

# MARINE DIESEL ENGINES

PLEASURE-CRAFT POWER

**4LH-TE/4LH-HTE**  
81.0kW (110.1hp)/103.0kW (140.0hp)

# YANMAR

## The amazingly compact LH— A triumph of Technology

### Up to 140hp in this compact package

The LH introduces a futuristic low-line design that makes the rocker arm cover the highest point on the engine. More hp per unit volume, and more output per kg of engine weight. And all from a smaller-than-ever package. Repowering becomes easier, new boat designers can choose more horsepower, or a roomier engine improvement in fore-and-aft balance.

### Cleaner Emissions, Better Economy

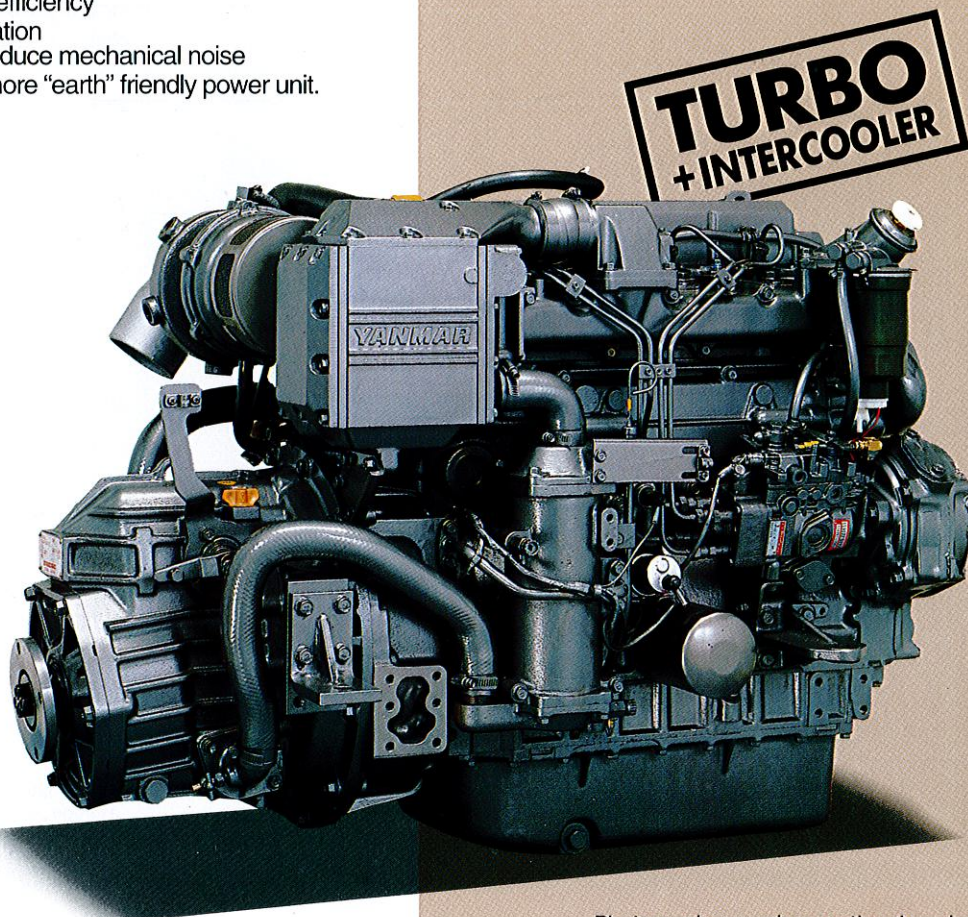
A new development called Negative Torque Control reduces exhaust smoke during acceleration. The system supplies precisely the correct amount of fuel at all speeds, resulting in smoother acceleration throughout the RPM range. A very high pressure fuel injection pump, together with extremely fine injectors and accurate timing make for impressive fuel economy.

### Environmentally Engineered

This engine shares all the benefits of Yanmar's commitment to reducing environmental impact on the world in which we all live. Features such as:

- low noise, low vibration, highly economical fuel use
- improved turbine shape aids overall efficiency
- special steels in crankshaft fight vibration
- close bearing and gear tolerances reduce mechanical noise

The result is a more people friendly, more "earth" friendly power unit.



Photograph may show optional equipment.

