

230/SP

(AQ131/SP)

230 4-cylinder 4-stroke fresh water cooled carburettor engine with SP.

The Volvo Penta 230 is a reliable, economical engine. In combination with the SP drive, with its carefully selected gear ratio, this engine gives outstanding acceleration and speed.

The torque of the engine gives rapid planing throughout the whole of its speed range and allows operation at low economical speeds.

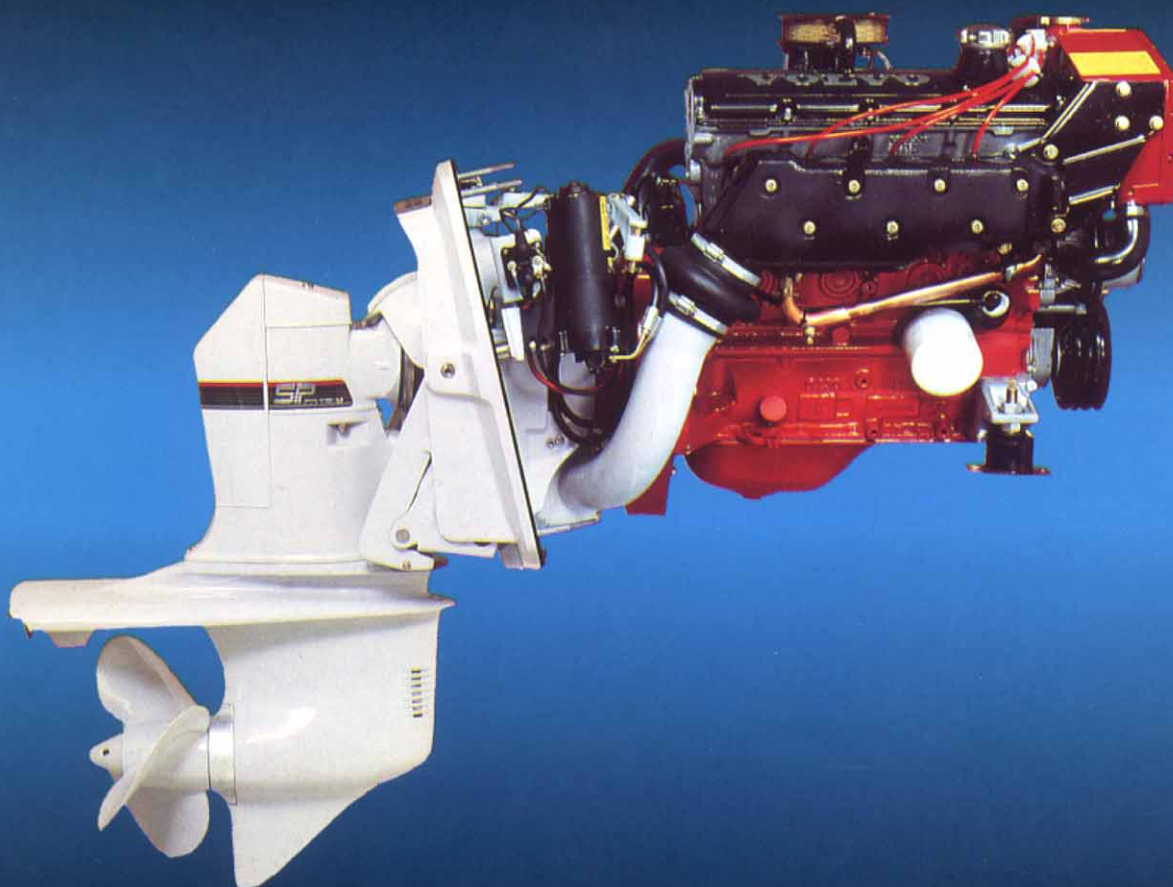
The low weight and low space requirements offer advantages in terms both of speed and of installation. Fresh water cooling in a completely closed system is standard.

