**Type**

4-cylinder in line, four stroke. Bore 3" or 76.2 mm., stroke 3.5" or 88.9 mm. Output 40 s.h.p. at 3,600 r.p.m. (Intermittent), 33 s.h.p. at 3,000 r.p.m. (Continuous). Swept volume 99 cubic inches or 1,621 litres.

**Weight**

Direct drive 495 lbs. (224,5 kgs.) 2 : 1 reduction, 525 lbs. (238.1 kgs).

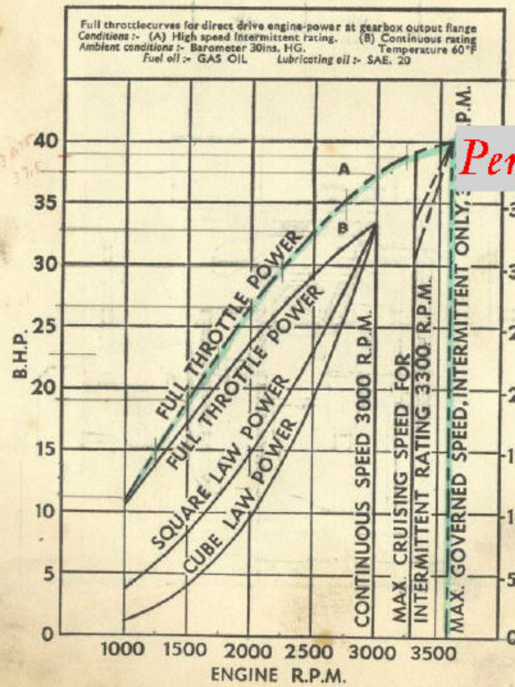
**Reverse Gear**

Engines can be supplied with oil operated or mechanically operated reverse gearboxes fitted directly to the flywheel housing.

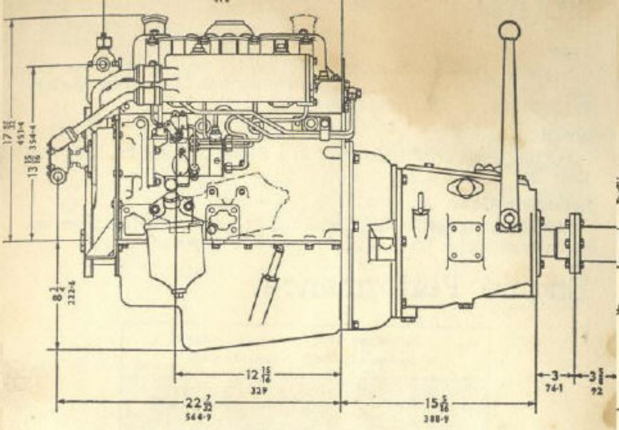
**Reduction**

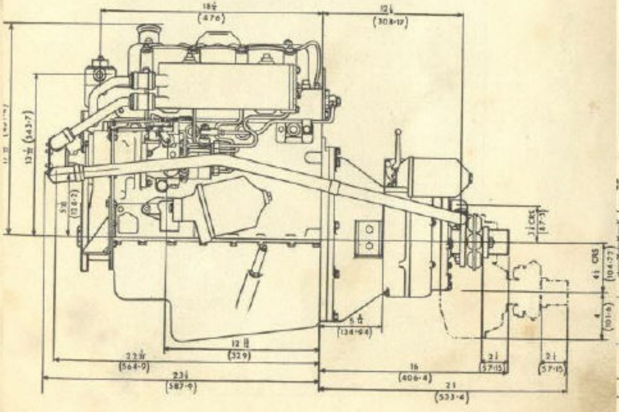
When mechanically operated gearboxes are fitted reduction gears with 2 : 1 or 3 : 1 ratio are available and can be supplied with an idler pinion fitted to give handed rotation of the propeller shaft. These reduction gears can also be swung 90° port or starboard of the standard vertical position if required. In those cases where oil operated reverse gearboxes are fitted a reduction gear with 2 : 1 ratio is available and can be supplied with an idler pinion to give handed rotation of the propeller shaft.

## Engine Performance



Perkins - 4.99


17 25/32
451.4
13 15/16
354.4
8 3/4
222.4
12 15/16
329
22 7/32
564.9
15 5/16
388.9
3
76.1
3 5/8
92


18 3/4
(476)
12 1/4
5 1/4
(134.94)
12 15/16
(329)
22 7/32
(564.9)
23 1/4
(587.9)
16
(406.4)
21
(533.4)
2 1/4
(57.15)
2 1/4
(57.15)
4
(101.6)

# Perkins MARINE POWER

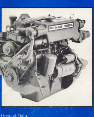
**4.108(M)**

This 51 horsepower 4-cylinder diesel gives you reliable, durable and safe performance with compact size and low weight.

A rotary distributor-type fuel-injection system provides even fuel feed for smooth performance. An automatic advance and retard mechanism ensures fast starts and quick acceleration throughout the speed range. And the Perkins "H" pre-combustion system means clean burning, top fuel economy.

Perkins diesels are designed for smooth, vibration-free running. And are designed for dependability with features like a closed freshwater cooling system to minimize corrosion.

The 4.108(M) is an auxiliary engine that provides plenty of clean, economical power when you need it, and doesn't get in your way when you don't.



