



**merCruiser**  
**SERVICE**  
**MANUAL**

Number 4

---

Stern Drive Units  
MCM 120 - 260

Sections 1 thru 7

# MODELS COVERED IN THIS MANUAL

TRANSOM ASSEMBLIES	
Model	Serial Number
MCM 120/140/165/ 470/485/898/228/260	4891650 - 6216686

MC 120 - 260 STERN DRIVE UNITS	
Ratio	Serial Number
1.98:1	4893635 - 6237860
1.84:1	4893835 - 6225576
1.65:1	4890460 - 6268064
1.50:1	4898730 - 6229157



## I-DRIVE

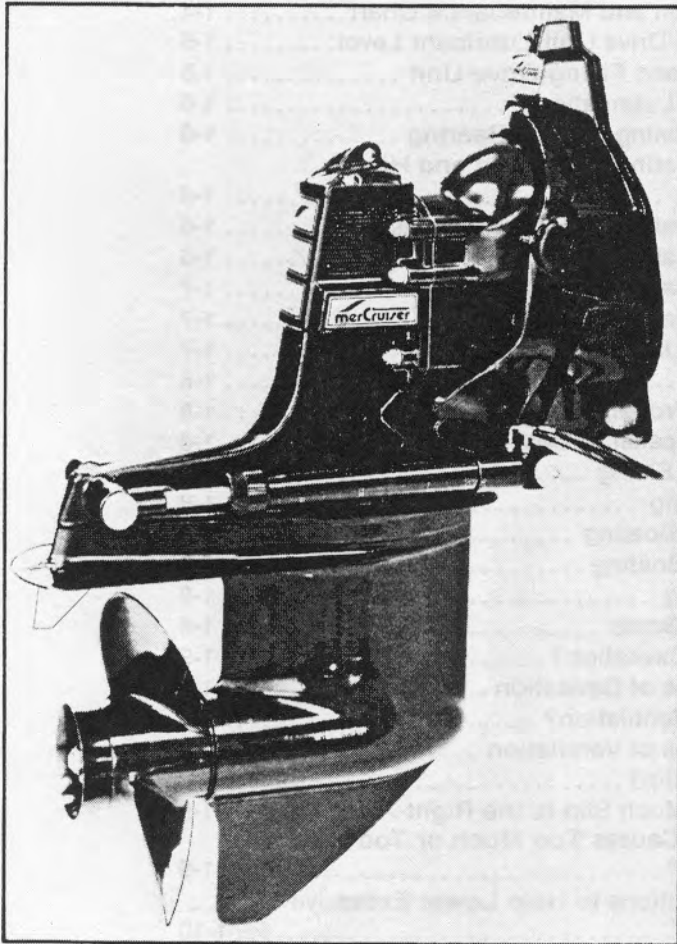
# SERVICE MANUAL

## OUTLINE

<b>SECTION 1</b> - General Information	
<b>SECTION 2</b> - Troubleshooting	
<b>SECTION 3</b> - Drive Unit	
PART A - Drive Shaft Housing Assembly	
PART B - Gear Housing Assembly	
<b>SECTION 4</b> - Transom Plate Assembly	
<b>SECTION 5</b> - Power Trim	1.89
<b>SECTION 6</b> - Power Steering	1.54
<b>SECTION 7</b> - Service Bulletins	1.38

