Ref. no 6125
(Engelska)

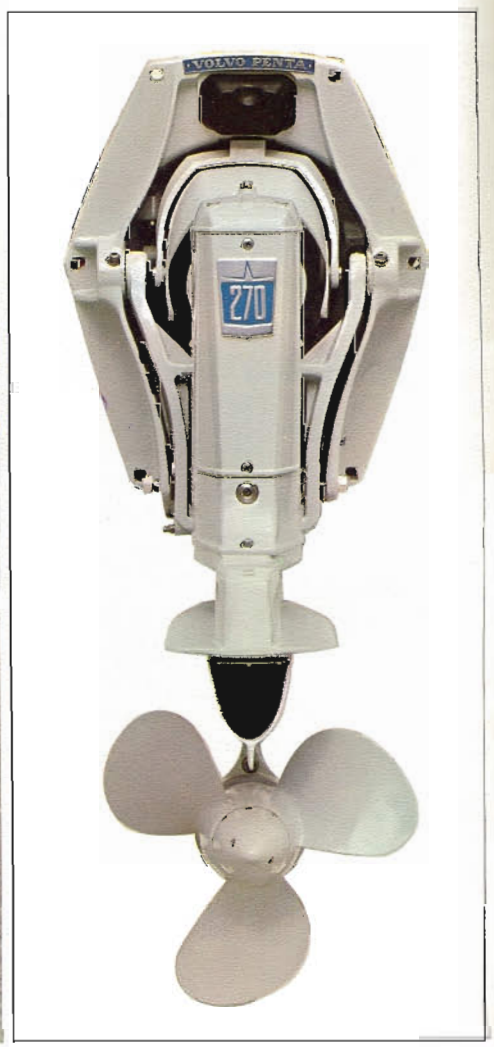
VOLVO PENTA

AQUAMATIC

Volvo Penta Aquamatic Inboard engine/ Outboard drive

Volvo Penta Aquamatic is the marine inboard-outdrive power unit which astounded the world on its introduction already in 1959. Today, more than 100,000 of these Aquamatic units are in service throughout the world in the most widely varying types of boats. This has given Volvo Penta a priceless degree of know-how which enables us to build the most advanced inboard-outdrive power unit on the market — after all, we invented them!

Volvo Penta's leading position as a marine power unit manufacturer is the result of intensive research and engineering advancement teamed with long experience and a sincere endeavour to please those who understand the sea and boats. A vital factor at sea is safety. Volvo Penta stands for safety. Every type of Volvo Penta Aquamatic unit has therefore been subjected to considerably harder testing than it can ever expect to meet in practical use.



The 270 Outboard Drive

① Heavy duty mounting collar ensures trouble free boating. Control cables, water intake and exhaust outlet pass through the mounting collar eliminating the need for more than one hole in the transom. Installation time is greatly reduced.

② Retaining pawl provides a full range of operation, in reverse it locks and prevents the drive unit from "kicking up", and, when in forward, if you should strike an underwater obstacle, the retaining pawl automatically releases and provides safe care-free boating.

③ Cooling water intake located on the drive unit eliminates a water pick-up mounted on your boat.

④ Space for a propeller up to 16″ in diameter provides a wide range to choose from ensuring the right propeller for your particular application. Providing the optimum in performance.

⑤ Strong bevel gears designed for long life and quiet operation. Reduction ratios have been matched to the various engines for maximum torque and performance.

⑥ Oil pump (impeller type) mounted on the propeller shaft behind the gear is positive action and ensures proper lubrication.

⑦ Corrosion inhibitors — a zinc ring mounted in front of the propeller plus a zinc plug on the bottom of the mounting collar greatly reduce corrosion in extreme salt water condition.

⑧ Adjustable trim tab combined with underwater exhaust outlet guarantees quiet and steady running on course. Turning the trim tab will correct steering torque. You are assured of effortless steering.

⑨ Electric mechanical outdrive tilt. This is operated from the cockpit of the boat and allows you to beach the boat and change a propeller when necessary.

⑩ Cast steel steering arm mounted on the inside of the mounting collar away from the salt water ensuring positive safe steering at all times.

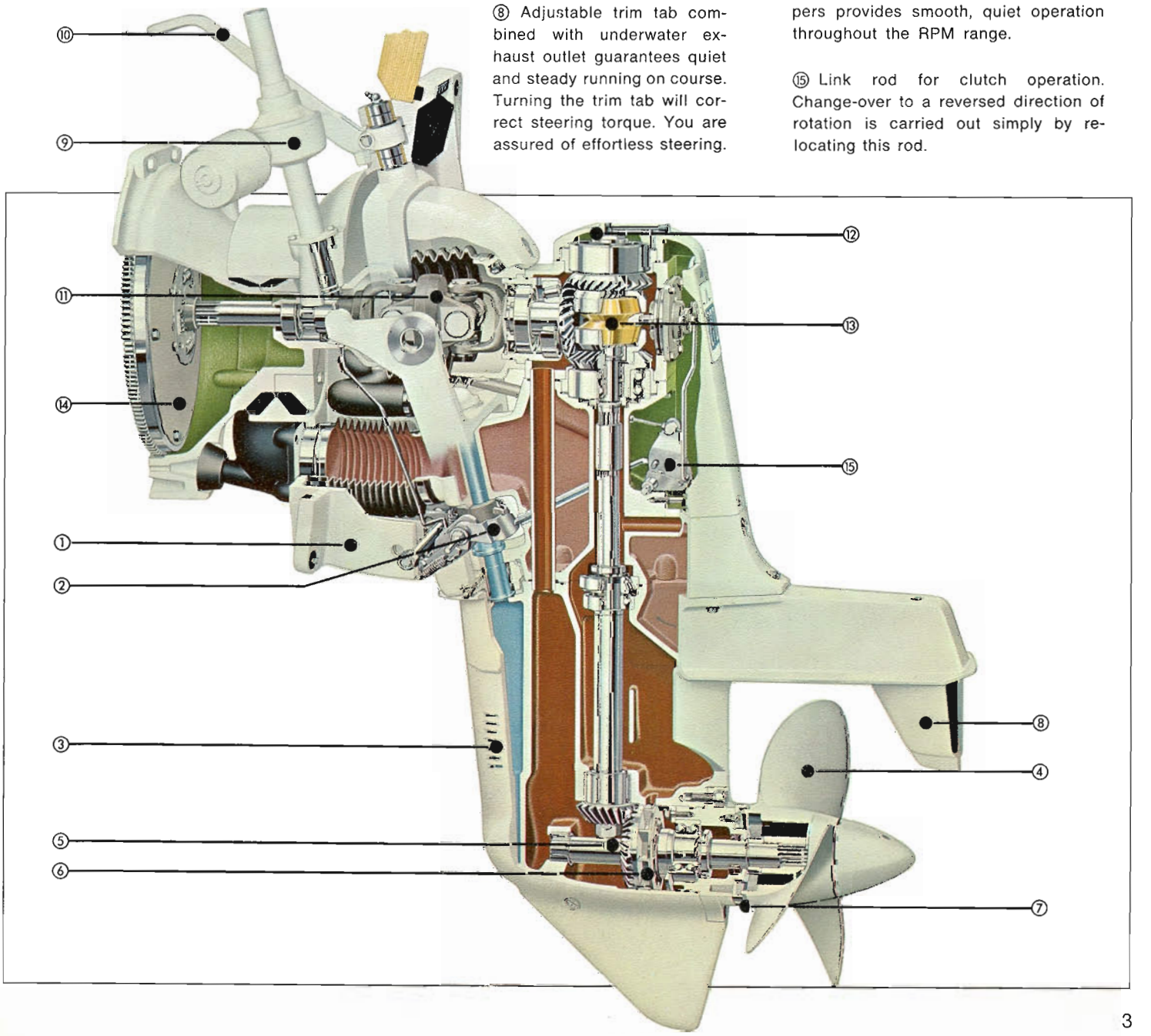
⑪ The drive unit and engine are coupled by an extra heavy duty universal joint which requires no maintenance.

