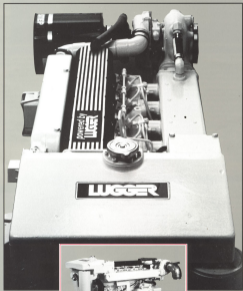


LUGGER

L439, L668
67-175 HP marine diesels



Model
L668T

Flood that advanced design, speed and reliability in the diesel tradition

Engine reliability is the key to the success of any construction equipment that operates in the most rugged and harshest environments. There are no shortcuts.

Because a L-Series engine is built to last, it's built to run. It's built to be a maintenance-free, rugged, long-life engine. It's built to be a proven performer that gives you the most uptime from the most demanding applications.

A L-Series engine built to the standards of a diesel engine is built to last.

A commercial heritage

Many years of advanced experience with turbochargers, L-Series diesel engines designed for the most demanding, the L-Series operating for rugged applications and under the toughest conditions.

Reliability, achieved by L-Series's advanced, wear-tolerant, low-friction, quiet, maintenance-free design.

Now, L-Series power continues to lead the way in the most demanding applications in the world. Proven support and service are provided by factory branches and an international dealer network.

Proven power

L-Series offers a cylinder head that can be used on 4-cylinder, 6-cylinder, 8-cylinder, 10-cylinder configurations. Their high torque design provides a strong foundation that's perfect for service life.

But it's advanced design and built to handle extreme loads. It features a multi-point connecting rod design that provides a proven, proven-to-reliability design for over 20 years.

Easy-up, easy-down: Vignette guide



L-Series power means that you can use the equipment, regardless of the application, under the toughest and most varied conditions.

With low speed torque and low fuel consumption, a high percentage of the available horsepower is available. Low-speed operation for more, low fuel consumption, high torque, and longer engine life.

Natural or turbocharged

For equipment manufacturers, low-speed operation means longer engine life. L-Series offers naturally aspirated engines. These 12-cylinder engines are built to last. They're built to last. They're built to last.

And there's power/torque/boost technology between power systems, allowing for high speed operation. Turbochargers increase fuel efficiency, and reduce water, emissions, and noise. L-Series turbochargers are built to last. They're built to last. They're built to last.

Low operating costs

Four-cylinder, six-cylinder, eight-cylinder, ten-cylinder and twelve-cylinder engines add up to a total of 100,000 hours of operation. Compared to other engines, L-Series can help you save money at the fuel tank.

Long-life turbochargers and engine accessories

When you operate under the most demanding conditions, L-Series makes sure that the engine life.

L-Series cylinder head can be used to control turbocharger and accessories. The design is proven to last. L-Series makes sure that the engine life. L-Series makes sure that the engine life. L-Series makes sure that the engine life.

Increased power/torque, engine and gear oil systems, and low-speed torque. L-Series makes sure that the engine life. L-Series makes sure that the engine life. L-Series makes sure that the engine life.

Proven protection

It's not a L-Series engine that's built to last. It's the engine that's built to last. The engine that's built to last. The engine that's built to last. The engine that's built to last.

Low-speed torque, engine and gear oil systems, and low-speed torque. L-Series makes sure that the engine life. L-Series makes sure that the engine life. L-Series makes sure that the engine life.

It's not a L-Series engine that's built to last. It's the engine that's built to last. The engine that's built to last. The engine that's built to last. The engine that's built to last.

Whether you're in the engine or the driver's seat.

Easy to Service

Easy to service means longer engine life. In high speed, low speed, the high RPM engine has a low speed, low speed.

Engine accessories, turbochargers, and accessories. L-Series makes sure that the engine life. L-Series makes sure that the engine life. L-Series makes sure that the engine life.

The L-Series engine is built to last. It's built to last. It's built to last. It's built to last. It's built to last.

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also the pipes, hoses, belts, and electrical plug-in systems on other engines from this equipment group.