# I-DRIVE

## *General Information*



# INDEX

	Page
Important Safety Notification .....	1-1
Electrical Replacement Parts .....	1-1
Notice .....	1-1
General Information .....	1-2
Directional Reference .....	1-2
Serial Number Locations .....	1-2
Steering and Shift Cable Requirements .....	1-2
Steering Cable Requirement .....	1-2
Shift Cable Requirement .....	1-2
Determining Steering Cable Length .....	1-3
Determining Shift Cable Length .....	1-3
Lubrication and Maintenance .....	1-4
Lubrication and Maintenance Chart .....	1-4
Checking Drive Unit Lubricant Level .....	1-5
Draining and Filling Drive Unit .....	1-5
Points of Lubrication .....	1-6
Lubricating Gimbal Bearing .....	1-6
Lubricating Swivel Pin and Hinge Pins .....	1-6
Lubricating U-Joint Bearings .....	1-6
Lubricating Steering System .....	1-6
Lubricating Propeller Shaft .....	1-7
Lubricating Shift Linkage .....	1-7
Stern Drive Unit Storage .....	1-7
Propellers .....	1-8
Correct Propeller .....	1-8
What Propeller Is Best? .....	1-8
Water Skiing .....	1-8
Cruising .....	1-8
Sport Boating .....	1-8
Bass Boating .....	1-8
Fishing .....	1-8
Work Boats .....	1-8
What Is Cavitation? .....	1-9
Causes of Cavitation .....	1-9
What Is Ventilation? .....	1-9
Causes of Ventilation .....	1-9
What Is Slip? .....	1-9
How Much Slip Is the Right Amount? .....	1-9
What Causes Too Much or Too Little Slip? .....	1-9
Corrections to Help Lower Excessive Slip .....	1-10
Guidelines for Selection of Best Quicksilver Stainless Steel Propellers .....	1-10
Conventional Quicksilver Stainless Steel Propeller Selection .....	1-10
High Performance (Clever) Propeller Selection .....	1-10

## IMPORTANT SAFETY NOTIFICATION

Correct service and repair is important for the safe, efficient operation of all mechanical products. The service procedures, that are recommended and described in this service manual, are effective methods for performing service operations.

Some repair procedures require special tools which should be used where specified and as recommended. Pay special attention to the "Safety Warnings" and/or "Cautions" (printed in bold type in this manual) which relate to a specific service procedure that can damage the product, render it unsafe or cause personal injury. Remember, however, that these "Safety Warnings" and/or "Cautions" are not all-inclusive.

We could not possibly know of and advise the service trade of all conceivable procedures in which a service might be performed and of the possible hazards and/or results of each method. We have not undertaken any such wide evaluation. Therefore, anyone who uses a service procedure and/or tool, which is not recommended by us, first must completely satisfy oneself that neither one's nor the product's safety will be endangered by the service procedure selected.

## ELECTRICAL REPLACEMENT PARTS

**SAFETY WARNING:** Electrical system components on MerCruiser Stern Drives are designed and manufactured to comply with U.S. Coast Guard Rules and Regulations to minimize risks of fire or explosion.

Use of replacement electrical system components, which do not comply to these rules and regulations, could result in a fire or explosion hazard and should be avoided.

When servicing the electrical systems, it is extremely important that all components are properly installed and tightened. If not, any electrical component opening would permit sparks to ignite fuel vapors from fuel system leaks, if they existed.

## NOTICE

The following special information will alert you to possible dangers and to important information in this manual. Observe them carefully. "Safety Warnings" and "Cautions" (outlined in a border) alone do not eliminate the dangers that they signal. Your close attention to implement them, plus "common sense" operation are major accident prevention measures.

<b>SAFETY WARNING</b>	<b>Failure to follow a "Safety Warning" may result in bodily injury.</b>
-----------------------	--

<b>CAUTION</b>	<b>Non-compliance with "Caution" instructions may result in failure or damage to the product and/or equipment.</b>
----------------	--

<b>IMPORTANT</b>	<b>Is used to indicate required service procedure.</b>
------------------	--

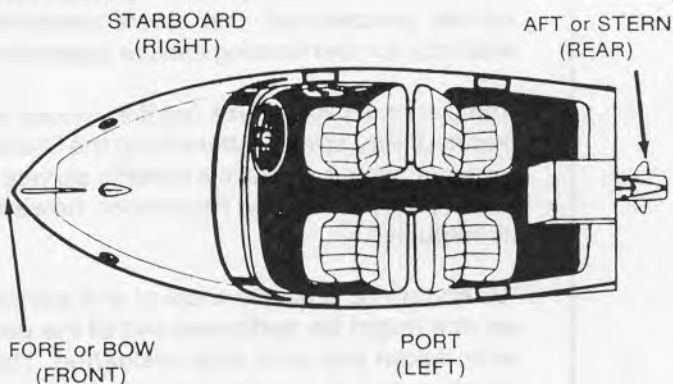
*NOTES: Are used to indicate preferred service procedures and/or exceptions.*