Conversion of the engine for marine use has been achieved, giving maximum ease of access for check-ups and servicing. The seawater pump is mounted at the

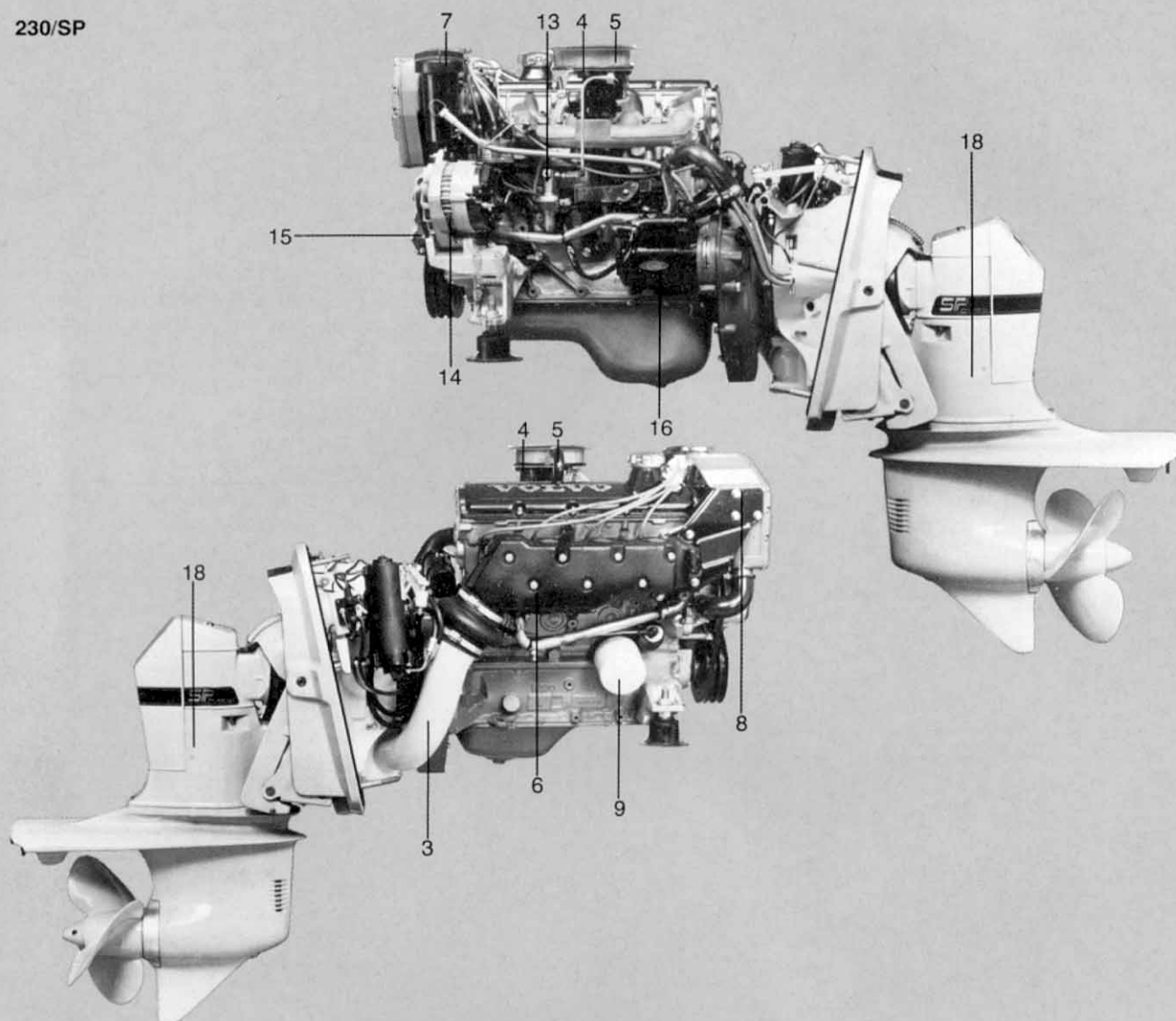
front end of the engine, which also makes it possible to replace the impeller at sea. An overhead camshaft, with fixed valve clearances, helps prolong the intervals between servicing.

The SP drive, well-known for its long life and excellent resistance to salt water corrosion, forms a compact reliable unit in combination with the engine, giving maximum propulsion efficiency. The retaining pawl has a quick release feature to allow the drive to kick up when striking underwater objects.