**51 bhp**

## General Data

**Engine Type:** In-line 4-cylinder diesel, 4-cycle
**Maximum Horsepower:** 51 @ 4000 rpm
**Displacement:** 107.4 cu in
**Bore and Stroke:** 3.125 x 3.5 in
**Compression Ratio:** 22:1
**Governing:** Hydraulic
**Cooling:** Heat exchanger
**Electrical:** 12 volt
**Power Take Off:** Up to 20 lb.-ft. max.
**Installation Angle:** Max. static angle 17° allowing further 3° underway
**Net Dry Weight, Less Gear:** 464 lb
**Installation Angle:** 0° to 17°
**Combustion System:** Indirect injection
**Firing Order:** 1 3 4 2
**Fuel Pump:** Rotary

Perkins
Engines

# 4.108(M) MARINE DIESEL

## Design Features and Standard Equipment

**Cylinder Block**—High-strength cast iron alloy monobloc design for increased strength and long engine life.

**Cylinder Liners**—Press-fit, centrifugally-cast iron dry-type liners. Easily replaceable.

**Cylinder Head**—High-strength cast iron alloy with fully-machined exhaust and intake ports for increased performance. Dual valve springs standard.

**Combustion System**—Perkins "H" pre-combustion system ensures clean burning, excellent fuel economy, and strong performance throughout the engine's full operating range.

**Crankshaft**—Forged from chrome/molybdenum steel alloy with four integral balance weights on the webs. Treated by "Tufftride". Statically and dynamically balanced for long life.

**Main Bearings**—Three pre-fit precision main bearings, replaceable, thin-walled aluminum/tin-lined with steel backing. Retained by heavy-duty cast iron bearing caps.

**Pistons and Rings**—Aluminum silicon low-expansion alloy pistons for high strength, light weight, and high thermal conductivity. Five piston rings: three compression and two oil control.

**Connecting Rods**—Molybdenum alloy steel steel with a high-strength H-section shank. Big-end bearings are of the replaceable, thin-wall, steel-backed, lead-aluminum/tin-lined type and small-end bearings have steel-backed lead/bronze-lined, wrapped bushings.

**Valves**—Special heat-resistant chromium medium carbon steel intake and silicon/chromium valve steel exhaust valves for long in-service life.

**Camshaft**—High-strength cast iron with three pressure-lubricated supporting bearings.

**Timing Drive**—Positive drive gear train with precision-machined helical gears for trouble-free performance. Provision is made for precise fuel pump timing adjustment.

**Intake Manifold**—Lightweight aluminum alloy casting. Perforated mild steel air filter incorporating closed crankcase ventilation system.

**Manifold-Heat Exchanger**—Exhaust manifold /heat exchanger and header tank is a single assembly, the main casting being made from corrosion resistance aluminum. The exhaust manifold section is cooled by fresh water which is in turn cooled by the passage of sea water through the heat exchanger tubestack.

**Fuel System**—Rotary distributor-type fuel injection pump provides even fuel distribution to all cylinders for smooth performance from idle to full power. Automatic retard and advance mechanism ensures fast starting and even acceleration throughout the entire speed range. Injectors are easily accessible on the cylinder head for maintenance purposes.

**Lubrication System**—Full-pressure feed, rotary pump-driven engine lubrication system. Control valve in pump body maintains constant optimum pressure for efficient lubrication. Full-flow spin-on filter.

**Cooling System**—Thermostatically controlled, heat exchanger, engine-mounted fresh and raw water pumps. Full-depth, full-circumference cylinder circulation for efficient cooling.

**Electrical Equipment**—12-volt, 42-amp alternator and 12-volt Delco starter mounted as standard equipment. Plug-in wiring harness.

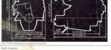
**Power Take-Off Provision**—Front end of the crankshaft accepts stub shaft and pulley for axial power take-off.

**Engine Mounts**—Rubber with standard 18-inch centers.

## Optional Equipment

- Front Power Take-off—1.5" diameter by 1.875" extension shaft bolts to crankshaft pulley, allowing accessory drives to 20 lbs. ft. torque axially
- Remote Oil Filter
- Dual Engine/Lube-Gearbox Oil Cooler
- Lube Oil Sump Drain Pump
- Instrumental Panel, Single or Dual Station. Includes all pressure and water temp. gauges, ammeter and 4000 rpm tachometer.
- Wiring Extension Harnesses—Available in 10', 20', and 30' lengths, panel to engine harness
- Safety Features—Electrically-operated stop solenoid complete with all brackets. Safety alarm switch
- High-output Alternator—12-volt, 61-amp Delco alternator

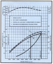
## Dimensions (typical) in/mm



Note: Gearbox illustrated is not standard equipment

North America
**Perkins Engines, Inc.**
P.O. Box 697
Wayne, Michigan 48184
(313) 595-9600

51 bhp (38 kW) at 4000 rev/min



## 4.108(M) Performance

Horsepower and torque ratings shown on this graph represent engine performance at standard conditions of 29.9" Hg air pressure (sea level) and 68 F intake air temperature.

These graphs indicate the performance of the Perkins 4.108(M) diesel engine with fuel system, water pumps, lubricating oil pump, and air cleaner in place. Optional equipment power losses are not included in these ratings.

