

MRS

HYDRAULIC ENGINE CONTROL SYSTEM **MRS**

marol *PRO*
Premier Steering and Control Systems



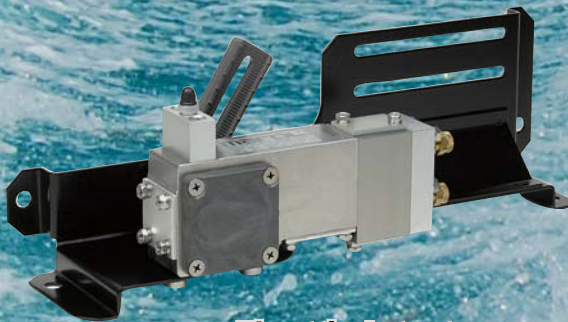
**Twin Lever
Control Head
CH-22A**



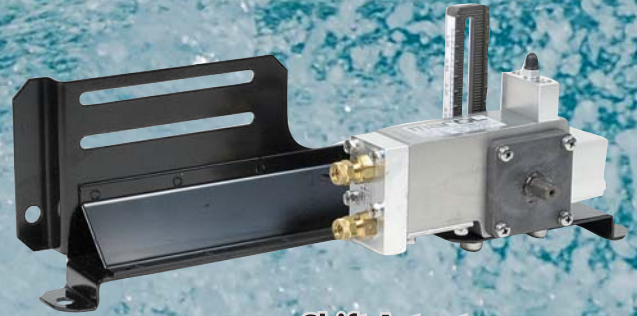
**Single Lever
Control Head
CH-22TI**



**Charge Tank Unit
ACV-100**



**Throttle Actuator
MMR-22T**



**Shift Actuator
MMR-22S**

FEATURES

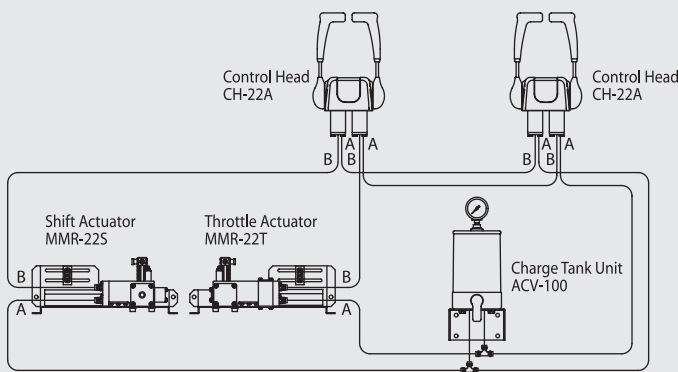
- The system can be used for control of shift, throttle, trolling valve, CPP, PTO and waterjet.
- Dependable control for luxury cruisers, workboats and commercial fishing boats.
- Proven performance and reliability for over 30 years.
- Hydraulic controls provide precise control of shift and throttle, without friction, backlash or lost motion.
- Up to three stations possible depending on length of tubing run.
- Unique and highly accepted feel.
- Simple installation.

How it works

The movement of a sender's control arm transmits mechanical energy to an internal piston which in turn pushes hydraulic fluid through the other corresponding control senders and single control slave. This movement of hydraulic fluid drives a piston in each of the senders and slave. The movement of the individual pistons causes shaft rotation in each unit. The piston in each of the individual control senders and slaves has two small valves which are opened when the piston reaches the end of its stroke, allowing additional fluid to pass through the system. By allowing this flow of hydraulic fluid, the controls may be synchronized with each other by moving the control arm at one control station from stop to stop. The slave for the transmission has a built-in detent mechanism to indicate neutral position. On most engines the throttle exerts considerable force to return to the idle position. Each throttle slave is equipped with a pilot check valve which locks the throttle slave in the position it has taken in response to the sender. The throttle slave can be driven only by the sender, it cannot drive the sender. Extra hydraulic fluid and a pressure head for the system is maintained by the system's reservoir. The reservoir is charged with 0.6 MPa of hydraulic fluid within it. This keeps the entire system under pressure at all times when the system is operated. Fluid-flow to and from the reservoir is regulated by a charging valve located on the bottom of the reservoir. This valve is necessary to keep the system under pressure, and to prevent excessive pressures caused by the expansion of fluid when the fluid becomes warm. Nylon tubing is used to pipe the system for two reasons: (1) ease of installation, (2) nylon tubing expands and contracts in very much the same manner as the hydraulic fluid (a most important factor). The expansion and contraction of the tubing reduces drift of the controls as temperature changes, thereby helping to keep all the components of the system synchronized. The tubing is virgin nylon, which has been heat and light stabilized and contains no plasticizers.

Hydraulic Engine Control Systems for Reverseable Gearboxes or Stern Drives

System Diagram

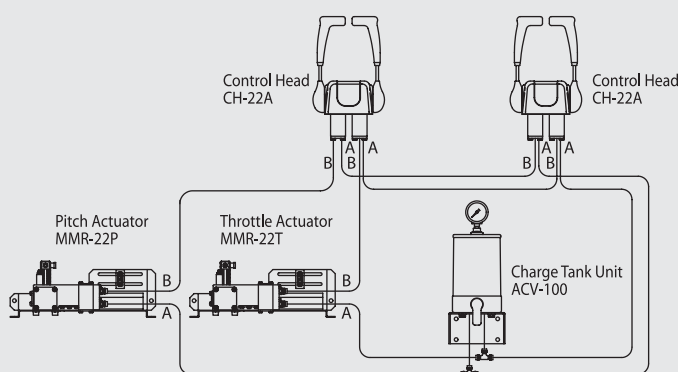


System Components

Item			Control Head	Shift Actuator	Throttle Actuator	Charge Tank Unit	Nylon Tube
			CH 22A	MMR 22S	MMR 22T	ACV 100	TH04 50M
System Model	Single Station	MRS-SS1	1	1	1	1	1
	Twin Station	MRS-SS2	2	1	1	1	1
	Triple Station	MRS-SS3	3	1	1	1	2
Single E/G	Single Station	MRS-WS1	2	2	2	2	2
	Twin Station	MRS-WS2	4	2	2	2	2
	Triple Station	MRS-WS3	6	2	2	2	3
Additional Station	MRS-CH-22	1					

Hydraulic Engine Control Systems for Controllable Pitch Propellers or Waterjets

System Diagram



System Components

Item			Control Head	Pitch Actuator	Throttle Actuator	Charge Tank Unit	Nylon Tube
			CH 22A	MMR 22P	MMR 22T	ACV 100	TH04 50M
System Model	Single Station	MRS-SS1	1	1	1	1	1
	Twin Station	MRS-SS2	2	1	1	1	1
	Triple Station	MRS-SS3	3	1	1	1	2
Single E/G	Single Station	MRS-WS1	2	2	2	2	2
	Twin Station	MRS-WS2	4	2	2	2	2
	Triple Station	MRS-WS3	6	2	2	2	3
Additional Station	MRS-CH-22	1					

Miscellaneous Parts

Part Number	Description	Parts Number	Description
TH-04-50M	Nylon Tube (50m)	MRS-CC33-KIT	Cable Clamp Kit for 33C Cable
20-364-U1/4	T-Connector	MRS-CC43-KIT	Cable Clamp Kit for 43C Cable
20CC334XX	Straight Connector (with O-Ring)	VT-1	Purge Tube

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