⑫ Oil dipstick on the top of the drive unit allows you to check the oil level of the entire drive unit.

⑬ Cone clutch (patented) of the "Silent shift" type ensuring quiet engagement requiring only light pressure. The clutch is actuated mechanically.

⑭ Engine flywheel with vibration dampers provides smooth, quiet operation throughout the RPM range.

⑮ Link rod for clutch operation. Change-over to a reversed direction of rotation is carried out simply by relocating this rod.



Volvo Penta is the world's only manufacturer of both engine and drive unit

Our marine engines and 270-drive are meant for each other — right from the drawing board. The Aquamatic unit and its equipment are custom-built for salt water use and the very toughest of marine service. The engine and drive are fitted together through one single hole in the transom by means of a mounting collar in which the rear engine rubber mounting, the power transmission, exhaust and cooling channels, steering, lift and control cables are built in.

The sturdy dimensions of this mounting collar and its large contact area featuring fully-protected rubber seals against the transom, mean that the engine and drive form a dependable and outstandingly seaworthy unit with the boat — even at high speeds in the roughest of weather.

The exhaust connection is located at a safe level above the waterline and effective protection at all joints provides full security against water forcing its way in.

The engine is dimensioned for full output utilization and features stellite-flashed exhaust valves and hardened intake valves with positive rotation.

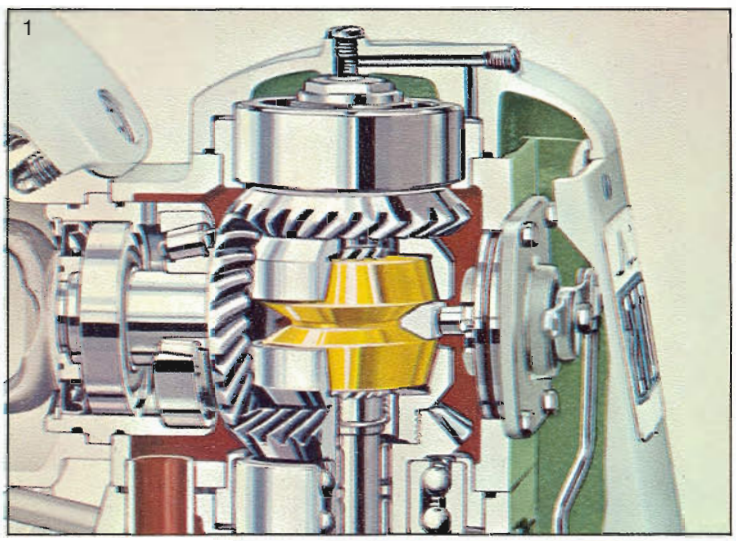
The heavy-duty electrical system features an alternator and is entirely corrosion protected right down to the terminal ends.

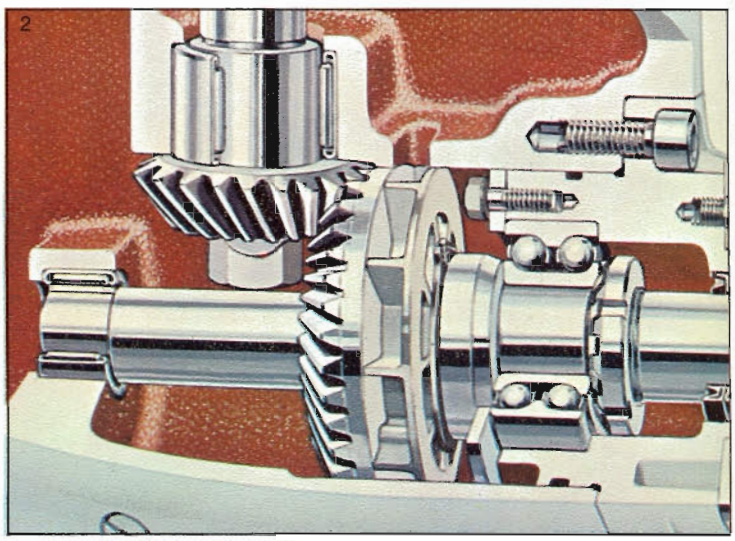
Exclusive Volvo Penta Aquamatic features

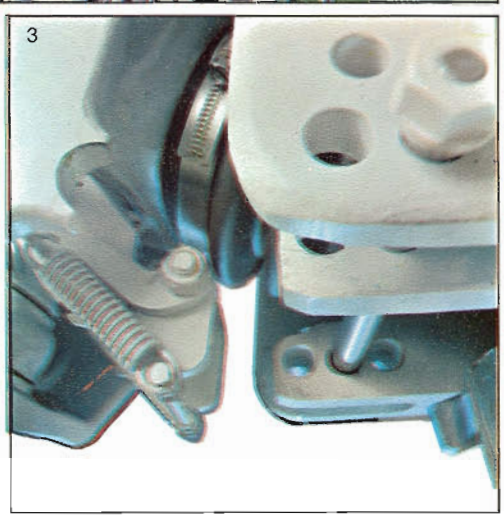
Six decades of refinement and intensive research work have resulted in the many exclusive features of the Volvo Penta Aquamatic. Here are a few of the more important you should know about.

