Kingfisher

KD26 - 2 cylinder
KD36 - 3 cylinder
Marine Diesel Engines

OWNERS HANDBOOK

Kingfisher Engines
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Engine Specifications
For
KD26 -- KD36

Type	Upright (vertical), four stroke, water-cooled diesel engine
Cylinder bore	95mm
Piston stroke	115mm
Compression ratio	20 To 1

Model of Diesel Engine	KD26		KD36	
(rpm)	1500	2000	1500	2000
Number of cylinders	2		3	
Total displacement (liters)	1.63		2.44	
1 Hour rating		19.4(26.4)		29.1(39.6)
Continuous rating KW (ps)	11.8(16)	15.9(21.6)	17.9(24.3)	23.8(32.4)
Fuel consumption at rated output	<258g/kw.h (<190g/hp.h)			
Net weight (kg)	250-270		380	470

FUEL/COOLANT/LUBRICANTS

Your Kingfisher diesel engine has been pre-filled with the appropriate running-in oil, which will need to be changed after the first 20 hours of running.

RECOMMENDED OILS

Engine Oil..... 15-W-40 or HDX 30

Injector Pump..... 20-W-50

Gearbox type MA 100..... ESSO TORQUE FLUID 62

Gearbox type 16A..... 20-W-50

OIL / COOLANT CAPCITIES

SYSTEM	KD 26	KD 36
Engine Oil	7 ltr	9 ltr
Injector (Cam Box) Pump	250 ml	300 ml (approx)
MA 100 Gearbox	3 ltr	
MA 125 Gearbox		4 ltr
Cooling Water In Block	9-11 ltr	13-15 ltr

FUEL. High grade light diesel fuel, Gas Oil or Derv.

Note:

When the Engine has a MAJOR SERVICE an oil sampling facility is available to determine the efficiency of your engine.

RUNNING-IN PROCEDURE

DO NOT OPERATE YOUR NEW ENGINE ON FULL LOAD OR AT HIGH SPEEDS IMMEDIATELY: EXCESSIVE WEAR MAY RESULT IN DAMAGE TO YOUR ENGINE.

Your Kingfisher engine will provide a long and dependable service if given proper care during the 'break in'. ½for the first 20 hours DO NOT operate the engine under full load or full speed conditions.

After completing the first 20 hours running carry out the maintenance instructions.

LUBRICATION AND MAINTENANCE

The importance of correct lubrication, periodic inspection and adjustment cannot be over-emphasised. The prolonged life of the engine will depend to a large extent on the proper maintenance.

Detailed instructions regarding this maintenance are given in the following pages. Your Authorised Kingfisher dealer will be pleased to carry out this regular maintenance for you.

For convenience, lubrication and maintenance work has been divided into the following periods:-

A) After first 20 hours running.

B) After first 40 hours running.

C) After every 10 hours running.

D) After every 50 hours running.

E) After every 200 hours running.

F) After every 400 hours running.

NOTE: Oil filter and air filter change periods as quoted are maximum times. Equipment manufacturers recommend more frequent changes particularly in harsh climates, dusty applications etc.

SUMMARY OF REGULAR MAINTENANCE
for
MODELS
KD 26 -- KD 36

After first 20 hours running:

A)
1. Check for oil and fuel leaks
2. Change Engine Oil and Filter
3. Adjust Valve Clearances
4. Adjust Fan Belt Tension
5. Adjust Idling Speed Setting (if nec)
6. Check Oil Level in Injection Pump

After First 40 Hours running:

B)
7. Tighten Cylinder Head Retaining Bolts
   Check Fixing Bolts

Every 10 Hours Running:

C)
8. Check Paper Element Air Cleaner (where Fitted)
9. Check Engine Oil Level
10. Check Coolant Level

Every 50 Hours Running:

D)
11. Clean Oil Bath Filter or Replace Element
    Air Cleaner (where fitted)
12. Check Level of Electrolyte in Battery
13. Check Oil Level in Injection Pump & Governor
14. Adjust Fan Belt Tension

