

TO: SERVICE MANAGER TECHNICIANS
PARTS MANAGER

No. 95-8

Important Notice

MerCruiser Steering Recommendations

MerCruiser power packages come standard with MerCruiser's internal power steering. This durable system provides precise effortless steering control and is recommended for most sport boat applications. On certain applications, however, MerCruiser recommends the use of an external power steering system where the power steering cylinders connect directly to the drive unit on the outside of the boat. This arrangement gives additional support for even tighter, more firm steering control, and is recommended for the following applications:

- High speed single or twin engine applications and/or boats with unusual handling characteristics. It is virtually impossible to give a specific recommendation as to when external power steering should be used, as this varies from boat design to boat design. Generally speaking, it is recommended to use external power steering on boats which run in excess of 70 MPH. However, there are boats which run 60 MPH that would benefit from the use of external power steering. Because of the many variables involved, the final decision as to whether or not external power steering is required rests with the boat manufacturer and must be made after a thorough test and evaluation of each specific boat model. If there is any question whether or not external power steering is necessary, MerCruiser recommends that it be installed.
- Any Hi-Performance sport boat powered by three or more engines.
- Off shore boats or other applications where the boat and drive units may come out of the water occasionally.
- All III SSM and V SSM High Performance Stern Drive applications.

External power steering systems are generally either mechanical cable actuated or hydraulic actuated. If cable actuation is selected, combining dual steering cables with an internal control valve kit (P/N 89645A35) will provide an even tighter feel (less steering backlash). This kit can not be used with hydraulic activation.

External power steering and hydraulic helm systems can be obtained from the following after market suppliers:

Latham Marine Inc.
280 S.W. 32nd Court
Ft. Lauderdale, FL 33315
Phone: (305) 462-3055
Mayfair Marine Machine
12890 N.W. 30th Avenue
Opalocka, FL 33054
Phone: (305) 681-1815

On dual or triple engine high speed applications, MerCruiser recommends the use of a Quicksilver Priority Valve Kit (P/N 79691A4). This kit allows two power steering pumps to be used and helps to ensure that power assist will be maintained if one engine or power steering pump should stop functioning (engine runs out of fuel, etc.).

Steering VI SSM

The VI SSM High Performance Stern Drive requires a hydraulic helm steering system and comes factory equipped with external power steering.

Multiple stern drive steering tie bar arrangements

With multiple stern drives it is important to consider which of several possible steering systems should be selected.

CAUTION

Failure to observe the recommended Tie Bar Arrangements as presented in this section could result in serious damage to the steering and/or trim system components. This damage could adversely affect control of the boat.

Internal Tie Bar Only

At the lower end of the performance spectrum (boats not capable of speeds in excess of 60 MPH) the basic internal tie bar is recommended. It connects the slave stern drive to the stern drive that is directly connected to the factory power steering output. This internal tie bar is available in a variety of lengths from the stern drive manufacturer.

Internal and External Tie Bar

As a boat moves into a moderate performance range (60-70 MPH) or for a reduction in steering backlash, an external tie bar should be added. External tie bars are usually designed to attach at the aft power trim cylinder bosses which is an excellent location because of its proximity to the propeller. HOWEVER, because of the potential overstress that can occur if one drive is trimmed much differently than the other, a dual trim control kit (P/N 90362A3) should be installed so as to limit this potential tilt differential to about 20°.

External Power Steering

When boat speeds move past 70 MPH or if additional steering backlash reduction is desired, external power steering is recommended. This normally will include an external tie bar mounted at the same general location of the power steering cylinders which are generally attached at the top of the stern drive's drive shaft housing. With this steering system, no internal tie bar should be used. These steering cylinders can be attached either inboard (between) or outboard of the stern drives.

External Power Steering With Low External Tie Bar

For the fastest boats (over 80 MPH) or for the ultimate in steering backlash reduction, use external power steering, BUT (where mechanically possible) with the external tie bar mounted at the trim cylinder boss location (as described in choice #2). Again this system does not use an internal tie bar.

Mercury Marine does not recommend the use of an external tie bar ONLY (no internal tie bar) when using the internal power steering system. This can cause excessive loads on the steering components on the drive connected to the internal power steering system. These increased loads can damage the steering components, resulting in increased play in the steering of the boat.