## Fuel Consumption

Table gives approximate fuel consumption for an engine operating at rated speed, rated power and typical values for normal lower speed operating conditions.

| Engine power | | Full Power Fuel Consumption | | Normal Operating Fuel Consumption | |
|---|---|---|---|---|---|
| Speed rev/min | Load bhp | US gals per hr. | liters per hr. | US gals per hr. | liters per hr. |
| 4000 | 50 | 3.6 | 13.5 | 1.58 | 6.0 |
| 3500 | 48 | 3.3 | 12.5 | 1.22 | 4.6 |
| 3000 | 43 | 2.6 | 9.87 | 0.95 | 3.6 |

**Perkins**
Engines

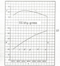
JUL 26 198

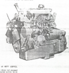
4.108 Araç Motoru 55 BHP 4000 RPM

Perkins engines

# 4.108V

VEHICLE DIESEL





POWER CURVE KEY

A. Torque lbf ft
B. Power bhp
C. Engine speed rev/min
D. Maximum rated speed 4000 rev/min

1. Gross target output to BS AU 141a: 1971—based on the following:—
   (a) Total barometric pressure of 29.92 in (760 mm) Hg.
   (b) Air inlet temperature of 68°F (20°C).
   (c) Engine fully run-in.
   (d) Exhaust back pressure does not exceed 3 in (76 mm) Hg measured within 12 in (305 mm) of the exhaust manifold outlet flange.
   (e) Induction restriction does not exceed 12 in (305 mm) $H_2O$ at the inlet manifold air intake.

## Specification

| | |
|---|---|
| Bore | 3.125 in (79.4 mm) |
| Stroke | 3.5 in (88.9 mm) |
| No. and arrangement of cylinders | 4 vertical, in line |
| Swept volume | 107.4 in³ (1.76 litre) |
| Cycle | 4 stroke |
| Compression ratio | 22:1 |
| Combustion system | 'R' chamber (pre combustion) |
| Rotation | Clockwise viewed on front end |
| Firing order | 1-3-4-2 |
| Basic thread form | Unified |

RATING

| | |
|---|---|
| Automotive gross target rating to BSAU 141A: 1971 | 55 bhp at 4000 rev/min |
| Maximum torque | 83 lbf ft at 2200 rev/min |

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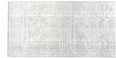


### General Arrangement

A = 23.44 in (595 mm)
B = 1.38 in ( 35 mm)
C = 17.79 in (452 mm)
D = 7.37 in (187 mm)
E = 10.00 in (256 mm)
F = 9.60 in (244 mm)
G = 8.41 in (214 mm)

All information given in this leaflet is substantially correct at the time of printing but is subject to alteration without notice or obligation.

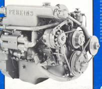
**Perkins Engines Limited**
PETERBOROUGH ENGLAND
TEL: PETERBOROUGH 67474
CABLES: PERKOIL PETERBOROUGH TELEX

Leaflet 112/1908 Edt PCP/L/11/71

# Perkins
# MARINE POWER

## 4.154(M)

The 62 horsepower 4.154(M) 4-cylinder clean running marine diesel gives you all the power you need for medium-sized craft. The engine features simple, light-weight, yet sturdy construction offering high reliability with low levels of vibration and noise. A swirl type pre-combustion chamber ensures outstanding performance in both power output and fuel economy. Rotary distributor fuel injection pump provides even fuel distribution to all cylinders for smooth performance from idle to full power. Additionally, glow plugs/pre-combustion chamber combination provide outstanding start-up characteristics.



**62 bhp**

## General Data

**Bore/Stroke:** 3.5 in x 4.0 in (88.9 mm x 101.6 mm)
**No. of cylinders:** 4
**Displacement:** 154 cu in (2.5 liter)
**Cycle:** 4-stroke **Aspiration:** Natural
**Combustion chamber:** Swirl type
**Compression ratio:** 21:1
**Firing order:** 1, 3, 4, 2
**Rotation:** Clockwise viewed from front
**Valve arrangement:** Overhead
**Fuel pump:** Bosch distributor type with electrically operated stop control and manual shut off.
**Governing:** Mechanical
**Cooling:** Heat exchanger fresh water cooled
**Starting aid:** Glow plug
**Electrical:** 12 volt
**Installed weight:** 668 lb (303.6 kg)
**Power take-off:** Crankshaft pulley

Perkins engines

# 4.154(M) MARINE DIESEL

## Design Features and Standard Equipment

**Cylinder Block**—Manufactured by the precision thin wall ductile casting technique applied under the shell molding process. Designed with a half skirt, the cylinder block is lightweight yet highly rigid. The water rail is designed to provide uniform distribution of coolant to the cylinder head.

**Cylinder Liners**—Dry type of high phosphorus cast iron specially honed to provide quick ring seating and good oil retention—thus increasing wear resistance. Easily replaceable.

**Cylinder Head**—High strength cast iron alloy, precision cast by the shell molding process—soft gas nitrided for increased durability. Intake and exhaust ports are arranged for crossflow to raise intake and exhaust efficiency. Swirl type precombustion chamber assures complete combustion at all engine speeds.

