

Features and Benefits

Engine Block

- Six cylinder, four cycle, in-line, liquid cooled, overhead valve, marine diesels with heavy-duty, industrial-grade engine blocks.
- Replaceable wet cylinder liners for long life and low rebuild costs.
- Balanced, forged crankshaft with induction hardened journals and rolled fillets for long life.
- Bimetallic valves have chrome stems and valve rotators.
- Replaceable valve seats and guides.
- **L1066T, L1066A:** Two valves per cylinder. **L1066H:** Four valves per cylinder give increased air flow and allow injectors to be centered in the cylinder for an optimal spray pattern to increase power and fuel efficiency.
- Three ring aluminum alloy pistons. Ni-Resist insert for the top ring. Keystone piston ring reduces carbon buildup under light load.
- Torsional crankshaft vibration damper.
- Self adjusting eight groove poly-vee drive belt powers the alternator and jacket-water pump.

Direct Fuel Injection Systems

- **L1066T, L1066A:** Electronically controlled rotary fuel injection pump for higher injection pressures, variable timing control and precise fuel metering. Higher power with lower emissions.
- **L1066H:** High-pressure common rail (HPCR) fuel injection for high output, improved fuel economy, better load response and low emissions. HPCR continuously supplies injectors with highly pressurized fuel. Higher pressure means better fuel atomization. Injectors are electronically operated by an engine control unit giving nearly infinite control of fuel quantity, injection timing and multiple injections per power cycle. Pilot injection reduces cold start smoke and noise.
- Ring clamp fuel filters with air vent and drain.
- Diaphragm-type, mechanically driven fuel transfer pump with manual priming lever.

Lubrication System

- 250 hour oil change with standard oil and fuel.
- Positive displacement gear-type oil pump.
- Full flow, spin-on oil filter.
- Oil spray cooling reduces piston crown temperature for longer life.
- Large capacity oil pan.
- Cast aluminum, rocker cover traps valve train noise and is a closed loop crankcase vent.
- Jacket water, plate-type, full flow oil cooler reduces heat and thermal breakdown of oil.

Air System

- Turbocharger (1) turbine housings are jacket water cooled for safety. Round flange lets optional wet or dry exhaust elbows rotate for easy exhaust system installation.
- **L1066A & H** Aftercooler has aircraft quality, 70/30 cupro-nickel, two pass element (1). Oval water tubes are easy to clean and promote better heat transfer than round. Corrugated air cooling fin design supports tubes better than plate fin type. Seawater piping (2) is cast bronze and stainless steel; water never touches the cast aluminum air ducts (3). No gaskets; all components are machined and have o-ring seals. Seawater direct from the gear driven pump, for maximum cooling. Dry bolt hole design for improved serviceability and system durability.
- Dry air filter silences intake noise.

Cooling System

- Jacket water cooling system has two thermostats for safety and quicker warm-ups.
- Cast iron expansion tank. No welds to break. Large brass filler neck for easy filling.
- Cast-iron exhaust manifold has double pass jacket water flow for even temperature control, fast warm-up and no hot spots.
- Heat exchanger cooling has: Gear driven, flexible impeller seawater pump (1). Easy to clean, tube-type heat exchanger is cupro-nickel for long life. Zinc anodes for electrolysis protection.
- **L1066T** is available in keel cooled version.

ESP and DC Electrical System

- 12 volt, negative ground, DC system has circuit breaker, starter motor and battery charging alternator with regulator.
- Electronic System Profiler supplies a SAE J1939 engine information data stream for standard monitor (shown below).
- Instrument panel has tachometer, DC volt meter, hourmeter, coolant temperature gauge, oil pressure gauge, stop button, key switch and gauge light rheostat. Warning lights and audible alarm for low oil pressure and high water temperature.
- Engine and panel are prewired. 20-foot wire harness with plug-ins is standard.

Special Equipment

- Cast iron, centerline mounting brackets.
- Belt guard protects operator.
- Sparkling white IMRON® polyurethane paint protection. Excellent service visibility.
- Operator's and parts manuals are supplied.

