



MCM112 450R & 500R V8 outboard kit INSTALL INSTRUCTIONS



The following procedure details installation of this kit onto a Mercury 450R & 500R V8 outboard engine.

MoTeC**Kit Components:**

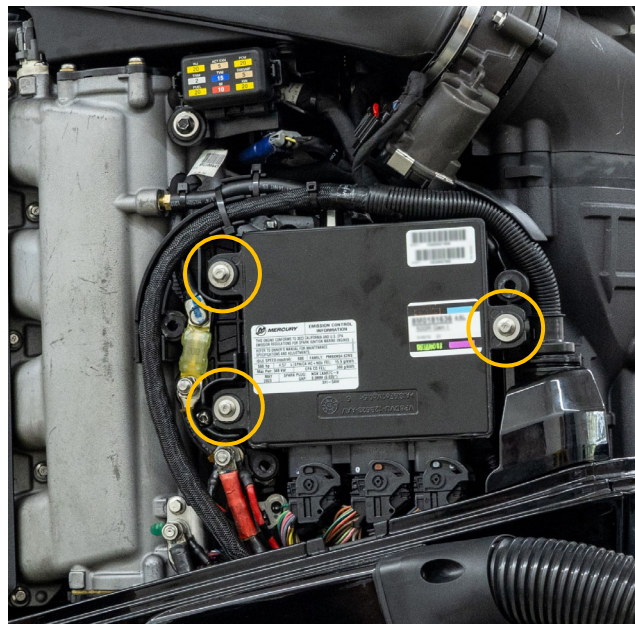
1. MCM112 ECU
2. Expansion loom
3. 3 x 6.5mm mounting bushes
4. 3 x Mounting grommets
5. Knock sensor
6. M8 x 30mm S/S bolt

MoTeC**Tools required:**

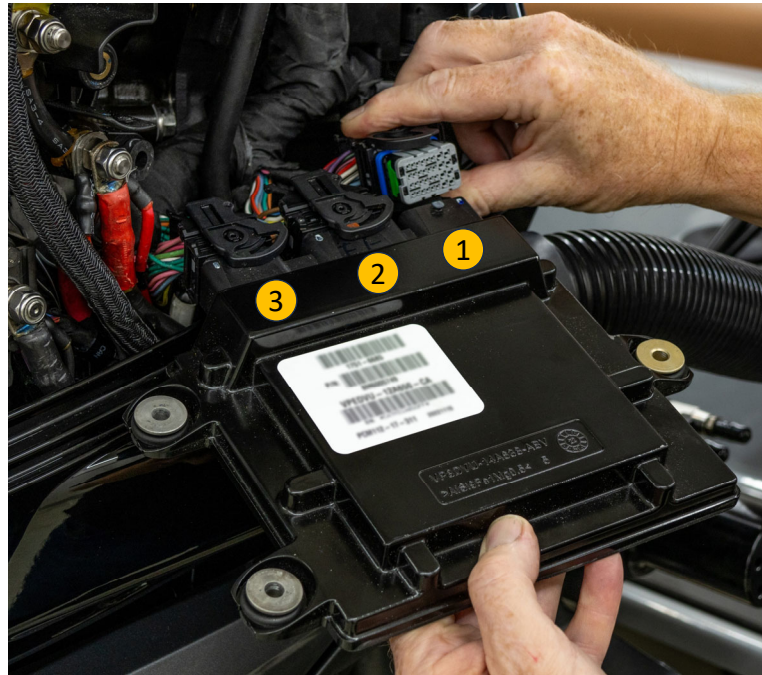
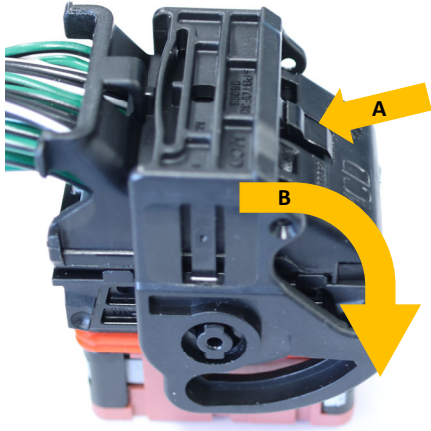
- 8, 10 & 13 mm hex socket
- Ratchet
- Ratchet extension
- Universal joint
- Torque wrench
- 10mm ring / open spanner
- 13mm ring /open spanner
- Flush cutters

Adhesives:

- Loctite 243 (blue) or equivalent.



