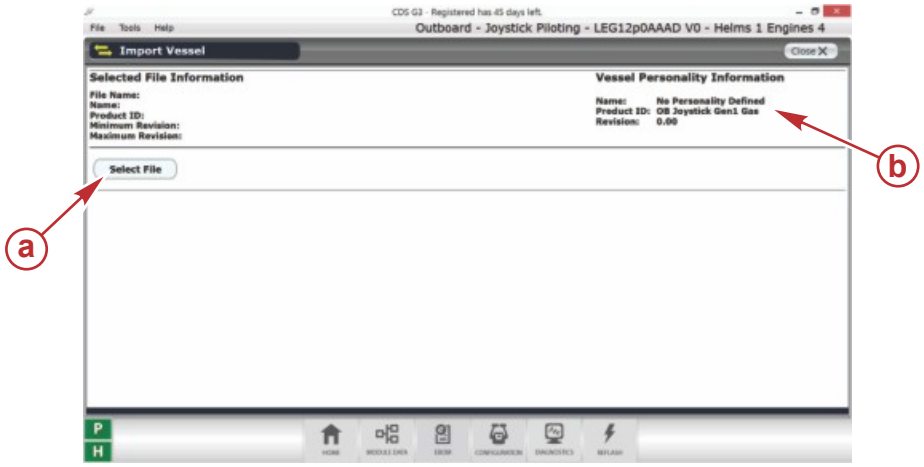
Resulting reflash error screen

Import Vessel Personality

- After a CCM is reflashed, all vessel personality information for that application is lost.
- The personality information must be restored using the Import function in CDS G3. Go to **Configuration>Personality>Vessel Personality**, and select **Import**.

- Use **Select File** to query the memory stick or file folder that contains the vessel personality that was provided by Mercury Technical Service.
- Select the personality. Then select **Start Import** to complete the personality file import process.



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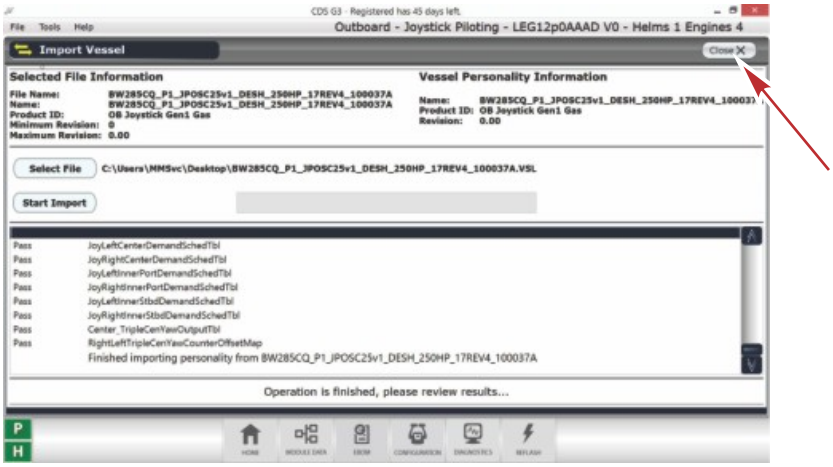
a - **Select File** button
b - Status; here showing no personality defined

- When the process is complete, select **Close**.



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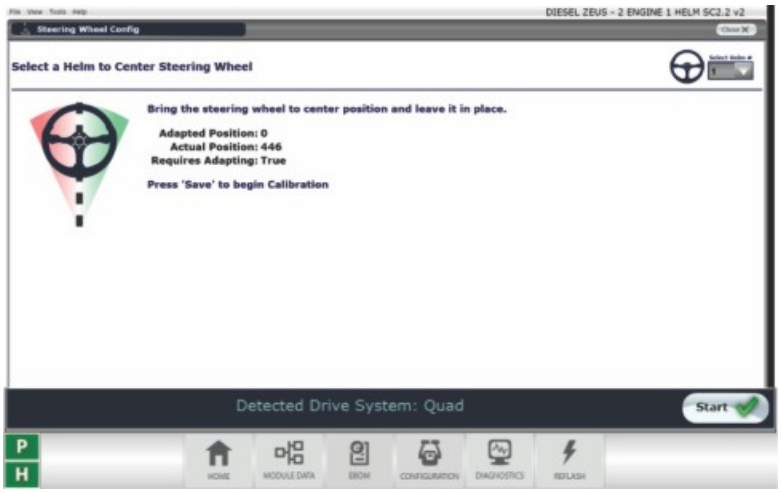
Close button

Perform Steering Wheel Configuration

After a CCM is reflashed, the programmed position of the steering wheel at center is lost and must be set using CDS G3. To program the steering wheel at center, go to **Configuration>Helm Configuration** and select **Steering Wheel Configuration**. Follow the on-screen directions in the CDS G3 to program the center position of the steering wheel.

