

TMQ C-DRIVE

ELECTRIC STEERING & AUTOPILOT

A technologically advanced steering control unit for Electric Steering & Automatic Pilots



Innovative Design

Add TMQ Display for Autopilot

World class navigation at your command



C-DRIVE

The TMQ C-Drive represents a new concept in marine electric steering, providing precise control in a variety of modes to suit your individual requirements.

The innovative system allows many configurations to suit both single and dual rudder installations with full electric tie-bar operation.

The minimum C-Drive system consists of the following units:

- C-Drive MCU
- Rudder Feedback Unit (RFU)
- Electric steering wheel or lever
- Hydraulic drive which may include a solenoid valve
- Emergency Steering Provision

The C-Drive unit is housed in a rugged black aluminium case, which is installed inside a dry locker or other protected position. It requires a supply voltage of 12 or 24 volts dc.

The Rudder Feedback Unit (RFU) is attached to the steering device to accurately measure the movement of the ship's rudder. There is an option for a heavy-duty rudder feedback unit for commercial vessels instead of a standard rudder feedback.

The TMQ C-Drive electric steering provides control for up to three individual steering wheels or levers. The electric steering wheel or lever provides the input to the C-Drive unit for the required angular position of rudder. For multiple stations, a station select button is required.

- Electric Helm Unit
- Full follow Up Steering Lever
- Jog Joystick.

The TMQ C-Drive is capable of controlling two independent steering units. The drives may be solenoid valves or reversing pumps. The system facilitates a single or dual rudder system operating from a common input. The drive system provides the physical movement to the rudder responding to the direction control signals provided by the C-Drive system.

Rudder Actuator Systems may comprise the following:

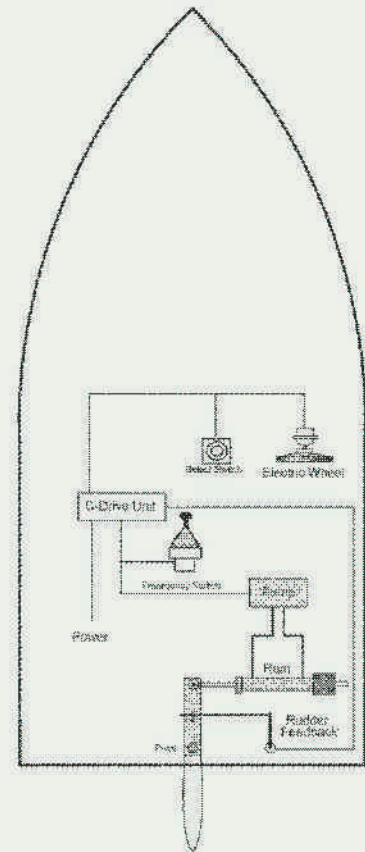
- Solenoid valves connected into an existing power steering system
- Solenoid valves connected to a continuous running pump (PTO or electric driven)
- Reversing motor and pump unit connected into an existing hydraulic steering system

For safety, an emergency steering facility should always be installed; TMQ recommends an emergency steering switch to operate solenoid valves.

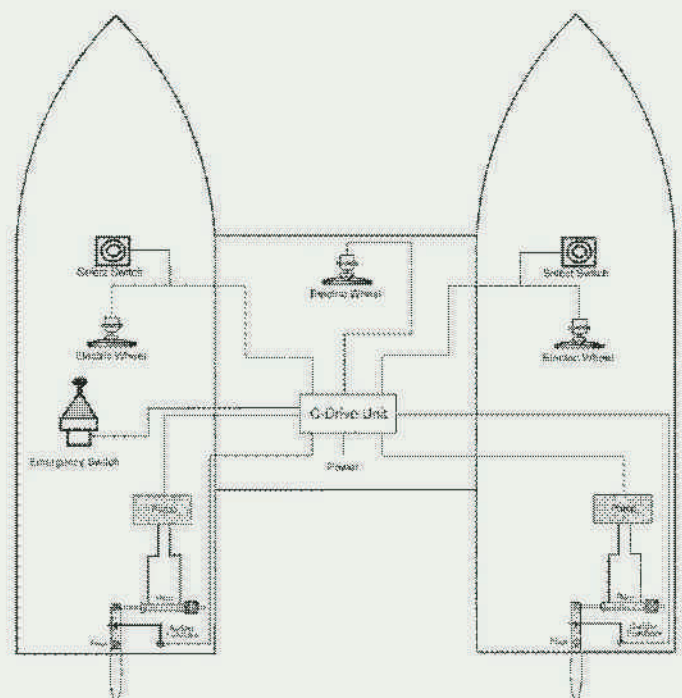
The C-Drive system can be upgraded to incorporate an autopilot; this option can be added at any time. Autopilot upgrade requires:

