



Press Release – 30th May 2010

Joystick Maneuvering System (JMS™) – in Shaftline Propulsion Systems

The **Joystick Maneuvering System (JMS™)** developed by the ZF Marine Electronics Group is a control system providing the helmsman with simple and intuitive boat control which can be matched to all ZF Marine CAN-based propulsion systems.

Interfaced with ZF Marine's **ZF SmartCommand™** control systems controlling engines in a twin-engine vessel with a traditional shaft-line system, it provides the same ease of control as expected from azimuth pod drive systems. Maneuvers such as moving sideways to the quay, 360° rotation on the spot and other complicated maneuvers, difficult with standard control levers, become easy operations since the electronic **JMS™** system also controls the speed of acceleration of the engines and smoothly shifts the transmissions. This means driving a pleasure craft becomes even more pleasurable, simple and safe!

The "Hold Heading" function, integrated with an electronic compass, keeps the vessel going in a certain direction, fine tuning the propulsion system to compensate for current, wind or other external forces on the vessel.

The optional iAnchor™ function, integrated with a GPS receiver, enables the vessel to be kept at an exact position and orientation at the press of a button.

It is also possible to install up to 6 control stations enabling maneuvering of the boat from any location.

JMS™, with all its options, can be retrofitted in existing vessels with electronic engine interface, ZF transmissions and **ZF SmartCommand™** control systems.

Joystick Maneuvering System (JMS™) - in multiple POD Drive Systems

The ZF Marine Group offers ZF POD Drive systems for motor yachts up to 120 ft of length powered by engines up to 1200 hp.

ZF POD Drive systems are steerable pod unit with twin, counter-rotating propellers in twin or multiple installations. The ZF POD units are compact and lightweight and represent the latest evolution of these drives already on the market, from which it distinguishes itself by an innovative and patented system which keeps the vessel at a given position.

The advantages of the ZF POD are numerous, particularly regarding the performance. The superior efficiency of the ZF POD, compared to traditional propulsion systems, results in increased cruising speed of up to 15% with the same installed power. This improved performance is accompanied by up to 20% reduction in fuel consumption, with corresponding environmental benefits.

Concerning the maneuverability when docking, the ZF POD is controlled by the **joystick maneuvering system (JMS™)** which is connected to the integrated electronic control system **ZF SmartCommand™**. All functions are controlled intuitively, for easy and safe handling of the vessel. Each pod unit is independently steered, guaranteeing excellent stability when executing turns. When cruising, maneuverability is exceptional, thanks to an electronically controlled steering system which actuates the POD.

The standard ZF POD comes complete with the iAnchor™ function, whereby controlled actuation of the pod units enables the vessel to automatically maintain a set position, even in the presence of wind and currents.

Also, regarding safety, the ZF POD has significant advantages because the body of the unit itself protects the aft-facing propellers from floating debris.

The compact dimensions of the unit significantly increase the available space on board and the anti-vibration brackets, connecting the ZF POD to the hull, greatly reduce vibration and noise.

Joystick Maneuvering System (JMS™) - in single POD Drive Systems

ZF Marine offers a new approach to POD drive and joystick control technology in small pleasure craft applications. Now joystick control is available to an even larger segment of the pleasure boat market.

In conjunction with SeaVee boats, ZF Marine has developed a complete propulsion system solution around a center console sport fishing application that will offer joystick control and maneuverability while employing the pleasure craft industry's first single POD driveline.

The heart of the single pod propulsion package from ZF Marine incorporates:

The ZF 2800 Series POD drive rated at 480bhp. This POD has been redesigned to offer 180 degrees of total movement, (90 degrees of rotation to both port and starboard from the centerline).

The ZF BT-E 185 AC Thruster which is designed to offer proportional thrust, 30 minute continuous duty cycle, and smooth, quiet operation thanks to a patented thruster tube design.

ZF Marine's proven **SmartCommand™** controls with Joystick Maneuvering System (JMS)

The **JMS™** system is engaged when the Easidock™ feature is activated via a button touch on **the SmartCommand™** control head. During normal "at sea" operation the 2800 POD drive is restricted to 30 degrees of movement in either direction from center. This restriction of movement is released in Easidock™ mode and the POD now has full 180 degree movement. The ZF BT-E 185 AC Thruster is also brought online at this time.

As the vessel operator directs the joystick in any direction or combination of directions the **JMS™** system incorporates POD thrust and varying amounts of thrust from the bow thruster. Proportional control of the thruster means smooth engagement, and only as much thrust as needed to move the vessel in the desired direction. Proportional thrust, combined with an electronic compass tied to the main **JMS™** control unit means there is no vessel yaw during sideways movement.

ZF Marine's iAnchor™ station keeping functionality is also included in the Single Pod System. With the press of a button, iAnchor™ will compensate for wind and current holding the vessel's position to as little as a 3 foot radius.

Company profile

ZF is a leading worldwide automotive supplier for Driveline and Chassis Technology with 117 production companies in 26 countries. With its workforce of approximately 70,000 employees, ZF achieved sales of 12.9 billion euros in 2010. In order to continue to be successful with innovative products, ZF annually invests about five percent of its sales (2010: 646 million EUR) in Research and Development.

The Business Unit "Marine Propulsion Systems" is a leader in the marine market. Coordinated through its headquarters at the location ZF Padova, Italy, ZF Marine has in the year 2010 a total of 14 plants located in Italy, Germany, The Netherlands, United Arabian Emirates, Turkey, USA, Brazil, China, Indonesia, Singapore, and Taiwan with 1,470 employees and sales of 247 million Euro.

ZF Marine supplies complete propulsion systems and components for all types of vessels - motor yachts, defense craft, high-speed ferries, workboats and commercial vessels, in a power range from 10 to 14,000 kW - to customers including major shipyards and engine manufacturers worldwide.

The product portfolio includes a comprehensive range of transmissions (reversing, non-reversing and hybrid), propellers (controllable and fixed pitch) together with associated shafts, seals and bearings, also POD-drive systems, steering systems and CANbus-compatible, electronic control systems, azimuth thrusters, tunnel thrusters, bow thrusters and sail drives.

For more information on products and services from ZF Marine, please visit www.zf.com/marine