1. Remove the engine cowl as per the instructions under the access panel.
2. Ensure Ignition key and battery isolator are switched OFF.
3. Remove the ECU cover panel **A**, by pulling directly outwards.
4. Remove the 3 x ECU mounting bolts & washers.

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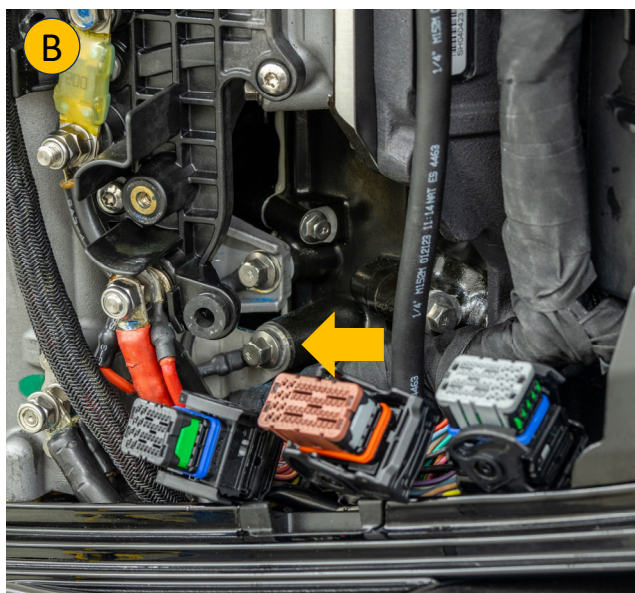
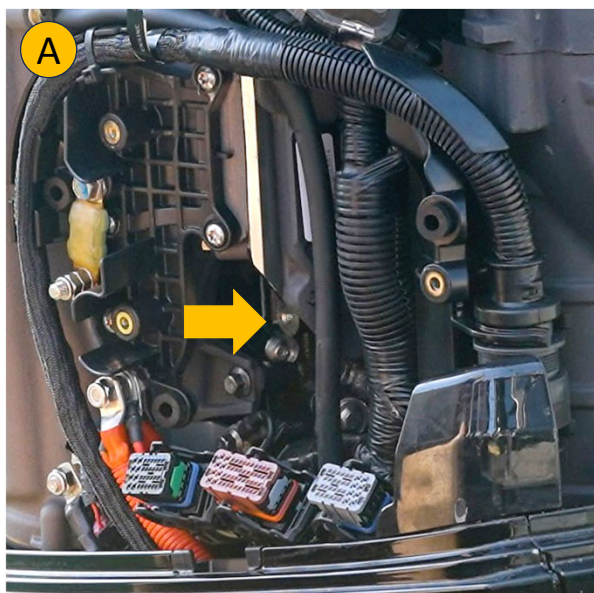
1. Ensure Ignition key and battery isolator are switched OFF.
2. To remove the 3 connectors, press the lever lock **A** then rotate the lever **B** downwards.
3. Remove the 3 connectors in the order shown.



1. Fit the Expansion loom to the ECU connector.
2. Fit the 3 x MoTeC bushings and 3 x grommets from the kit into the ECU in the direction shown above.

NOTE: The MoTeC bushings must be inserted as shown above to avoid damage to the ECU.

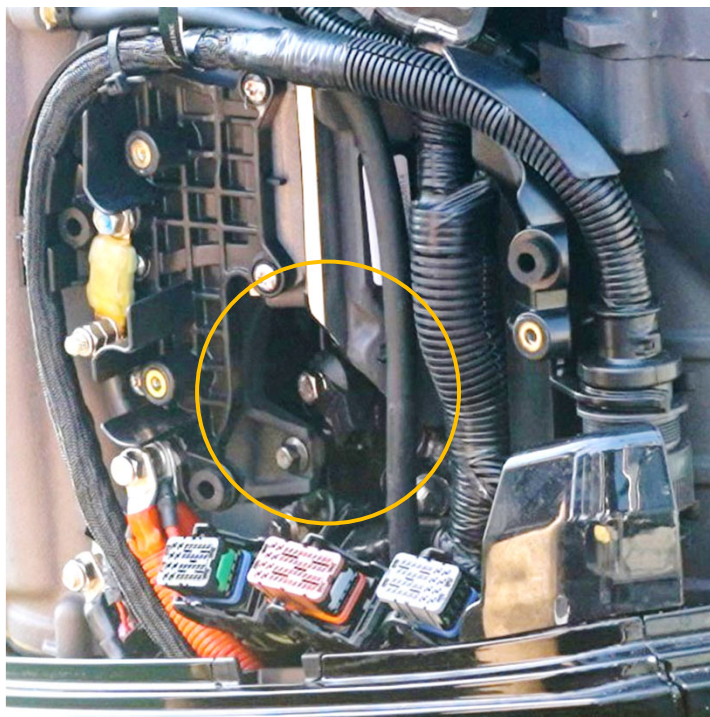
3. The MCM112 ECU assembly is now ready to fit.



