

# Manual Fisker Ocean Door Handle Force Testing Tool

Last Edited Date: 06/17/2024

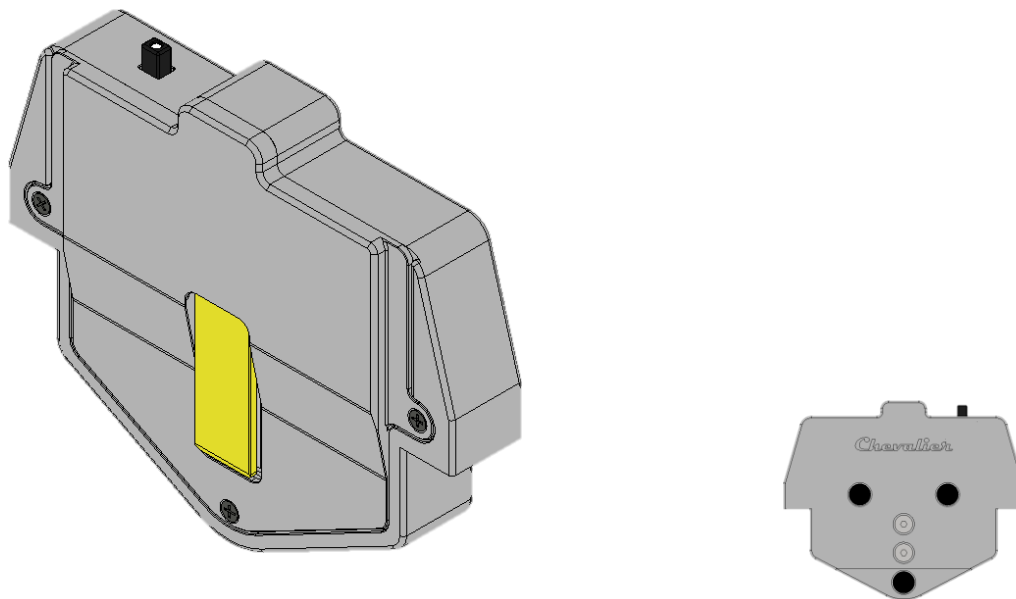
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## 1. Introduction

The purpose of the tool is to measure the retracting force of the Fisker Ocean door handle. The tool has an LED indicator on the power button. If the indicator is **Solid Green**, the measured force is over the threshold. If the indicator is **Solid Red**, the measured force is below the threshold.

## 2. System Components



Fisker Ocean Door Handle Force Tool system includes the following:

- Tool housing.
- Load cell (**ATTENTION: MAX. 5kg – maximum rated force**).
- Switch ON / OFF Button with LED indicator.
- PCB controller
- LED indicator (see colour codes point 9. Indicator).
- Battery (**6LR61 – 9V**).
- Protective tape applied to sides and back of tool to prevent damage to paintwork and handle.

### **3. Power On**

Press the top left switch.

There will be **3 rapid Red flashes** to inform the user that the device is powered, followed by no light indicator for up to 5 seconds.

The tool will be ready for use **ONLY** after the indicator color is **Solid Red**.

\*If the user observes a different colour, look at section “9. Indicator” for possible error codes.

### **4. Power Off**

To power off, simply press the button on the top left switch.

There should be no light indicator once the tool is powered off.

\*It is recommended to always power off the tool when it's not used.

### **5. Use and Maintenance**

User must visually inspect the tool for any damages, before taking measurements.

DO NOT press the force plate with your fingers, to avoid damage.

The maximum force that the tool is rated, is 5kg. If more than 5kg is applied to the tool, it can be permanently damaged.

The battery provided is 6LR61 type (9 V). Always use the provided type of the battery to avoid damage.

