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Joystick Piloting for Outboard System Upgrade

NOTICE
Revised July 2018. This bulletin supersedes the previous bulletin number 2016-11R3 September 2017.
<ul style="list-style-type: none"> • Reflash process changed • Warranty flat rates changed

Models Affected

IMPORTANT: The reflash procedure referenced in the previous version of this bulletin has been significantly altered. Reference outboard service bulletin 2018-04 for details of the changes and instructions before reflashing.

Models Covered	Serial Number Or Year
All Joystick Piloting for Outboard models that use Design 1 joysticks	-



Scope

Worldwide

NOTICE
The service technician performing the procedures described in the bulletin must read and understand the entire service bulletin before attempting a reflash procedure. Failure to follow all service bulletin instructions and the instruction shown in CDS G3 during the reflash process may lead to a reflash failure, resulting in an inoperable or disabled vessel.

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Situation

Bulletin Revision History
Revised September 2017. This bulletin supersedes the previous bulletin number 2016-11R3 July 2017.
Reflash package change to CCM calibration.
1. Correct dock mode.
Revised July 2017. This bulletin supersedes the previous bulletin number 2016-11R2 February 2017.
Reflash package change to CCM calibration.
1. This was done to improve Skyhook functionality.
2. Correct Autopilot pad light function.
Added procedure to clear module freeze frame data post reflash.
Revised February 2017. This bulletin supersedes the previous bulletin number 2016-11R1 December 2016.
CAUTION added referring to the Mercury Theft Deterrent System (TDS) on page 1.

The G3 reflash process was refined to make the process easier for the technician. The new process is available in: G3 2018 update 9.

⚠ CAUTION
If the boat has Mercury Theft Deterrent System (TDS) installed, then both key fobs need to be present to pair with the TDS module after reflash. Failure to have both fobs will result in the TDS system becoming activated and the boat will be limited to Guardian forced idle.

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

The Joystick Piloting for Outboard system has updated software used in conjunction with a new power steering current sensor. This will improve the overall system performance and durability.

Installing the current sensors will allow the new software to better control the steering system and will provide advanced diagnostics to prevent system failures.

Pump_Not_Active Fault

If the system detects that the current to the power steering pump has fallen below a minimum threshold, a **Pump_Not_Active** fault is set. The operator will be alerted via VesselView with the following text:

Critical - Steering Reduced

Steering capability has been reduced. (Return to port immediately - See dealer before next use.)

TVM:PumpNotActive

The steering system for that engine will be shut down. This will allow the operator to cycle the key switch power and restart the power steering pump. Previously, if the power steering pump shut down, the steering system remained active and the electric motor in the steering actuator would continue to attempt to turn the engine, causing the motor to fail from overheating.

If this fault occurs, verify that the power steering pump power and ground cables are connected to the appropriate engine starting battery and the connections are clean and tight.

Steering_Actuator_is_Degraded Fault

The system can detect if the steering actuator electric motor has been damaged from overheating. If the TVM senses that the output to the steering actuator is above a preset limit, it will count the occurrences. If the number of occurrences goes above a preset threshold during a key cycle, a **Steering_Actuator_is_Degraded** fault will be set in the fault freeze frame of the TVM. The operator will NOT be alerted by VesselView.

If this fault occurs, replacement of the steering actuator may be necessary. Refer to the **Joystick Piloting for Outboard Diagnostic Manual** for diagnostic and replacement information.

Duty Cycle Limits When Pump is at Full Output

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The current sensor allows the system to monitor the amount of work the power steering pump is doing to steer the vessel. If the system senses that the pump is near full output, it will reduce the amount of current sent to the steering actuator. This will prevent damage to the electric motor in the steering actuator, due to overheating.

Improved Skyhook Functionality

Changes were made to the CCM calibration to improve the position keeping and to reduce the aggressiveness of the response of the engines. This will noticeably reduce the fore and aft movement of the vessel when skyhook is engaged.

Software Supersession

Module	Software superseded from:	To:
CCM	CCM13ZAXXPAAA_000A_MJPG3_P00_000 CCM13ZAXXPAAA_000A_MJPG3_P01_000 CCM13ZAXXPAAAC_000C_MJPG3_P02_000 CCM13ZAXXPAAF_000F_JPO_P03_000 CCM13ZAXXPAAF_000G_JPO_P04_000 CCM16ZAXXPAAE_000F_JPO_P05_000 CCM18ZAXXPAAB_000B_JPO_P06_000	CCM18ZAXXPAAB_000C_JPO_P07_000
TVM	TVM13XXXOPAAC_003_MJPG3_P00_000 TVM13XXXOPAAD_004_MJPG3_P01_000 TVM13XXXOPAAE_005_JPO_P02_000	TVM13XXXOPAAK_009_JPO_P03_000

Reflash Process

Refer to **Outboard service bulletin 2018-04** to complete the process.



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The technician will no longer need to contact Mercury Technical Service to obtain the Vessel Personality prior to beginning the reflash process. G3 will now record and rewrite the vessel personality during the reflash process.