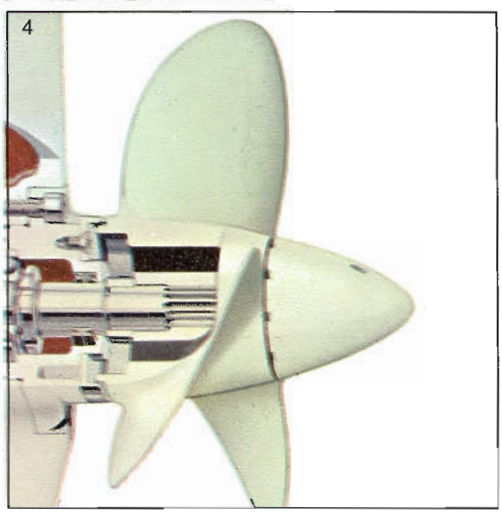
Function

1. A Volvo Penta Aquamatic is fingertip operated. The patented Silent Shift cone clutch gives quiet control of ahead or astern. The coupling is mechanically controlled and is very light to the touch.









Durability

2. The robust bevel gearwheels in the propeller unit give quieter running. This propeller gear is so ingeniously designed that it can be run in both directions of rotation. No modifications to the gear are required apart from a simple adjustment of the link rod for clutch operation.
This special Volvo Penta feature is an obvious advantage in twin stern drive installations.

3. The patented design of the retaining pawl ensures that the drive swings up immediately should it come into contact with underwater obstacles or foul the bottom in shallow water. In cases of emergency, the drive can be shifted to run astern without kicking up even when the boat is running ahead at speeds up to 20 knots.

4. The propeller has a rubber-cushioned hub which absorbs shock. Propeller dimensions up to 16″ are possible. They are manufactured in our own plant and are exhaustively tested before delivery.

5. The Silent Flow induction silencer gives quieter running. The built-in flame trap is of approved type. The Solex down-draught carburetor which features a built-in overflow guard is another vital safety detail and eliminates fuel overflow.

6. Combined oil filter and oil cooler. All pressurized oil passes through an oil cooler and a filter of full-flow type before it is fed to the various lubricating points. Cooling of the oil ensures the very best lubrication and increases the reliability and life of the unit.

7. The drive unit is put through a surface finish process which consists of no less than nine different phases before the final top coating is applied. This paintwork ensures effective protection against corrosion. The surface treatment consists of:
a) preparatory treatment b) undercoating c) filler coating d) final colour coating.

8. Further protection against corrosion is provided by the zinc ring in front of the propeller and a zinc anode in the mounting collar. Both are easily accessible when they need to be replaced.

9. The electrical system of the drive lift is cased in plastic for utter reliability. All electric cables are coupled to a single multi-pin terminal plug for direct connection to the control panel. The electrical system is extremely well insulated.

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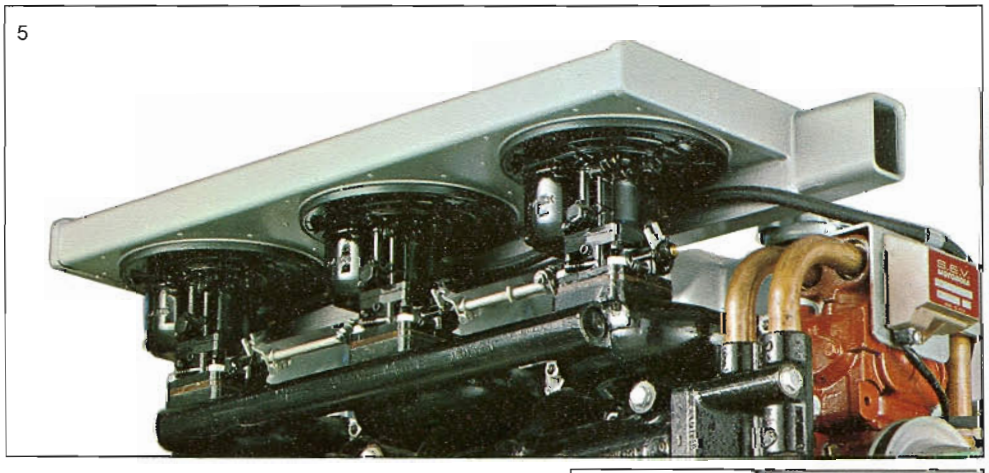

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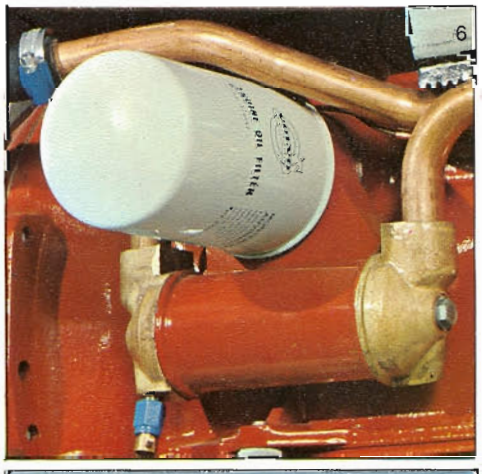

