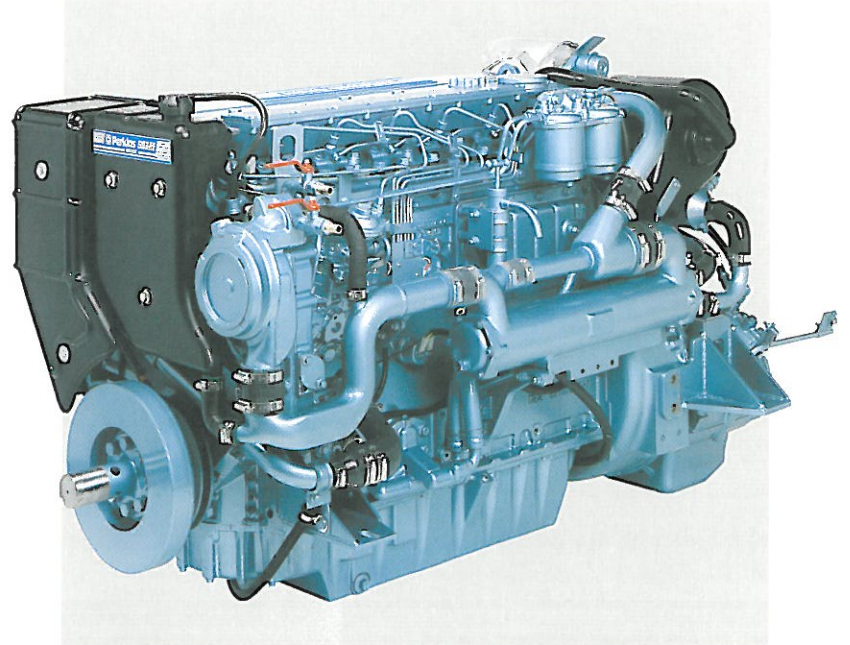




## Propulsion Unit – Commercial Applications

**Environmentally friendly** – Satisfies the requirements of IMO Annex VI, marine legislation.

- **Premium engine features for reliability and durability** – Minimising down time and service costs
- **Lowest cost of ownership in its class** – It pays to compare running costs
- **Unrivalled worldwide parts and service network** – Service available wherever you are
- **Most compact package in its class** – Offers boat design flexibility – easier new boat and repower installation



### Reliability and Durability

- High capacity heat exchange equipment with cupro-nickel tube stack ensures low component operating temperatures for exceptionally reliable and durable operation
- Developed to meet the arduous demands of the marine environment including worldwide cooling and starting requirements
- Gear driven engine and raw water pumps with high quality silicone hoses for the ultimate in reliable cooling and leak-free operation
- An integral plate type oil cooler offers compactness, saving installation space and features a by-pass valve for start up safety
- The Perkins turbocharger wastegate system reduces the maximum cylinder pressure and hence improves reliability and durability

### Cost of Ownership

- Operator costs are a vital consideration when deciding which engine to purchase. This is a particularly important factor in commercial craft where operating hours can be significant. Compared with alternative, less efficient competitive engines, the M215C

offers longer service intervals, excellent fuel economy and consistently lower parts prices. The result cannot be ignored – a saving in operator costs after 3-4 years in service **equal to the original engine price** – confirming the proud boast that: **The M215C has the lowest cost of ownership in its class**

### Innovative Performance Specification

- New 'Fastram' combustion system, the latest Bosch rotary fuel pump, wastegated turbocharger system and air intake silencer offer significant improvements in fuel economy, emissions and noise
- The turbocharger wastegate system optimises low engine speed performance providing smoother and faster boat acceleration at planing speed
- Lightweight materials and the use of computer aided design on cylinder block and head provides an excellent power to weight ratio for enhanced boat performance
- Controlled expansion oil cooled pistons with low friction three ring pack and silicone carbide honed cylinder liners give exceptionally low oil consumption, easier cold starting and extended oil change periods

