

Hamilton Jet Model HM811
Application Review

Famille Dufour II Engine Upgrade Boosts Laden Speed



When launched in 1995, the engines in the Canadian fast ferry “Famille Dufour II” were rated at a modest 1640kW each which enabled the twin HamiltonJet HM811 propulsion system to produce thrust for a speed of 30 knots with the vessel lightly laden (refer JetBrief No.266 August 1995). However, upgrading work on the engines during the northern winter of 1996 boosted the power output to 2088kW a piece, which has resulted in fully laden speeds in excess of 35 knots.

▶ Brief Specifications

NAME: MV Famille Dufour II	WATERJETS: Twin Hamilton Jet Model HM811
SERVICE: Passenger Ferry	WATERJET CONTROLS: Hamilton Jet Electronic
LENGTH: 40.00 metres [LOA] 34.20 metres [LWL]	ENGINES: Twin Caterpillar V16 diesels Model 3516B, each 2088kW (2800hp) @ 1880rpm
BEAM: 10.50 metres	GEARBOXES: Twin ZF model BW 750 reduction/reversing type
DRAUGHT: 1.37 metres [static]	DRIVELINES:
CONSTRUCTION: Aluminium	DESIGNER: Rejean Desgagnes Concept Naval Inc., Quebec, Canada
DISPLACEMENT: 160 tonnes [maximum] 130 tonnes [lightship]	BUILDER: La Goelette Marie-Clarisse Inc, Quebec, Canada
PAYLOAD: 300 passengers	OPERATOR: Famille Dufour Cruises, Quebec, Canada
CERTIFICATION: A.B.S (waterjets)	
SPEED: 35+ knots (fully laden)	

As well as upgrading the power output of the Caterpillar engines, adjustable trim-tabs were fitted to the hulls and the ratio of the reduction gearboxes changed. The waterjets electronic control system was reprogrammed, by technicians from Hamilton Jet’s factory-based field service team, to interface directly with new electronic engine governors fitted to replace the mechanical types originally installed.

Because of the flexibility of the Hamilton Jet design, which allows each model to operate over a relatively broad power envelope, no major work was required on the propulsors to accommodate the increased engine power – the impeller blades were simply re-pitched to suit.

The upgrade has provided the operators with the facility to reduce transit times as the vessel transfers guests between hotels in the Famille Dufour chain spread along the St. Lawrence River. As Propulsive Efficiency generally rises as speed increases, it is expected that higher Transport Efficiency Factors will be able to be achieved, despite the increase in power input.