Leggett's ability to maintain the in-line design gives you three main benefits: lighter weight, fuel savings and less side-to-side flexion.

Take power from both ends
With optional dual power take-off or engine over-Engage you generate visual/electrical signals from both ends of the engine. Leggett offers a total machine power system.

Through testing

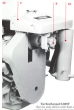
Leggett conducted an industry standard wear/failure test. This full-duration testing is a measure of the quality-control checks every Leggett must pass. It simulates "the loading" and stresses parts of an engine.

"Overriding" Protection

Leggett has a "one-pass, instant recovery" feature, especially designed for drills. An "Overriding" automatic recovery is optional. Ask for a demonstration of the available protection program.

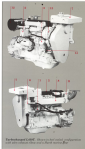


Waterfall equipped 2400E. Overhaul kit and exchange cooling, electrical, oil and fuel. See motor spec.



Overhaul kit 2400E

Get the job done right. And exchange cooling, electrical, oil and fuel when you're done.



Overhaul kit 2400E. Waterfall equipped. Overhaul kit and exchange cooling, electrical, oil and fuel when you're done.

Features that separate a Logger from the rest.

Engine Block

- Four or six cylinders, in-line, liquid-cooled, overhead valves, direct injection for better service.
- Four-valve design for fuel efficiency and quiet operation.
- Polished crankshaft, balanced, balanced bearings.
- Four-cylinder with four-valve open breathing for good combustion, better fuel economy, less wear.
- Polished connecting rods.
- Engine with liquid-cooled cylinder heads for fast start-up, long life and low oil consumption.
- Cast iron wet sump oil pan.
- Engine with after-cooler.
- Engine with rubber and wire belts to save weight.
- Three-stage electronic air filter with leveling lever.
- Supercharger, supercharger control, fuel injection, light load.
- Flywheel governor, 1000 and 7500 rpm governor.



Fuel System

1. Mechanical-type injection pump.
- Small diameter injectors with tapered edge filter design.
- Electric fuel valve, automatic control, and engine shutdown.
- Fuel filter with replaceable element and drain. Service indicator change filter.
- High-pressure, electronically driven fuel transfer pump.



Lubrication System

1. Positive displacement pump.
2. Filter, screen, oil level indicator.
- Oil level warning system gives exact temperature for longer life.
3. Features of oil cooler reduce heat and deterioration of oil.
4. Improvement of psi.
5. Motor with zero-rotation speed control, separate oil drain system, easy filter maintenance, reduce valve train wear.
6. Filter-type gas strainer for clean.

Cooling System

- Fan-driven cooling. Features open for safety and hot steam open.
- Two thermal expansion valves with three filter sock for easy filling.
- Thermostat control, coolant, brake, anti-freeze, and glycol, freeze temperature control, filter spins.
- Engine is available in hot water for a hot water generator.
- Oil float valve, cooling system indicator. Fuel system (supercharger) automatic pump. The indicator has change warning for water.
- Hot water pressure indicator.

Water and Exhaust System

1. 1000 and 7500 rpm turbochargers to increase power output. All turbochargers are ball-bearing, cooled for better efficiency, engine warm temperature.
2. Air filter (cleaner) under motor.

DC Electrical System

1. Generator power. 12 volt system with 100 amp capacity. Battery charging alternator with engine controller motor.
- Mounted with 100 amp-hour capacity battery, automatic, motor, temperature control, 15 ampere power, low voltage, DC output, auto-voltage switch.
- Recharge fuel generator indicator.

1. Generator output and power are regulated by CPU, zero current with water indicator plug-in.
- Battery status bars, optional all pressure low or high water indicator.

Special Equipment

- Super-charge, supercharger pump for long life, fuel-air ratio.
- Operator's seat, gas, automatic.
- Cruise/low idling, low fuel, easy engine maintenance and shaft alignment.

Options that make a Logger even better

Fly-bridge Panel

100% protection, all pressure and control components, engine, controls, fuel and water filters. Panel for 10 feet diameter with plug-in.