**Crankshaft**—Forged chrome/molybdenum steel with induction hardened journals statically and dynamically balanced.

**Main Bearings**—Five prefit precision main bearings, replaceable, retained by heavy duty cast iron bearing caps.

**Pistons and Rings**—Aluminum alloy controlled expansion pistons with steel skirt inserts ensures quiet operation at all speeds. Three piston rings—2 compression, one oil control. Offset wrist pin contributes to lower engine noise and improved oil control.

**Valves**—Special heat resistant steel intake and exhaust valves are of rotation type for higher durability of valve seat.

**Camshaft**—High strength cast iron, case hardened for long life. Three pressure lubricated supporting bearings.

**Timing Drive**—Positive drive gear train coupled with a friction gear with one extra tooth to eliminate backlash at the time of gear engagement. Reduction in gear noise.

**Intake and Exhaust System**—Intake manifold is of independent branch type for higher intake efficiency. Filter type air cleaner.

**Fuel System**—Bosch rotary distributor type fuel injection pump provides accurate fuel delivery to all cylinders. Small in size and light in weight, contributing to noise reduction. Fuel cut-off through solenoid valve built into the pump activated by turning off the ignition switch.

**Lubrication System**—Pressure feed rotary pump driven engine lubrication system. Full flow spin on oil filter.

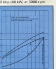
**Cooling System**—High volume cooling system with full depth, full circumference cylinder circulation. Combined corrosion-resistant aluminum alloy header tank/exhaust manifold with easily serviceable copper alloy heat exchanger. Engine coolant is thermostatically controlled. Engine-mounted, belt-driven fresh and raw water pumps. Freshwater-cooled, dual lubricating and gearbox oil cooler assures longer engine life, lower operating temperature.

**Electrical Equipment**—12-volt, 42-amp Delco integral regulator/alternator and 12-volt Delco starter mounted as standard equipment. Plug-in wiring harness.

**Power Take-Off Provision**—1.5" diameter x 2.0" long stub shaft standard. Allows power take-off up to 30 lbs. ft. torque axially.

**Engine Mounts**—Rubber with standard 22½" centers.

62 bhp (46 kW) at 3000 rpm



## 4.154(M) Performance

Horse[illegible] ratings shown on this graph represent engine performance at standard conditions of 29.92" Hg air pressure (sea level) and 68°F intake-air temperature.

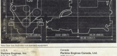
These graphs indicate the performance of the Perkins 4.154(M) marine diesel engine with fuel system, water pumps, lubrication oil pump, and air cleaner in place. Optional equipment power losses are not included in these ratings.

## Optional Equipment

- Exhaust Manifold—Water-injection exhaust elbow
- Deluxe Instrument Panel—Includes oil pressure and water temperature gauges and electric tachometer
- Wiring Extension Harnesses—Available in 10', 20', and 30' lengths, panel to engine harness
- Safety Features—Electrically-operated stop solenoid complete with all brackets
- High-output Alternator—12-volt, 61-amp Delco alternator

ÇEMBERCİ
Kuruluş-1946
BÜYÜKDERE-İSTANBUL

## Dimensions (typical) in/mm



Note Gear box illustrated not standard equipment.

**Perkins engines**

U.S.A.
**Perkins Engines, Inc.**
P.O. Box 697
Wayne, Michigan 48184

Canada
**Perkins Engines Canada, Ltd.**
425 Horner
Toronto, Ontario M8W 4W3

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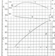
MG 327 R188

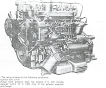
*4.154 Araç Motoru* *70 BHP 3600 RPM*

Perkins engines

# 4.154V

## VEHICLE DIESEL ENGINE





POWER CURVE KEY

1. Gross output certified to BS AU 141 : 1967— pending Certification to BS AU 141a : 1971
2. Exhaust smoke density limit to BS AU 141 : 1967

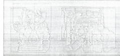
| | | |
|---|---|---|
| A. | Torque | lbf ft |
| B. | b.m.e.p. | lbf/in² |
| C. | Power | bhp |
| D. | Engine speed | rev/min |
| E. | Power | PS, CV or ch |
| F. | Maximum rated speed | 3600 rev/min |
| G. | Exhaust smoke density | Bosch smoke No. |
| H. | Torque | kgf m |

Note : The rating is based on the following conditions :

a. Engine is fully run-in.
b. Exhaust back pressure does not exceed 3 in (76 mm) Hg measured within 12 in (305 mm) of the exhaust manifold outlet flange.
c. Induction restriction does not exceed 12 in (305 mm) $H_2O$ at the inlet manifold air intake.