Knock sensor fitting.

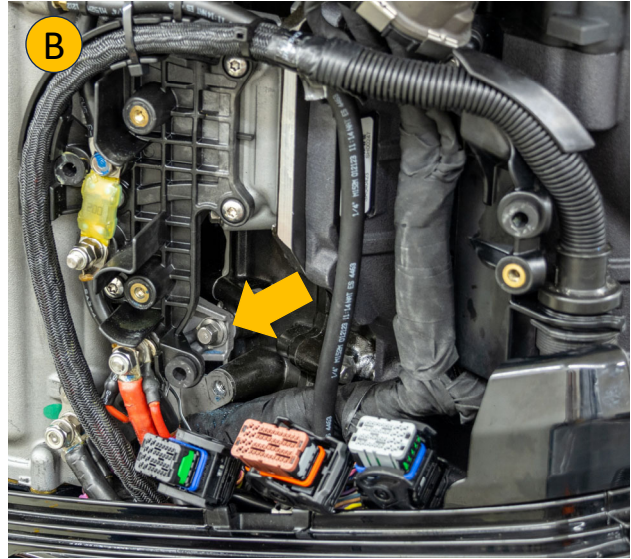
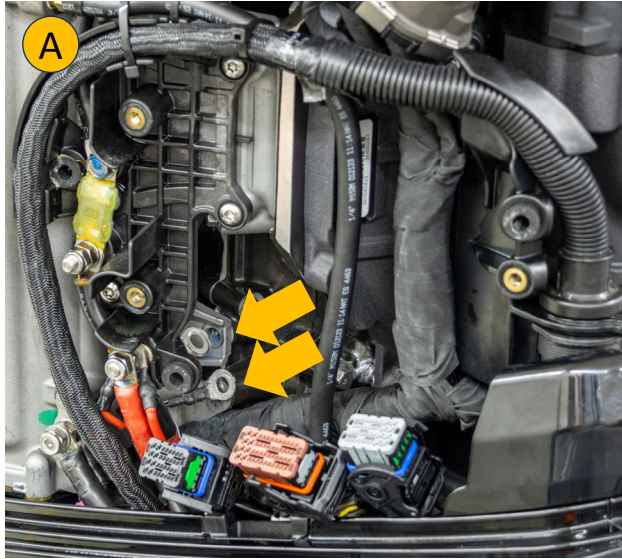
Determine the position your engine has.

- **Type A.** Some engines have an empty threaded boss.
- **Type B.** Some engines have a position that requires an earth wire to be relocated.



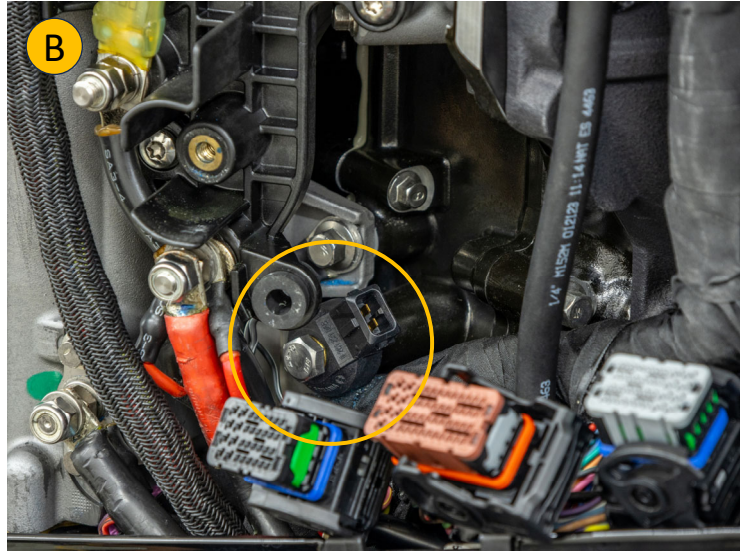
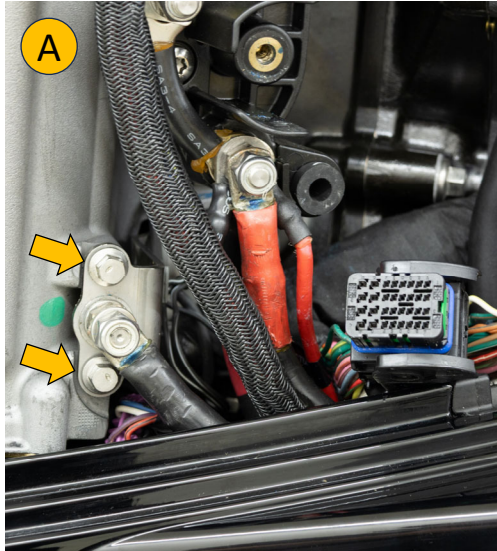
Knock sensor fitting **Type A**.