Options and Accessories

- Monitor uses Engine System Profiler (ESP) data stream to show engine operation conditions.
- Coolant level sensor/alarm.
- Wiring harness extensions.
- Plug-in flybridge and auxiliary instrument panels.
- 12 volt isolated ground, 24 volt standard and isolated ground DC electrical systems.
- Alternators: 12 volt/90 amps, 12 volt/140 amps, 24 volt/75 amps as a second alternator or in place of the original.
- Twin Disc® or ZF® reverse gears. Trolling valves. Shaft couplings.
- Spare parts kits.
- Front crankshaft pulleys:
3-A/B or 4-A grooves.

- Racor® fuel filters.
- "A" pad accessory drive on keel cooled L1066T only.
- Fiberglass water lift exhaust muffler.
- Stainless steel wet exhaust elbow.
- Dry exhaust elbows & flex.
- Vibration isolating, flexible engine mounts.
- High output front PTO (power take off) with 12 volt or 24 volt clutch and SAE B or C splined pump mount pad. At the touch of a button you have hydraulic pump power to power your vessel's auxiliary systems:
L1066T - 357 ft lbs @ 2500 RPM
L1066A - 525 ft lbs @ 2400 RPM
L1066H - 550 ft lbs @ 2400 RPM

Dealer

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L1066 Series

General Specifications

Model Number	L1066T	L1066A	L1066H
High Output - fwhp (kW) @ RPM	170 (126) 2500	250 (185) 2400	275 (203) 2400
Medium Duty - fwhp (kW) @ RPM	165 (122) 2400	200 (148) 2200	250 (185) 2200
Continuous Duty - fwhp (kW) @ RPM	135 (100) 2200	185 (137) 2400	Not Available
Cylinders / Configuration / Cycle	6 / Inline / 4	6 / Inline / 4	6 / Inline / 4
Displacement - CID (ltr)	414 (6.8)	414 (6.8)	414 (6.8)
Operating Cycle/Aspiration	4 / Turbocharged	4 / Turbo-Aftercooled	4 / Turbo-Aftercooled
Bore x Stroke - in (mm)	4.19 x 5 (106 x 127)	4.19 x 5 (106 x 127)	4.19 x 5 (106 x 127)

Data below based on High Output rated engines at maximum RPM.

Cooling (General)			
Coolant circ pump flow - gpm (lpm)/rpm	63 (240) / 2500	61 (230) / 2400	61 (230) / 2 400
Heat rejection to jacket water - BTU-min	5570	5382	5453

Cooling (Heat Exchanger) available on all models			
Rawwater intake/discharge dia. - in (mm)	1.25 (32)	2 (51)	2 (51)
Rawwater pump flow - gpm (lpm) / rpm	31 (117) / 2500	53 (200) / 2400	53 (200) / 2400
Rawwater pump max. suction head - in (m)	39 (1)	39 (1)	39 (1)
Max. raw water temp. at inlet -°F (°C)	86° (30°)	86° (30°)	86° (30°)
Jacket-water system capacity - US gal (ltr)	6.5 (24.6)	6.5 (24.6)	6.5 (24.6)

Cooling (Keel Cooled)* available on L1066T only			
*Based on 70° F seawater and min. full boat speed of 8 knots. Return water from keel cooler: 70° -130° F.			
Water hose inside diameter - in (mm)	2-3/8 (60)	HE only	HE only
Head diameter - inch NPT	1-1/2	HE only	HE only
Turbo tube length - ft (m)	24 (7.3)	HE only	HE only
1 in. plain round tube length - ft (m)	56 (17)	HE only	HE only
Skin cooler aluminum - sq ft (m²)	26 (2.4)	HE only	HE only
Skin cooler steel - sq ft (m²)	85 (8.9)	HE only	HE only

Electrical			
Min. 12V battery capacity - amp hrs / CCA	200 / 800	200 / 800	200 / 800
Battery cable size up to 10 ft run	"000"	"000"	"000"
Standard panel harness length - ft (m)	20 (6)	20 (6)	20 (6)

Air and Exhaust			
Engine air consumption - cfm (m³/min) / rpm	417 (11.8) / 2500	629 (17.8) / 2400	622 (17.6) / 2400
Min. engine room vent area - sq in (m²)	113 (0.073)	184 (0.12)	182 (0.12)
Exhaust gas flow at - cfm (m³/min) / rpm	1038 (29.4) / 2500	1465 (41.5) / 2400	1480 (41.9) / 2400
Exhaust gas temperature -°F (°C) / rpm	876 (469) / 2 500	860 (460) / 2400	883 (473) / 2400
Max. exhaust back pressure - in (mm) H ₂ O	30 (762)	30 (762)	30 (762)
Suggested dry/wet exhaust I.D. - in (mm)	3 (75) / 4 (100)	4 (100) / 5 (127)	4 (100) / 5 (127)