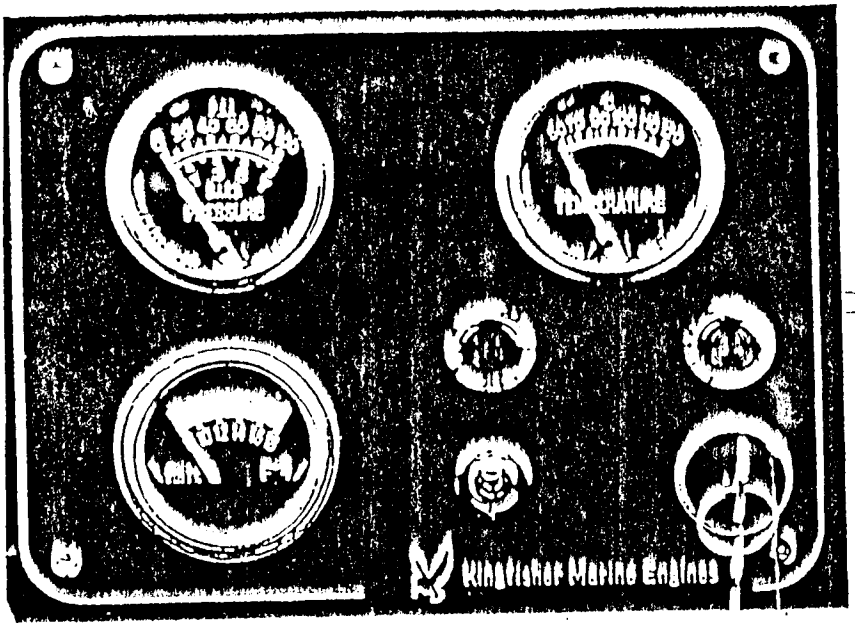
Every 200 Hours Running:

E)
15. Change Oil in Cambox of Injection Pump
16. Change Engine Oil and Oil Filter
17. Clean Fuel Lift Pump
18. Clean Sediment Bowl & Filter (where fitted)

Every 400 Hours Running:

F)
19. Replace Fuel Filter Element
20. Remove and Service Injectors
21. Adjust Valve Clearances
22. Adjust Idling Speed Setting

STANDARD WIRING DIAGRAM KD26 (12 VOLT)



NOTE:-

GREEN LIGHT = LOW OIL PRESSURE

RED LIGHT = ALTERNATOR CHARGE

GREEN →

WHITE →

← BLACK

← RED

YELLOW →

Brow & Yell

+ POSITIVE

STARTER MOTOR

ALTERNATOR

- NEGATIVE BLOCK

CHECK BEFORE STARTING THE ENGINE

Check that all the connecting parts are secure, and all the moving parts can move freely without jamming.

Check whether the oil within the oil sump and governor is sufficient, otherwise, add oil to the level between the notched lines on the dipstick in the cylinder block.

Fill the fuel tank with clean fuel and check whether the fuel line is free of obstruction. Relieve the air trapped in the fuel pipe and the fuel injection pump.

When venting, loosen the vent screw on the fuel injection pump and operate the hand-pump until no bubbles appear in the fuel flowing out of the vent. Then tighten the vent screw.

After turning the key switch to the on position, check the electrical system to see whether the batteries are fully charged and all the connections are correct and dependable.

Check whether the fuel control mechanism is manouverable.

Press down the starting decompression handle, then turn the crankshaft with the starting handle. It should rotate freely without any knocking sound.

If the engine has been stopped for a long time or the lubricating oil filter cartridge has been renewed, it is necessary to rotate the crankshaft by hand until the oil pressure rises so that the whole lubricating system is full of oil.

After having completed the above preparations, the engine is ready to start.

STARTING THE ENGINE

After preparing in accordance with the procedure as given, start the engine as follows.

Shift the control handle of the gear-box to the neutral position.

Open the feed cock of the fuel tank and place the fuel control handle in the middle position which corresponds to 700 rpm without load.

Press down the starting decompression handle to the reducing position.

Turn the key-switch to the "ON" position and turn the starting switch from the middle position (i.e. the "0") to the "Starting" position. The starter in this way begins to drive the crankshaft and flywheel. After 3-5 seconds, the engine speed increases. Lift the starting decompression handle at the juncture and when the engine has been started, release the starting knob switch back to the "0" position immediately.

If the engine fails to start after the starting knob switch has been turned for 10 seconds, stop at once and wait 40-50 seconds before restarting. If the engine fails to start after four attempts, find out the probable cause and remedy the trouble in time.

If the batteries are fully charged, the engine can be directly started instead of assisted by the decompression handle.

When ambient temperature is under 5 c, the engine can be started with the aid of the air preheater. In this connection, first turn the starting knob to the "Preheat" position and keep it there for about 15 seconds, then turn the switch further to the "Preheat and Starting" position to start the engine. Besides, preheating the lubricating oil and the cooling water can also help the engine start easily.

If the battery capacity is insufficient, the engine can be started manually by means of the starting handle which can engage the starting jaw on the fore end of the camshaft.

