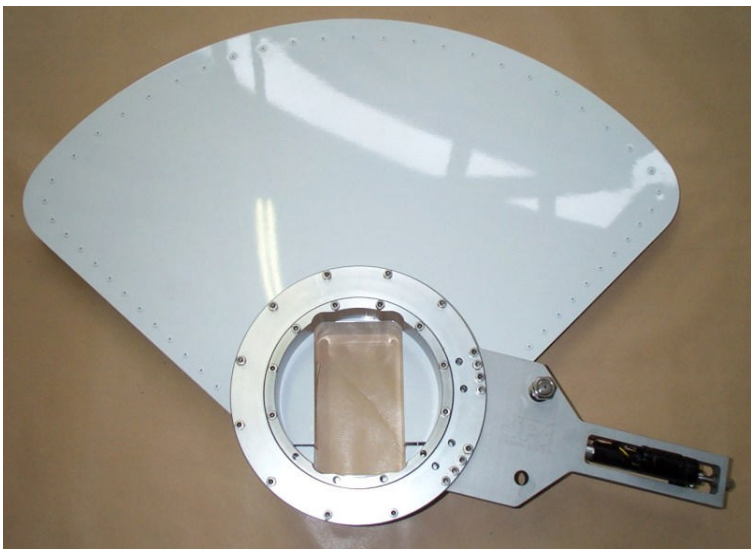


AUTOPILOT DISENGAGEMENT UNIT

As sailing yacht projects have become more and more ambitious and of higher performance the loads on the steering system have naturally increased. This has resulted in greater loads and less feel in the steering system both for hand steering, detracting from the pleasure of steering a sailing yacht by hand.

These helm loads are further increased by the size of the autopilot rams fitted to match the increased rudder loads of this new class of yacht.

The overcome these problems JP3 has designed and developed a system that allows the autopilot steering rams to be connected and disconnected from the steering.

Each unit is custom made to architects specifications ensure both the quadrant radius and autopilot geometry are the optimum to ensure perfect steering

Thank you, for choosing a JP3 quadrant and Autopilot Disengagement unit. We are sure these components will contribute to make your sailing more comfortable and more enjoyable.

1. Installation

The quadrant and autopilot tiller is shipped bolted together.

These two parts can be separated to ease installation however due to the autopilot disengagement unit is continuous ring and has to be installed at the time the rudder is fitted.

If the autopilot disengagement unit in not fitted the rudder will need to be lowered to allow the unit to be installed.

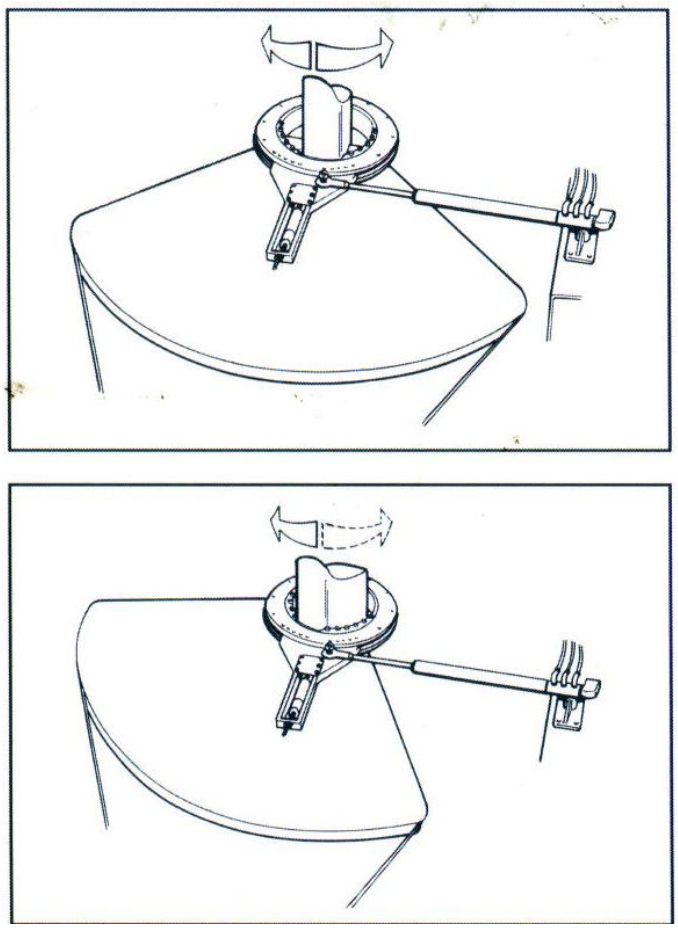
The JP3 Autopilot Disengagement unit is shipped with a command box to interface autopilot wiring. Its purpose is to invert actuator input polarity to extend or retract the actuator correctly.

