Service Manual Outline

Section 1 - Important Information
- A - General Information
- B - Maintenance
- C - Troubleshooting

Section 2 - Removal and Installation
- A - MCM Models - Bravo and Blackhawk Drives
- B - MCM Models - Bravo and Blackhawk Drives with Driveshaft Extension
- C - MIE Models - Velvet Drive Transmission
- D - MIE Models - Hurth Transmission

Section 3 - Engine
- A - 454 cid (7.4L) / 502 cid (8.2L)

Section 4 - Electrical System
- A - Starting System
- B - Ignition System
- C - Charging System
- D - Instrumentation
- E - Wiring Diagrams

Section 5 - Fuel System
- A - Fuel Delivery System for Electronic Fuel Injection
- B - Multi-Port Fuel Injection Descriptions and System Operation
- C - Multi-Port Fuel Injection Disassembly and Reassembly
- D - Fuel Injection System Troubleshooting
- E - General System Diagnostics
- F - Trouble Code Diagnostics - 454/502 Mag MPI & 8.2L MPI
- G - Trouble Code Diagnostics - 7.4L MPI

Section 6 - Cooling System
- A - Seawater Cooled Models
- B - Closed Cooled (Fresh Water) Models

Section 7 - Exhaust System
- A - General
- B - Manifolds and Elbows
- C - Risers
- D - Collectors

Section 8 - Drives
- A - Velvet Drive In-Line Transmission
- B - Velvet Drive 5000A Down Angle Transmission
- C - Velvet Drive 5000V V-Drive Transmission
- D - Hurth V-Drive Transmission
- E - Walter V-Drive Transmission
- F - Drive Shaft / Propeller Shaft Models

Section 9 - Power Steering
- A - Pump

APERÇU — Engine Manual — fichier complet disponible après achat 1/10

Notice

Throughout this publication, “Dangers”, “Warnings” and “Cautions” (accompanied by the International HAZARD Symbol ⚠) are used to alert the mechanic to special instructions concerning a particular service or operation that may be hazardous if performed incorrectly or carelessly. **OBSERVE THEM CAREFULLY!**

These “Safety Alerts” alone cannot eliminate the hazards that they signal. Strict compliance to these special instructions when performing the service, plus “Common Sense” operation, are major accident prevention measures.

⚠ DANGER

DANGER - Immediate hazards which WILL result in severe personal injury or death.

⚠ WARNING

WARNING - Hazards or unsafe practices which COULD result in severe personal injury or death.

⚠ CAUTION

Hazards or unsafe practices which could result in minor personal injury or product or property damage.

Notice to Users of This Manual

This service manual has been written and published by the Service Department of Mercury Marine to aid our dealers’ mechanics and company service personnel when servicing the products described herein.

It is assumed that these personnel are familiar with the servicing procedures of these products, or like or similar products manufactured and marketed by Mercury Marine, that they have been trained in the recommended servicing procedures of these products which includes the use of mechanics’ common hand tools and the special Mercury Marine or recommended tools from other suppliers.

We could not possibly know of and advise the service trade of all conceivable procedures by 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 the manufacturer, first must completely satisfy himself that neither his nor the products safety will be endangered by the service procedure selected.

All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of publication. As required, revisions to this manual will be sent to all dealers contracted by us to sell and/or service these products.

It should be kept in mind, while working on the product, that the electrical system and ignition system are capable of violent and damaging short circuits or severe electrical shocks. When performing any work where electrical terminals could possibly be grounded or touched by the mechanic, the battery cables should be disconnected at the battery.

Any time the intake or exhaust openings are exposed during service they should be covered to protect against accidental entrance of foreign material which could enter the cylinders and cause extensive internal damage when the engine is started.

APERÇU — Engine Manual — fichier complet disponible après achat 2/10

It is important to note, during any maintenance procedure replacement fasteners must have the same measurements and strength as those removed. Numbers on the heads of the metric bolts and on the surfaces of metric nuts indicate their strength. American bolts use radial lines for this purpose, while most American nuts do not have strength markings. Mismatched or incorrect fasteners can result in damage or malfunction, or possibly personal injury. Therefore, fasteners removed should be saved for reuse in the same locations whenever possible. Where the fasteners are not satisfactory for re-use, care should be taken to select a replacement that matches the original.