## STANDARD EQUIPMENT

### ENGINE BODY

Integrally-cast water jacket and crankcase. Dry sleeve cylinder liners. Integrally-cast cylinder head with jet cooling between valves. Intake/exhaust valve seat inserts. Steel compression (2) and oil scraper (1) rings on each piston.

### FUEL INJECTION SYSTEM

Distributor type fuel injection pump. New 5-hole compact injector. Internal fuel feed pump and paper element cartridge type fuel filter with water separator. Electric engine stopping device.

### COOLING SYSTEM

Wax pellet type thermostat-controlled fresh water cooling. Integrated construction of exhaust manifold and multi-tube fresh water cooler with expansion tank. V-belt driven centrifugal fresh water pump. L type exhaust water mixing elbow. Gear-driven sea water pump with rubber impeller.

### LUBRICATING SYSTEM

Trochoid lube oil pump. Full-flow paper element cartridge oil filter. Sea water cooled multi-tube oil cooler.

### INTAKE/EXHAUST SYSTEM

Aluminum intake manifold. Water-cooled integral exhaust manifold with water tank. Water-cooled turbocharger.

### TRANSMISSION

Constant mesh gear with servo-cone KM5A clutch with 7° down-angle output shaft.

### ELECTRICAL SYSTEM

12V, 55A alternator with built-in IC regulator with 12V, 2.5kW DC starting motor.

### OTHER

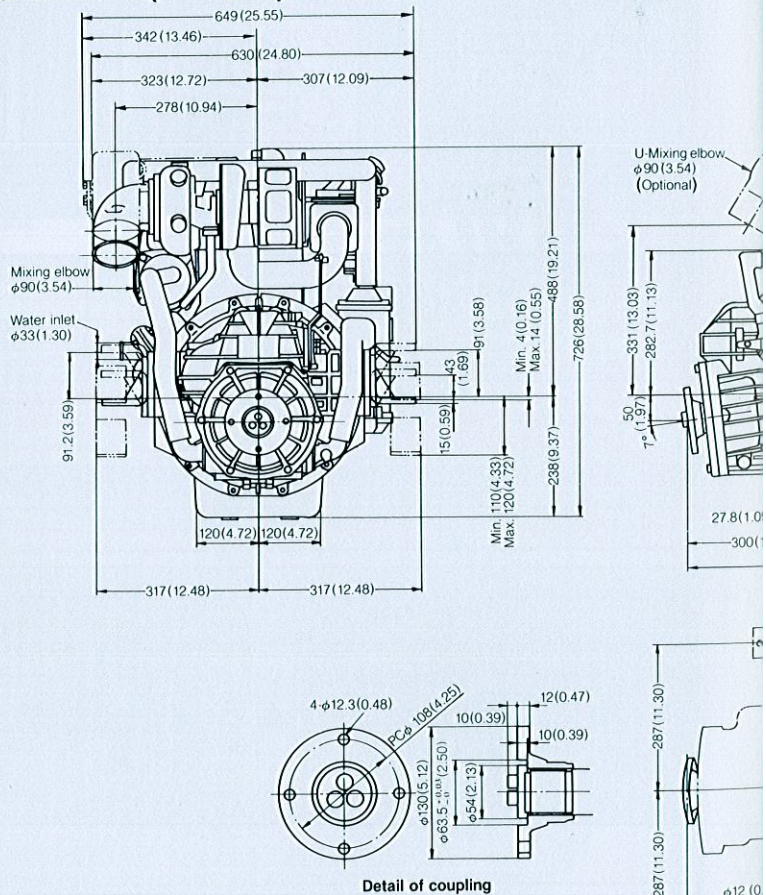
Flexible engine mountings. Tool kit.