Volvo Penta has a well-established service network and our authorized workshops, with their skilled personnel and stock of Genuine Parts, will ensure that you enjoy a safe and comfortable boating season.



VOLVO PENTA



Standard equipment

ENGINE

Cylinder block made of a special grade of cast iron; cylinder head made of aluminium alloy. The engine is mounted onto the flywheel casing at an angle of 20° to reduce the space required for installation. Five-bearing overhead camshaft, driven by a reinforced neoprene toothed belt. Pistons are made of light alloy, with two compression rings and one oil scraper ring. Crankshaft supported by five bearings. Overhead valves with replaceable special steel seatings and shims for adjustment of valve clearance.

FUEL SYSTEM

Down-draught carburettor with acceleration pump (4). Fuel pump (13).

COOLING SYSTEM

Thermostat-controlled fresh water system, with circulation pump, expansion tank and heat exchanger (8). Seawater pump, with neoprene rubber impeller (15). Cleanable seawater filter (7).

LUBRICATING SYSTEM

Pressure lubrication with full-flow lubricating oil filter (9). Closed crankcase ventilation.

INTAKE SYSTEM

Built-in flame guard (5).

EXHAUST SYSTEM

Seawater cooled exhaust pipe (6) with cast iron manifold elbow. Complete exhaust line for connection to drive (3).

DRIVE

(18) Outboard drive complete with transom shield, rubber-mounted flywheel cowling and installation components. All gears helically cut and the tensile strength of the lower gear is designed for operation in either direction of rotation.

The Silent Shift cone clutch (patented) provides reliable, quiet engagement and requires little effort. The drive tilt angle is 48°. The gearshift mechanism has an easily adjusted link rod to allow conversion to suit clockwise or anticlockwise propeller rotation. Factory mounted bracket for direct connection of steering cable to transom shield. Power steering is available (as extra equipment) and is also suitable as a retrofit item. Zinc protection ring which prevents galvanic corrosion. Cooling water intake at front of the drive and one secondary intake at bottom of drive ensures the supply of cooling water to the engine. The

patented reverse latch mechanism gives full astern capacity at all trim angles and prevents the drive from tilting up when the throttle is pulling back quickly. Also allows the drive to kick up on striking underwater objects. "Power Trim" with electrohydraulic system allows the drive angle to be trimmed while running. (The electrically driven hydraulic pump is mounted either to the bulkhead or to the transom.) Oil used for drive lubrication and hydraulic pumps is the same as engine oil.

ELECTRICAL SYSTEM

Corrosion-protected 12 V electrical system. Alternator (14), 14 V/50 A, designed for marine operation. Voltage regulator for rapid battery charging. Alternator designed for fitting of double diode system, which automatically distributes loading current between two or more batteries. Main fuses, with reserve fuses fitted.

STARTING

Electric starter motor (16), 1.1 kW (1.5 hp).

TRIM INDICATOR (CD)



The trim angle is indicated by five green diode lamps plus a digital display. A continuous red light indicates when the drive is in the "beach" sector. The red light flashes when the drive is in the "tilt" position. The control panel has two

switches with easy-to-read symbols; one for up/down drive control and one override switch to come from "tilt" sector into "beach" sector.

INSTRUMENT PANEL



(Extra equipment on some markets.) Fitted with key switch, tachometer, oil pressure gauge, voltmeter, temperature gauge, double fuses and switch for instrument lighting. Cable length 6.0 m (19.7 ft).