NOTE: *This configuration procedure must be completed for each helm separately.*



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Set the Mechanical Drive Offset (if Replacing a TVM)

If an error occurred during the TVM reflash process, perform the following.

If the MechanicalDriveOffset value could not be recorded as described in **Record Information**, refer to the **Joystick Piloting for Outboards** service manual, **Section 5 - Initial Out-of-Water Engine Alignment**.

If the MechanicalDriveOffset value was recorded:

1. Go to **Configuration** and select **Drive Configuration**.

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2. Select **Manual Drive Alignment**.

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3. Select **Joystick Piloting Outboard**.

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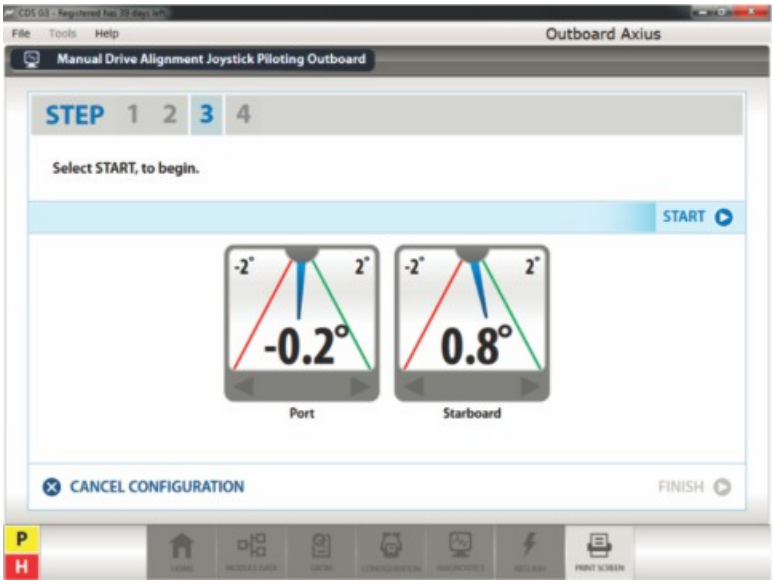
4. Follow the on-screen instructions until the following screen appears. Then, select **Start**.



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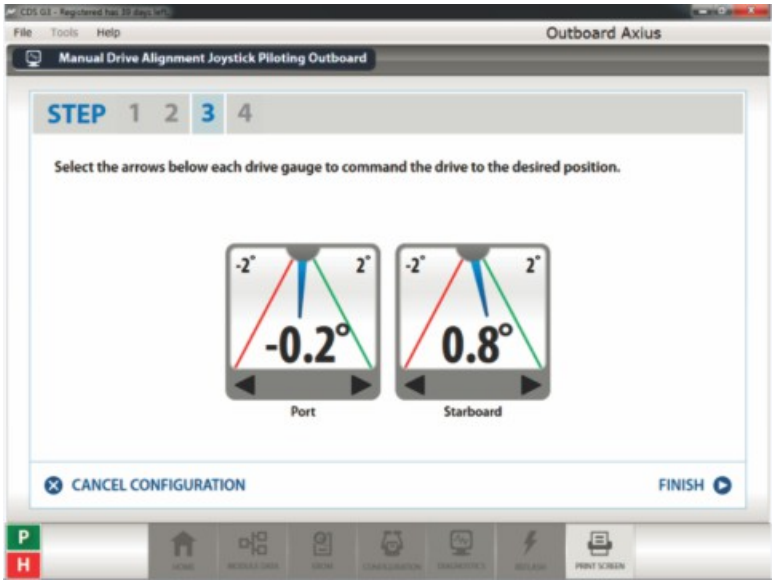
5. Select the gauge that corresponds to the TVM for which you are entering the value. Press the right or left arrow until the value matches the information recorded earlier. Refer to **Record Information**.



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6. Select **Finish**.
7. Select **Exit Configuration**.

Perform a Water Test

The vessel must be water tested prior to returning to the customer for use. During the water test, you must:

- Perform a drive alignment using CDS G3.
- Test Skyhook (if equipped).
- Test autoheading (if equipped).
- Test track waypoint (if equipped).