Device working temperature range: 5 °C to 40 °C

## 5.1. Device health / Validation of load cell precision.

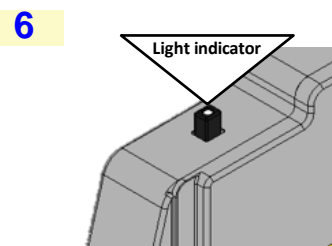
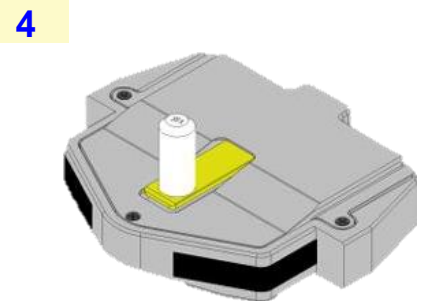
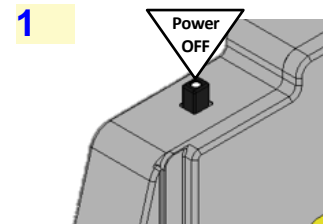
Validate the precision of the device every 10 vehicles, using ONLY the validation weights provided by Chevalier Tech.

To validate your device, follow the steps below:

1. Make sure that the device is powered off.
2. Place the FODHF device horizontally, on a flat and levelled surface.
3. Power on the device. There will be 3 rapidly **flashing Red** indicators, followed by no light for up to 5s. The tool will be ready for use validation after the indicator colour is **Solid Red**.
4. Gently place the provided validation weight (200 g) on the measurement plate, as seen in the left picture.

5. Make sure that the validation weight is resting solely on the measurement plate.

6. If after 1 second the indicator:
  - a. Is **blinking Green**, the tool is **validated [OK]**.
  - b. Is **blinking Red** **OR** it has any other indication **OR** there is no light, the tool is **not validated [NOK]**.
    - i. In this case, replace the battery and repeat the validation process.
    - ii. If the **validation NOK** persists, please inform Chevalier tech for further instructions.



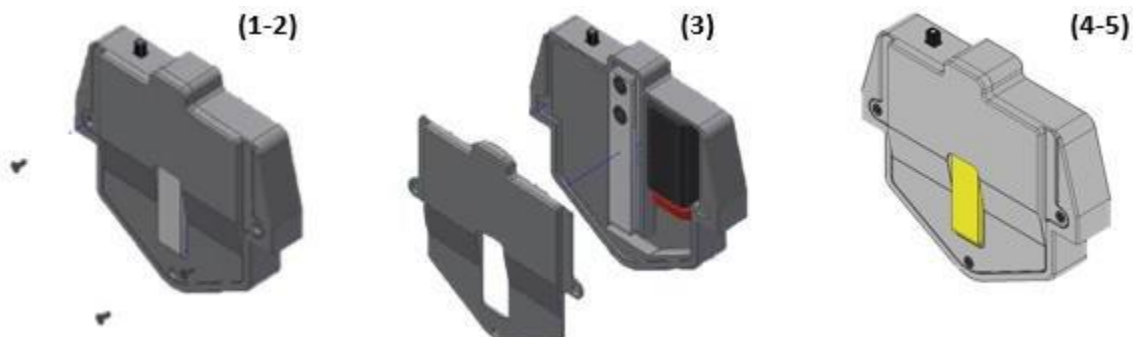
## 5.2. Battery replacement procedure.

If the device indicator blinks Red/Green, the battery level is low and requires replacement. It is necessary to use the same battery type: 6LR61 – 9V.

Steps to follow for the battery replaced procedure below:

1. Switch off the device.
2. Remove the screws from the top face device (3x M2.5)
3. Remove the top cover housing, getting access to the battery.
  - a. Disconnect the current battery.
    - i. Attention: Don't pull hard the wire of the connector as it might damage the PCB inside the tool. Handle with care.
  - b. Place the new battery.
    - i. Attention: battery connector facing down.
    - ii. Attention: The battery has polarity. Make sure that the polarity is correct.
    - iii. Attention: The battery snaps securely with the connector. No excessive force is necessary.
4. Place the top cover housing and screw the 3x M2.5 to complete the assembly.
5. Power on the device by pressing the top left switch. If 3 rapid red flashes followed by no light indicator for up to 5 seconds and after a Solid Red indicator → Device is ready to use again.
  - i. If after battery replacement procedure, the indicator is always blinking Red after power on OR there is no light, something went wrong. Please inform Chevalier tech for further instructions.