## Specification

| | |
|---|---|
| Bore ... ... ... ... ... ... ... ... | 3.5 in (88.9 mm) |
| Stroke ... ... ... ... ... ... ... ... | 4 in (101.6 mm) |
| No. of cylinders ... ... ... ... ... ... ... ... | 4 |
| Cylinder arrangement ... ... ... ... ... ... ... | Vertical, in-line |
| Combustion system ... ... ... ... ... ... ... | Indirect injection |
| Cooling ... ... ... ... ... ... ... ... | Liquid |
| Swept volume ... ... ... ... ... ... ... | 153.9 in³ (2.523 litres) |
| Gross power to BS AU 141 : 1967 ... ... ... ... ... ... | 70 bhp at 3600 rev/min |
| Max gross torque ... ... ... ... ... ... ... | 113 lbf ft (15.6 kgf m) |



GENERAL ARRANGEMENT

| | | |
|---|---|---|
| A | = | 26.25 in (667 mm) |
| B | = | 8.31 in (211 mm) |
| C | = | 7.88 in (200 mm) |
| D | = | 19.63 in (498 mm) |
| E | = | 12.63 in (321 mm) |
| F | = | 11.00 in (279 mm) |
| G | = | 8.41 in (214 mm) |

All information given in this leaflet is substantially correct at the time of printing but is subject to alteration without notice or obligation.

**Perkins Engines Limited**
PETERBOROUGH ENGLAND
TEL: PETERBOROUGH 67474
CABLES: PERKOIL PETERBOROUGH TELEX

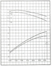
4.203 Araç Motoru

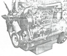
63 BHP 2600 RPM

Perkins engines

# 4.203V

VEHICLE DIESEL





| | |
|---|---|
| 2600 | 63.00 |
| 2500 | 62.20 |
| 2375 | 60.53 |
| 2250 | 58,76 |
| 2000 | 54.14 |
| 1750 | 48,78 |
| 1500 | 42.63 |
| 1250 | 35.61 |
| 1000 | 27.86 |

POWER CURVE KEY (BRIT)

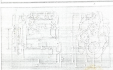
| | | |
|---|---|---|
| A. | Torque | lb ft |
| B. | BMEP | lb/in² |
| C. | Sfg | |
| D. | Engine Speed | rev/min |
| E. | Max. Governed Speed | rev/min |

1. Gross Horsepower
2. Net Rating with accessories and exhauster

## Specification

This engine is suitable for vehicles of a gross vehicle weight between 7,500 and 15,000 lbs., that is a payload up to 4 tons. It has proven to be very successful in delivery vans, travelling libraries, and small articulated vehicles and is well suited to container handling and parcels delivery. The 4.203 combines good fuel economy with notable smoothness of running, and only infrequently is major overhaul necessary.

| | |
|---|---|
| Bore | 3.6 in (91.4 mm) |
| Stroke | 5.0 in (127 mm) |
| Number of cylinders | 4 |
| Cylinder arrangement | Vertical, in line |
| Swept volume | 203 in³ (3.33 litres) |
| Cycle | 4 stroke |
| Compression ratio | 17.4 : 1 |



GENERAL ARRANGEMENT

A = 28.25 in (718 mm)
B = 1.38 in ( 35 mm)
C = 21.13 in (536 mm)
D = 8.5 in (222 mm)
E = 10.94 in (278 mm)
F = 9.5 in (241 mm)
G = 11.3 in (283 mm)
or 13.44 in (342 mm)
or 16.1 in (409 mm)

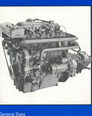
All information given in this leaflet is substantially correct at the time of printing but is subject to alteration without notice or obligation.

Perkins Engines Limited
PETERBOROUGH ENGLAND
TEL: PETERBOROUGH 67414
CABLES: PERKOIL PETERBOROUGH TELEX

**Perkins**

# MARINE POWER

## 4.236(M)



This 85 horsepower 4-cylinder diesel gives you reliable, durable and safe performance with compact size and low weight.

A rotary distributor-type fuel-injection system provides even fuel feed for smooth performance. An automatic advance and retard mechanism ensures fast starts and quick acceleration throughout the speed range. And the Perkins "H" pre-combustion system means clean burning, top fuel economy.

Perkins diesels are designed for smooth, vibration-free running. And are designed for dependability with features like a closed freshwater cooling system to minimize corrosion.

The 4.236(M) is an auxiliary or main propulsion engine that provides plenty of clean, economical power when you need it, and doesn't get in your way when you don't.

## 85 bhp

### General Data

**Bore and Stroke:** 3.875 in x 5.0 in
**No. of cylinders:** 4, in-line
**Displacement:** 235.9 cu in
**Cycle:** 4
**Aspiration:** Naturally aspirated
**Intermittent shaft horsepower:** 77 shp
**Combustion system:** Direct injection
**Compression ratio:** 16.0:1
**Rotation:** LH
**Fuel pump:** Rotary distributor type
**Governing:** Mechanical
**Cooling:** Heat exchanger fresh water cooled
**Weight:** 840 lb
**Electrical:** 12 volt, 61 amp alternator
**Power take off:** Full engine torque from front end extension shaft
**Installation angle:** 0° to 17°

**Perkins**
Engines

# 4.236(M) MARINE DIESEL

## Design Features and Standard Equipment

**Cylinder Block**—High-strength cast iron alloy for long engine life. Cylinder block extends below crankshaft centerline for additional strength.

**Cylinder Liners**—Press-fit, centrifugally-cast iron dry-type liners. Easily replaceable.

**Combustion System**—Direct fuel injection into toroidal combustion chamber in the piston crown ensures fast starting, maximum fuel economy, and top performance.

**Crankshaft**—Forged chrome/molybdenum steel with integral balance weights on the webs. Hardened for extra duty. Statically and dynamically balanced.