1. Fit the knock sensor to the empty threaded boss using the M8 x 30mm bolt from the kit with Loctite applied.
2. Position the wiring connection as shown above, torque the bolt to 18Nm.



Knock sensor fitting **Type B**.

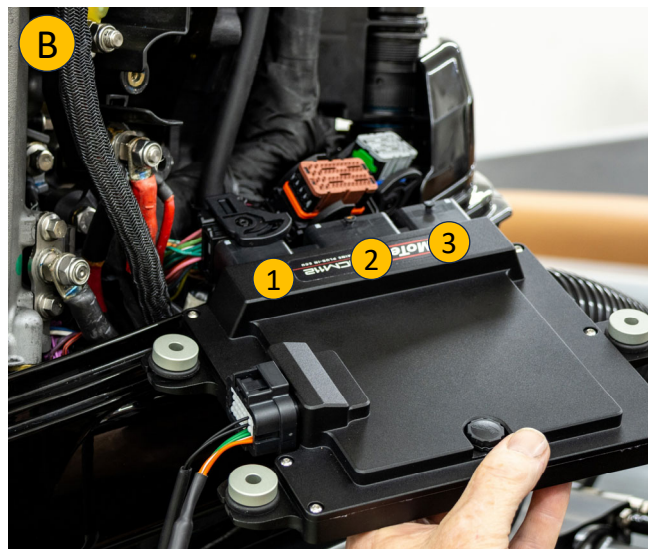
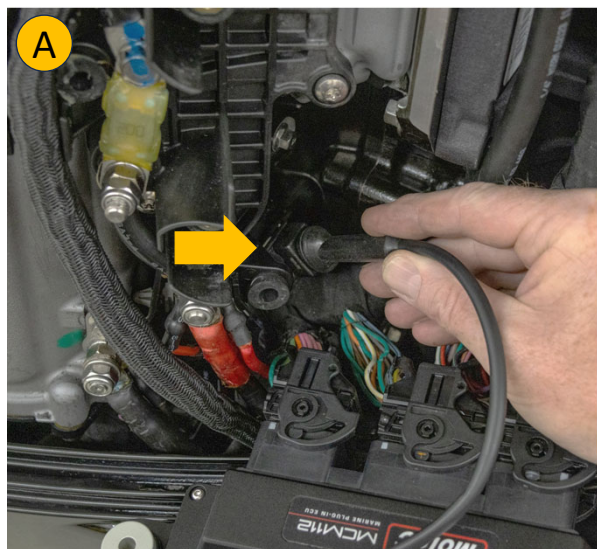
1. Remove the 2 bolts holding the earth wires. **A**.
2. Position the 2 earth wires under the upper bolt, torque the bolt. **B**.

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Knock sensor fitting **Type B**. cont.

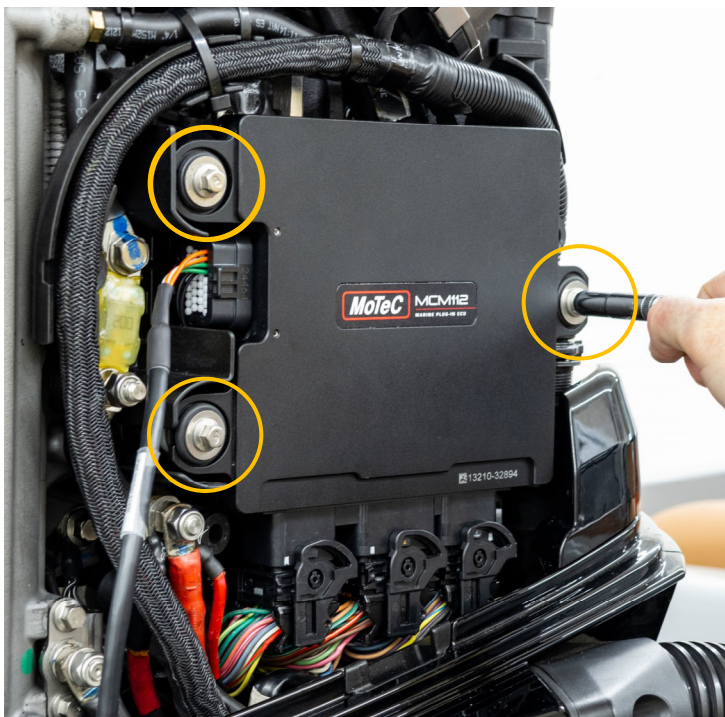
The bracket that the knock sensor sits on top of, may need to be loosened at its other end. This allows for easy knock sensor bolt fitment.