See picture below with the steps to follow for battery replacement:



## 6. Safety Considerations and Warning

Any measurements using a damaged tool are potentially not reliable. It is the responsibility of the user to report a damaged tool to Chevalier Tech for further instructions.

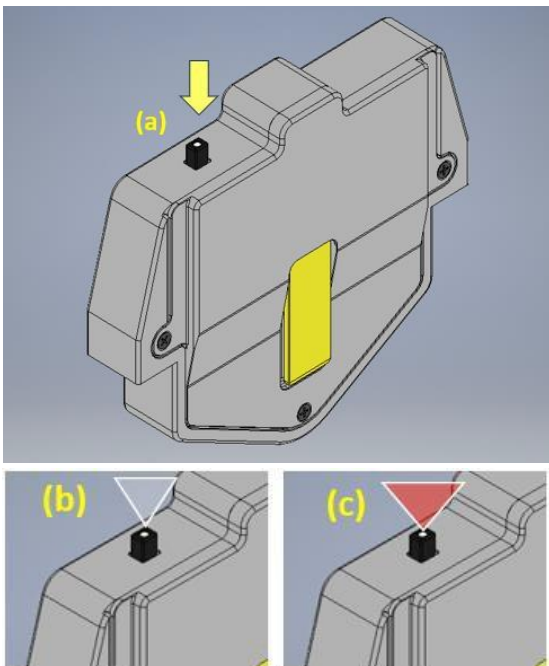
## 7. Work Instructions - How to Measure

### INITIAL AND IMPORTANT CONSIDERATIONS

Parts may be damaged if: dropped, exposed to water, force in excess of 5kg applied to load plate. Normal operating temperature of tool is 5 °C to 40 °C  
Inspect part for physical damage before use the device.

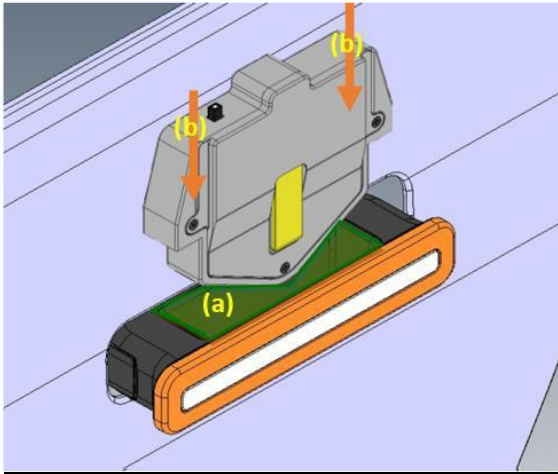
Run validation procedure to confirm tool is fully functional.

The first test result should always be taken to determine OK/NOK result.



### 1. POWER ON the tool.

- I. Place the tool vertically.
- II. Switch w/ Led facing up.
  - a) **PRESS the switch.** Immediately, 3 rapid Red Flashes to inform that the device is powered on.
  - b) No light indicator for up to 5 seconds.
  - c) **Tool ready to use ONLY after:** continuous solid RED indicator.

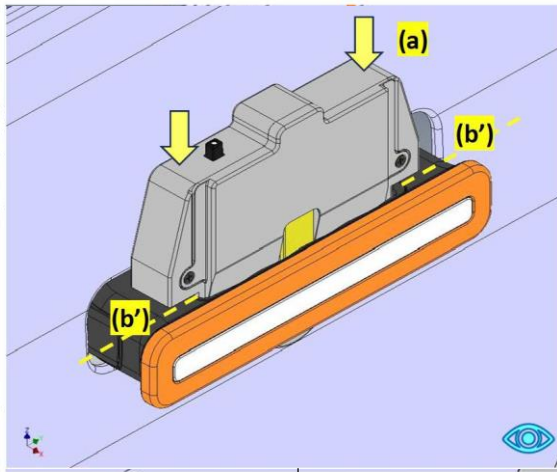


## 2. Inserting the tool into the handle.:

Ensure the tool was switched ON and has the **solid red indicator**, before insert tool.

- a) Deploy the handles.
- b) Insert the tool into the handle from above.
- c) Visually check the tools is fully inserted.