Refer to Section 3, Electrical Connections and Installation Details.

The Autopilot supplier and Electronics installer must be consulted to ensure the Autopilot rudder reference unit is installed in the correct location for the brand of Autopilot installed

2. Operation

The principle of operation of the Autopilot Disengagement is to allow the autopilot ram or rams to be engaged and disengaged from the quadrant and rudder by means of a simple lock powered by an electric actuator.



- The operation of the lock is controlled by the autopilot as outlined in section 3.
- It is not essential that the autopilot be perfectly aligned when the Autopilot is turned ON.
- The locking mechanism is fitted a compression spring and a small guide at the inner end.
- When the pilot is engaged, the actuator will be also be engaged, if the tiller and quadrant are not aligned correctly the compression spring between the actuator and lock will be compressed. The compression spring allows the actuator to be engaged in any position; the small guide allows the lock to run smoothly on the inner race of the tiller as it finds the lock groove.
- To engage the lock move the quadrant backwards and forwards with the steering wheel until the lock engages. This will be felt at the wheel, as the steering load will increase.
- To return to manual steering, disengage the autopilot, this in turn will power the actuator in the opposite direction disengaging the lock.

3. Emergency Lock

Each tiller is fitted a series of emergency bolts holes and threads. The size and number of these will vary with each unit.

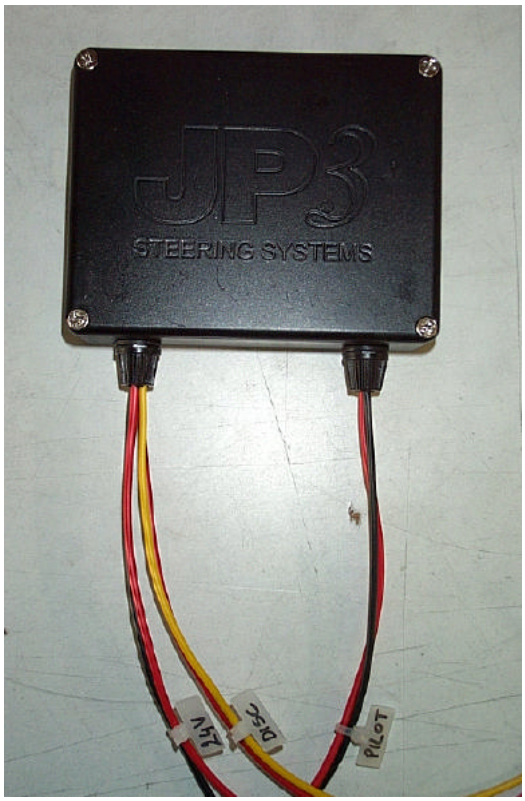
In the case that the actuator fails and the pilot cannot be engaged to the quadrant the Autopilot tiller can be locked to the quadrant by these bolts.

Manual steering should also be possible as typical hydraulic autopilot steering systems are fitted with a hydraulic system bypass valve.

Refer to the Autopilot Manual or consult the Autopilot supplier

4. Electrical Connection

The JP3 Autopilot Disengagement unit is shipped with a command box to ease autopilot wiring. Its purpose is to invert actuator input polarity to extend or retract it correctly.



AUTOPILOT DISENGAGEMENT UNIT COMMAND BOX

The command is fitted with three pair of wires as follow:
The relay inside the command box can alternatively be installed on a standard DIN rail elsewhere in the vessel.

Note: These lines are only temporary and should be replaced with final lines when the command box is installed in the boat.

12V or 24V:

This is the Command box power supply. The voltage is to be specified at the time of ordering.

The 12VDC actuator will operate on a supply voltage between 10 and 13 VDC. The 24VDC actuator will operate on a supply voltage between 20 and 26 VDC.

Amperage is minimum 6A for a 12V actuator or 3A for a 24V actuator.

Note: The linear actuator is fitted with internal limit switches. These limit switches turn off the power supply to the actuator once full stroke is reached in either direction.