We reserve the right to make changes to this manual without prior notification.

Refer to dealer service bulletins for other pertinent information concerning the products described in this manual.

Engine Mechanical Components

Many of the engine mechanical components are designed for marine applications. Unlike automotive engines, marine engines are subjected to extended periods of heavy load and wide-open-throttle operation and, therefore, require heavy-duty components. Special marine engine parts have design and manufacturing specifications which are required to provide long life and dependable performance. Marine engine parts also must be able to resist the corrosive action of salt or brackish water that will rust or corrode standard automotive parts within a short period of time.

Failure to use recommended Quicksilver service replacement parts can result in poor engine performance and/or durability, rapid corrosion of parts subjected to salt water and possibly complete failure of the engine.

Use of parts other than recommended service replacement parts, will void the warranty on those parts which are damaged as a result of the use of other than recommended replacement parts.

Replacement Parts

⚠ WARNING

Electrical, ignition and fuel system components on MerCruiser Engines and 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, ignition or fuel 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, ignition and fuel systems, it is extremely important that all components are properly installed and tightened. If not, any electrical or ignition component opening would permit sparks to ignite fuel vapors from fuel system leaks, if they existed.

APERÇU — Engine Manual — fichier complet disponible après achat 3/10

Models Covered in This Manual

Gen. VI Engines

Sterndrive (MCM) Model	Serial Number
MCM 454 Mag MPI	0L010029 & Up
MCM 502 Mag MPI	0L017000 & Up

Inboard (MIE) Model	Serial Number
MIE 454 Mag MPI Horizon	0L002200 & Up
MIE 8.2L MPI	0L002450 & Up

L-29 Engines

Sterndrive (MCM) Model	Serial Number
MCM 7.4L MPI	0L010003 & Up

Inboard (MIE) Model	Serial Number
MIE 7.4L MPI	0L002006 & Up



APERÇU — Engine Manual — fichier complet disponible après achat

IMPORTANT INFORMATION

Section 1A - General Information

1 A

Table of Contents

Introduction 1A-2
How to Use This Manual 1A-2
Page Numbering 1A-2
How to Read a Parts Manual 1A-3
Directional References 1A-4
Engine Rotation 1A-4
Engine Serial Number Locations 1A-5
Propeller Information 1A-6
Water Testing New Engines 1A-6
Boat and Engine Performance 1A-7
Boat Bottom 1A-7
Marine Fouling 1A-8
Weight Distribution 1A-9
Water in Boat 1A-9
Elevation and Climate 1A-9

APERÇU — Engine Manual — fichier complet disponible après achat 5/10

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

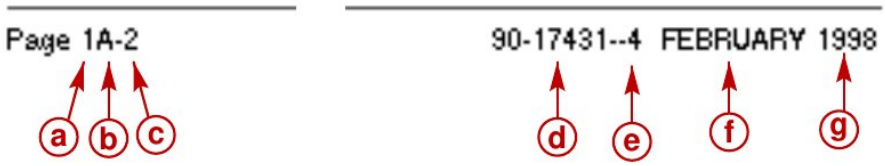
This manual is divided into sections which represent major components and systems.

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.