- Test the joystick functionality in all directions. Usually it is better to test the joystick while close to a stationary object to use as a point of reference.

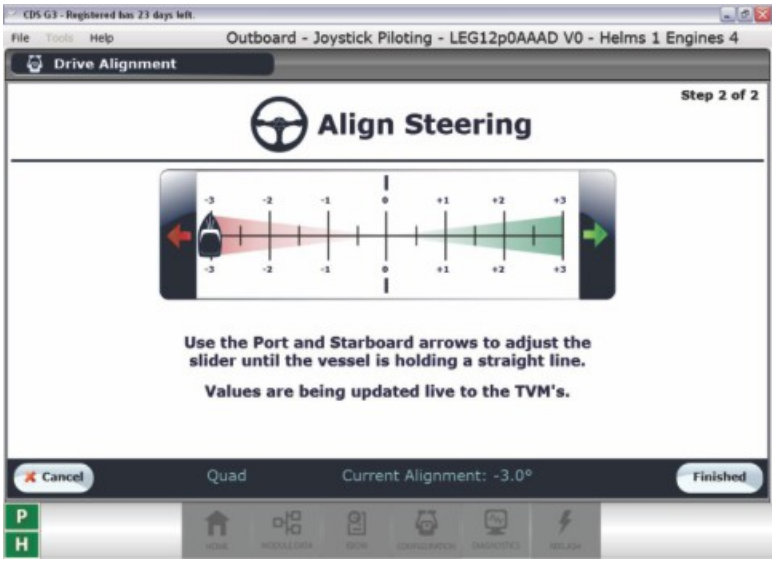
Set the Running Drive Alignment

NOTE: *This step is not necessary unless a TVM reflash procedure encountered an error.*

IMPORTANT: Before setting the running drive alignment, the existing drive offset values must be set to zero.

Before setting the running drive alignment, the existing drive offset values must to be set to zero so that all modules are starting at a common vector direction. To accomplish this:

1. With the boat at rest and the engines idling in neutral, use CDS G3 and go to **Drive Alignment>Configuration>Drive Configuration** and select **Drive Alignment**.
2. Select **Start** to activate the drive alignment. Select either the green or red arrow buttons to get the boat icon to either its left or right maximum value (± 3º). To ensure that the maximum value is achieved, press the arrow button at least 12 times.



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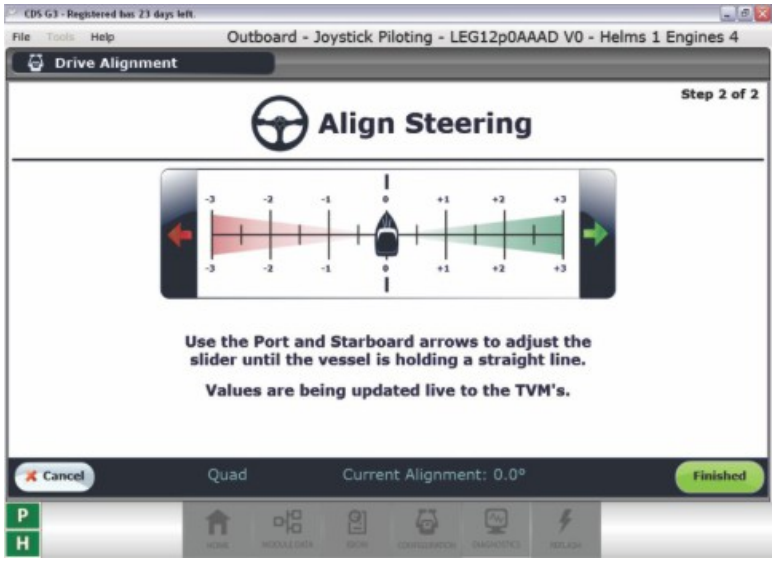
First, set the value to its maximum, either port or starboard



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Zero the setting before performing alignment

3. Perform running drive alignment, following the on-screen prompts.
4. Select **Finish**. The reflash process is complete.

Warranty

If the engine is within the warranty period, submit a warranty claim through your normal warranty processing channel.

- Engine serial number
- Labor: 0.3 hour per module
- On the water test labor: 1.0 per starboard engine
- Flat rate code: SB03, SB10
- Part code: 536 (CCM), 566 (TVM)
- Fail code: 79

Outside the United States and Canada: Follow the instructions issued by your local office or distributor.