



# **SERVICE MANUAL**

## Number 24

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### **MARINE ENGINES**

**GM V-8**

**305 CID (5.0L) / 350 CID (5.7L)**

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# POWER STEERING SYSTEM

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# IMPORTANT INFORMATION

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# Introduction

This comprehensive overhaul and repair manual is designed as a service guide for the models previously listed. It provides specific information, including procedures for disassembly, inspection, assembly and adjustment to enable dealers and service mechanics to repair and tune these engines.

Before attempting repairs or tune-up, it is suggested that the procedure first be read through to gain knowledge of the methods and tools used and the cautions and warnings required for safety.

## How to Use This Manual

This manual is divided into sections which represent major components and systems.

Some sections are further divided into parts which more fully describe the component.

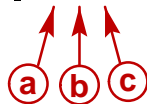
Sections and section parts are listed on the "Service Manual Outline" page following "V-8 Models Covered in This Manual" page.

## Page Numbering

Two number groups appear at the bottom of each page. Following is an example and description.

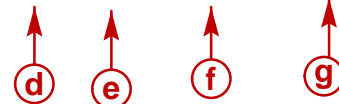
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Page 1A-2



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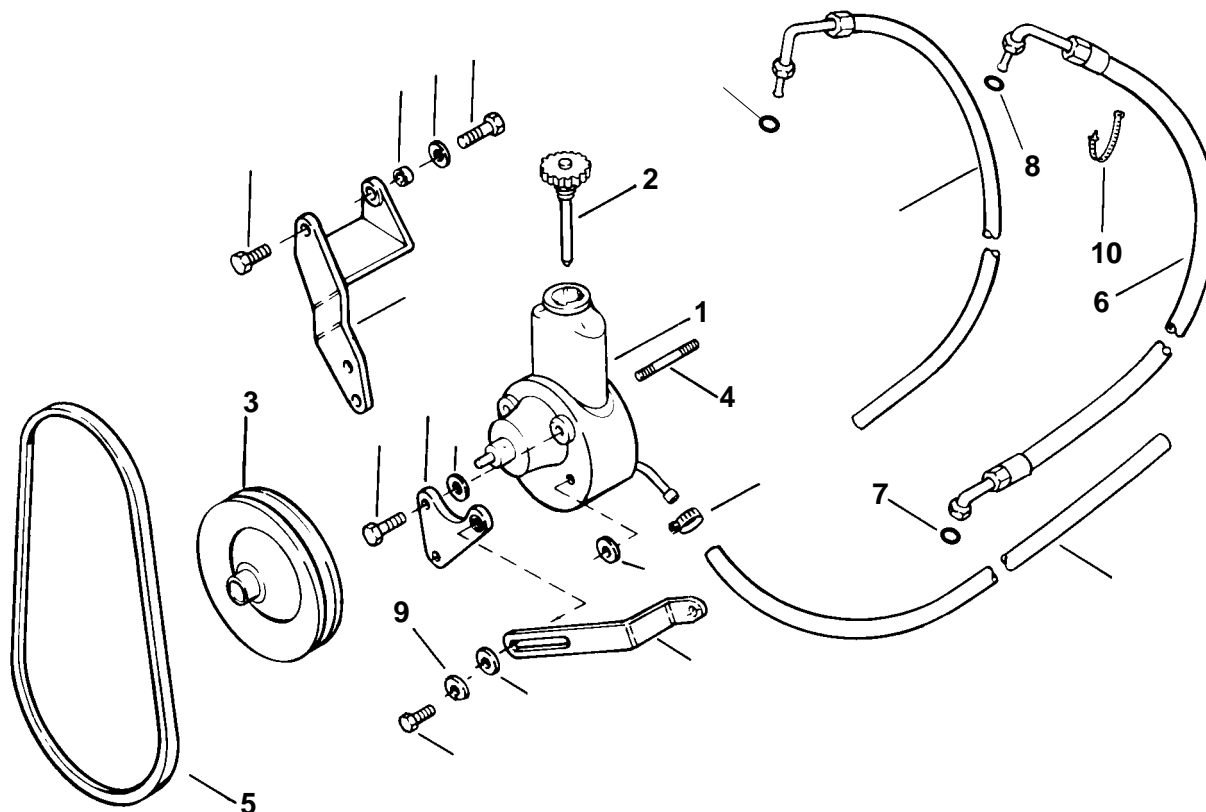
90-17431--4 FEBRUARY 1998



- a** - Section Number
- b** - Section Part
- c** - Page Number
- d** - Manual Part Number
- e** - Revision Number
- f** - Month Printed
- g** - Year Printed