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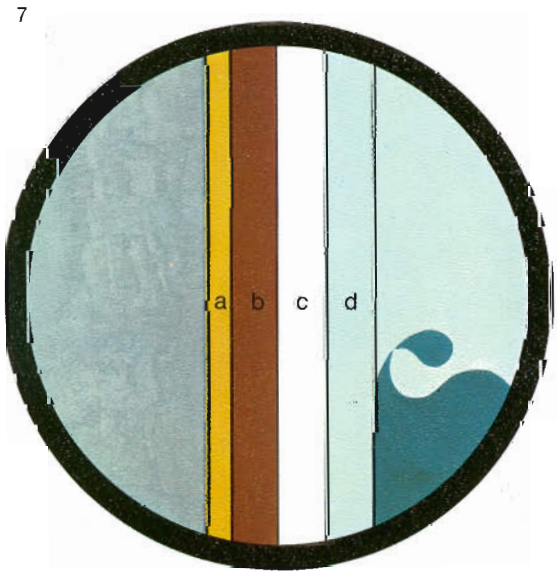

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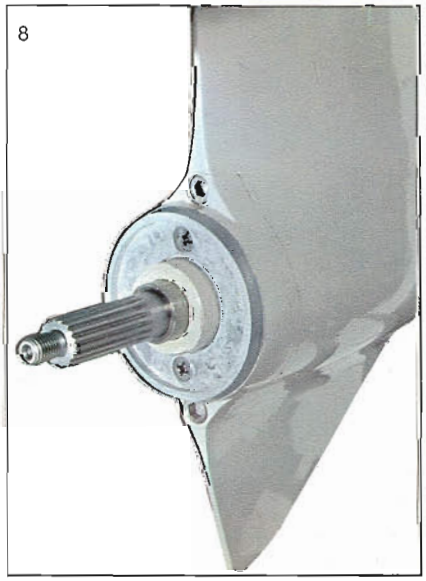

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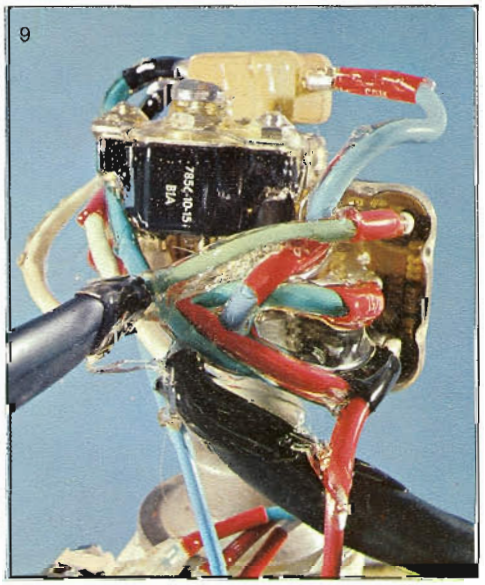


Exclusive Volvo Penta Aquamatic features . . .

Maintenance

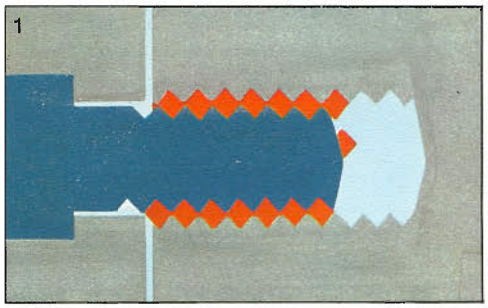
1. The drive is fitted with Heli-Coil stainless steel thread inserts to prevent bolts and screws from corroding. This ensures simple servicing and maintenance.

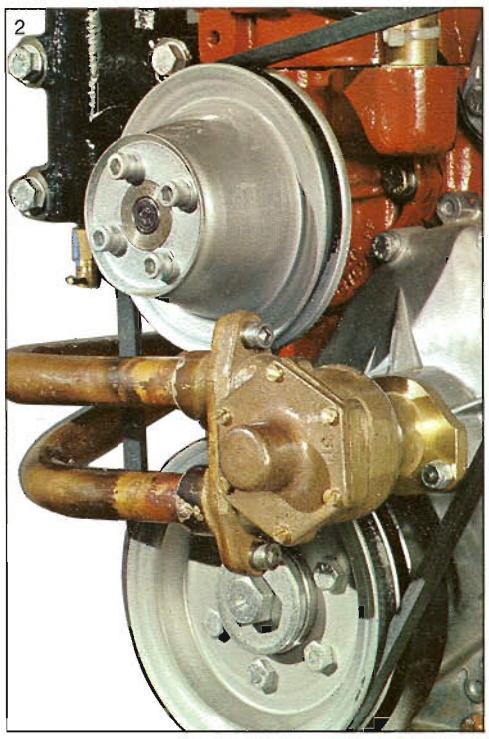
2. The engine cooling pump is located conveniently on the front of the engine, not on the drive unit, since this would otherwise require that the entire boat was taken out of the water to clean the pump or replace the impeller.

3. The same kind of oil used for power unit and drive unit. The oil level is checked on top of the drive unit without needing to tilt it up.

Standard equipment

4. Standard equipment includes an instrument panel with electrical rev counter and temperature gauge, warning lamps for charging and oil pressure and a control panel for the electrically operated lifting mechanism for the drive unit.