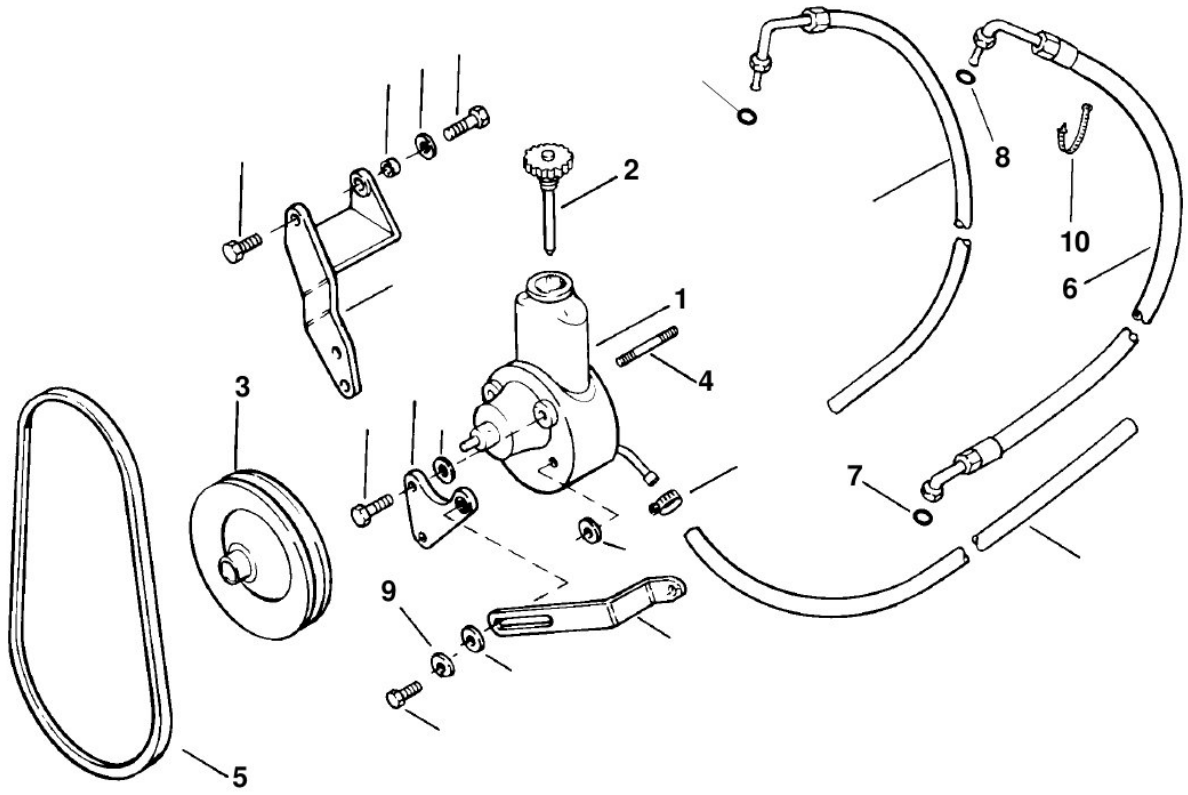


a - Section Number
b - Section Part
c - Page Number
d - Manual Number
e - Revision No. 4
f - Month Printed
g - Year Printed

APERÇU — Engine Manual — fichier complet disponible après achat 6/10

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 **(FITTINGS ON BOTH ENDS)**
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.

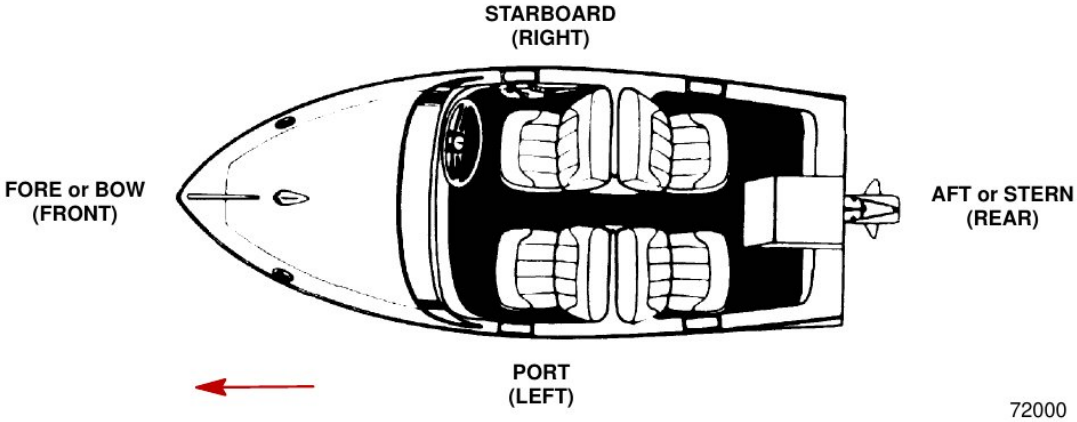
DESCRIPTION : Description of part, what parts are included with a part (all indented items come with the main item above the indented parts), serial number information, and special information.