# How to Read a Parts Manual

## Power Steering Pump Assembly



REF. NO.	PART NO.	SYM.	QTY.	DESCRIPTION
1	90507A12		1	PUMP ASSEMBLY–Power Steering
2	36- 95805		1	CAP
3	73873A1		1	PULLEY
4	16- 41877		1	STUD
5	57- 65607T		1	V-BELT
6	32- 806684		1	HOSE–Pressure <b>(FITTINGS ON BOTH ENDS)</b>
7	25- 89879		1	O-RING
8	25- 806232		1	O-RING
9	13- 35048		1	LOCKWASHER (3/8 in.)
10	61990		1	CABLE TIE

**REF. NO. :** Number shown next to part on exploded view

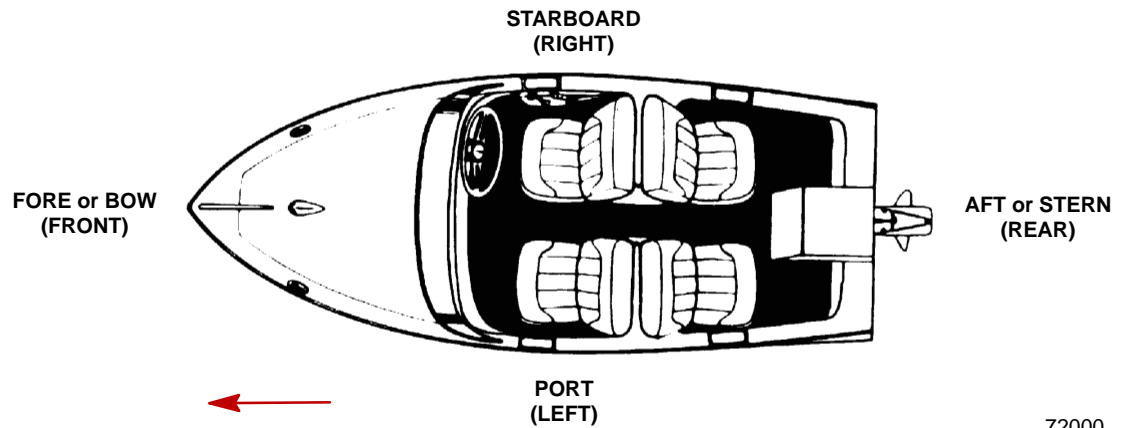
**PART NO. :** Mercury Part Number for ordering. If NSS (not sold separately) sometimes GM part number will be given in description column.

**QTY. :** The quantity that must be ordered.

**DESCRIPTION :** Description of part, what parts are included with a part (all indented items come with the main item above the indented parts), serial number information, and special information.

## Directional References

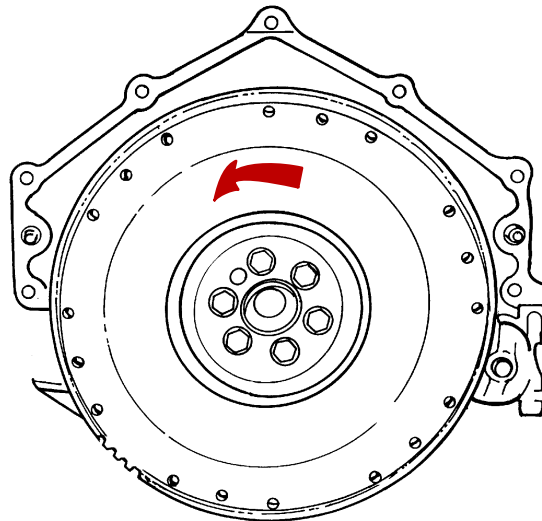
Front of boat is bow; rear is stern. Starboard side is right side; port side is left side. In this maintenance manual, all directional references are given as they appear when viewing boat from stern looking toward bow.



72000

## Engine Rotation

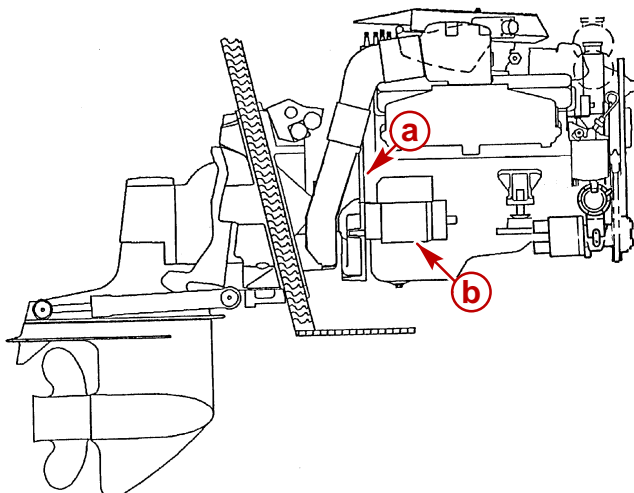
Engine rotation is determined by observing flywheel rotation from the rear (stern end) of the engine looking forward (toward water pump end). Propeller rotation is not necessarily the same as engine rotation. When ordering replacement engine, short blocks or parts for engine, be certain to check engine rotation. Do not rely on propeller rotation in determining engine rotation.