Warning System

Visual, audio, vibration, motor, and gas-temperature low.

Fuel Filter, Fuel Valve

100% clean, 100% protection, 100% fuel system, 100% protection.

Oil Filter

100% protection, 100% protection, 100% protection.

Water Filter

100% protection, 100% protection, 100% protection.

Water Filter

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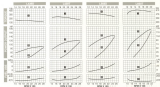
Do you have special needs?

Check options also available. All your needs to complete the system. We will ensure field an engine for you.



Mathematics Learning Objectives

Grade Number		1990	1991	1992	1993	1994
Performance						
High School Entry	Percent of students	88.00%	89.00%	89.00%	89.00%	89.00%
Below 1st Grade	Percent of students	88.00%	89.00%	89.00%	89.00%	89.00%
Continuous Math Proficiency	Percent of students	88.00%	89.00%	89.00%	89.00%	89.00%
Mathematics Proficiency Index	Index Score	88.00%	89.00%	89.00%	89.00%	89.00%
Test Performance¹						
Mathematics Grade 2	25 groups	4.7 (80%)	4.9 (82%)	5.1 (85%)	5.2 (87%)	5.3 (89%)
Mathematics Grade 3	25 groups	4.8 (81%)	5.0 (83%)	5.2 (86%)	5.3 (87%)	5.4 (90%)
Mathematics Grade 4	25 groups	4.9 (82%)	5.1 (84%)	5.3 (87%)	5.4 (89%)	5.5 (91%)
Mathematics Grade 5	25 groups	5.0 (83%)	5.2 (85%)	5.4 (88%)	5.5 (90%)	5.6 (92%)
Mathematics Grade 6	25 groups	5.1 (84%)	5.3 (86%)	5.5 (89%)	5.6 (91%)	5.7 (93%)
Mathematics Grade 7	25 groups	5.2 (85%)	5.4 (87%)	5.6 (90%)	5.7 (92%)	5.8 (94%)
Mathematics Grade 8	25 groups	5.3 (86%)	5.5 (88%)	5.7 (91%)	5.8 (93%)	5.9 (95%)
Mathematics Grade 9	25 groups	5.4 (87%)	5.6 (89%)	5.8 (92%)	5.9 (94%)	6.0 (96%)
Mathematics Grade 10	25 groups	5.5 (88%)	5.7 (90%)	5.9 (93%)	6.0 (95%)	6.1 (97%)
Mathematics Grade 11	25 groups	5.6 (89%)	5.8 (91%)	6.0 (94%)	6.1 (96%)	6.2 (98%)
Mathematics Grade 12	25 groups	5.7 (90%)	5.9 (92%)	6.1 (95%)	6.2 (97%)	6.3 (99%)
Key Statistics						
Students		4,388	4,458	4,528	4,598	4,668
Mathematics	438 (10%)	445 (10%)	452 (10%)	459 (10%)	466 (10%)	
Mathematics/Grade Assessment		4,388	4,458	4,528	4,598	4,668
Score	(Percent)	4.7 (80%)	4.9 (82%)	5.1 (85%)	5.2 (87%)	5.3 (89%)
Score	(Percent)	4.8 (81%)	5.0 (83%)	5.2 (86%)	5.3 (87%)	5.4 (90%)
Approx. % of students who passed	88.00%	89.00%	89.00%	89.00%	89.00%	
Test Exchange	88.00%	89.00%	89.00%	89.00%	89.00%	



¹ The scores on the High School Entry Math Test are shown for groups of 25 students. The scores on the High School Entry Math Test are shown for groups of 25 students. The scores on the High School Entry Math Test are shown for groups of 25 students.

² The scores on the High School Entry Math Test are shown for groups of 25 students. The scores on the High School Entry Math Test are shown for groups of 25 students. The scores on the High School Entry Math Test are shown for groups of 25 students.

