

service bulletin

WARRANTY INFORMATION

SERVICE INFORMATION

Bulletin No. 2002-13

PARTS INFORMATION

OEM No. 2002-08

Circulate to: Sales Manager Accounting Service Manager Technician Parts Manager

MerCruiser Product Changes Related to SmartCraft

The product changes described in this bulletin only affect MerCruiser MPI engines connected to SmartCraft instrumentation systems. These changes do not affect installation or servicing of engines connected to analog gauges. The various changes described below affect different models and serial number ranges. Refer to the Models Affected section under each change.

New ECM 555 Module Eliminates Need to Change Trim Sender Rotor

Models Affected

MCM 4.3L MPI Alpha Sterndrive Engines, 0M360082 & up

MCM 4.3L MPI Bravo Sterndrive Engines, 0M360770 & up

MCM 5.0L MPI Alpha Sterndrive Engines, 0M359946 & up

MCM 5.0L MPI Bravo Sterndrive Engines, 0M362000 & up

MCM 350 MAG MPI Alpha Sterndrive Engines, 0M362927 & up

MCM 350 MAG MPI Bravo Sterndrive Engines, 0M360711 & up

MCM MX6.2L MPI Bravo Sterndrive Engines, 0M360021 & up

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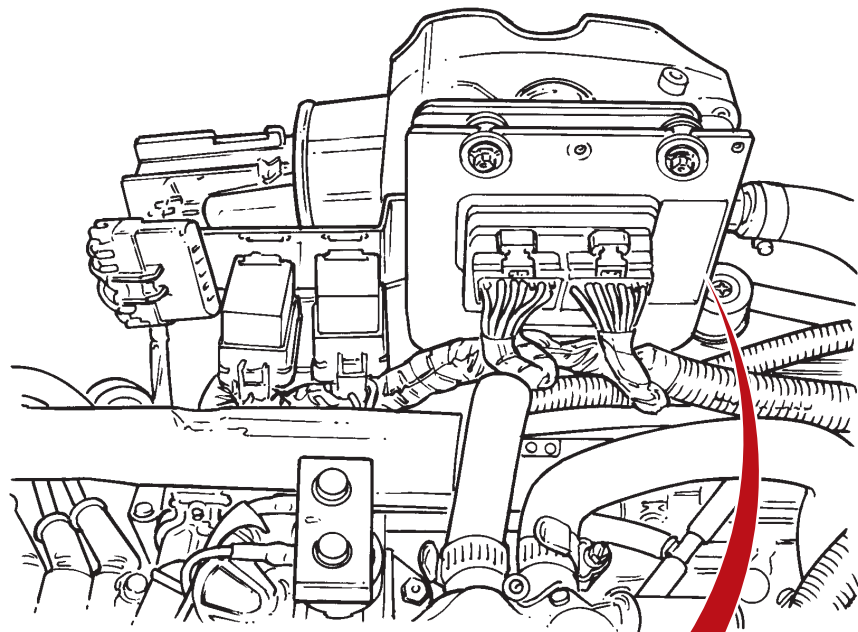
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The base ECM 555 engine control module used on the models listed has been changed to allow the factory-installed analog trim sender rotor in Alpha and Bravo transom assemblies to be compatible with SmartCraft instrumentation systems. Prior to this change, it was necessary to replace the factory-installed analog rotor with a special digital rotor when using SmartCraft instrumentation with the models listed.

When connecting a SmartCraft instrumentation system to an affected model or when replacing an ECM on a unit connected to a SmartCraft instrumentation system, it is necessary that the correct base ECM module/trim sender rotor combination is used. The trim sender rotor can be identified by a 2-digit code on the rotor. The base ECM module part number appears on the identification label on the ECM module.