**Main Bearings**—Five pre-fit precision main bearings, replaceable thin-walled, steel-backed and aluminum/tin-lined. Retained by heavy-duty cast iron bearing caps.

**Pistons and Rings**—Aluminum silicon low-expansion alloy pistons for high strength, light weight, and high thermal conductivity. Five piston rings: three compression, two oil control.

**Connecting Rods**—Carbon manganese steel alloy with high-strength H-section shank. Fitted with precision-type lead/tin-lined big-end bearings and lead/bronze small-end bushings. Fully floating piston pins.

**Valves**—Intake valves are chromium medium carbon steel, exhaust valves are silicon chromium valve steel for heat resistance and long in-service life.

**Camshaft**—High-strength cast iron with three pressure-lubricated supporting bearings. Cams and tappets are splash lubricated.

**Timing Drive**—Positive drive gear train with precision-machined helical gears for trouble-free performance. Provision is made for precise fuel pump timing adjustment.

**Intake Manifold**—Lightweight aluminum alloy casting. Dry bronze gauze air filter mounted on manifold intake incorporating closed crankcase ventilation system.

**Exhaust Manifold**—Heavy-duty cast iron alloy, jacketed for water cooling.

**Fuel System**—Rotary distributor-type fuel injection pump provides even fuel distribution to all cylinders for smooth performance from idle to full power. Automatic advance and retard mechanism ensures fast starts and even acceleration throughout the entire speed range. Injectors are easily accessible on the cylinder head for maintenance purposes.

**Lubrication System**—Full-pressure feed, rotary pump-driven engine lubrication system. Control valve in pump body maintains constant optimum pressure for efficient lubrication. Full-flow, spin-on filter.

**Cooling System**—Thermostatically controlled, heat exchanger, engine-mounted fresh and raw water pumps. Full-depth, full-circumference cylinder circulation for efficient cooling.

**Electrical Equipment**—12-volt, 61-amp alternator and 12-volt Delco starter standard. Plug-in wiring harness.

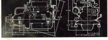
**Power Take-Off Provision**—Front end of crankshaft accepts stub shaft for axial power take-off.

**Engine Mounts**—Rubber with standard 22½'' centers.

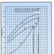
## Optional Equipment

- Front Power Take-off—2'' diameter x 3½'' extension shaft bolted to crankshaft pulley allows accessory drives up to 175 lbs. ft. torque axially. Single and dual groove pulleys available.
- Marine Gears—Warner 71 CR type for pleasure boats, 72 CR for work boats. Equivalent Twin Disc or Hurth gears also approved.
- Marine Gear Reductions—Up to 3:1 ratio.
- R.H. Rotation—Warner 1.91:1. Others as available from other manufacturers.
- Exhaust Manifold—Water injection exhaust elbow (dry flange 2½'' NPT available.)
- Electric Tach.—Alt.-powered, 3000 rpm.
- Deluxe Instrument Panel—Includes oil pressure and water temperature gauges.
- Wiring Extension Harnesses—Available in 10', 20', 30', lengths, panel to engine.
- Safety Features—Electrically-operated stop solenoid complete with all brackets.
- Crankcase Oil Drain—Sump pump kit.
- Tachometer drive—Tach. angle drive.

## Dimensions (typical)



## 85 bhp at 2500 rpm



## 4.236(M) Performance

Horsepower and torque ratings shown on this graph represent engine performance at standard conditions of 29.92'' Hg air pressure (sea level) and 68°F intake-air temperature.

The power output of Perkins diesel engines will show a nominal reduction of approximately 3% per 1000 ft increase in altitude and approximately 1% per 10°F rise in intake-air temperature. The fuel-feed rate of Perkins diesel engines which are permanently operated in areas where they encounter above-standard conditions should be adjusted to maintain approximately the same fuel/air ratio as is used for standard test conditions. Engines operated above altitudes of 4000 ft may have to be defueled and Perkins should be consulted for this adjustment.

These graphs indicate the performance of the Perkins 4.236(M) diesel engine with fuel system, water pumps, lubricating oil pump, and air cleaner in place. Optional equipment power losses are not included in these ratings.

CEMBERCI

Perkins
Engines

JUL. 26 1984

North America
**Perkins Engine, Inc.**
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Wayne, Michigan 48184

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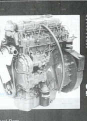
# Perkins
# VEHICLE POWER

## 4.236



A compact diesel of good power to weight ratio, the 4.236 diesel has a maximum speed governed at 2800 rev/min with 23% torque back-up over 1400 rev/min. Construction is monobloc with renewable long life cylinder liners, controlled expansion pistons with graphite skirts, forged steel heat treated crankshaft and all gear timing complete the specification.

