



DESIGN MODIFICATIONS

# DESIGN MODIFICATIONS AND EQUIPMENT UPGRADES (DMEU)

Berthon has many years of experience in design modification as well as excellent facilities for the provision of technical support and equipment upgrades for the commercial, government and private sectors. Under its current contract with the UK Ministry of Defence (MoD), Berthon provides DMEU services to their small boat fleet, a role that we have held for over 10 years.

Berthon's well-established management processes help deliver these services, supporting other government organisations as well as the commercial sector. We can also provide bespoke design services either in-house or working with independent marine design consultants.

---

## MANAGING YOUR DESIGN MODIFICATION TASK

Berthon can take responsibility for the comprehensive management of the design modification or equipment upgrade. Prior to supplying a quote, Berthon will also carry out a man-hours assessment, as well as addressing the specific requirements to ensure that the proposed modifications of a boat will not compromise or impact on any operational or safety aspects of the boat. Berthon will conduct all the stability analysis and assessments required for the boat and, where necessary, undertake inclining experiments to confirm the boat's displacement, LCG and VCG as inputs to the stability book, as well as swamp and heeling tests.



ABP Pilot boat on site from refit and upgrade programme



Engine refit on MoD police patrol vessel



Equipment and engine upgrades on commercial and MoD craft

## CASE STUDY - RIB ENGINE UPGRADE

In June 2013, Berthon was tasked with carrying out a DMEU assessment on a Pacific 28 RIB, concluding that the Yanmar 6LPA-STP was the suitable replacement engine for the Yamaha ME421 engines. Berthon's carried out the study and produced a drawing pack that set out clearly how the new engine was to be installed. A separate review of the safety case was carried out. This included a study on the impact of the vessel's weights and centres, hull structure, stability, lifting and tie-down.

The conversion of the first Pacific 28 to the new engines was completed and deemed a success for this government fleet operator.



Pacific 28 RIB upgrade

## CASE STUDY - PILOT BOAT LIFE EXTENSION, ABP PORTS

Berthon re-fitted the Pilot Boat "Providence" for Associated British Ports (ABP) as part of an intended life-extension programme (see separate case study). Berthon was commissioned to install lighter and more fuel-efficient machinery to assist in the reduction of running costs and improve boat speed. Other objectives included adjusting the wheelhouse accommodation layout, and the modernisation of the navigation and communication suite to better suit the operational role of the boat. A DMEU task was undertaken to select the best equipment and design that would minimise the impact on the weight and centres of the vessel and its stability, as well as achieving the best performance without compromising safety. The overall project was a huge success, with the operator extending the life of the pilot boat by an estimated 10-15 years.



Providence, ABP pilot vessel refurbished helm



Supporting multiple refits and upgrades on MoD and commercial vessels onsite at our Lymington facility

## Certificate of Recognition and Appreciation

3 ARUN CLASS, 21 SEVERN CLASS AND 12 SHANNON CLASS ALL-WEATHER LIFEBOATS



This certificate celebrates the long and successful partnership between Berthon Boat Company and the Royal National Lifeboat Institution (RNLI). This partnership has played a key part in equipping the RNLI in its mission to save lives around the coasts of the UK, Republic of Ireland, Isle of Man and Channel Islands.

Between 1986 and 2015, the RNLI and Berthon worked together to build 3 Arun class, 21 Severn class and 12 Shannon class lifeboats.

**Total lives saved between 1986 and 2015: 584**

Charles Hunter-Pease, RNLI Chairman