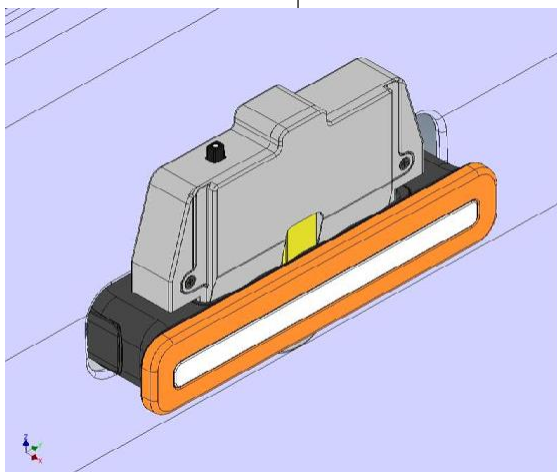
<O> by pressing the top sides.



## <O> VISUAL CHECK for evaluation before start test.

- (a) Ensure tool is fully IN, pressing the top sides.
- (b) 90° angle (device side) facing door handle.
- (b') Mate with grab hand upper side face.

**System is ready to start the checking process.**



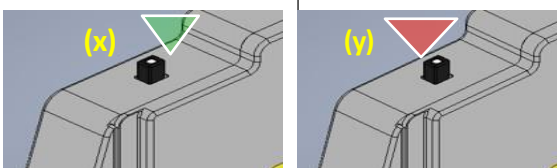
## 3. Measuring the handle force:

- I. Retract the door handles.
- II. Once grab hand touches the load cell, measurement process will start.
- III. Tool will process the value and show results:

(x) **Solid Green light: PASS (OK part).**

(y) **Solid Red light: FAIL (NOK part).**

- IV. To remove the tool:
  - a) Deploy the handles.
  - b) Remove the device.
  - c) Go to next door and repeat process (starting from point 2.b).

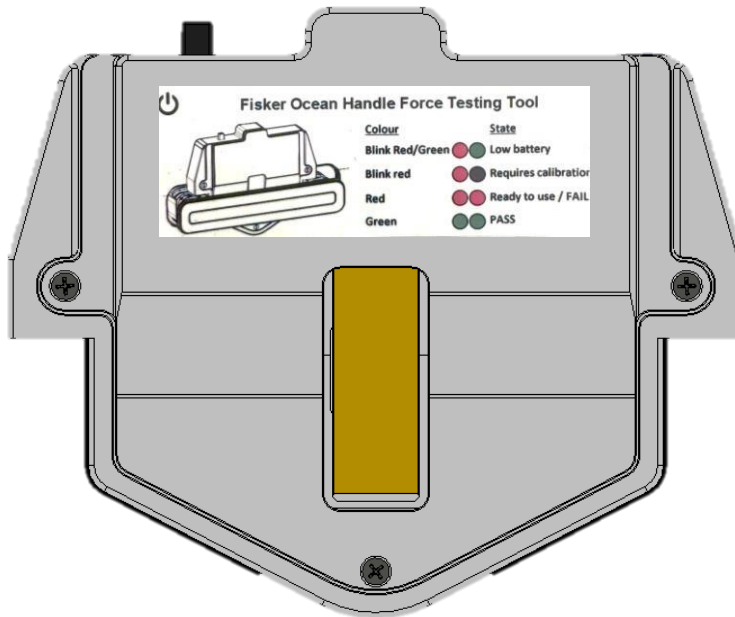







## 8. Threshold force definition

The minimum force threshold for an OK handle is 7N. This has been determined through extensive testing of NOK and OK parts at Chevalier, vehicles at Fisker Milton Keynes and Magna Graz including vehicles at 23°C, -20°C, and 60°C.

## 9. Indicator

\*The device will contain a label with the color code information for easier understanding of any possible state that can be showed by the tool, before/ during/after the checking procedure.



<u>Colour</u>	<u>State</u>	<u>Solution</u>
Blink Red/Green 	Low battery	Change Battery
Blink red 	Tool requires to be restarted	Power off and on the tool
Blink Green 	Tool successfully validated	Device OK
Red 	Force under threshold	<u>Ready to use / FAIL (NOK)</u>
Green 	Force over threshold	<u>PASS (OK)</u>