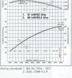
**61 kW/82 bhp**
**57,5 kW/78 PS**

## General Data

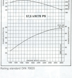
**Bore/Stroke:** 98,4 mm (3·875 in)/127,0 mm (5·00 in)
**No. of cylinders:** 4 in-line
**Cubic capacity:** 3,86 litres (235·9 $in^3$)
**Cycle:** 4 stroke **Aspiration:** Natural
**Combustion System:** Direct injection
**Compression ratio:** 16 : 1
**Firing order:** 1.3.4.2
**Rotation:** Clockwise viewed from front
**Fuel pump:** Rotary
**Governing:** Mechanical
**Cooling:** Liquid
**Fan positions:** Water pump or crankshaft
**Weight:** 281 kg (576 lb)
**Electrical:** 12 volt system
**Power take-off:** Crankshaft front pulley (35 kW) and timing gears (up to 30 kW)
**Air compressors:** Clayton Dewandre SC6 or Clayton Dewandre REGA type exhauster

**Perkins**
Engines

# 4.236 VEHICLE ENGINE



Rating standards 1. BS AU 141a : 1971
2. SAE J1349 4.2.4



Rating standard DIN 70020

Gross output shown is the commercial rating of a run in engine (30 to 60 hours operation) without fan or other power absorbing ancillaries and with maximum exhaust back pressure of 76 mm Hg (3 in Hg) measured within 305 mm (12 in) of exhaust manifold outlet flange and maximum induction restriction of 510 mm $H_2O$ (20 in $H_2O$) at inlet manifold air intake.

## Options

Base engine variations include inlet and exhaust manifolds, oil filter positions, oil sumps, vacuum pumps and air compressors. Add-on options comprise starter motors, alternators, flywheels and housings. A range of mounting brackets and control items is also available.
The 4.236 is available on the Standard Option Scheme.

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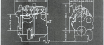
## Dimensions



**Perkins**
THE BIG WHEEL IN DIESELS

**Perkins Engines Limited**
Peterborough PE1 5NA England
Tel: (0733) 67474 Telex: 32501 Fax: (0733) 582240

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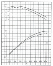
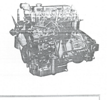
4.236 Araç Motoru 80 BHP 2800 RPM

**Perkins engines**

# 4.236V

VEHICLE DIESEL





POWER CURVE KEY (BRIT)

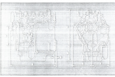
| | | |
|---|---|---|
| A. | Torque | lb ft |
| B. | BMEP | lb/in² |
| C. | bhp | |
| D. | Engine Speed | rev/min |
| E. | Max. Governed Speed | rev/min |

1. Gross output
2. Net output with accessories

## Specification

This engine is suitable for vehicles of a gross vehicle weight between 10,000 and 23,000 lb., giving a payload capacity of up to 6 tons. It is well suited to rigid vehicles, the heavier sizes of parcel vans, small buses, and delivery service operations. Possessing excellent torque characteristics, the 4.236 also has a very good power to weight ratio, being of compact design; maintenance can readily be carried out and major overhaul is only infrequently necessary. Economy of operation is still further improved by a noteworthy fuel consumption.

| | |
|---|---|
| Bore | 3.875 in (98.4 mm) |
| Stroke | 5.0 in (127 mm) |
| Number of cylinders | 4 |
| Cylinder arrangement | Vertical, in line |
| Swept volume | 236 in³ (3.86 litres) |
| Cycle | 4 stroke |
| Compression ratio | 16 : 1 |
| Combustion system | Direct injection |



GENERAL ARRANGEMENT

A = 27.94 in (710 mm)
B = 1.38 in ( 35 mm)
C = 21.44 in (545 mm)
D = 9.19 in (233 mm)
E = 11.63 in (295 mm)
F = 10.5 in (267 mm)
G = 11.13 in (283 mm)
or 13.81 in (351 mm)

All information given in this leaflet is substantially correct at the time of printing but is subject to alteration without notice or obligation.

**Perkins Engines Limited**
PETERBOROUGH ENGLAND
TEL: PETERBOROUGH 67474
CABLES: PERKOIL PETERBOROUGH TELEX

PERKINS Turbo T 4.236

# Neuer Perkins-Dieselmotor mit Turboaufladung

## New Perkins Diesel Engine with Turbochargers

Eine rationellere Ausnützung des Kraftstoffs, ein verbessertes Leistungsgewicht und eine Herabsetzung der Geräuschemissionen sind die wichtigsten Merkmale des neuen turboaufgeladenen Perkins-Dieselmotors vom Typ T4.236. Dieser Vierzylindermotor ist entwickelt worden, um Wünschen von Kunden entgegenzukommen, die einen leistungsstärkeren und kompakteren Motor brauchen und deshalb bisher Sechszylindermotoren für bestimmte Einbauzwecke verwendeten, deren Leistungsfähigkeit jedoch nur zum Teil genutzt werden konnte. Deshalb füllt der neue T4.236 eine Leistungslücke zwischen den Vier- und Sechszylinder-Motoren von Perkins, *Bild 1*.

Basierend auf dem bewährten Saugmotor T4.236 hat die neue Turbolader-Version eine Leistung von 67,5 kW (91,5 PS) in der Normalausführung und von 71 kW (96,5 PS) in der Hochleistungsversion. Der Turbolader macht den Motor zudem für den Einsatz in großer Höhenlage besonders geeignet, ein wichtiger Gesichtspunkt in vielen Überseemärkten. Viele Perkins-Kunden haben denn auch auf die Vorankündigung des neuen Motors spontan reagiert, so daß schon jetzt Aufträge vorliegen, obwohl der neue Motor erst im November 1982 in Produktion gehen wird.