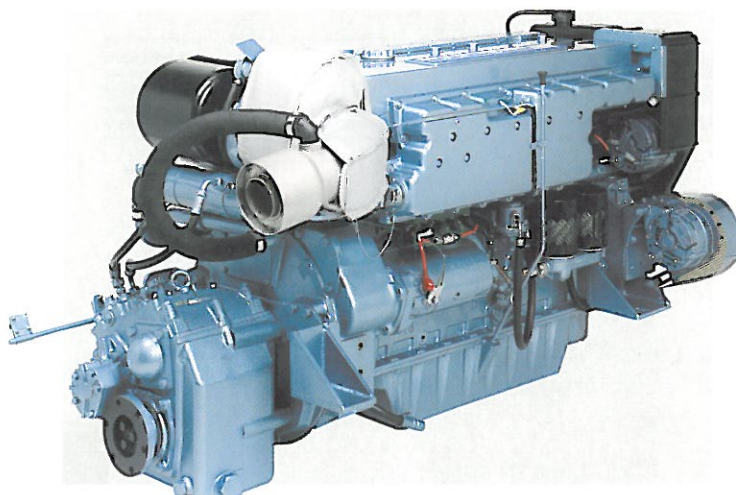
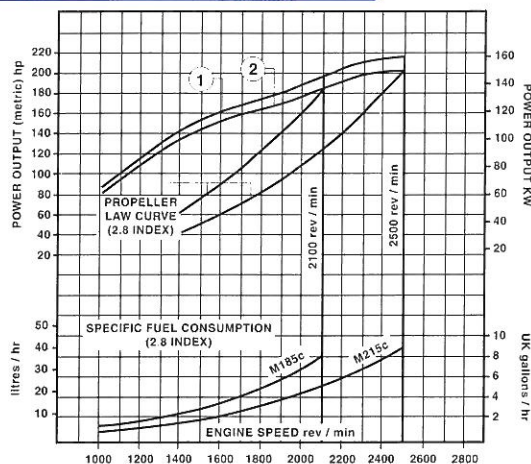
### Ease of Installation

- Easy access to all routine servicing features in either single or twin installations
- Oil and coolant systems developed to permit a wide range of operating angles both for conventional shaft and vee-drive installations
- Support is available from Sabre Engines Ltd and the Perkins distributor network to advise on all aspects of power, performance and installation

### Service

- Perkins unrivalled service network with over 4,000 distributors and dealers provides a fast, effective parts and after market support service essential to any commercial operator
- A genuine top quality warranty package offering a twelve month cover as standard (plus second year cover of major components)
- Extended service intervals including a 400 hour or once a season oil change period





Propellers should be matched to achieve rated engine speed under fully laden boat conditions. Engine delivered from factory will be set to produce gross (flywheel) power output within manufacturing tolerances and run-in allowance to BS AU141a: 1974 conditions

## Performance Data

- Gross flywheel power output without gearbox at maximum production tolerance – Curve 1
- Nett shaft power output with Newage PRM 1000D gearbox – Curve 2
- Rated engine speed

### M215C

158 kW (215 hp)

150.5 kW (205 hp)

2500 rev/min

### M185C

144 kW (196 hp)

136 kW (185 hp)

2100 rev/min

**M215C** – This light duty commercial model is ideally suited for such craft as customs and police launches, hire craft, high speed commercial fishing, patrol boats, pilot cutters, passenger carriers and survey craft. The vessel type and duty cycle will determine the allowable annual usage. Refer to your Sabre Engines Ltd Distributor

**M185C** – This medium duty commercial model extends the range of craft to include coastal fishing and other high usage applications up to 3000 hours annually (but excluding tugs and barges in continuous operation)

## Standard Engine Specification

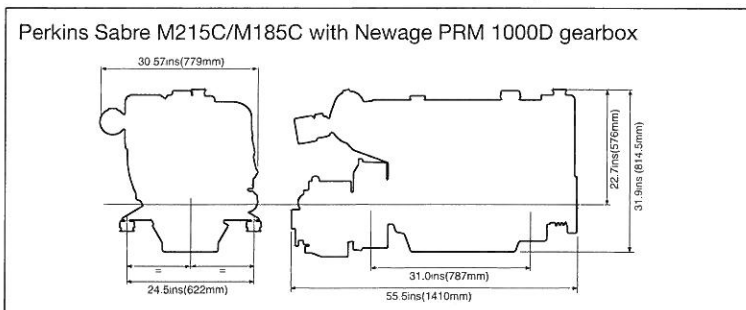
- Fresh water heat exchanger cooled engine with gear driven self priming raw water and fresh water pumps or keel cooling adaption
- Fresh water cooled exhaust manifold
- Wastegated turbocharger with insulation cover
- Raw water cooled charge air cooler
- Air intake filter with cleaner element
- High inclination engine sump, top access dipstick and engine mounted sump drain pump
- Twin spin-on element lubricating oil filter
- Integral plate engine lubricating oil cooler
- Closed breather system
- High mounted twin element fuel filter
- Thermostat cold start aid
- Manual control adaption parts
- Electric stop solenoid
- Alarm switches and warning siren