## SPECIFICATIONS

Model		
Configuration		
Number of cylinders		
Bore × stroke	mm (in.)	
Displacement	ℓ (cu.in.)	
Continuous rating output at crankshaft	kW/rpm (hp/rpm)	
Maximum output at crankshaft	kW/rpm (hp/rpm)	
Combustion system		
Aspiration		
Starting system		
Cooling system	Fres	
Lubrication system		
Reduction and reversing gear	Model	
	Type	
	Reduction ratio (Ahead/Astern)	2.5
Direction of rotation	Propeller speed (Ahead) (at continuous rating)	rpm
	Crankshaft	
	Propeller shaft	
Dry weight		kg (lbs)

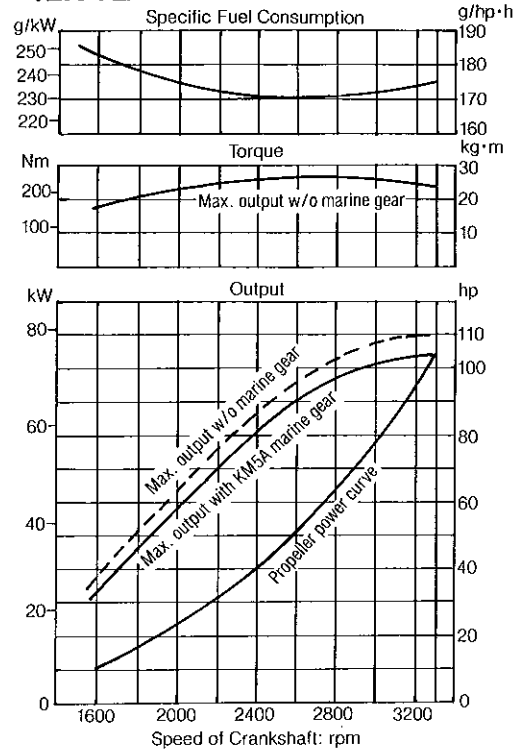
## DIMENSIONS Unit:mm(in.)

### 4LH-TE/4LH-HTE (× KM5A)

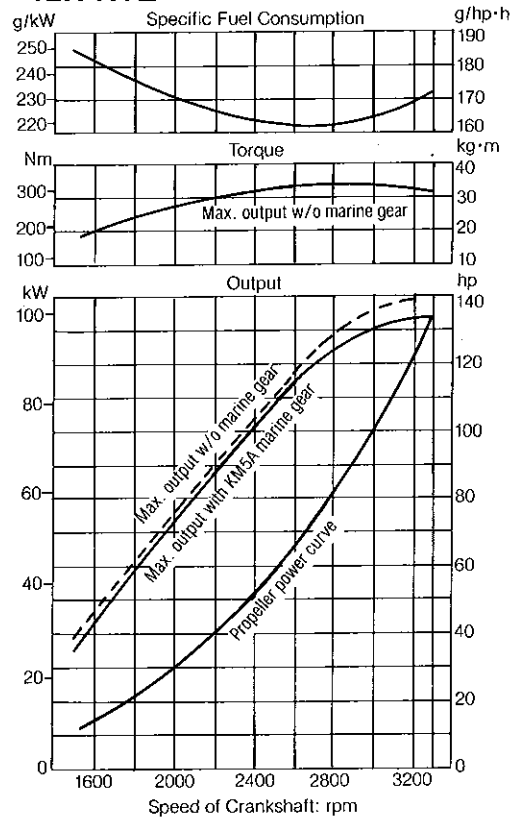


## PERFORMANCE CURVES

### 4LH-TE



### 4LH-HTE



#### Note:

- Above data are measured at crankshaft and show the average performance as tested at our laboratory.
- Power loss of the marine gear KM5A is as follows:  
4LH-TE—4.5% 4LH-HTE—3.6%

4LH-TE	4LH-HTE
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4-stroke, vertical, water-cooled diesel engine

4 in-line

100 × 110 (3.94 × 4.33)

3.455 (210.86)

73.5/3200 (99.9/3200)

93.4/3200 (127.0/3200)

81.0/3300 (110.1/3300)

103.0/3300 (140.0/3300)

Direct injection

Turbocharged

Turbocharged with intercooler

Electric starting (D.C. 12V, 2.5kW starting motor/12V, 55A Alternator)

