

**1800 rpm tough.
EPA Tier One clean.
Small enough to fit your
engine room.**

The Northern Lights M643K, 4.5kW is the smallest Northern Lights marine set ever built. Now boat owners who have had to make do with 3600 rpm sets or inverters can have legendary Northern Lights 1800 rpm reliability.

The M643K meets your power requirements and it will meet the EPA Tier One emissions standards (effective 1/1/2000).

At only 27 inches long and 355 pounds light, the M643K is comparable in size and weight with high-rev, short-life 3600 rpm sets. This makes it the perfect retrofit set for boats that weren't built with a generator set. Many owners will have it installed in the corrosive environments of lazarets and under cockpit soles. So Northern Lights engineers gave the new set a stainless steel drip pan base that will resist rust.

No service points on this side lets you install the set close to a bulkhead.
Features: Liquid cooled cast iron exhaust elbow. One-piece, cast iron heat exchanger, expansion tank and exhaust manifold. 12 volt starter and alternator.

For smooth operation the M643K has a balanced Luger three cylinder diesel instead of a rough two banger. Four platform isolation mounts reduce vibration transmission even more.

The unitized freshwater cooling system and gear driven seawater pump minimize troublesome belts, hoses and gaskets.

The new "K" generator end has a broad, 110 to 240 voltage capability in both 50 and 60 Hz operation. The automatic voltage regulator (AVR) gives clean power and is fully automatic in both 50 and 60 hz applications. A special AC winding powers the AVR for faster response. This will maintain the Northern Lights reputation for starting motors and air conditioners.

A 30 amp AC circuit breaker in the junction box gives short circuit protection.



Safety shutdowns for low oil pressure, high water temperature and high exhaust temperature are standard.

All major service points are located on one side for ease of service, even in the optional marine aluminum sound shield. The fuel system is self venting. The control panel has a 20-foot wire harness that allows additional stations to be plugged in. All is protected by white polyurethane paint.

The new M643K. Low emissions, small size, reliability and long life. The best does come in a small package.

- Junction box contains AC terminal strip, and solid state AC automatic voltage regulator.
- Cast valve cover with oil fill and washable air filter/silencer. Reduces valve train noise.
- Bosch-type fuel injection pump.
- Freshwater cooled with one-piece, cast iron heat exchanger, expansion tank and exhaust manifold.
- Removable heat exchanger end covers for easy cleaning.
- Gear driven, Jabsco seawater pump. No drive belt. Ceramic seals.
- Battery charging 12 volt alternator.
- Top and side oil fills.
- Oil drain for quick, clean oil changes.
- Welded stainless steel base with integral drip pan. Acts as base for sound enclosure.
- Sparkling white polyurethane paint for high visibility.
- Four platform vibration mounts for smooth operation.
- Spin-on oil and fuel filters. Fuel lift pump with hand primer.
- DC wire harness with plug-ins protected by plastic loom.
- Northern Lights reconnectable direct coupled generator.
- DC circuit breaker, 30 amp AC circuit breaker.

M643K Specifications

AC Output¹

4.5 kW	60 Hz, 1800 RPM, 1 Ph, 1.0 PF 120-240 V/18.7 A, 120 V/37.5 A
3.5 kW	50 Hz, 1500 RPM, 1 Ph, 1.0 PF 110-220 V/15.9 A, 110 V/31.8 A

Voltage regulation ±5%

Lugger L643 Engine

Type	Vertical inline 3 cylinder diesel
Cylinders	Vertical inline 3
Displacement	37.6 cid (.61 ltr)
Bore/Stroke	2.5/2.5 in (64/64mm)
HP @ 1800 RPM	7.6
Approx. fuel rate, full load ²	0.5 gph
half load ²	0.3 gph

Installation Data

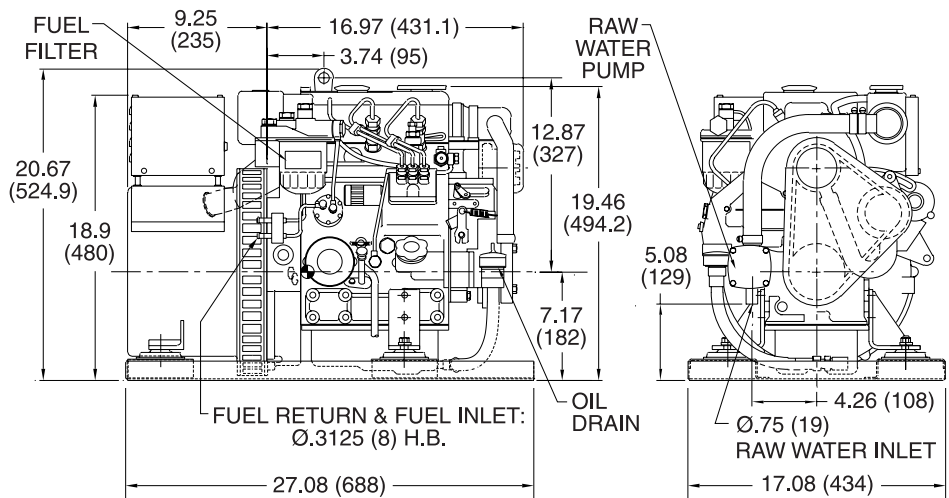
Wet exhaust elbow	1.5" (38mm) OD
Raw water inlets	0.75" (19mm) OD
Fuel inlet and return	5/16" ID Hose