## General Data

- Bore** 100mm (3.937 in)
- Stroke** 127mm (5.00 in)
- Cubic Capacity** 6.00 litres (365.0 in<sup>3</sup>)
- Cycle** 4 stroke
- No. of Cylinders** 6 in-line
- Aspiration** Wastegated turbocharger, charge air cooled
- Combustion System** Fastram direct injection
- Engine Rotation** Anti-clockwise viewed from rear
- Fuel Pump** Bosch rotary with boost control and electric stop solenoid
- Engine Operating Angles** Maximum continuous operating angles: 20° engine front up, 8° engine front down (option kit) 30° sideways
- Power Take Off** Available from front end drive (for drive limitations refer to Sabre Engines Ltd)
- Weight (Wet)** 609 kg (1342 lb) engine only  
683 kg (1505 lb) with Hurth HSW 630A  
709 kg (1562 lb) with Newage PRM 1000D

## Optional Equipment

- **Backends** – suitable for a range of transmissions
- **Marine Transmissions (standard)**
  - Hurth HSW 630A (M215C only)
  - Newage PRM 1000D
- **Electrical** – 12 or 24 volt insulated marine electrics
- **Exhaust Outlets**
  - Variable angle water injected outlets including high rise option
  - Dry outlets with flexible bellows
- **Instrumentation** – single and dual station instrumentation incorporating audible/visual alarms and gauges complete with senders, switches and varying lengths of interconnecting cables
- **Power Take Off** – crankshaft PTO extension shaft with pulley drives
- **Mountings**
  - Solid mounting brackets
  - Flexible engine mountings with adjustment shims
- **Miscellaneous**
  - Solid or flexible output couplings
  - Tool kit
  - On board parts kit
  - Engine mounted electro-magnetic bilge pumps
  - Calorifier connections
  - Fuel pre-filter with water alarm
  - Fuel feed and return pipes



Distributed by:

# Perkins Sabre M225Ti / M215C / M185C Installation Details



Basic Technical Data	Model M215C / M225Ti	Model M185C
Rated power	213 PS (156.6 kW)	190 PS (140 kW)
Rated engine speed	2500 rev/min	2100 rev/min
Number of cylinders	6	6
Cylinder arrangement	In-line	In-line
Cycle	4 stroke	4 stroke
Induction system	Wastegated turbocharger with charge air cooler	Wastegated turbocharger with charge air cooler
Bore	100 mm (3.937")	100 mm (3.937")
Stroke	127 mm (5.00")	127 mm (5.00")
Compression ratio	16:1	16:1
Cubic capacity	6.00 litres (365.0 in <sup>3</sup> )	6.00 litres (365.0 in <sup>3</sup> )
Valves per cylinder	2	2
Direction of rotation	Anti-clockwise viewed on flywheel	Anti-clockwise viewed on flywheel
Firing order	1, 5, 3, 6, 2, 4	1, 5, 3, 6, 2, 4
Total weight (wet)	609 kg (1,342 lb) engine only including starter and alternator	609 kg (1,342 lb) engine only including starter and alternator
<b>Cooling System</b>		
Recommended coolant	Sabre Extended Life Coolant 50/50 Mix	Sabre Extended Life Coolant 50/50 Mix
Fresh water flow	205 litre/min at 2500/min	159 litre/min at 2100 rev/min
Coolant pump speed and method of drive	Gear 1:1	Gear 1:1
System capacity	25.3 litres	25.3 litres
Pressure cap setting	50 kPa (7 psi)	50 kPa (7 psi)
Protection switch setting	96°C	96°C
Sea water pump type	Jabsco gear driven model 25.4 mm (1") full cam	Jabsco gear driven model 25.4 mm (1") full cam
Sea water suggested inlet hose diameter	32 mm (1.25")	32 mm (1.25")
Sea cock	Full flow 25.4 mm (1.00")	Full flow 25.4 mm (1.00")
Strainer	A raw water strainer must be included in the suction side of the circuit	A raw water strainer must be included in the suction side of the circuit
Maximum sea water temperature	38°C (100°F)	38°C (100°F)
Sea water flow	27 galls/min	24 galls/min
<b>Fuel System</b>		
Recommended fuel specifications	BS2869 Class A2 ASTM D 975 Number 2D	BS2869 Class A2 ASTM D975 Number 2D
Fuel injection pump	Bosch rotary with boost control and electric stop, (energised to stop)	Bosch rotary with boost control and electric stop, (energised to stop)
Fuel lift pump	AC Delco type LU	AC Delco type LU
Fuel feed pressure (static)	0.3 to 0.6 bar (5 to 8 psi)	0.3 to 0.6 bar (5 to 8 psi)
Governor type	Mechanical	Mechanical



