# Workshop Manual

## Electrical, Ignition, Fuel

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| 2(0) |

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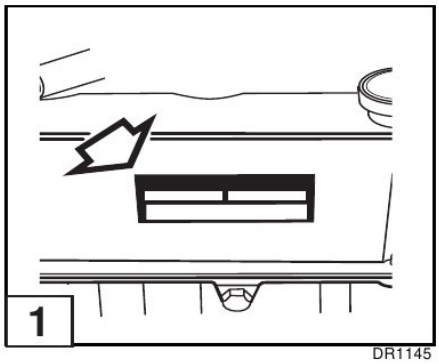
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# Model Identification

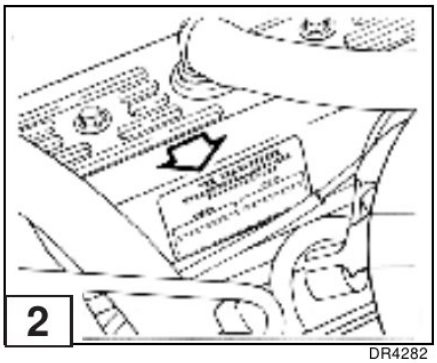
Ⓜ All stern drive system components must be matched for either single or dual engine installations. Failure to properly match engine, transom bracket and vertical drive will result in poor boat performance, and risk damage to engine and drive because of incorrect drive gear ratio.

Model identification is located on the engine valve cover, and **MUST** correspond with the transom bracket and vertical drive numbers as listed in this document.

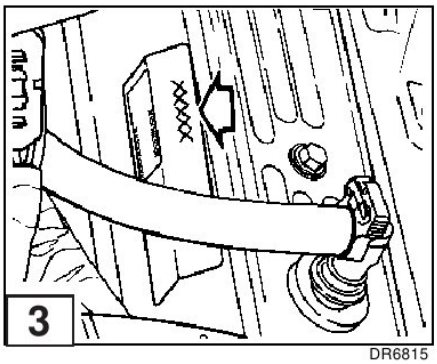
- Engine Model Number 1 2 3
- Transom Bracket Model Number 4
- Vertical Drive Model Number 5



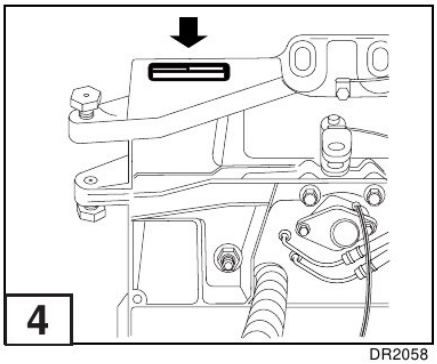
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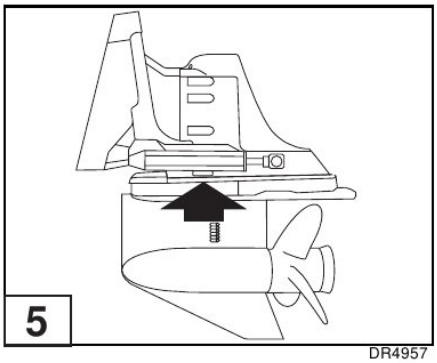
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# Section 1
# General Information

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## ⚠ Safety Warnings

**Before working on any part of the electrical system, read the section called Safety at the end of this manual.**

**The original mounting, support and routing of electrical system parts conform with U.S. Coast Guard requirements. It is important to maintain the original mounting, support and routing after servicing the electrical system to prevent possible fire and explosion in boat's engine compartment.**

**Do not substitute automotive parts. Volvo Penta marine components meet U.S. Coast Guard regulations for external ignition proof operation and marine use. Volvo Penta marine components are specially designed not to cause ignition of fuel vapors in the bilge or engine compartment. The use of automotive parts can result in fire and explosion.**




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## Special Tools

| Tool Name | Part No. | Panel Location |
|---|---|---|
| Crimping Pliers | - | B |
| Insert Tool | 3854349-2 | B |
| Pin Remover | - | B |
| Socket Remover | 3854350-0 | B |

## Sealants, Lubricants and Adhesives

*DuraPlus™ Marine Fuel Conditioner*
*Black neoprene dip*
*Isopropyl alcohol*
*Terminal grease*



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# Introduction

This service manual is divided into sections concerning various systems and assemblies. Refer to the **Contents** to locate the section covering the system or assembly requiring service. Each section title page has an additional listing that will describe the section's contents in more detail. Be sure to read the **Safety Section** at the end of this manual, and pay special attention to all safety warnings as they appear throughout the text. Since models are subject to change at any time, some photos may not depict actual product.

**Good Service Practice**

Service required for stern drives is generally one of three kinds:

- **Normal care and maintenance** - which includes putting a new stern drive into operation, storing engines, lubrication, and care under special operating conditions such as salt water and cold weather.
- **Operating malfunctions** - due to improper engine or drive mounting, propeller condition or size, boat condition, or the malfunction of some part of the engine. This includes engine servicing procedures to keep the engine in prime operating condition.
- **Complete disassembly and overhaul** - such as major service or rebuilding a unit.

It is important to determine before disassembly just what the trouble is and how to correct it quickly, with minimum expense to the owner.

When repairing an assembly, the most reliable way to ensure a good job is to do a complete overhaul on that assembly, rather than just to replace the bad part. Wear not readily apparent on other parts could cause malfunction soon after the repair job. Repair kits and seal kits contain all the parts needed to ensure a complete repair, to eliminate guesswork, and to save time.

Repair time can also be minimized by the use of special tools. Volvo Penta special tools are designed to perform service procedures unique to the product that cannot be completed using tools from other sources. They also speed repair work to help achieve service flat rate times. In some cases, the use of substitute tools can damage the part.

**Note** **Do not operate engine out of water even momentarily.** If operated in test tank, use proper test wheel. Failure to do so can damage water pump, overheat engine, or allow excessive engine RPM.



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**Preparation for Service**

Proper preparation is extremely helpful for efficient service work. A clean work area at the start of each job will minimize tools and parts becoming misplaced. Clean an engine that is excessively dirty before work starts. Cleaning will occasionally uncover trouble sources. Obtain tools, instruments and parts needed for the job before work is started. Interrupting a job to locate special tools or repair kits is a needless delay.

⚠ Use proper lifting and handling equipment. **Working on stern drives without proper equipment can cause damage and personal injury.**

Always use clean fresh fuel when testing engines. Troubles can often be traced to the use of old or dirty fuel.

**Service Policy**

It is a policy of Volvo Penta to provide dealers with service knowledge so they can give professional service demanded by today's consumer. The Volvo Penta Training Centers, frequent mailing of Service Bulletins, Letters and Promotions, Special Tools and this Service Manual represent our continuing efforts to assist dealers in giving consumers the best and most prompt service possible. If a service question does not appear to be answered in this manual, you are invited to write to the Volvo Penta Service Department for additional help. Always be sure to give complete information, including engine model number and serial number.

When a brand-name product or specific tool is called for, another item may be used. However, the substitute must have equivalent characteristics, including type, strength, and material. You must determine if incorrect substitution could result in product malfunction and personal injury to anyone. To avoid hazards, equivalent products which are used must meet all current U.S. Coast Guard Safety Regulations and ABYC standards.



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