JALTEST MARINE USE CASES

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Introduction

Over time it can be noticed that the existence of multiple brands of **vessels** with a wide range of solutions is growing day by day. This variety reinforces the need for a multi-brand diagnostics tool with sufficient capabilities to face all the daily challenges of a technician in a specialised workshop (advanced functionalities, technical information and troubleshooting guides, among many other tools).

Today, most inboard, outboard and jet ski systems are equipped with electronic control and a large number of cables, sensors, actuators and control units, which are present from end to end.

Besides, the anti-pollution regulations and the higher efficiency required from new vessels, now prevent the control without the aforementioned electronic components. Therefore, it is essential to have diagnostics tools, such as Jaltest, which are capable of dealing with failures and facilitating the technician tasks at the same time.

The purpose of this document is to show the reader the latest technologies in **vessels** and how Jaltest makes its diagnostics and repair easier.

1 - Calibration of Mercury DTS system (Digital Throttle and Shift) (Inboard/Outboard)

For new installations or when replacing Smart Craft components of Mercury both in inboard and outboard, the DTS system needs to be calibrated. This consists of two parts: Configuration, where it is established the vessel control structure (number of engines and helms) and Adaptation, where it is calibrated the position that can be adopted by each one of the vessel levers.
If the DTS calibration is not performed, it will not be possible to start the engines.
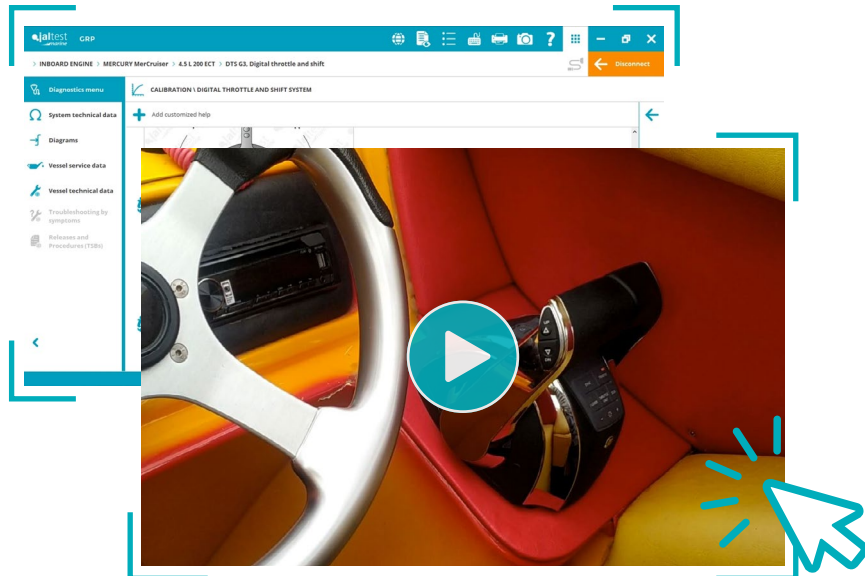
# 2 - Injector coding of Evinrude E-TEC and Fitch Ram engines
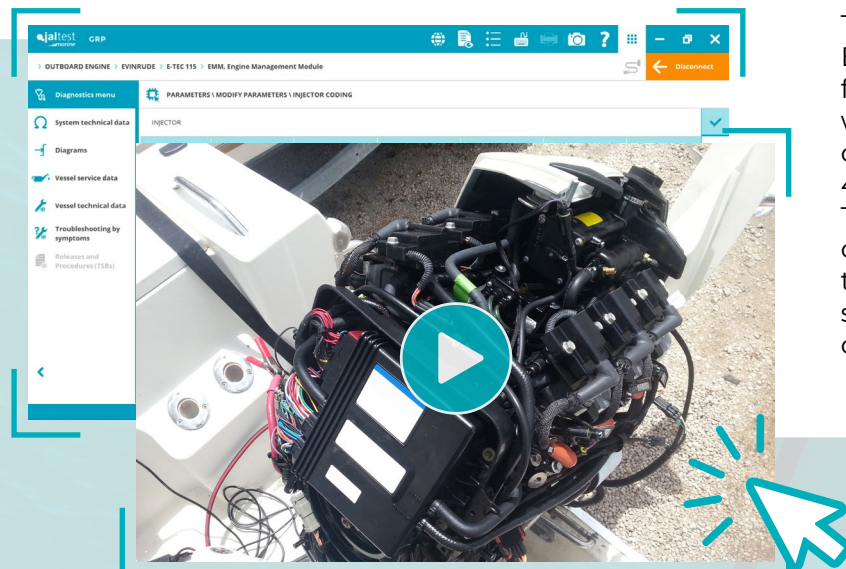
The accurate gasoline injection system of Evinrude makes injector coding essential for the optimal performance of the engine, which are 2-stroke engines with fuel consumption and performance equalling 4-stroke engines.
The innovative aspect that Jaltest offers to calibration is that it is not necessary to obtain the calibration file from Evinrude central services, since it develops its own method to obtain the injection map of each injector.