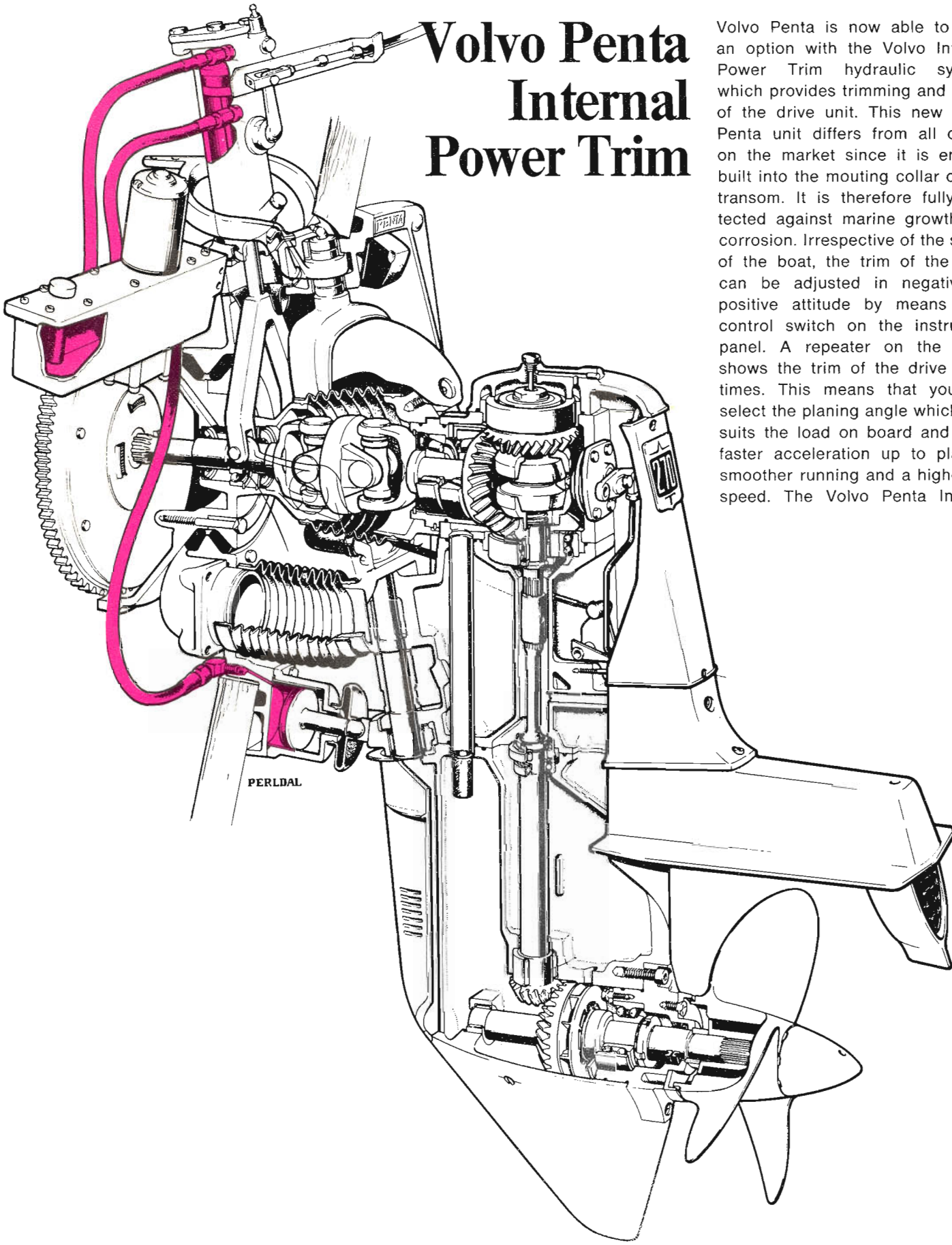
Economy

As stern drives go, Volvo Penta's goes best and has the lowest thirst for fuel. All stern drive manufacturers try to cut fuel and oil consumption to the lowest. Of great importance here is the hydrodynamic design of the lower drive unit and propeller. Volvo Penta's design is the very best. The lowest possible maintenance costs are also a Volvo Penta requirement. Highly efficient and compact design produces an unusually favourable hp-to-displacement ratio. And being compact, the Volvo Penta power unit installs even in cramped quarters.

World-wide service network

A Volvo Penta Aquamatic marine unit consists of a number of components which work in perfect unison. If this unison is to continue and your engine and drive unit is to function at its best, all parts must be given regular maintenance and service. In order to make this possible, Volvo has built up a world-wide service network. In key places along the seaboards and on lakes throughout the world are the selected workshops and specially trained personnel who are always at your service. In addition, Volvo Penta's dealers and service facilities in 109 countries are equipped with the special tools to give your Volvo Aquamatic the service it needs. And they also have genuine replacement parts. At present, we cover 109 countries, but the Volvo Penta service network is ever growing, ever more effective.