DATA

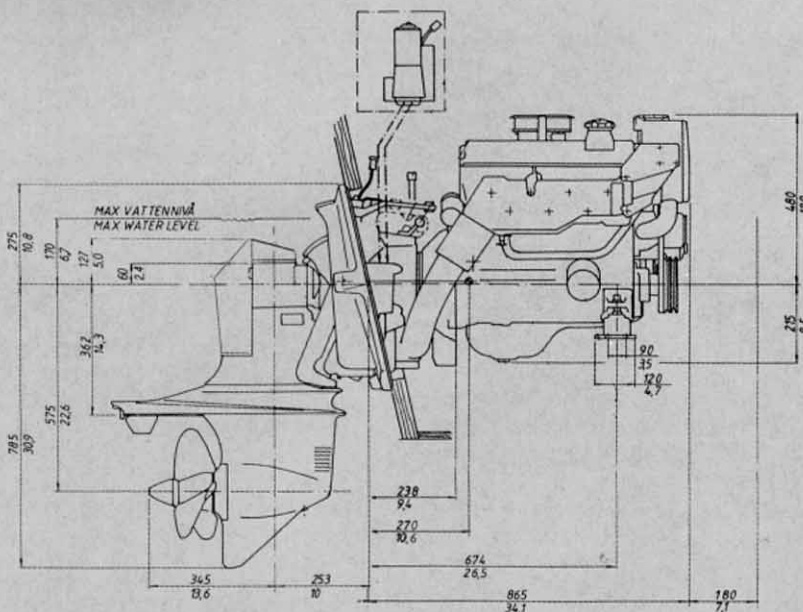
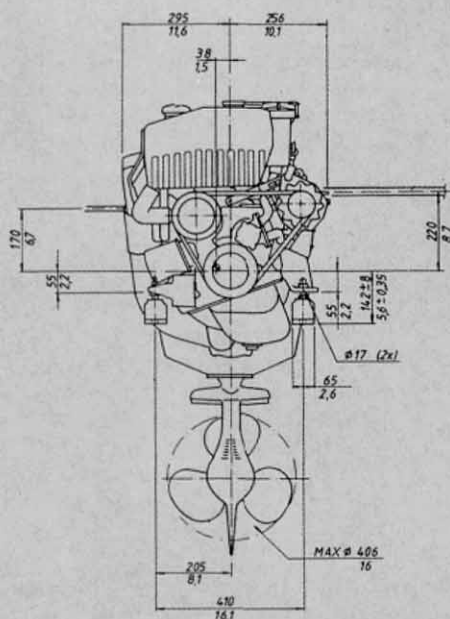
Type of operation	4-stroke fresh water cooled carburettor engine with overhead valves
Designation	230
Crankshaft power ¹⁾²⁾ at 5000 r/min	88 kW (120 hp)
Propeller shaft power ³⁾⁴⁾ at 4850 r/min	81 kW (110 hp)
Recommended max. revolutions at full load	4700–5000 r/min
Number of cylinders	4
Capacity	2.31 dm ³ (141 in ³)
Bore/stroke	96/80 mm (3.78/3.15 in)
Grade of fuel	min 91 oktan RON
Drive, type, design and reduction	SP/2.15:1
Total weight (approx.)	245 kg (539 lb)

¹⁾ Crankshaft power acc. to SAE J607.