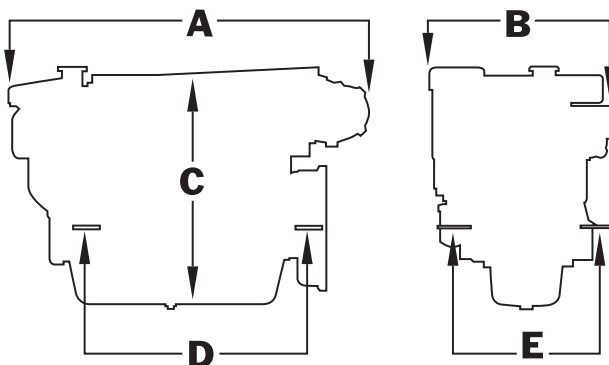
Fuel and Oil			
Minimum fuel suction/return line - in (mm)	3/8 (10)	3/8 (10)	3/8 (10)
Maximum fuel pump head - in (m)	39 (1)	39 (1)	39 (1)
Crankcase oil capacity - US qts (ltr)	19 (18)	32.5 (34.34)	32.5 (34.34)

Other Data			
Engine rotation (facing flywheel)	Counter-CW	Counter-CW	Counter-CW
Flywheel housing size - SAE #	2	2	2
Opt. front PTO size - SAE # / ft lbs torque	5 / 357	5 / 525	5 / 550
Maximum operating down angle front/rear	0° / 12°	0° / 12°	0° / 12°

Dimensions and Weight

NOT intended for installation. Contact factory for installation drawings.

Approximate Weight	L1066T	L1066A	L1066H
Weight w/o gear - heat exchanger -lbs (kg)	1982 (899)	2155 (977)	2162 (981)
Weight w/o gear - keel cooled - lbs (kg)	1960 (889)	n/a	n/a



Weights do not include gear or options. Dimensions subject to change without notice.

Dimensions: L1066T		inch (mm)
A length	54.94	(1395.5)
B width	27.29	(693.2)
C height	36.20	(919.5)
D mounts	33.98	(863)
E mounts	25.5	(647.7)
Dimensions: L1066A		inch (mm)
A length	56.62	(1438.9)
B width	29.65	(753.1)
C height	37.31	(947.6)
D mounts	33.98	(863)
E mounts	25.5	(647.7)
Dimensions: L1066H		inch (mm)
A length	55.62	(1412.7)
B width	28.89	(733.8)
C height	37.31	(947.6)
D mounts	33.98	(863)
E mounts	25.5	(647.7)