Volvo Penta Internal Power Trim

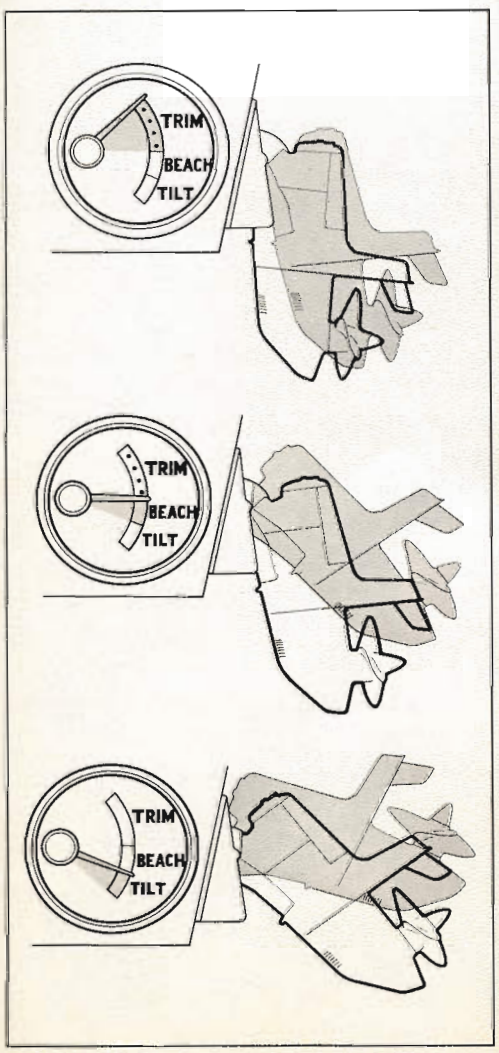


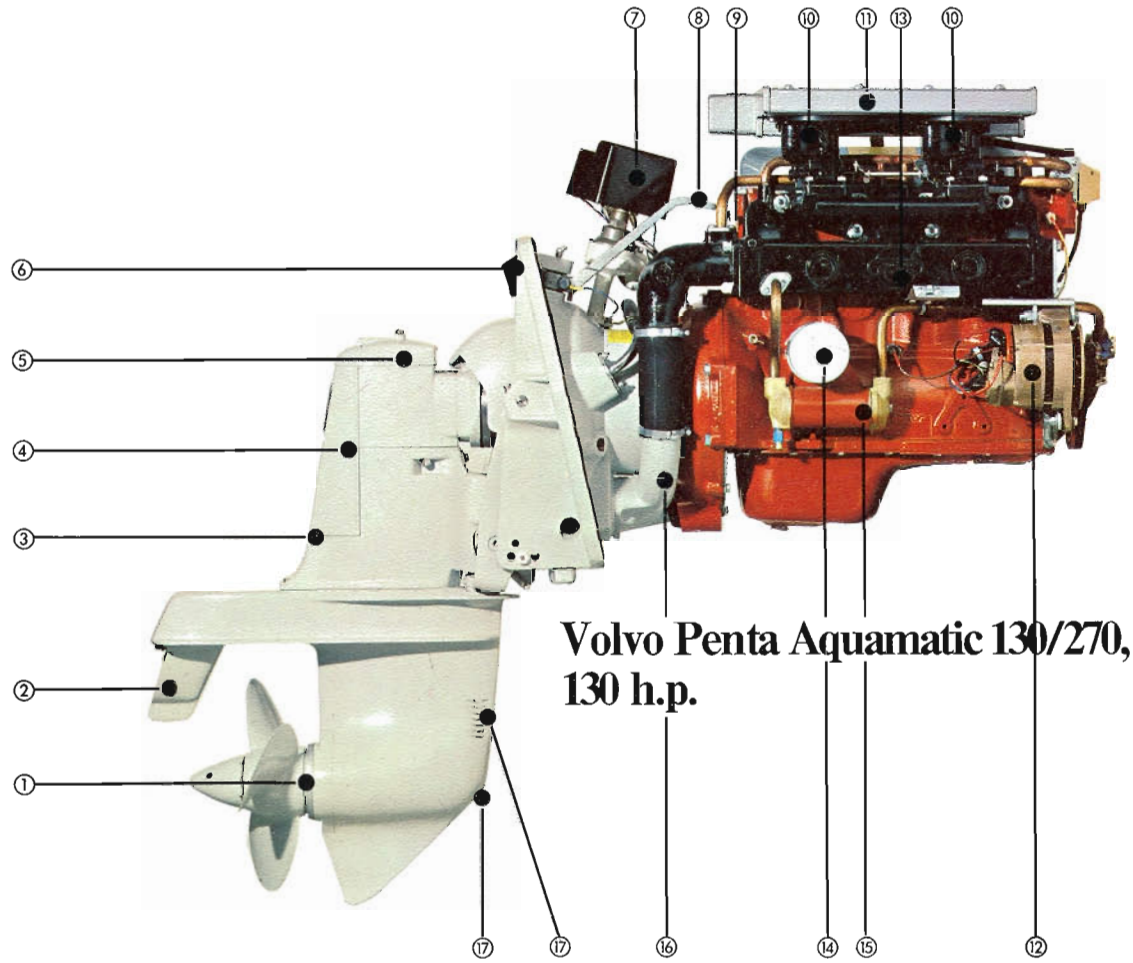
Volvo Penta is now able to offer an option with the Volvo Internal Power Trim hydraulic system, which provides trimming and tilting of the drive unit. This new Volvo Penta unit differs from all others on the market since it is entirely built into the mouting collar on the transom. It is therefore fully protected against marine growth and corrosion. Irrespective of the speed of the boat, the trim of the drive can be adjusted in negative or positive attitude by means of a control switch on the instrument panel. A repeater on the panel shows the trim of the drive at all times. This means that you can select the planing angle which best suits the load on board and gives faster acceleration up to planing, smoother running and a higher top speed. The Volvo Penta Internal

Power Trim system enables full utilization of the power-packed Volvo Penta engine and also cuts your fuel costs.

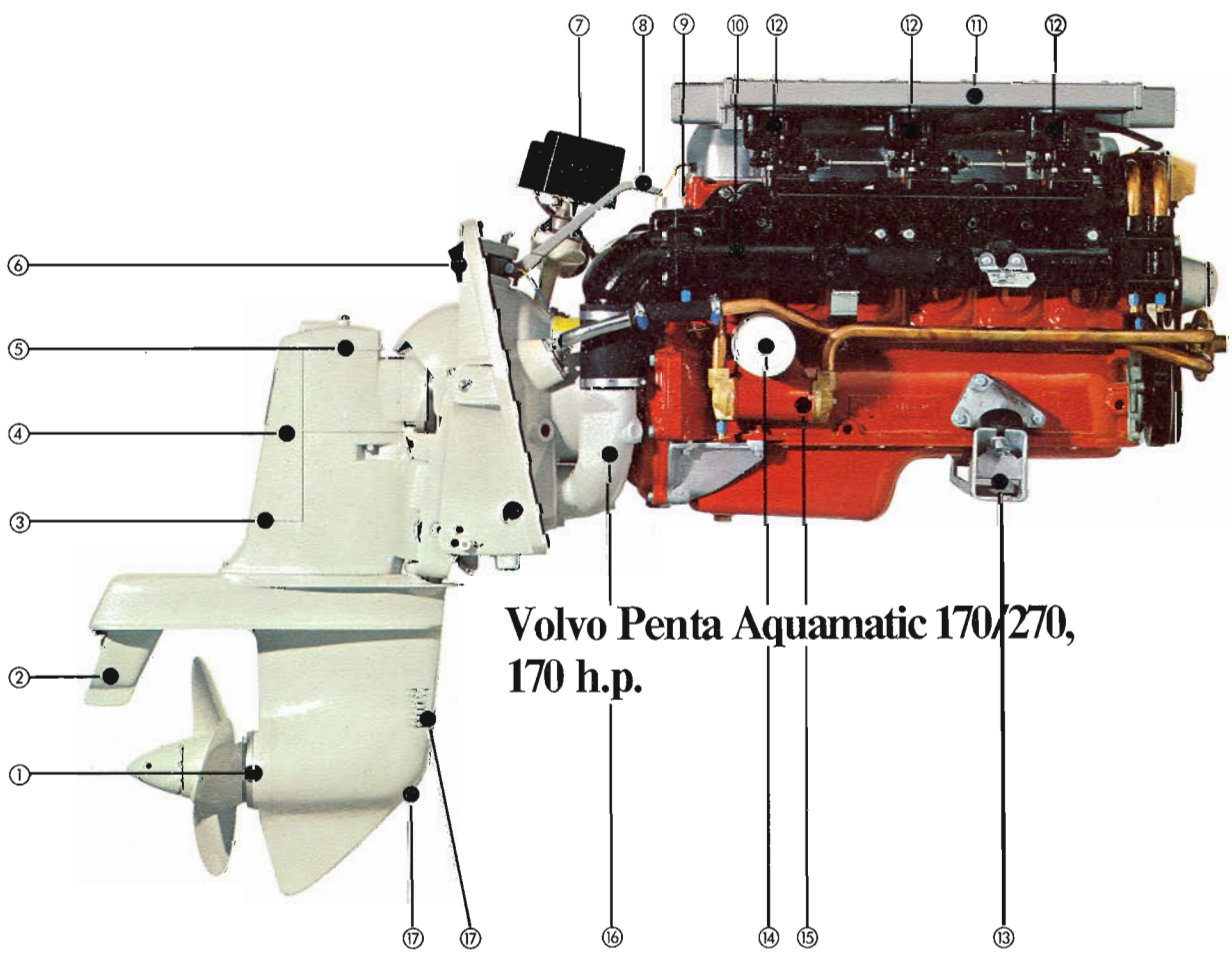
In shallow water the drive can be trimmed to its "beach" position. This allows you to move in close while still safeguarding the drive and propeller — and full ahead and astern power is still available.