3 - Calibration of the trim limits in Mercury engines (Inboard/Outboard)

This writing is present in other marine manufacturer brands. It consists in calibrating the lower and upper limits that the driving element can reach both in rest position and sailing position, without endangering either vessel constructive elements or the engine performance while sailing.
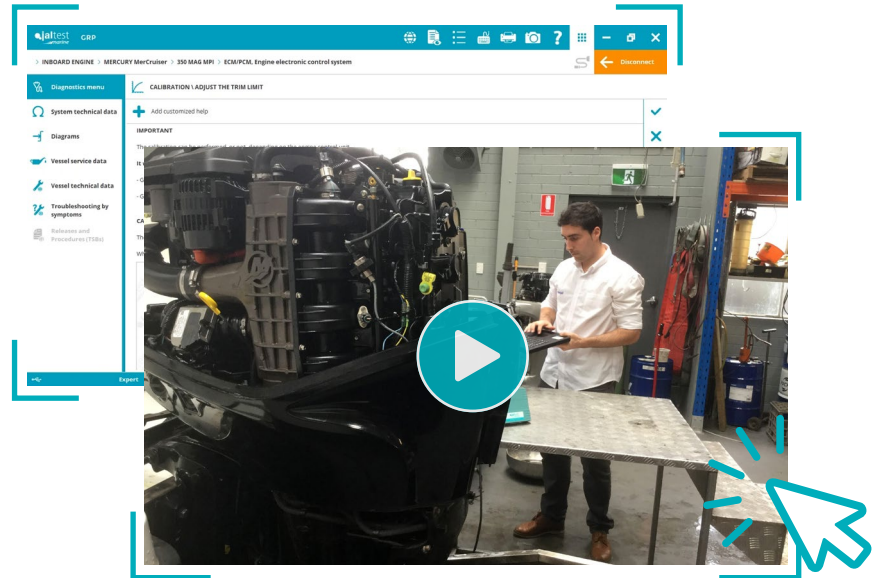

4 - Deactivation of the iBR braking system in Sea-Doo (BRP) jet skis
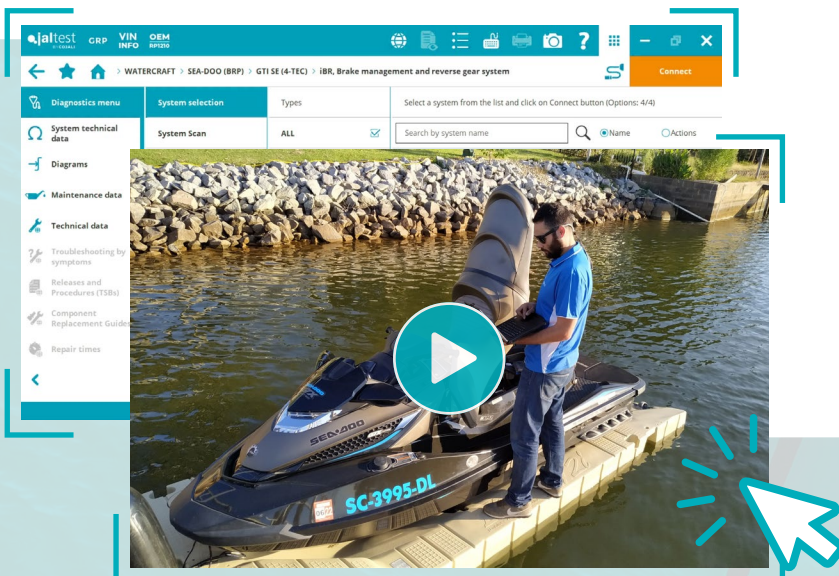

