

DESIGN AND CONSTRUCTION OF AN OUTBOARD ENGINE

LIFT PLATE ON A 1 GT BOAT

Student Name : Muhammad Irawan Candra

NIM : 1103230042

Supervisor : Muhammad Ikhsan, S.T., M.T

ABSTRACT

Fiberglass boats on Bengkalis Island generally use outboard engines as their main propulsion, with an average size of 5 meters in length and 1.2 meters in width, equipped with outboard engines rated at 5-7 HP. The waters of Bengkalis Island have particular characteristics, namely extensive shallow and muddy areas, especially along river channels. In order for the thrust generated by the propeller to work optimally, the outboard engine must be positioned at a certain depth below the water surface. However, in shallow water conditions, boat users frequently have to manually raise the engine's position to avoid collisions between the propeller and the bottom of the waterway. This adjustment of the engine position can affect thrust, boat stability, and operational comfort. This research aims to design an up-down outboard engine bracket with a rotating handle mechanism to make it easier to adjust the engine's depth according to water conditions. The research method includes designing the bracket, calculating structural strength to ensure safety and the ability to withstand the outboard engine's load, and fabricating a physical prototype of the bracket. Testing is focused on functional testing and ease of operating the system manually. The expected result is the creation of an up-down outboard engine bracket that can be installed on fiberglass boats, with a design that is strong, lightweight, and easy to operate. This research is expected to reduce the risk of damage to the engine and propeller; expand the boat's operational range into shallow waters, and provide ease of use for boat users on Bengkalis Island.

Keywords: *Design and Construction, Lift Plate, Outboard Engine, Rotating Handle Mechanism, Fiberglass Boat*