Abmessungen und Leistungsdaten des Type T4.236 zeigen, weshalb es einen Bedarf bei den Anwendern gibt, der zu dieser Neuentwicklung geführt hat. Bei obenangeordnetem Turbolader vergrößert sich die Höhe dieses Motors gegenüber dem Typ T4.236 um lediglich 113 mm. Bei seitlicher Montage des Laders wird der Motor um 41 mm breiter. Alle anderen Maße bleiben die gleichen. Beim Gewicht betragen die Unterschiede zwischen dem Turbo- und dem Saugmotor nur 27,2 kg, ein zusätzliches Gewicht von 11 %, dem ein Mehr an Leistung von 28 % gegenübersteht. Das bedeutet eine Verbesserung des Leistungsgewichts von 13,7 %. Neben der höheren Leistung zeigt der neue Turbomotor auch bessere Werte bei der Nutzung des Kraftstoffs, sie haben sich etwa um 5 % verbessert. Das Drehmoment erreicht beim Typ T4.236 einen Wert von 330,5 Nm, *Bild 2*. Alle diese Daten machen den neuen Motor mit seinem Hubraum von 3860 cm³ zu einem kompakten und wirtschaftlichen Antriebsaggregat in dieser Gewichtsklasse.

Der neue Motor T4.236 eignet sich für einen weiten Bereich von Einbauzwecken im landwirtschaftlichen und im industriellen Sektor. In fahrbaren Kompressoren zum Beispiel, wo die Größe und das Gewicht eines Motors entscheidende Kriterien sind, kann er auch in geeignete Einachser eingebaut werden, während der Einbau von größeren Motoren meist eine zweite Achse für den Kompressor erforderlich macht. Bei Gabelstaplern erlauben die kompakten Abmessungen für den Konstrukteur die Wahl eines kürzeren Radabstandes. Die gesamte Länge der Antriebseinheit, bestehend aus Motor, Hydrostat oder Wandler, kann reduziert werden, weil die Einbaulänge unter der leistungsgleicher Vier- oder Sechszylinder-Saugmotoren liegt. Landmaschinen einer bestehenden Modellreihe, wie Mähdrescher und Traktoren, können durch den Einbau der turboaufgeladenen Version des Typs T4.236 mit höherer Leistung angeboten werden.

Beim Einbau des Motors T4.236 in einen Traktor kann zum Beispiel entweder seine Zugkraft verbessert werden oder es kann durch ihn eine Zusatz-Hydraulik angetrieben werden, ohne daß der Traktor Zugkraft einbüßt. Diese Leistungsverbesserung ist erreicht worden, ohne daß der Motor wesentlich größer als die Saugversion geworden ist.

Sowohl Zylinderblock wie Zylinderkopf mußten beim Perkinsmotor T4.236 verstärkt werden, damit sie der Leistung von 71 kW (96,5 PS) bei 2600 1/min standhalten. Regelkolben sorgen für Geräuschreduzierung, eine höhere Lebensdauer und eine Verminderung von Kraftstoff- und Schmierölverbrauch. Auch die Wasserpumpe wurde in ihrer Konstruktion verbessert. Der Wasserumlauf wurde erhöht, eine verstärkte Lagerung sorgt für längere Lebensdauer und ermöglicht den Anbau größerer Lüfterflügel. Die Regelung der Betriebstemperatur wurde noch sicherer durch den Einbau eines verbesserten Thermostaten. Weitere Verbesserungen betreffen das Kraftstoffeinspritzsystem, die Motorabdichtung, die Hauptlager, die Pleuelstangen und andere wichtige Bauteile.

Auf besonderen Wunsch kann der Motor T4.236 mit einem neuen Massenausgleich (Balancer) geliefert werden, sobald die Hochleistungsversion in Produktion geht. Der Massenausgleich, der von einer separaten Antriebswelle über die Steuerräder des Motors angetrieben wird, gleicht die Massenkräfte zweiter Ordnung bis zu einer Drehzahl von 3400 1/min zu 100 % aus. Derzeit wird bei Perkins für rund 25 Mio. DM eine Anlage zur Produktion des neuartigen Massenausgleichs gebaut. Mit Beginn ihrer Produktion werden beide Versionen des Typs T4.236 mit einem umfangreichen Programm an Zubehör zum Lieferumfang ausgestattet sein, der sich an den entsprechenden Möglichkeiten des Basismotors vom Typ T4.236 orientiert.

Weitere Informationen: Perkins Motoren GmbH, Postfach 11 80, 8732 Kleinostheim, Telefon (0 60 27) 58 10

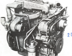


Bild 1: Neuer Perkins-Turbodieselmotor T4.236

*Fig. 1: New Perkins turbo Diesel engine T4.236*

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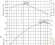
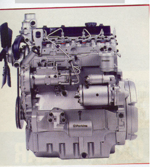


Bild 2: Leistung und Drehmoment des Perkins-Turbodieselmotors Typ T4.236

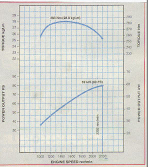
*Fig. 2: Power and torque curve of the Perkins turbo Diesel engine T4.236*

96.5 ps 2600 rpm

# *PERKINS 4.41*



*PERKINS 4.41 ( 4.236 Family)*
*60 kw 80 PS 2200 RPM*



*Power and torque curves for new Perkins 4.41 engine.*