Historically, it is one of the most requested actions and more frequently asked about in the world of jet skis. The iBR system is an electronic braking system that limits the engine power when it fails. It is very expensive to repair but, with the prior owner's authorisation, it is possible to deactivate the communication between the engine system and the braking system so that this last one does not limit the jet ski performance. The official service centres perform this deactivation by enabling the Engineering Mode of the OEM tool.

5 - Modification of the engine idle speed rate in Cummins QSC 8.3 engines

The adjustment of the engine idle speed rate is an important action in the marine sector, since depending on the vessel application we should apply different manoeuvring rates. In the case of Cummins systems, modifying this parameter is a very simple and useful task.
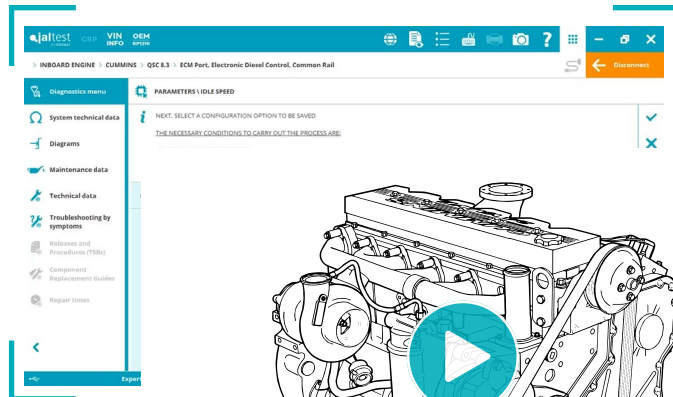
6 - Calibration of the RiDE reverse gate in Yamaha jet skis
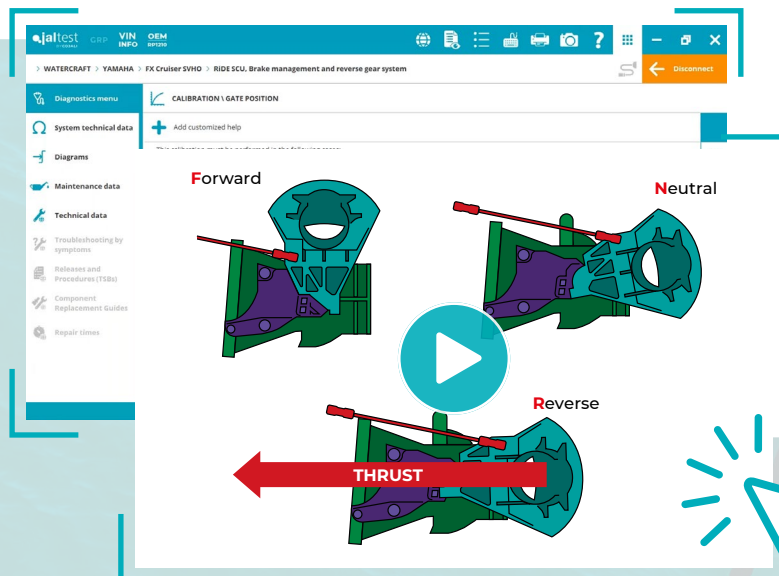

The electronic braking control system RiDE requires calibration after component replacement or even after an impact capable of misadjusting the gate mechanism. These impacts are pretty common during docking and transport of the jet ski on ground. The calibration consists in an automatic learning process of the upper and lower values that the gate might reach.