# GENERAL INFORMATION

## Directional Reference

Front of boat is bow; rear is stern. Starboard side is right side; port side is left side. In this service manual, all directional reference are given as they appear when viewing boat from stern, looking toward bow. (Figure 1)

Figure 1. Directional Reference



## Serial Number Locations

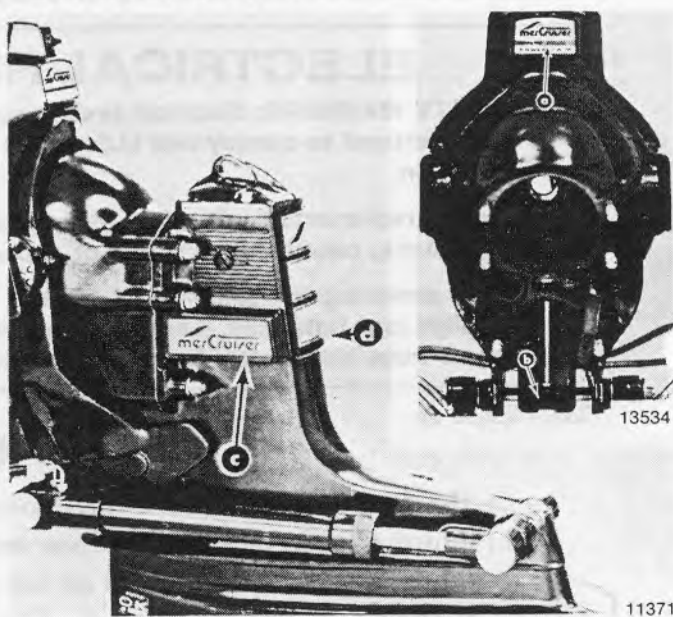
**IMPORTANT:** Serial numbers are the manufacturer's key to numerous engineering details applicable to the unit. When ordering parts, accessories and tools, or when corresponding with the manufacturer or dealer in regard to service matters, always specify stern drive and/or transom assembly serial number.

The transom assembly serial number location is permanently stamped on the bell housing gasket surface. For quick reference, the serial number also will be located on gimbal housing decal. (Figure 2)

The stern drive unit serial number is stamped on the drive shaft housing under MerCruiser decal on left side of housing. Serial number also is on the decal on rear of drive shaft housing. (Figure 2)

Both transom assembly and stern drive unit serial numbers are stamped in a pressure sensitive decal (located on side of engine rocker arm cover).

Figure 2. Transom Assembly (Top Illustration) and Stern Drive Unit Serial Number Locations



- a - Decal Location on Gimbal Housing
- b - Bell Housing Gasket Surface
- c - Serial Number under Side Decal
- d - Serial Number on Rear Decal

## STEERING and SHIFT CABLE REQUIREMENTS

### STEERING CABLE REQUIREMENT

**CAUTION:** If a steering cable with the wrong end dimensions is installed on a MerCruiser Power Steering System, severe damage to the steering system and the Power Steering pump will occur.

MerCruiser I Stern Drives, should be  $3/4"$  (83mm),  $1/8"$  (41.3mm) on each side of mid-travel point. If these dimensions are not complied with, the stern drive will not shift properly into both forward and reverse.

Total travel should be  $8\frac{1}{2}" \pm \frac{1}{2}"$  (21.6cm + 12.7mm) minimum travel of 4" (10.2cm) each side of mid-travel position; maximum travel of  $4\frac{1}{2}"$  (11.4cm) each side of mid-travel position. (Figure 3)



- a - 16-7/8" (42.9cm) Mid-Travel Position
- b - .385"  $\pm$  .005" (9.8mm  $\pm$  0.13mm) Diameter Drill Thru
- c - 5/8" (15.9mm) Maximum Diameter

Figure 3. Steering Cable Travel

### SHIFT CABLE REQUIREMENT

Total travel of remote control shift cable, that is used on



**Download the full PDF manual instantly.**

**Our customer service e-mail:**

**[aservicemanualpdf@yahoo.com](mailto:aservicemanualpdf@yahoo.com)**