Weight

Approx. wet weight355 lbs (161 kg)

1. Based on SAE J1995 and ISO 3046 2. Actual fuel consumption will vary depending on operating conditions.

Dimensional Data



Main dimensions given in inches (mm). Dimensions subject to change without notice.

M643K Features and Benefits

Engine Block

- Lugger, four cycle, 3 cylinder, liquid cooled, naturally aspirated, overhead valve diesel.
- Swirl combustion chambers improve fuel efficiency and reduce smoke.
- Glow plugs for quick, cold starting.

Cooling System

- Freshwater cooling system.
- One-piece heat exchanger, expansion tank and liquid cooled exhaust manifold. Fewer troublesome hoses and gaskets. Cast iron to resist corrosion and electrolysis.
- Zinc anode electrolysis protection.
- Heat exchanger cooling is standard. Tube-type heat exchanger has removable ends for easy cleaning. Jabsco seawater pump of brass and stainless steel is gear driven; no belts to break.
- Keel cooling configuration optional.

Fuel System

- Fuel system is self-venting.
- Injection pump with 5% mechanical governor for close AC frequency control.
- Pintle injectors with replaceable tips.
- Mechanical lift pump with hand primer. No electric pump to fail.
- Large spin-on fuel filter.
- Steel fuel lines.
- Stop solenoid controls the fuel rack, not throttle, to eliminate speed variance and linkage problems.

Intake and Exhaust

- Meets EPA Tier One emission requirements.
- Cleanable air cleaner in cast intake manifold reduces intake noise.

- 1-1/2 inch water lift muffler and exhaust water separator are optional.
- Cast iron, wet exhaust elbow for safety. Dry exhaust elbow is optional.

Lubrication System

- Full flow, spin-on oil filter with bypass.
- 3 qt. oil capacity for better lubrication and 200 hour oil change intervals.
- Oil drain for quick, clean oil changes.
- Closed crankcase vent system keeps engine room clean.

DC Electrical System

- 12 volt starter motor and battery charging alternator with integrated regulator. Belt guard.
- Standard panel: Remote mount S-1B has hour meter, stop-start switch with run light and preheat switch.
- Optional: Remote mount S-3C panel has gauges for oil pressure, water temperature, hours and DC volts. S-4 panel has engine gauges and AC meters.
- 20 foot plug-in panel harness lets you mount your panel anywhere onboard. Better than inaccessible unit mount panels that are prone to vibration problems. Harness extensions and Ys for multi-panel systems are available.
- Low oil pressure, high water temperature and high exhaust temperature safety shutdowns standard. Shutdowns and alarms for low oil level, low water level and overspeed are optional.



AC Generator

- Northern Lights direct coupled, 4 pole, revolving field, 4 lead reconnectable generator with Class H insulation and prelubricated bearing. Conservative 95°C/50°C ambient heat rise rating.
- External automatic voltage regulator gives you ±5% voltage regulation. This "clean" power protects sensitive electronic equipment. AVR powered by dedicated AC winding for improved motor starting.
- AVR and mainline circuit breakers protect generator from AC overloads and shorts.
- 30 Amp circuit breaker for AC system short circuit protection.

Special Equipment

- Stainless steel base frame with drip pan. Easy to mount. Keeps engine room clean.
- Four platform mounts isolate vibration.
- White polyurethane paint for long-life finish and service visibility.
- Operator's and parts manuals standard.

Sound Enclosure

Powder coated marine aluminum panels lined with barrier foam deaden noise yet allow easy service access.

Weight:
51 lbs (23 kg).
L 28.52 (724) x W 18.64 (474) x H 21.26 (540).



Dealer:



Manufactured by: **Alaska Diesel Electric, Inc.**

P.O. Box 70543, Seattle, WA 98107

Tel: (206) 789-3880 • 1-800-762-0165 • Fax: (206) 782-5455

Web: www.northern-lights.com • E-mail: ade@northern-lights.com

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