7 - Reset of the maintenance indicator in vessels with Mercury engine (Inboard/ Outboard)

In the third generation (G3) of Mercury inboard and outboard engine systems, a maintenance-request notification turns on in the instrument cluster. Once the maintenance service has been carried out, with Jaltest it is possible to perform the counter reset, and therefore clearing the notification from the instrument cluster until the next maintenance service.
This functionality is useful and necessary for daily work with Mercury engines.
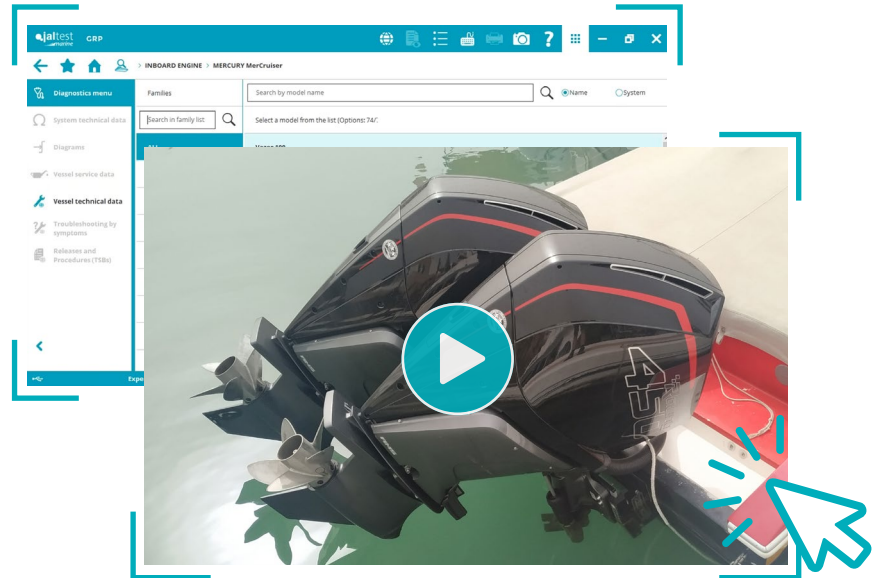
# 8 - Calibrations and parameters of the different EVC modules of Volvo Penta
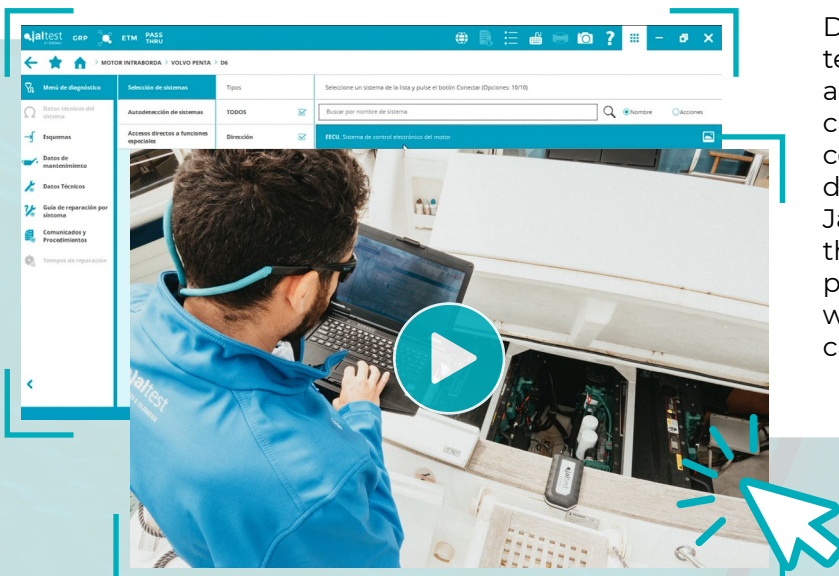
Depending on the Volvo Penta EVC technology, the configuration of calibrations and parameters such as: trim limits, lever calibration, joystick calibration, auto-configuration, etc., must be performed in a different way.
Jaltest will show in detail how to identify the different EVC technologies and how to perform writing actions in the vessel, either when components have been replaced or in case of new installations.