Index

APERÇU — Engine Manual — fichier complet disponible après achat 7/10

Directional References

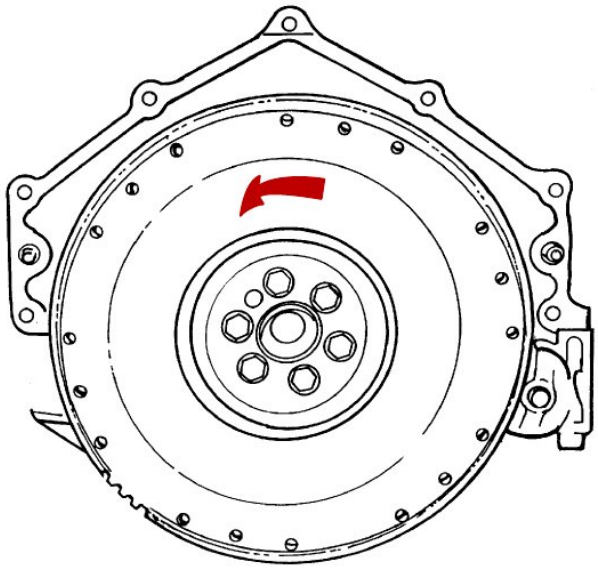
Front of boat is bow; rear is stern. Starboard side is right side; port side is left side. In this service manual, all directional references are given as they appear when viewing boat from stern looking toward bow.



72000

Engine Rotation

Engine rotation is determined by observing flywheel rotation from the rear (stern or flywheel 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.

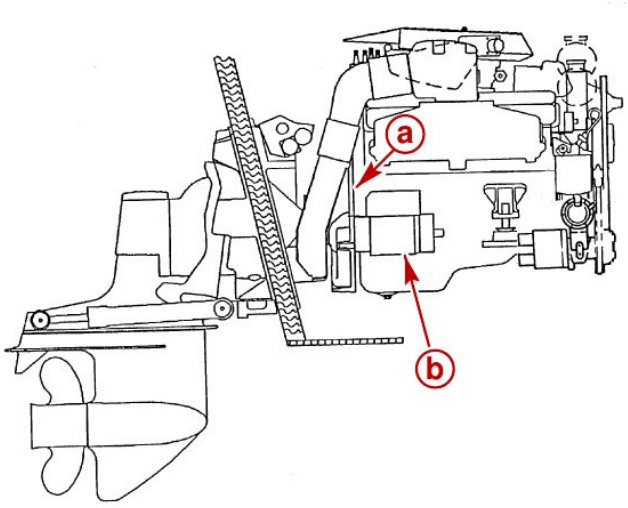


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Standard Left-Hand Rotation

APERÇU — Engine Manual — fichier complet disponible après achat 8/10

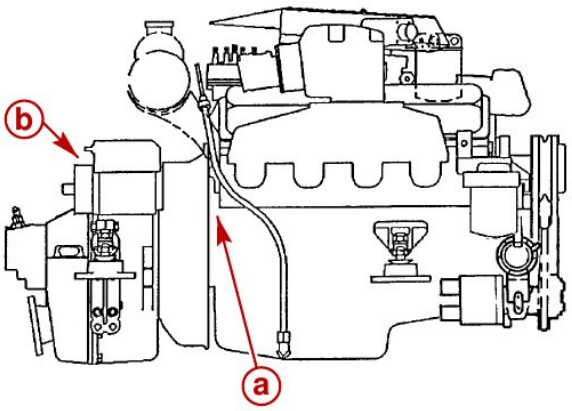
Engine Serial Number Locations



72923

Stern Drive (MCM)

a - Serial Number Plate
b - Starter Motor



72924

Inboard (MIE)

a - Serial Number Plate
b - Starter Motor

APERÇU — Engine Manual — fichier complet disponible après achat 9/10

Propeller Information

Refer to the “Propeller” section in appropriate 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.

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 (W.O.T.).

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 W.O.T. 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.

⚠ 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 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.

APERÇU — Engine Manual — fichier complet disponible après achat