LUGGER

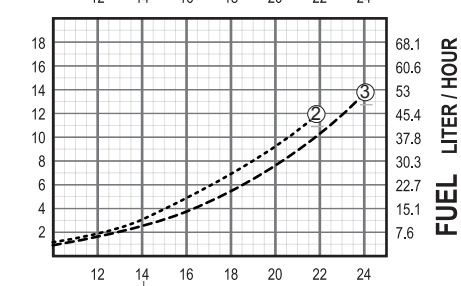
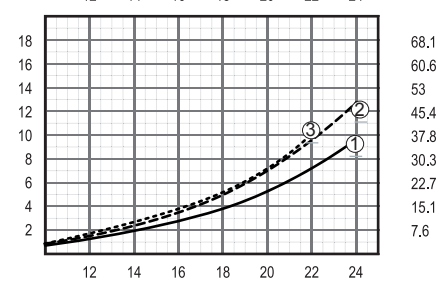
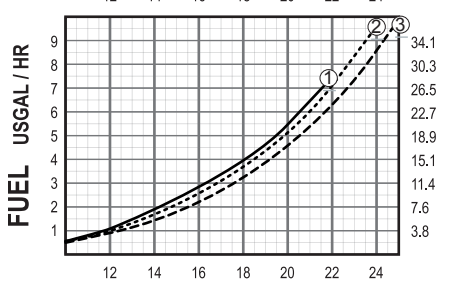
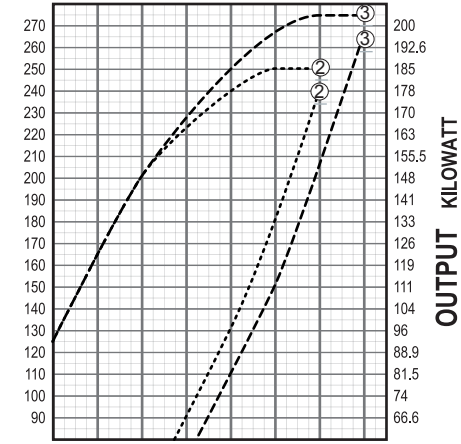
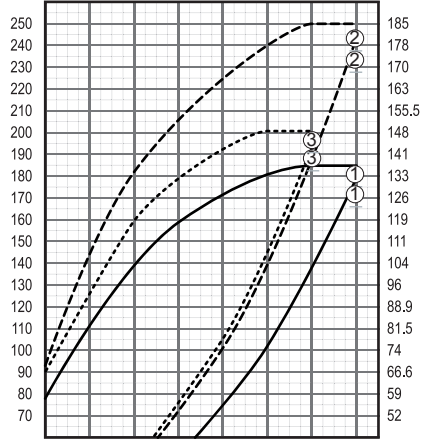
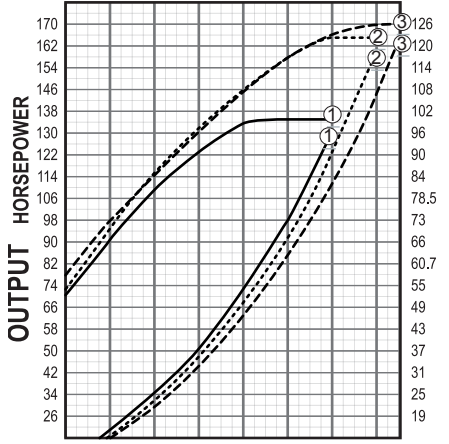
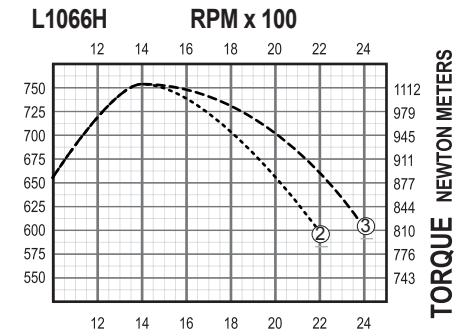
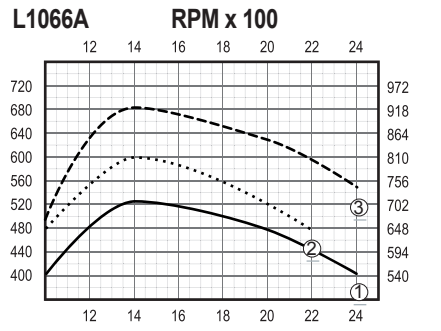
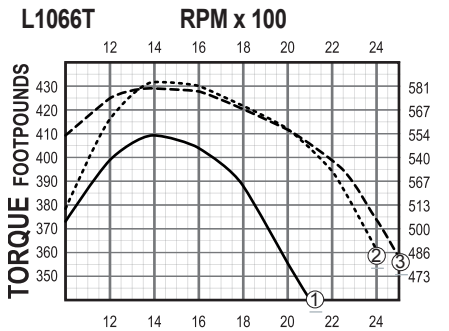
by NORTHERN LIGHTS

Performance Curves

L1066 Series

135 - 275 Hp

Model Number	L1066T	L1066A	L1066H
High Output - fwhp (kW) @ RPM	170 (126) 2500	250 (185) 2400	275 (203) 2400
Medium Duty - fwhp (kW) @ RPM	165 (122) 2400	200 (148) 2200	250 (185) 2200
Continuous Duty - fwhp (kW) @ RPM	135 (100) 2200	185 (137) 2400	Not Available