Water cooling by centrifugal fresh water pump and rubber impeller seawater pump

Forced lubrication with trochoid pump

KM5A

Constant mesh gear with servo-cone clutch, 7° angle

12.57	2.07/2.07	1.46/1.46	2.57/2.57	2.07/2.07	1.46/1.46
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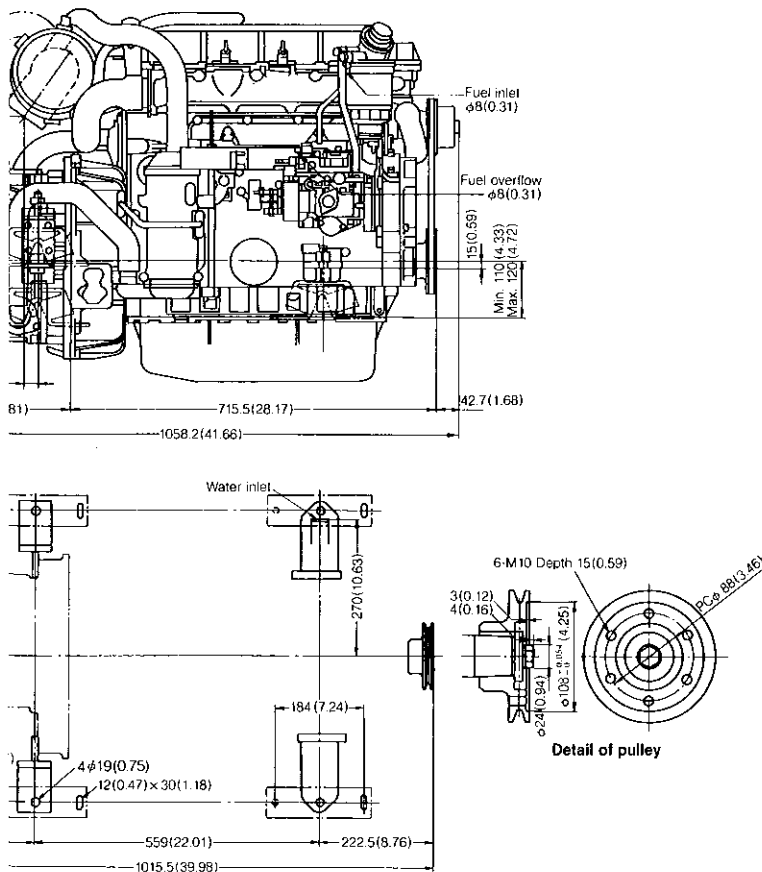
145	1546	2187	1245	1546	2187
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Counterclockwise viewed from stern

Bi-rotation (clockwise/counter-clockwise)

370 (815.7)

380 (837.7)



## ACCESSORIES

Standard: ○ Option: ▲

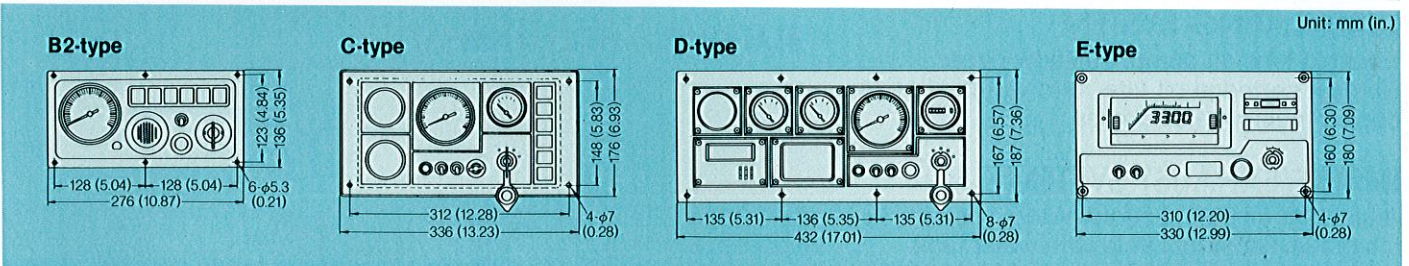
Item	Name	Standard	Option	Remarks
Installation	Flexible engine mount	○		
	Propeller shaft half coupling (Straight rough bore)	▲	φ30	
Cooling	Exhaust water mixing elbow, L-type	○		
	Exhaust water mixing elbow, U-type	▲		
	Kingston cock	▲		
	Seawater strainer	▲		
Lubrication	Lube oil evacuation pump	▲		
	Lube oil dipstick for opposite side of engine	▲		
Starting & stopping	Engine stop solenoid (Electric)	○		
	Safety switch for neutral (Marine gear)	▲		
Electrical & instrumentation	Alternator, 12V	▲	80A	
	Electric type bilge pump, 12V	▲		
	B2-type instrument panel	▲		
	C-type instrument panel	▲		
	D-type instrument panel	▲		
	E-type instrument panel	▲		
	E2-type instrument panel for dual E-type panel	▲		
	New C-type instrument panel	▲		

