



TWO STROKE OUTBOARD PETROL ENGINE HOMOLOGATION FILE

International Homologation File Number: 00532A			
Homologation Valid from	1st April 2015	Expiry:	31st March 2025
Valid for the following classes:	CIRCUIT: OFFSHORE:	P750	
Manufacturer:	Mercury Marine		
Engine Model:	Mercury 50 D2		
Number Manufactured:	1000+		
At the date:	1 st March 2015		
Certified by the National Authority of:	Malta		
At the date:	20 th March 2015		
UIM Homologation Group Inspector	Paul Howes		
At the date:	28 March 2015		
UIM Certification Approval:	Mikael Lundblad	Union Internationale Motonautique	
At the date:	1 April 2015	1 April 2015	
Running Production Changes			
Change Detail	Jet size added	Page No.	18
Date Approved for Use	26 April 2015	Approved by	
Change Detail	Head + Ports + weights + gear case adjusted to manufacturer spec	Page No.	15, 16, 19, 20
Date Approved for Use	5 May 2017	Approved by	

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PICTURES

Photo of the complete engine, 45° from the front at the port side.



Photo of the complete engine, 45° from the front at the starboard side.



Photo of the complete engine, 45° from the rear at the port side.



Photo of the complete engine, 45° from the rear at the starboard side.



Photo without top cover, 45° from the front at the port side.



Photo without top cover, 45° from the front at the starboard side.



Photo without top cover, 45° from the rear at the port side



Photo without top cover, 45° from the rear at the starboard side.



Cylinder head from the combustion chamber side



Cylinder head from the spark plug side.



Combustion chamber top cylinder.



Combustion chamber middle cylinder.