The hydraulic system is designed to ensure that the drive can still swing up immediately should it come into contact with underwater obstacles or touch bottom in shallows. A safety valve in the system opens under excessive loading to safeguard the drive unit from damage. Rapid manoeuvring can be carried out in emergency situations at speeds up to 15—20 knots without the drive kicking up.





Volvo Penta Aquamatic 130/270, 130 h.p.



Volvo Penta Aquamatic 170/270, 170 h.p.

Technical data

Ratios

Three optional ratio combinations allow full utilization of the extremely high performance provided by the Volvo Penta Aquamatic marine power units. Drive ratios are as follows:
B: 1.61:1
C: 1.89:1
D: 2.15:1

Aquamatic 130/270

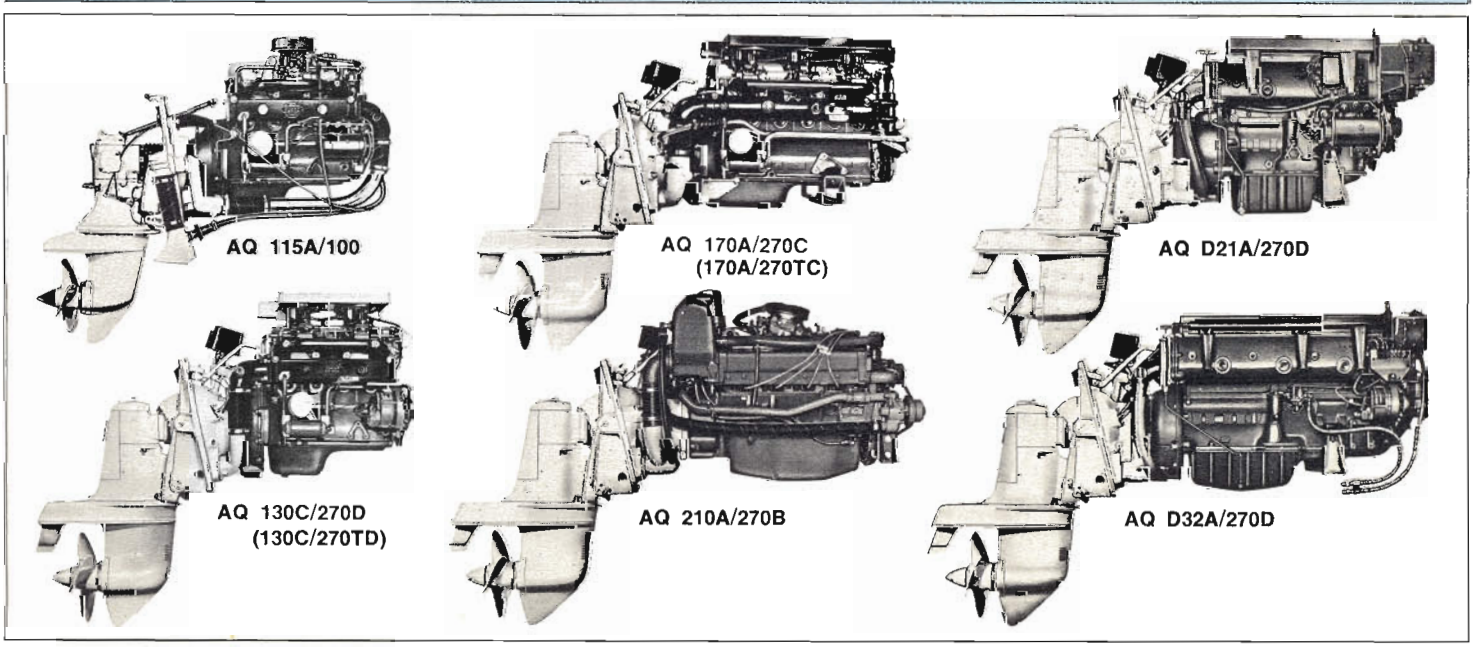
① Corrosion-inhibiting zinc ring
② Exhaust outlet with trim tab
③ Oil filler cap
④ Protective casing for controls
⑤ Oil dipstick
⑥ Rubber cushioning for tilt-up of drive
⑦ Electro-mechanical lifting unit
⑧ Steering rod with connections for cable
⑨ Ignition coil
⑩ Twin down-draught Solex carburetors
⑪ Silent Flow induction silencer with built-in flame trap
⑫ Alternator 12 V, 38 Amp.
⑬ Water-mantled exhaust
⑭ Full-flow oil filter of spin-on type
⑮ Cleanable oil cooler of tubular type
⑯ Exhaust line
⑰ Coolant intake

Aquamatic 170/270

① Corrosion-inhibiting zinc ring
② Exhaust outlet with trim tab
③ Oil filler, drive unit
④ Protective casing for controls
⑤ Oil dipstick
⑥ Rubber cushioning for tilt-up of drive
⑦ Electro-mechanical lifting unit
⑧ Steering rod with connections for cable
⑨ Ignition coil
⑩ Water-mantled exhaust
⑪ Silent Flow induction silencer with built-in flame trap
⑫ 3 down-draught Solex carburetors
⑬ Support member with rubber mountings
⑭ Full-flow oil filter of spin-on type
⑮ Cleanable oil cooler of tubular type
⑯ Exhaust line
⑰ Coolant intake