1. Loosen the 2 x 8mm head bolts. **A**.
2. Apply Loctite to the M8 bolt then fit the knock sensor and position the wiring connector as shown above, torque the bolt to 18Nm. **B**.
3. Torque the 2 x 8mm head bolts. From step 1. **A**.

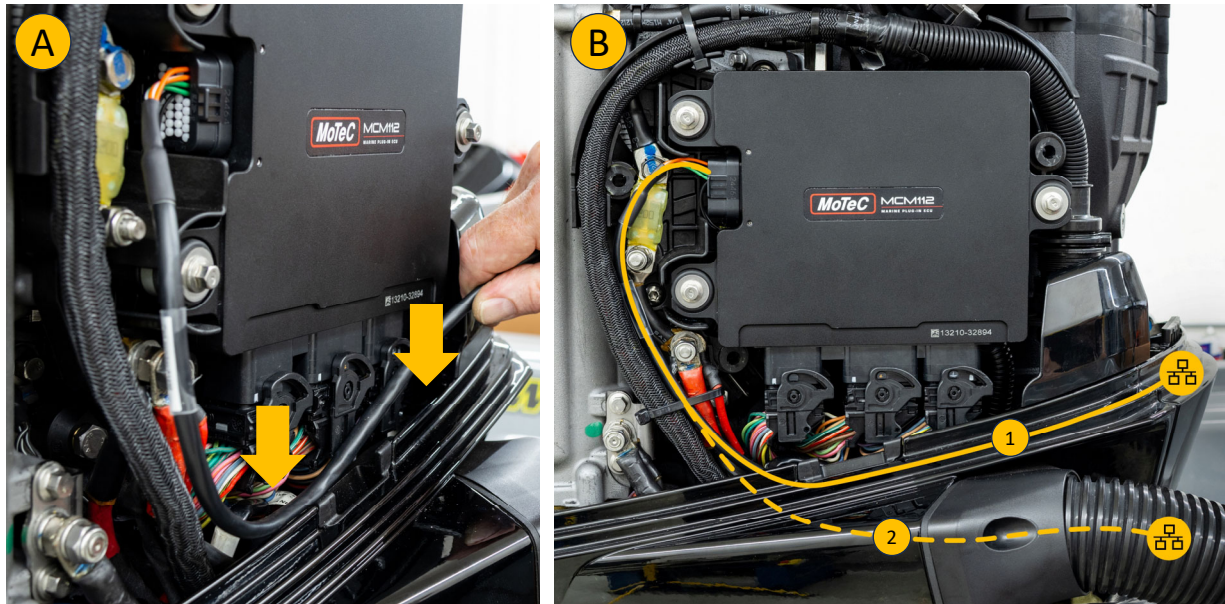


MCM112 ECU fitting.

1. Connect the Expansion loom to the knock sensor. **A.**
2. Connect the 3 x ECU connectors in the order shown. **B.**



1. Hold the MCM112 ECU up to the mounting position, check that the knock sensor wiring is routed correctly.
2. Fit 3 x OE bolts (apply Loctite) and washers removed on page 5, torque the bolts to 5Nm.



3. Position the ethernet cable under the OE ECU wiring harness and lower engine cowl. **A.**
4. The ethernet cable can be routed 2 ways.
 - **Route 1** Ethernet connection point located within the engine cowl.
 - **Route 2** Use an ethernet extension cable positioned through the engine rigging tube to the helm for tuning within the vessel.



1. Fit the ECU cover by aligning the pins and grommets then pressing in.
2. Fit the engine cowl.

NOTE:

- MoTeC has made every effort to ensure that the start file gives safe and reliable operation of the engine, it is the responsibility of the kit installer to ensure the engine tune is verified on the individual engine.