Base ECM Module Part Number	Trim Sender Rotor Part Number	Trim Rotor Identification Code
884521	805134A 6	J1
864916	805134A 4	H1

All replacement ECM 555 modules for MerCruiser products now use base ECM module P/N 864916. When replacing an ECM on an affected model that is equipped with SmartCraft instrumentation, it may be necessary to replace the trim sender rotor. If the base ECM part number is the same on both the existing and replacement ECM's, and the trim gauge functions properly, then the trim sender rotor does not need to be replaced. The trim sender rotor must be changed **ONLY IF** the base ECM module part number on the new ECM is different than the base ECM module part number on the old ECM.



77905

4.3L ALPHA

864270-3 ← a

884521 ← b

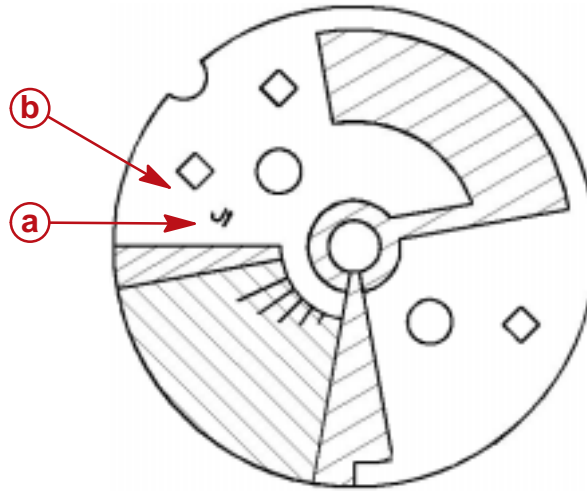
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Typical ECM Calibration Label

- a - Calibrated ECM Part Number
- b - Base ECM Part Number

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During initial installation of SmartCraft instrumentation, the trim sender rotor can be identified by a 2-digit code on the rotor. To do so, remove the cover from the trim sender, remove the trim rotor disk, and read the 2-digit identifier code. All trim senders on standard Alpha and Bravo transom assemblies come equipped from the factory with the H1 trim sender rotor, P/N 805134A 4.



- a** - Trim Sender Rotor
- b** - 2-digit Identifier

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Corrected Engine Wiring Harness Connections

- Paddle Wheel Speed Sensor
- Tank Level Connections (all models) and 2 Tank Level Inputs (MIE Models)

Models Affected

Incorrect Paddle Wheel Speed Sensor Connector & Tank 1 Input at Pin C

MCM 4.3 MPI Sterndrive Engines, 0M300000 to 0M357536

MCM 5.0 MPI Sterndrive Engines, 0M300000 to 0M356705

MCM 350 MAG MPI Sterndrive Engines, 0M300000 to 0M356767

MCM MX 6.2 MPI Sterndrive Engines, 0M300000 to 0M323262

MIE 350 MAG MPI Inboard & Tow Sports Engines, 0M300000 to 0M313490

MIE MX 6.2 MPI Inboard & Tow Sports Engines, 0M300000 to 0M313057

Incorrect Paddle Wheel Speed Sensor Connector only

MCM 496 MAG MPI Sterndrive Engines, 0M000000 to 0M364615

MIE 8.1S Inboard Engines, 0M000000 to 0M314537

2 Tank Level Inputs

MIE 350 MAG MPI Inboard and Tow Sports Engines, 0M318191 & up

MIE MX6.2L MPI Inboard and Tow Sports Engines, 0M317972 & up

Paddle Wheel Speed Sensor Connector

Units in the serial number ranges given were equipped with the same connector as the paddle wheel speed sensor rather than the mating connector. To allow the sensor to be connected, an adapter harness, P/N 87-864553T, was created. Later engines have the correct connector on the engine wiring harness, so the adapter harness is not required. When replacing the engine wiring harness or the complete engine on units in the serial number ranges given, the replacement harness should have the correct connector for the paddle wheel speed sensor. If it does, then the adapter harness, P/N 87-864553T, can be removed and discarded.

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**Tank Level Connections on all MCM/MIE models and
2 Tank Level Inputs on MIE Models**

All MerCruiser MPI models use the same 3-pin tank level connector on the engine wiring harness to accept tank level inputs for SmartCraft instrumentation. Various models have different tank level capabilities and wiring configurations, and the wiring configuration for tank level input has been changed on some models to make the tank level connections more consistent for all models.