9 - Coding of keys and remote controllers of the main jet ski brands in the market

In the case of Sea-Doo (BRP) and Kawasaki, Jaltest has a functionality of key learning. In Yamaha it is enabled the remote controller learning so that the jet ski can be locked. Apart from the coding of keys/remote controllers, there are also different driving modes, which make it possible to have greater or lower power depending on the parametrised mode.
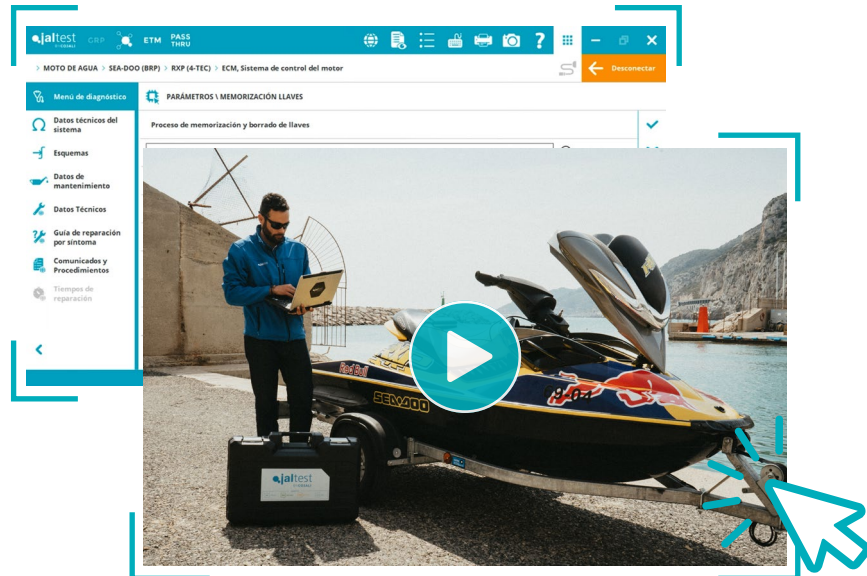
10 - Injector coding in diesel engines
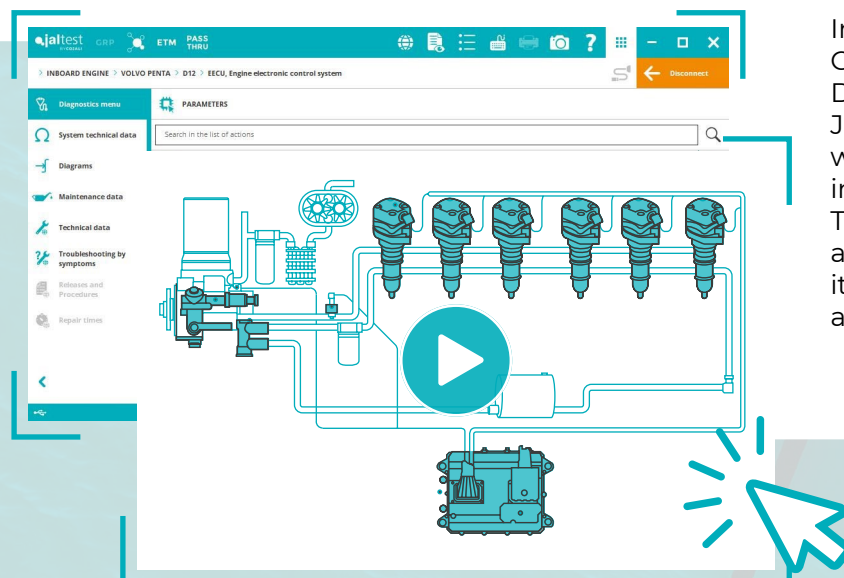
In brands such as Volvo Penta, John Deere, Caterpillar, Volkswagen, Cummins, Mercruiser Diesel, VM Motori, Toyota Marine, etc., with Jaltest it is possible to perform injector coding when after the replacement of any of the injectors.
This coding depends on the specific trim adjustment for each injector, thanks to which it is possible for the control units to calculate at any time the optimal fuel injection.

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