72001

### Standard Left Hand Rotation

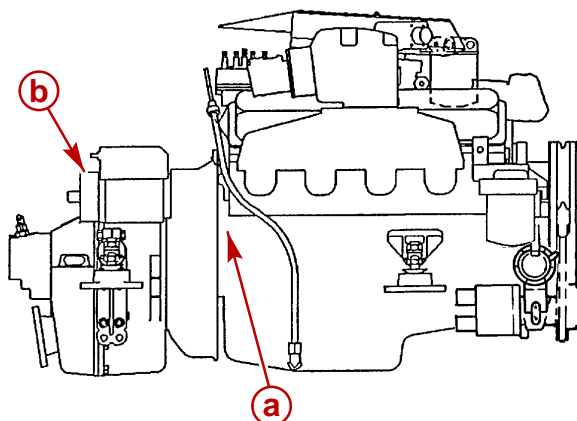
# Engine Serial Number Locations



72923

## Sterndrive (MCM)

- a** - Serial Number Plate
- b** - Starter Motor



72924

## Inboard (MIE)

- a** - Serial Number Plate
- b** - Starter Motor

## Propeller Information

Refer to the "Propeller" section in appropriate Mercury MerCruiser Sterndrive Service Manual, or order publication 90-86144-92, "Everything you need to know about propellers."

Changing diameter, pitch or coupling of a propeller will affect engine rpm and boat performance. The blade configuration also will affect performance. Two like propellers, same pitch and diameter, from two different manufacturers will perform differently.

1. It is the responsibility of the boat manufacturer and/or selling dealer to equip the boat with the correct propeller to allow the engine to operate within its specified rpm range at wide-open-throttle (WOT).

Because of the many variables of boat design and operation, only testing will determine the best propeller for the particular application.

To test for correct propeller, operate boat (with an average load onboard) at WOT and check rpm with an accurate tachometer. Engine rpm should be near top of the specified range so that, under heavy load, engine speed will not fall below specifications.

If engine exceeds the specified rpm, an increase in pitch and/or diameter is required.

If engine is below rated rpm, a decrease in pitch and/or diameter is required.

Normally, a change of approximately 150 rpm will be achieved for each single inch of pitch change of a propeller.

### ⚠ CAUTION

If a propeller is installed that does not allow engine rpm to reach the specified full-throttle rpm range, the engine will “labor” and will not produce full power. Operation under this condition will cause excessive fuel consumption, engine overheating and possible piston damage (due to detonation). Conversely, installing a propeller, allowing engine to run above the specified rpm limit, will cause excessive wear on internal engine parts which will lead to premature engine failure.

## Water Testing New Engines

Use care during the first 20 hours of operation on new Mercury MerCruiser engines or possible engine failure may occur. If a new engine has to be water-tested at full throttle before the break-in period is complete, follow this procedure.

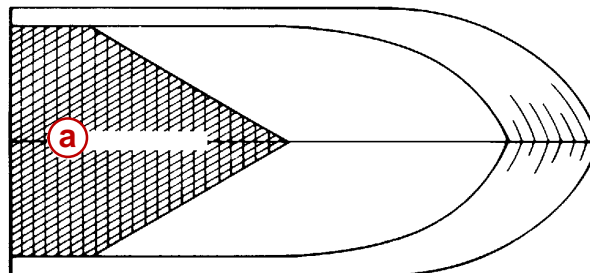
1. Start engine and run at idle rpm until normal operating temperature is reached.
2. Run boat up on plane.
3. Advance engine rpm (in 200 rpm increments) until engine reaches its maximum rated rpm.

**IMPORTANT: Do not run at maximum rpm for more than 2 minutes.**

## Boat and Engine Performance

### Boat Bottom

For maximum speed, a boat bottom should be as flat as possible in a fore-aft direction (longitudinally) for approximately the last 5 ft (1.5 m).



72002

**a** - Critical Bottom Area



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