All MCM 496 MAG MPI and MIE 8.1S MPI models accept 2 tank level inputs with Tank 1 at pin B and Tank 2 at pin C.

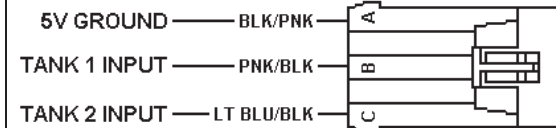


MCM 4.3 MPI, 5.0 MPI, 350 MAG MPI, and MX 6.2 MPI sterndrive models accept only 1 tank level input. Early units had Tank 1 input at pin C. Current units have had Tank 1 moved to Pin B to be consistent with 496 MAG & 8.1S models.

MIE 350 MAG MPI and MX 6.2 MPI Inboard and Tow Sports models initially accepted only 1 tank level input. The earliest units had Tank 1 at Pin C. Tank 1 was then moved to Pin B to be consistent with 496 MAG & 8.1S models. Current units accept 2 tank level inputs with tank 1 at pin B and Tank 2 at pin C (same as 496 MAG & 8.1S models).

When replacing the engine wiring harness on units other than MCM 496 MAG and MIE 8.1S models, the wire positions at the tank level input connector may be different on the replacement harness than on the harness being replaced. It may be necessary to change the wire locations at the tank level input connector, either on the engine harness or on the boat fuel tank harness. If the boat is equipped with SmartCraft tank harness P/N 87-864218, it is possible to change the wire locations at the bullet connectors in this harness. The bullet connectors are located approximately 305 mm (12 in.) from the fuel level sender.

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Tank Level Input Configurations	
Models and Serial Number Ranges	Tank Level Connector wiring
<p>MCM 496 MAG MPI Sterndrive Engines – All (0M300000 & up)</p> <p>MIE 8.1S Inboard Engines – All (0M300000 & up)</p> <p>MIE 350 MAG MPI Inboard & Tow Sports Engines – 0M318191 & up</p> <p>MIE MX 6.2 MPI Inboard & Tow Sports Engines – 0M317972 & up</p>	
<p>MCM 4.3 MPI Sterndrive Engines – 0M300000 to 0M357536</p> <p>MCM 5.0 MPI Sterndrive Engines – 0M300000 to 0M356705</p> <p>MCM 350 MAG MPI Sterndrive Engines – 0M300000 to 0M356767</p> <p>MCM MX 6.2 MPI Sterndrive Engines – 0M300000 to 0M323262</p> <p>MIE 350 MAG MPI Inboard & Tow Sports Engines – 0M300000 to 0M313490</p> <p>MIE MX 6.2 MPI Inboard & Tow Sports Engines – 0M300000 to 0M313057</p>	
<p>MCM 4.3 MPI Sterndrive Engines – 0M357537 & Up</p> <p>MCM 5.0 MPI Sterndrive Engines – 0M356706 & Up</p> <p>MCM 350 MAG MPI Sterndrive Engines – 0M356768 & Up</p> <p>MCM MX 6.2 MPI Sterndrive Engines – 0M323263 & Up</p> <p>MIE 350 MAG MPI Inboard & Tow Sports Engines – 0M313491 to 0M317819</p> <p>MIE MX 6.2 MPI Inboard & Tow Sports Engines – 0M313058 to 0M317484</p>	

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All models have a Black/Pink 5V filtered sensor ground wire in pin "A" of the connector. DO NOT CONNECT THIS WIRE TO ANYTHING. If this wire is connected to a 12V ground, such as the fuel tank sender, the filter in the ECM that provides a constant 5 Volts reference voltage to all of the sensors is bypassed. This can cause erratic performance of all sensors and damage to the ECM.

All affected models can use SmartCraft tank harness P/N 87-864218 and standard 240-ohm tank level senders (Mercury P/N 851052Q or equivalent).

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