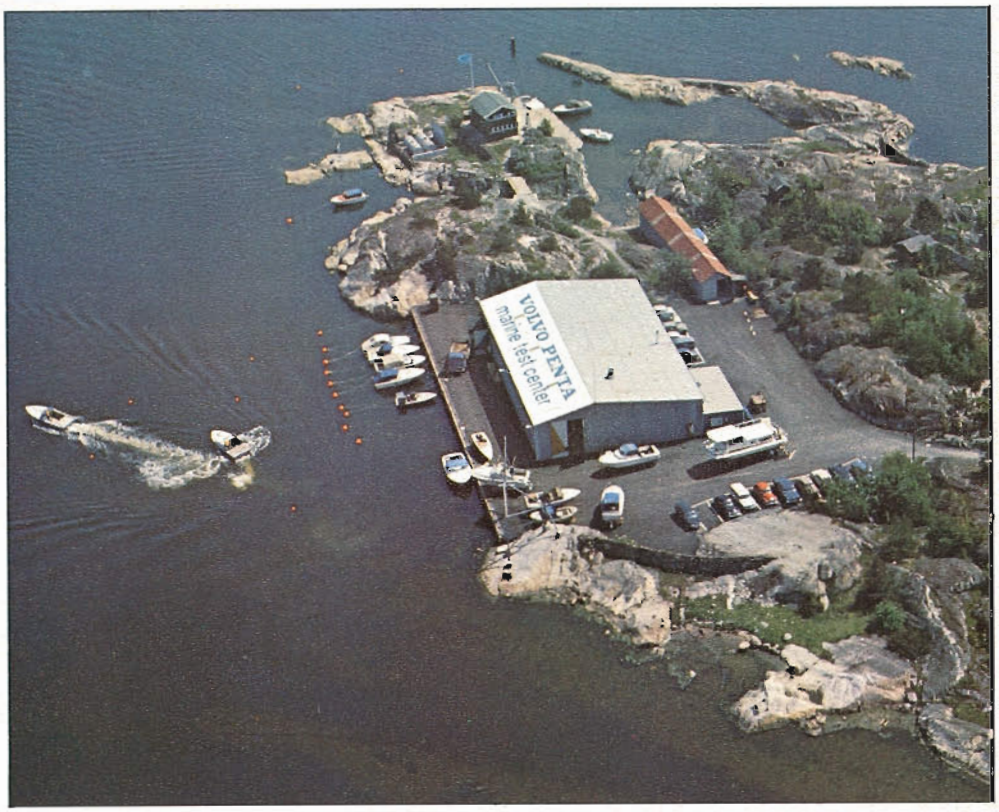
Specifications

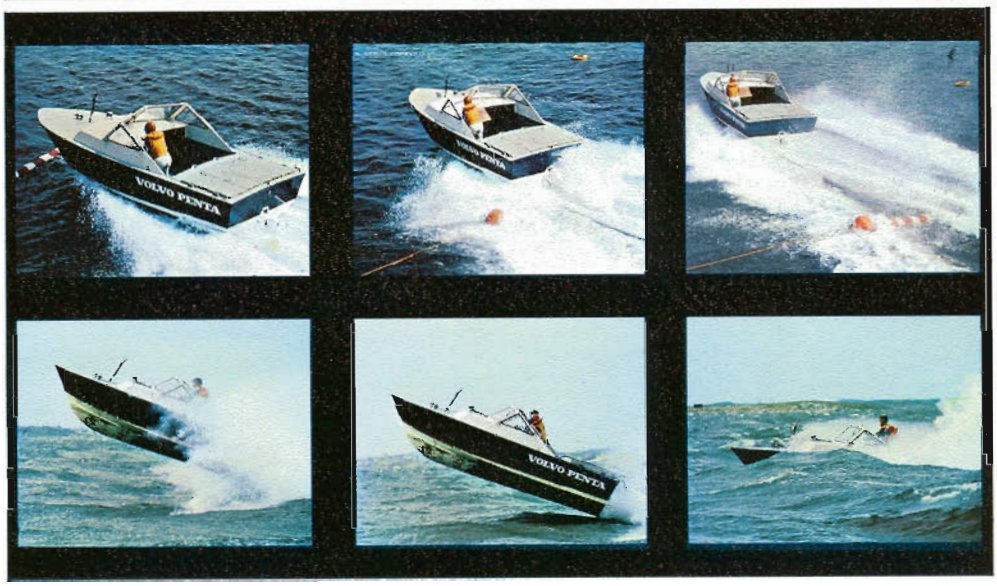
Model	Output h.p.	r.p.m.	Compr. ratio	Number of cylinder	Capacity, litres (cu.in.)	Outboard drive	Weight compl. kg (lb)
AQ 115A/100	115	5100	9.5:1	4 in line	1.986 (121)	1.66:1	210 (460)
AQ 130C/270D	130	5100	9.5:1	4 in line	1.986 (121)	2.15:1	230 (510)
AQ 170A/270C	170	5000	9.5:1	6 in line	2.980 (182)	1.89:1	280 (615)
AQ 210A/270B	210	4000	8.0:1	V 8	5.032 (307)	1.61:1	470 (1034)
AQ D21A/270D	75	4500	22.1:1 Diesel	4 in line	2.11 (129)	2.15:1	300 (660)
AQ D32A/270D	106	4000	22.1:1 Diesel	6 in line	3.17 (193)	2.15:1	355 (785)



The Volvo Penta Marine Test Center

The Volvo Penta Aquamatic is not a product direct from the drawing board. Far from it. Very few engineering products have been put through as much testing as the Aquamatic marine power units before they emerge in their final form. The Volvo Penta Marine Test Center is the largest in Europe covering 140,000 square feet of land. And all around lies the open sea. This is where the Volvo Penta marine power units are specially and realistically tested twelve months of the year. In storm or calm. 50 or more test boats carry out endurance and functional tests of all types, high-speed tests, collision tests, fatique tests and so on. Electronic equipment is used extensively in this appraisal of Volvo Penta products. Registration is made of vibrations, mechanical stress and temperature in vital parts of the power unit. The boats are also run at full speed over heavy logs time and time again to test the drive retaining pawl or sometimes they are run aground at full speed.





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