L1066T									
Rating Curve	① CONTINUOUS				Rating Curve	② MEDIUM DUTY			
RPM	ft/lbs	fwhp	pdhp	gph	RPM	ft/lbs	fwhp	pdhp	gph
1000	373	71	12	0.6	1000	378	72	11.6	0.6
1200	398	91	21	1.1	1200	416	95	19.9	1
1400	409	109	33.6	1.8	1400	431	115	31.7	1.7
1600	404	123	50	2.7	1600	430	131	47	2.5
1800	388	133	71	3.9	1800	423	145	67	3.6
2000	355	135	98	5.4	2000	412	157	92	5.1
2200	322	135	130	7.4	2200	394	165	123	7.1
2400	--	--	--	--	2400	361	165	159	9.6
2500	--	--	--	--	2500	--	--	--	--

L1066A									
Rating Curve	① CONTINUOUS				Rating Curve	② MEDIUM DUTY			
RPM	ft/lbs	fwhp	pdhp	gph	RPM	ft/lbs	fwhp	pdhp	gph
1000	404	77	13	0.7	1000	478	91	18	0.9
1200	481	110	22.3	1.1	1200	551	126	31.4	1.6
1400	525	140	35.4	1.8	1400	596	159	50	2.5
1600	519	158	52.9	2.6	1600	584	178	74	3.7
1800	502	172	75	3.7	1800	560	192	105.7	5.3
2000	475	181	103.4	5.2	2000	525	200	145	7.3
2200	442	185	137.5	7.1	2200	477	200	193	10.1
2400	405	185	178.5	9.5	2400	--	--	--	--

L1066A				
Rating Curve	③ HIGH OUTPUT			
RPM	ft/lbs	fwhp	pdhp	gph
1000	494	94	17.5	0.9
1200	630	144	30	1.5
1400	683	182	47.9	2.5
1600	673	205	71.5	3.5
1800	654	224	102	5
2000	630	240	139.6	7
2200	597	250	186	9.5
2400	547	250	241	12.7

L1066H									
Rating Curve	② MEDIUM DUTY				Rating Curve	③ HIGH OUTPUT			
RPM	ft/lbs	fwhp	pdhp	gph	RPM	ft/lbs	fwhp	pdhp	gph
1000	657	125	22.7	1.2	1000	657	125	19.2	1
1200	718	164	39.2	1.9	1200	718	164	33.2	1.6
1400	754	201	62	3.1	1400	754	201	52.7	2.6
1600	739	225	92.8	4.5	1600	745	227	78.6	3.8
1800	700	240	132	6.4	1800	727	249	112	5.4
2000	656	250	181	8.9	2000	704	268	153	7.5
2200	597	250	241	12.1	2200	657	275	204	10.2
2400	--	--	--	--	2400	602	275	265.4	13.5

L1066A									
Rating Curve	① CONTINUOUS				Rating Curve	② MEDIUM DUTY			
RPM	ft/lbs	fwhp	pdhp	gph	RPM	ft/lbs	fwhp	pdhp	gph
1000	404	77	13	0.7	1000	478	91	18	0.9
1200	481	110	22.3	1.1	1200	551	126	31.4	1.6
1400	525	140	35.4	1.8	1400	596	159	50	2.5
1600	519	158	52.9	2.6	1600	584	178	74	3.7
1800	502	172	75	3.7	1800	560	192	105.7	5.3
2000	475	181	103.4	5.2	2000	525	200	145	7.3
2200	442	185	137.5	7.1	2200	477	200	193	10.1
2400	405	185	178.5	9.5	2400	--	--	--	--

L1066A				
Rating Curve	③ HIGH OUTPUT			
RPM	ft/lbs	fwhp	pdhp	gph
1000	494	94	17.5	0.9
1200	630	144	30	1.5
1400	683	182	47.9	2.5
1600	673	205	71.5	3.5
1800	654	224	102	5
2000	630	240	139.6	7
2200	597	250	186	9.5
2400	547	250	241	12.7

Notes:
 1. Max. cruise rpm for High Output and Medium Duty ratings is 200 rpm below highest attainable rpm.
Curves:
 A. Max. torque at flywheel.
 B. Flywheel power. Prop shaft power is 3-3.5% lower due to transmission/reduction gear power loss.
 C. Theoretical prop power draw (3.0 exponent).
 D. Fuel consumption based on theoretical propeller horsepower draw. Your fuel consumption will vary higher or lower depending on your vessel and operating conditions.