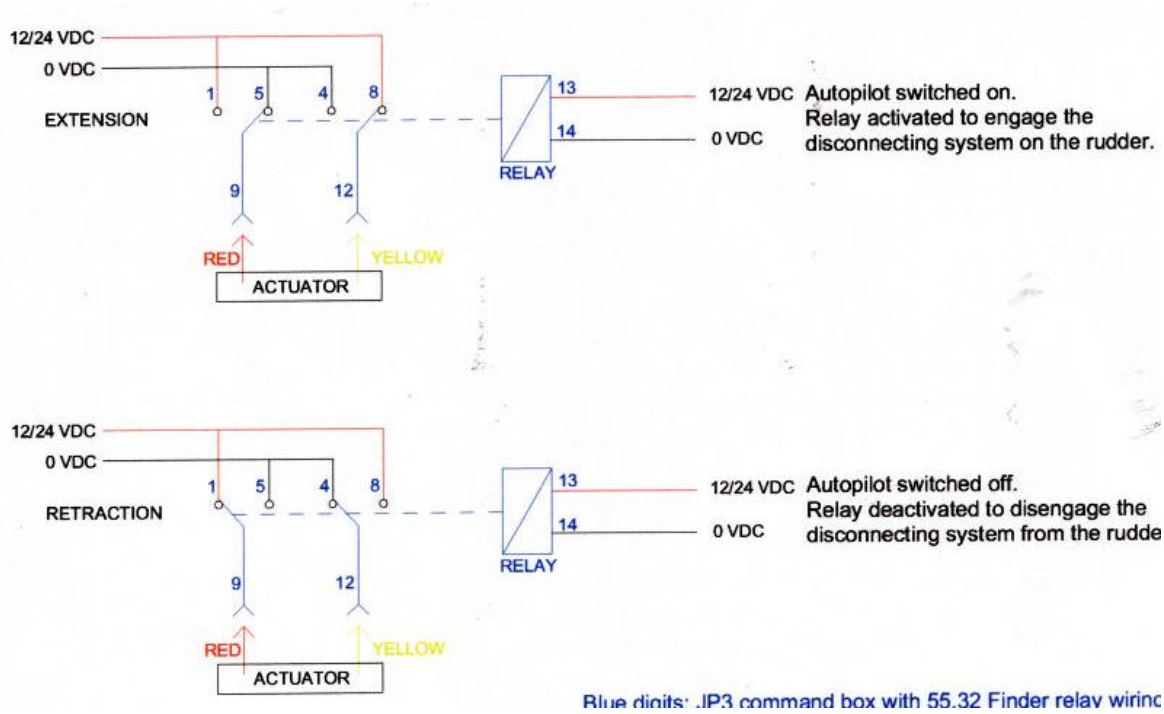
Disc:

Disconnecting unit actuator power supply.
Connect this pair to the actuator (red on red, yellow on yellow).

Pilot:

Disconnecting unit command.
This pair should be linked to the autopilot.

Apply proper voltage (12V or 24V) on this pair to engage the disconnecting unit on the steering system. 0 V automatically disengages the disconnecting unit.



Electrical Operation

When the Autopilot is switched ON the relay within the command box is activated. This provides power to linear actuator engaging the autopilot tiller with the quadrant and rudder.

Switching the Autopilot OFF power is removed form the relay within the command box. This provides power to linear actuator in the opposite direction disengaging the autopilot tiller with the quadrant and rudder.

5. Maintenance

Both the quadrant and autopilot tiller units only require a low level maintenance, however it is strongly recommended the quadrant and autopilot assembly be regularly inspected.

Weekly

- Check all fastenings are tight
- Check the tiller operates smoothly and quietly
- Inspect and monitor the operation the Autopilot disengagement actuator and lock. There should be NO play between the tiller and quadrant with the lock is engaged. If any play is noticed check the adjustment of the actuator mechanism

Monthly

- Remove the cover above the lock, inspect the lock and lightly grease as required.

Actuator lock pretension adjustment

To check and adjust the springs pre-load remove the JP3 engraved plate forward of the actuator.
Ensure the lock is fully in its groove and that there is still a small amount of load on the spring in this position.

Measure the length between the aluminum lock part and the stainless steel pin where you can see the spring.

The factory settings are as follows:

- When the actuator is retracted and the lock is disengaged the measurement should be 26mm,
- When actuator is extended the lock is disengaged the measurement should be 24mm.

Adjust it using the bolt at the rear of the actuator if required.

6. Parts.

All parts are manufactured by JP3 with the exception of the electric actuator. For spare parts and service please contact the factory. The electric actuator is a:

Autopilot Disengagement Actuator

Warner Electric.
Part No S24-17A8-02
Stroke 2.0”

7. JP3 Factory Contact Details.

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