A video of the reflash process can be found on MercNET or by following this link: [https://p.widencdn.net/zpv3s8/New-G3-reflash- 6_4_18](https://p.widencdn.net/zpv3s8/New-G3-reflash-6_4_18).

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Hardware Required

Current Sensor Diagnostic Kit—8M0115125

One kit is required per power steering pump. Each kit contains the following:



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Ref. No.	Qty.	Description	Part Number
a	1	Current sensor	8M6004035
b	1	Adapter harness	8M0110673
c	1	Extension harness	864988

Follow the installation instructions provided with the sensor kit.

Extension harnesses are available if the mounting location of the sensor is greater than 3 m (10 ft) from the TVM.

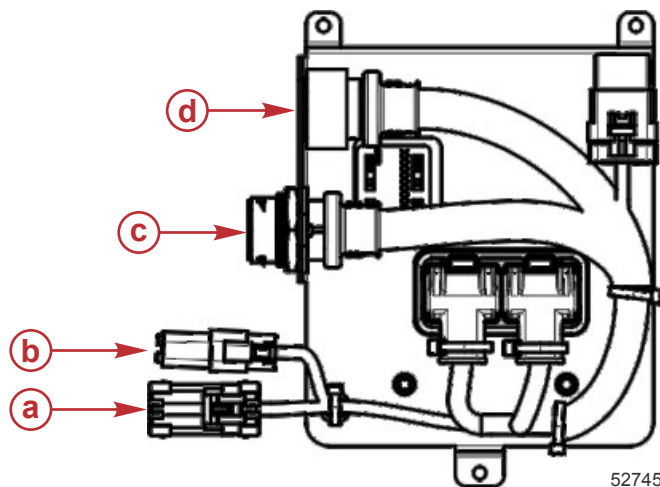
Description	Part Number
1.5 m (5 ft) extension harness	8M0122787
3 m (10 ft) extension harness	864988
4.6 m (15 ft) extension harness	8M0122618
6 m (20 ft) extension harness	8M0122619

TVM Harness—8M0109082

TVM harnesses on units produced before August 2015 must be replaced; they do not have a current sensor connection.

A visual identification of the TVM harness will be necessary to determine if replacement is needed.

Old Style—Replace



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TVM panel—old style, before August 2015

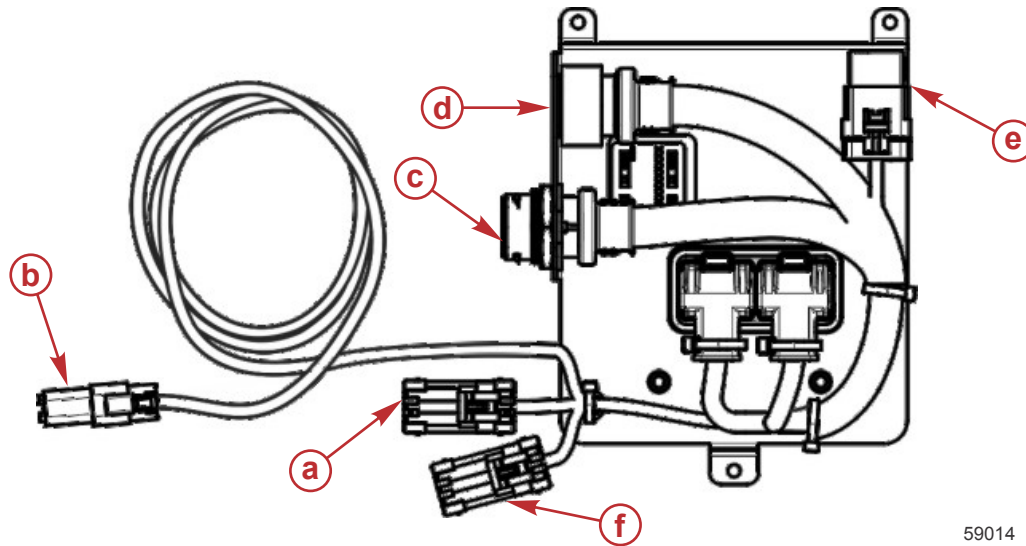
- a - Power steering signal driver connector
- b - Power steering actuator connector—short length
- c - 14-pin command control module (CCM) data harness connector
- d - 14-pin engine data harness connector

NOTE: There is no 4-pin current sensor connector on the old style TVM panel.

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New Style—Keep



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TVM panel—new style, beginning August 2015

- a- Power steering signal driver connector
- b- Power steering actuator connector—3 m (10 ft) length
- c- 14-pin command control module (CCM) data harness connector
- d- 14-pin engine data harness connector
- e- Main power relay
- f- 4-pin pressure or current sensor connector

IMPORTANT: Old style harnesses must be replaced with the new style. If there was an extension harness installed between the steering actuator and the TVM it must be removed.

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.

Warranty

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

- Engine serial number
- Labor: 0.5 hour per boat
- On the water test labor: 1.0 hour per starboard engine
- Installation of the current sensor kits: 0.5 hour per engine
- Replacement of TVM harness if necessary: 0.5 hour per module
- Flat rate labor code: SB05, 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.

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