- AP500 display, AP55 display, AP600 display, and
- Fluxgate compass

SINGLE STATION ELECTRIC STEERING SINGLE DRIVE UNIT



CATAMARAN WITH THREE STATION ELECTRIC STEERING & ELECTRIC TIE BAR



AUTO PILOT

With a TMQ autopilot unit controlling your vessel the automatic steering continually corrects the direction of the vessel to maintain a pre-set course. This achieves the shortest distance between given points, thereby reducing the actual cruising time and providing a greater fuel economy.

Whatever your vessel size and budget we have an autopilot system to suit your needs. The basic C-Drive system can be added with any choice of TMQ NMEA display heads.

Each of the display units features a large LCD display, with the AP600 featuring a colour display. Each display has the following characteristics:

Mode Selection - Any of a number of modes can be selected from the push pads on the control head

Manual - In the "Manual" mode the autopilot gives steering control back to the helm. All display heads will display the magnetic compass heading.

Auto - In the "Auto" mode the autopilot will maintain the vessel on any desired magnetic course. The course can be changed from any of the main station or remotes.

Rudder Response - This allows customised performance of the autopilot to suit your vessel under varying conditions.

Rudder Angle - In "Manual", "Auto" and "GPS" modes a bar display shows the angle of the rudder. This feature can be turned on or off.

Off-Course Alarm - An off-course alarm sounds if the vessel's heading changes by more than 45 degrees.

GPS using NMEA 0183 - Once set, the autopilot can steer the vessel to a waypoint or through a series of waypoints.

Drive Units - TMQ can supply a range of drives to customise your installation.

SPECIFICATIONS

	AP55	AP500	AP600
Voltage:	12 - 24vdc	12 - 24vdc	12 - 24vdc
Current:	Manual - 0.4 Amps Auto - 1.5 Amps Maximum - 15 Amps	Manual - 0.4 Amps Auto - 1.5 Amps Maximum - 15 Amps	Manual - 0.4 Amps Auto - 1.5 Amps Maximum - 15 Amps
Controls:	Push Button	Push Button / Job Dial	Push Button
Display:	LCD	LCD	Colour LCD
Course Detection:	<1 degree	< 1 degree	<1 degree
Sensitivity:	0 to 10 degrees	0 to 10 degrees	0 to 10 degrees
Rudder Ratio:	0.1:10 to 1.0:1.0	0.1:10 to 1.0:1.0	0.1:10 to 1.0:1.0
Rudder Limits:	Adjustable	Adjustable	Adjustable
Rate of Turn:	10 degrees / second	10 degrees / second	10 degrees / second
Off-Course Alarm:	Adjustable	Adjustable	Adjustable
NAV Signal:	NMEA 0183	NMEA 0183	NMEA 0183

THE DISPLAYS



AP55 Head



AP500 Head



AP600 Head

THE SYSTEM



RUDDER FEEDBACK UNIT



C-DRIVE MCU



COMMAG

THE DRIVE UNITS



REVERSING PUMP



CONTINUOUS PUMP



LINEAR DRIVE

THE OPTIONS



RUDDER ANGLE INDICATOR



HAND REMOTE



STEERING LEVER

ACCESSORIES FOR C-DRIVE



Electric Helm

The TMQ Electric Steering Helm provides precise, light steering on any vessel with a power steering system installed. It simplifies vessel fitout by eliminating long hydraulic lines to the helm position.

Rudder Angle Indicator

The rudder angle indicator is a flush-mounted instrument, providing a clear indication of current rudder position, which is critical in docking or manoeuvring in close quarters with other vessels.



Jog Joystick

The jog lever is a spring loaded centre return switch which moves the rudder in the required direction when operated.



Full Follow-Up Lever

The full follow-up lever allows precise positioning of the rudder. Movement of the lever (port or starboard) causes the rudder to be moved proportionally.



Hand Remote

Hand remotes provide the freedom to maintain full control of the autopilot and steering, while moving about the vessel.



Digital Remote

The digital remote is a compact, water-resistant remote control, which can be added to the C-Drive to give an autopilot control. The choice of either a horizontal or vertical orientation allows for a clean, uncluttered helm position.



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