Item	Name	Standard	Option	Remarks
Electrical & instrumentation	New D-type instrument panel	▲		
	Connect wire harness for dual instrument panel	▲		
	Meter sensor ass'y for New C and D-type instrument panel	▲		
	Meter sensor ass'y for C, D, E and E2-type instrument panel	▲		
	Meter sensor ass'y for dual instrument panel (New C+C or D-type)	▲		
	Extension wire harness	▲		4 & 6 m
	Two pole wire harness for Eng.	▲		
Control	Two pole alarm switch ass'y for B2-type	▲		
	Two pole alarm SW. & meter sensor ass'y for C, D, new C & D-type panel	▲		
	Two pole alarm switch & sensor ass'y for E-type panel	▲		
	Side-mount type single control head. (MORSE: MV)	▲		
Others	Top-mount type single control head. (MORSE: MT2)	▲		
	V-pulley for Front P.T.O.	▲		
	Spare parts kit	▲		
	Special overhauling tools (for engine)	▲		
	Special overhauling tools (for marine gear)	▲		

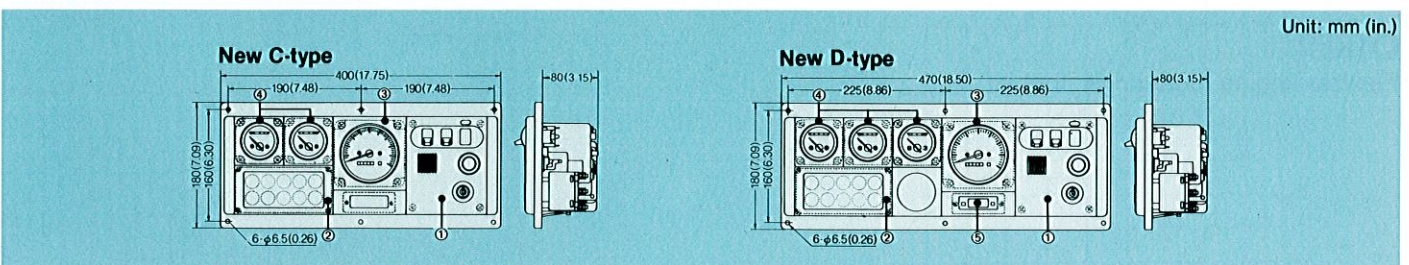
## INSTRUMENT PANELS

Available: ● Not available: —

No.	Item	Remarks	B2-type	C-type	D-type	E-type	
						● (Bargraph)	● (Digital)
1.	Tachometer		●	●	●	●	●
2.	Alarm Buzzer	C.W. high temperature	●	●	●	●	●
		L.O. low pressure	●	●	●	●	●
		Fuel/water separator	—	—	—	●	●
3.	Alarm lamp unit	Battery not charging	●	●	●	●	●
		C.W. high temperature	●	●	●	●	●
		L.O. low pressure	●	●	●	●	●
		Fuel/water separator	—	—	—	●	●
4.	Tachometer illumination switch and alarm buzzer/lamps check switch		●	●	●	●	●
5.	Starting switch		●	●	—	—	—
6.	Push button switch for engine stop		●	●	—	—	—
7.	Hole for manual cable		●	—	—	—	—
8.	Key switch for engine start & stop		—	—	●	—	—
9.	Operating hour meter		—	●	●	●	●
10.	L.O. pressure meter		—	●	●	●	●
11.	C.W. temperature meter		—	●	●	●	●
12.	Fuse		—	●	●	●	●
13.	Yanmar marine quartz clock		—	—	●	●	●



No.	Item	Remarks	New C-type	New D-type
			①	Switch
②	Alarm lamp unit	Battery not charging C.W. high temperature L.O. low pressure Fuel/water separator	● ● ● ●	● ● ● ●
③	Tachometer	Tachometer with hour meter	●	●
④	Sub meter unit	L.O. pressure meter C.W. temperature meter	● ●	● ●
⑤	Clock unit	Quartz clock	—	●



Note: All data subject to alteration without notice.

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