After the engine has been started, run it at lower speed without load for a while, then gradually increase it to the speed. At the same time, listen attentively to see whether the noise is normal, and observe the readings shown by the oil pressure gauge and the ammeter on the instrument panel. Make sure that the water runs out of the outlet water pipe.

NORMAL OPERATION OF ENGINE

In the course of the normal operation of engine, attention has to be paid to the following.

Observe the readings of the gauges, i.e. the oil pressure, oil temperature, outlet water temperature and engine speed which should be within the specified ranges.

If the cooling water is boiling or blocked, take off the load at once and reduce the engine speed and run it at a lower speed until the outlet water temperature is decreased. Then find out the cause and eliminate it. Never abruptly add cold water in case of insufficient water with high temperature to avoid damage and accident.

Listen attentively to the operating noise of the engine. If it is abnormal, stop and recheck the engine, find out the cause and eliminate it.

Watch for smoky exhaust. If it is abnormal, check and eliminate it. The engine must not operate with overload and black smoking for any length of time.

Watch for the loose parts and the leakage of oil, water and air.

Whichever of the above mentioned phenomena is found, one has to check carefully and eliminate it timely.

During operation, engine speed and load should be increased or decreased gently and gradually. Except on special occasions, do not suddenly load or unload the engine by a big margin to avoid damage.

ENGINE STOPPING

In normal operation, the engine should be stopped in accordance with the following procedure.

Before stopping the engine, first take off the load and then decrease the engine speed gradually. Let the engine run idle for a few minutes so as to decrease the oil and water temperatures.

Stop the engine by pushing the stopping handle, and then turn off the key switch.

When the ambient temperature is under or approximate to 0 degrees centigrade, open the draining cocks on the cylinder block, and water pump to drain the cooling water to avoid the engine damage by freezing. Draining should be done immediately after the engine is stopped. For the closed type system, it is necessary to turn the crankshaft by handle to drain the water trapped within the water pump.

If the engine is to be put out of service over a month, it should be carefully stored and periodicallly maintained.

MAINTENANCE OF ENGINE

For reliable engine operation, all maintenance work must be carried out in time with care . During maintenance, always remember that cleanliness is of prime importance to the satisfactory performance and reliability of the engine.

There are four kinds of normal maintenances classified according to the different operating periods:

Routine maintenance;

First level maintenance (after every 250 accumulated operating hours);

Second level maintenance (after every 500 accumulated operating hours);

Third level maintenance (after every 1000 accumalated operating hours);

Depending on the actual conditions, the operating period can be shortened or lengthened.

ROUTINE MAINTENANCE

Check the amount of fuel in the tank, the amount of lubricating oil in the oil sump and injection pump, replenish them if insufficient.

Pay attention to the cleanliness of the fuel tank, and electrical system. Clean the surface of the engine and it's instrument panel.

Check whether oil, water or air leaks and abnormal sound develops in the engine. Eliminate them immediately if there are any.

Pay attention to the gauge readings frequently and see if they are within the specified ranges. Eliminate faults immediately if they are found.

All trouble should be remedied in time.

FAULT FINDING CHART

ENGINE WILL NOT START

Starter does not crank engine

Battery run down
Bad connections
Lead disconnected
Faulty starter switch
Faulty isolation switch
Faulty solenoid
Faulty starter motor

Starter cranks engine

Starter cranks engine slowly

Battery partly run down
Terminal(s) loose
Connections dirty
Wrong grade engine oil (Viscosity to high)
Faulty starter motor
Temperature to low (Heat air intake)

MECHANICAL

Injection timing incorrect
Blocked air cleaner
Insufficient compression
No valve clearence
Valve seats worn
Head gasket leaking

FUEL SYSTEM

Fuel Not Reaching Injection Pump

Insufficient fuel in tank
Blocked fuel pipeline
Faulty lift pump
Restricted fuel filter
Air leaks in pipeline

Fuel Reaching Injection Pump

Air trapped in fuel system
Fuel Control rack sticking
Stop control out
Water in fuel (contaminated)
Poor quality fuel

Poor Atomisation (Faulty Injectors)

Injector pump plungers worn

Note: DO NOT UNDER ANY CIRCUMSTANCES USE EASY START

Suggested 'On - Board' spares kit.

Jabsco pump kit (offshore only)	SK211
Head gasket	295 - 01012 or 395 - 01012
Side cover gasket	295 - 01023 or 395 - 01023
Thermostat	03008
Thermostat gasket	03009
Cover gasket	295 - 03012 or 395 - 03012
V - belt	B43
Fuel Filter	296
Oil filter and O ring	411.