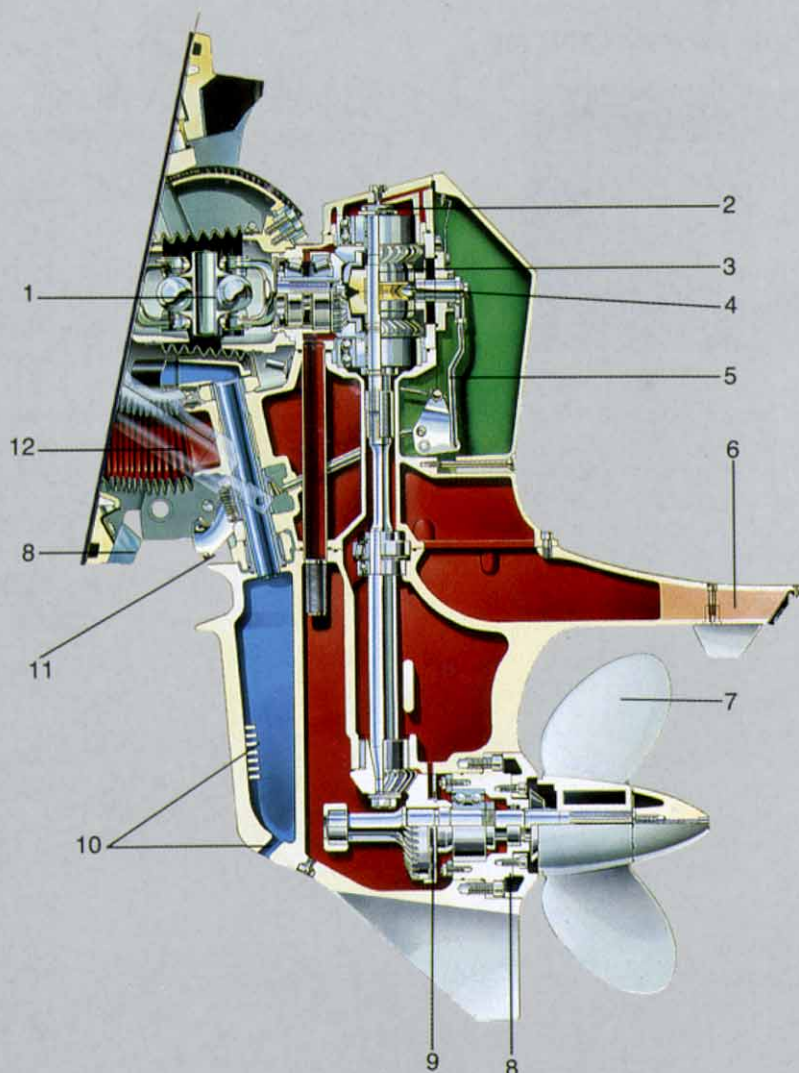
²⁾ Usable power will be reduced by transmission or gearbox losses.

³⁾ Prop. shaft power acc. to ISO 8665 or acc. to the technically identical standards SAE J1228 and ICOMIA 28–83.

⁴⁾ Prop. shaft power indicated at mid of recommended speed range.



Drive SP



1. Double universal joint. Robust and maintenance-free.
2. Oil dipstick.
3. Helically-cut gears for low noise level.
4. Patented cone clutch, Silent Shift type. Operates smoothly and quietly and requires little effort.
5. The direction of propeller rotation can be reversed by simple relocation of the link rod in the drive.
6. Cavitation plate with exhaust outlet.
7. Space for propellers up to 16" diameter.
8. Zinc ring in front of the propeller with extra zinc anode on the transom shield, gives efficient protection against galvanic corrosion.
9. Oil pump, vane type. Oil type same quality as engine.
10. Cooling water intakes.
11. Reverse latch-mechanism, patented design. Also allows drive to kick up on stringing underwater objects.
12. Trim cylinders connected with stainless steel pipes in the hydraulic system.

Accessories

FUEL SYSTEM

Water separator. Copper fuel line kit. Flexible fuel hose length 700 mm (27.6 in). Separate connecting cover for fuel tank. Suction pipe for fuel tank connecting cover. Tank ventilator.

ELECTRICAL SYSTEM AND INSTRUMENTS

Extension cable harness (main panel). T-cable harness "Flying Bridge". Power Trim instrument and switch for "Flying Bridge". Extension cable harness, length 3.0 m (9.85 ft), for trim function. Main switch. Safety switch (man overboard). Neutral switch for VP controls. Batteries. Charge distributor with bat-

tery restriction and automatic compensation for voltage drop in electrical system.

Extra instruments: Fuel tank gauge, water tank gauge, hour meter, rudder indicator.

CONTROLS AND OPERATING SYSTEMS

Single lever control both for throttle and for shift operation. Mounting alternative: Single or twin top or single, side mounted.

Throttle and shift cables.

Tie rods for twin installation.

Steering systems with cables and con-

nection kits for STS 330 push pull type. Power steering. Dual station equipment for control, and steering equipment.

TRANSMISSION

High Speed propellers.
Drive extensions.

MISCELLANEOUS

Engine compartment fan. Flexible hose for fan. Electrical bilge pump. Oil scavenging pump electrical or manual. Tool kit. Oil for engine and drive. Touch-up paint. Anti-corrosion spray.

**VOLVO
PENTA**

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Not all models, standard equipment, and accessories are available in all countries. All specifications are subject to change without notice.