Fuel System		Model M215C / M225TI	Model M185C
Pipe size	Supply - Outside diameter	7.9 mm (0.315")	7.9 mm (0.315")
	Supply - Bore	6.53 mm (0.257")	6.53 mm (0.257")
	Return - Outside diameter	6.3 mm (0.25")	6.3 mm (0.25")
	Return - Bore	4.93 mm (0.194")	4.93 mm (0.194")
Maximum lift pump lift		1.8 m (6 ft) to bottom of tank suction pipe	1.8 m (6 ft) to bottom of tank suction pipe
Maximum fuel lift pump depression at inlet		127 mm (5") Hg	127 mm (5") Hg
Fuel consumption at full power		9.4 galls/hr (43 l/hr)	7.7 galls/hr (35 l/hr)
<b>Air Intake</b>			
Combustion airflow		13.0 m <sup>3</sup> /min (460 ft <sup>3</sup> /min)	10.76 m <sup>3</sup> /min (380 ft <sup>3</sup> /min)
Maximum engine compartment air temperature		60°C	60°C
Maximum air temperature at engine inlet		52°C	52°C
Ventilation - maximum engine room depression		125 mm WG (5"WG)	125 mm WG (5"WG)
Suggested ventilation airflow including combustion air		25 m <sup>3</sup> /min (1000 ft <sup>3</sup> /min)	25 m <sup>3</sup> /min (1000 ft <sup>3</sup> /min)
Minimum cross section of air duct (per engine)		640 cm <sup>2</sup> (100 sq ins) for hot climates 320 cm <sup>2</sup> (50 sq ins) for temperate climates	640 cm <sup>2</sup> (100 sq ins) for hot climates 320 cm <sup>2</sup> (50 sq ins) for temperate climates
<b>Exhaust</b>			
Exhaust gas flow		35.08 m <sup>3</sup> /m in (1240 ft <sup>3</sup> /min)	35.08 m <sup>3</sup> /min (1240 ft <sup>3</sup> /min)
Maximum restriction measured within (305 mm) 12" of turbocharger outlet		0.1 bar (3.0" Hg)	0.1 bar (3.0" Hg)
Recommended pipe bore (wet exhaust)		127 mm (5.0")	100 mm (4.0")
Recommended pipe bore (dry)		76.2 mm (3.0")	76.2 mm (3.0")
Minimum rise from sea water level to exhaust outlet centreline		203 mm (8.0")	203 mm (8.0")
<b>Lubricating System</b>			
Recommended lubricating oil		AP1 CD/SE CCMC D4	AP1 CD/SE CCMC D4
Sump capacity maximum		15 litres	15 litres
Maximum installation angle plus planing angle for continuous operation		17° engine front up + 3° rise 5° nose down + 3° rise 30° heel when motor sailing	17° engine front up + 3° rise 5° nose down + 3° rise 30° heel when motor sailing
Oil pressure in operating speed range		2.8 to 3.8 bar (40 to 55 psi)	2.8 to 3.8 bar (40 to 55 psi)
Low oil pressure switch setting		0.8 bar (12 psi)	0.8 bar (12 psi)
<b>Electrical System</b>			
Alternator		Prestolite AS128e 55A (24V) or 90A (12V)	Prestolite AS128e 55A (24V) or 90A (12V)
Starter type		Prestolite S115	Prestolite S115
Number of teeth in flywheel		126	126
Number of teeth in starter		10	10
<b>Cold Start Limits</b>			
Minimum cold start temperature (with aid)		-15° C (5° F)	-15° C (5° F)
Batteries		2 off - 12V 315 Amps to BS3911, or 2 off - 12V 535 Amps to SAE J537	2 off - 12V 315 Amps to BS3911, or 2 off - 12V 535 Amps to SAE J537
For general marine installation practice, refer to Perkins Marine Installation Manual			