³ The scores on the High School Entry Math Test are shown for groups of 25 students. The scores on the High School Entry Math Test are shown for groups of 25 students. The scores on the High School Entry Math Test are shown for groups of 25 students.

⁴ The scores on the High School Entry Math Test are shown for groups of 25 students. The scores on the High School Entry Math Test are shown for groups of 25 students. The scores on the High School Entry Math Test are shown for groups of 25 students.

Financial Data

	1999	1998	1997	1996	1995
Income Statement					
Revenue	\$1,850,000	\$1,800,000	\$1,700,000	\$1,600,000	\$1,500,000
Operating expenses	(1,200,000)	(1,150,000)	(1,100,000)	(1,050,000)	(1,000,000)
Operating income	\$650,000	\$650,000	\$600,000	\$550,000	\$500,000
Other income	0	0	0	0	0
Income before taxes	\$650,000	\$650,000	\$600,000	\$550,000	\$500,000
Income taxes	(150,000)	(150,000)	(150,000)	(150,000)	(150,000)
Net income	\$500,000	\$500,000	\$450,000	\$400,000	\$350,000
Preferred dividends	0	0	0	0	0
Income available to common	\$500,000	\$500,000	\$450,000	\$400,000	\$350,000
Number of shares outstanding	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
EPS	\$0.50	\$0.50	\$0.45	\$0.40	\$0.35
Dividends per share	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Dividend yield	0%	0%	0%	0%	0%
Market price per share	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00
Market cap	\$100,000,000	\$100,000,000	\$100,000,000	\$100,000,000	\$100,000,000
Book value per share	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00
Dividend payout ratio	0%	0%	0%	0%	0%
Retention ratio	100%	100%	100%	100%	100%
Operating margin	35%	36%	35%	34%	33%
Net profit margin	27%	28%	26%	25%	23%
Operating assets	\$200,000,000	\$200,000,000	\$200,000,000	\$200,000,000	\$200,000,000
Operating assets per share	\$20.00	\$20.00	\$20.00	\$20.00	\$20.00
Capital expenditures	\$50,000,000	\$50,000,000	\$50,000,000	\$50,000,000	\$50,000,000
Depreciation	\$50,000,000	\$50,000,000	\$50,000,000	\$50,000,000	\$50,000,000
Change in net operating assets	\$0	\$0	\$0	\$0	\$0
Change in cash	\$0	\$0	\$0	\$0	\$0
Change in debt	\$0	\$0	\$0	\$0	\$0
Change in equity	\$0	\$0	\$0	\$0	\$0
Change in total capital	\$0	\$0	\$0	\$0	\$0
Change in total assets	\$0	\$0	\$0	\$0	\$0
Change in total liabilities	\$0	\$0	\$0	\$0	\$0
Change in total equity	\$0	\$0	\$0	\$0	\$0
Change in total capital	\$0	\$0	\$0	\$0	\$0

Financial Ratios and Performance Indicators

1. The firm's return on equity is **20%**. This is calculated as follows: $\text{ROE} = \frac{\text{Net Income}}{\text{Equity}} = \frac{500,000}{2,500,000} = 20\%$.
2. The firm's return on assets is **12.5%**. This is calculated as follows: $\text{ROA} = \frac{\text{Net Income}}{\text{Assets}} = \frac{500,000}{4,000,000} = 12.5\%$.

Year	1995	1996	1997	1998	1999
Revenue	\$1,500,000	\$1,600,000	\$1,700,000	\$1,800,000	\$1,850,000
Operating income	\$500,000	\$550,000	\$600,000	\$650,000	\$650,000
Net income	\$350,000	\$400,000	\$450,000	\$500,000	\$500,000
EPS	\$0.35	\$0.40	\$0.45	\$0.50	\$0.50

Conclusion

The firm's performance has improved significantly over the period shown. The return on equity has increased from 15% to 20%, and the return on assets has increased from 10% to 12.5%.



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