Reed valve assembly



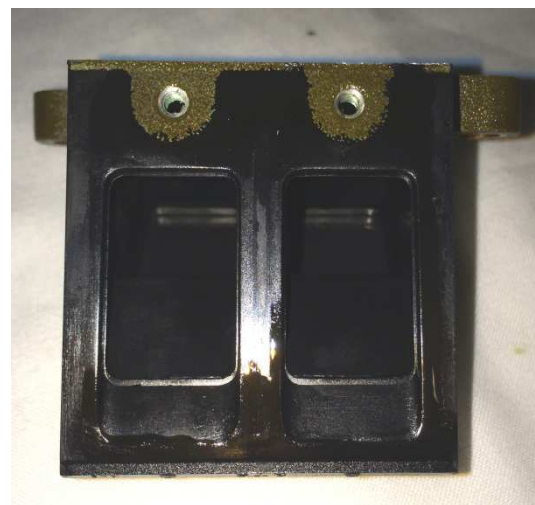
Reed valve assembly



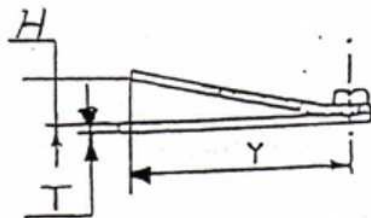
Reed block



Reed block



Reed stop - Measurement



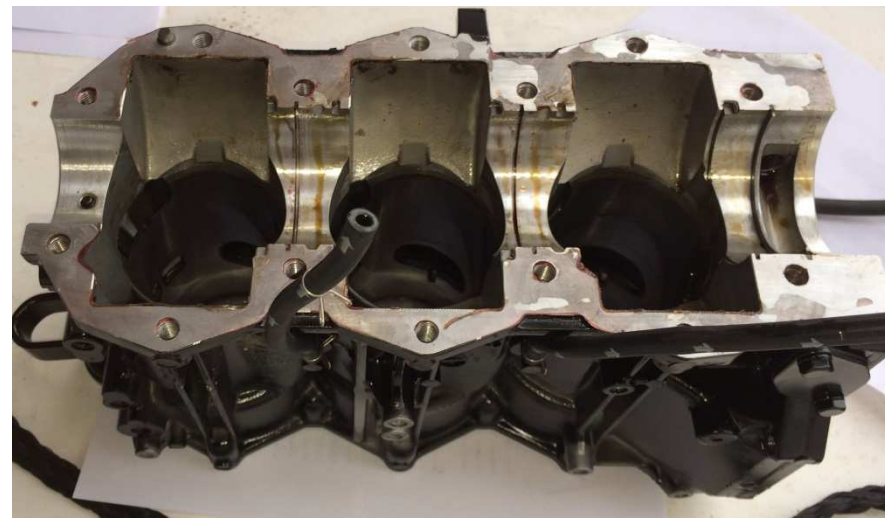
Reed



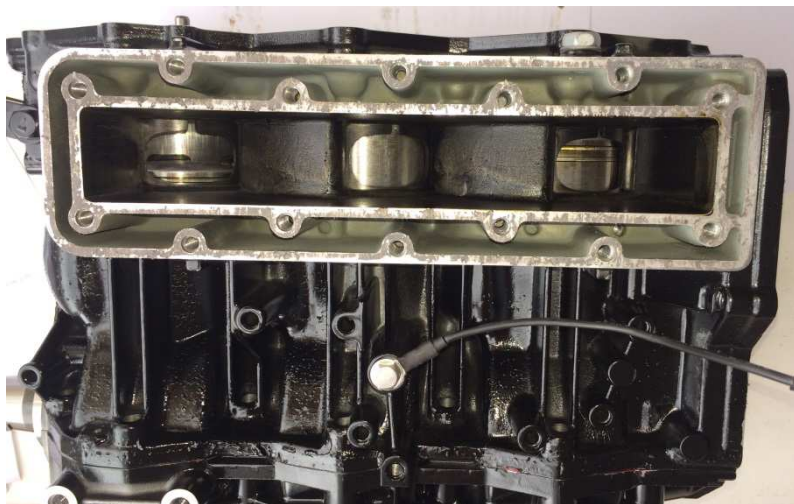
Cylinder block, viewed from crankshaft side.



Cylinder block viewed from starboard side



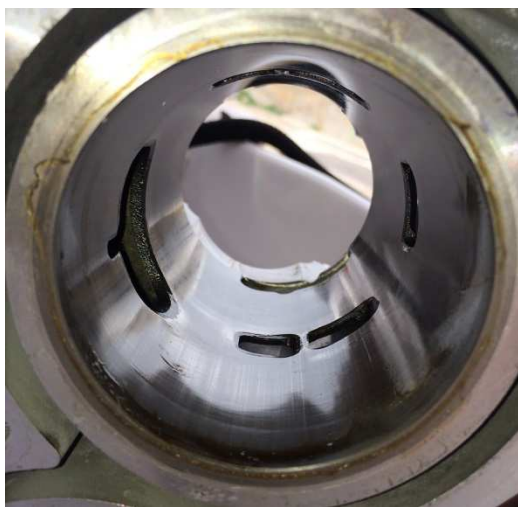
Cylinder block viewed from port side



Cylinder block, showing exhaust outlet to midsection



Cylinder bore



Exhaust port



Transfer port



Booster port



Piston viewed from the top



Piston viewed from the bottom



Piston, viewed 45° from the wrist pin.



Piston, viewed 45° from the wrist pin.



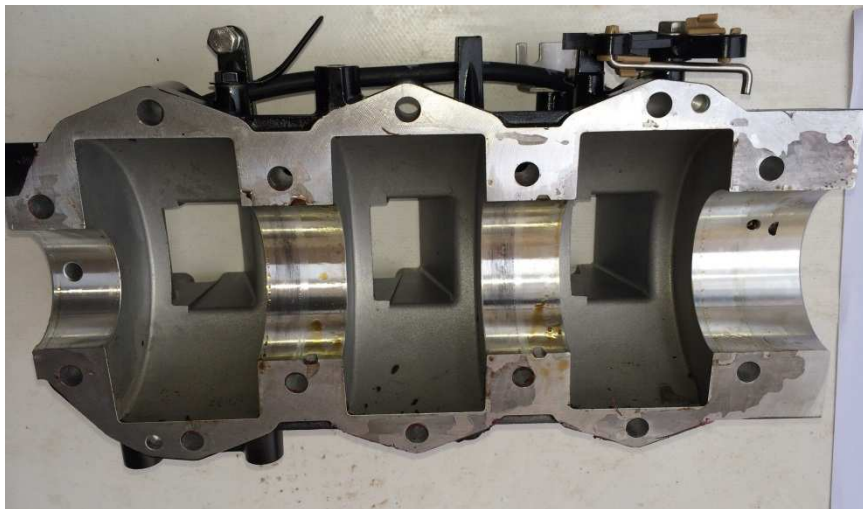
Connecting rod and crankshaft.



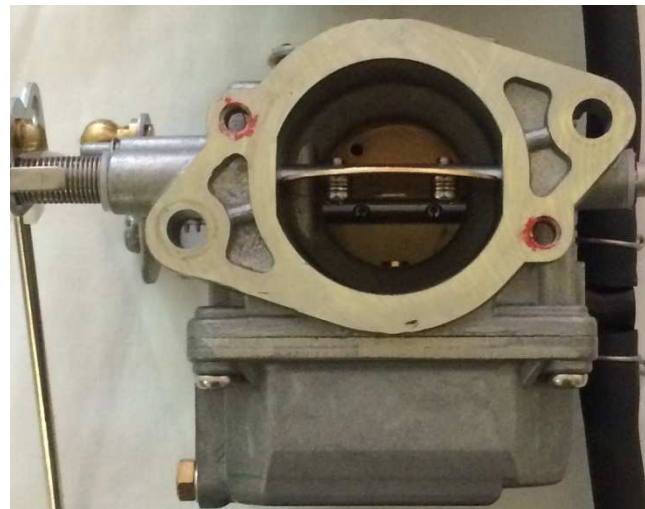
Flywheel



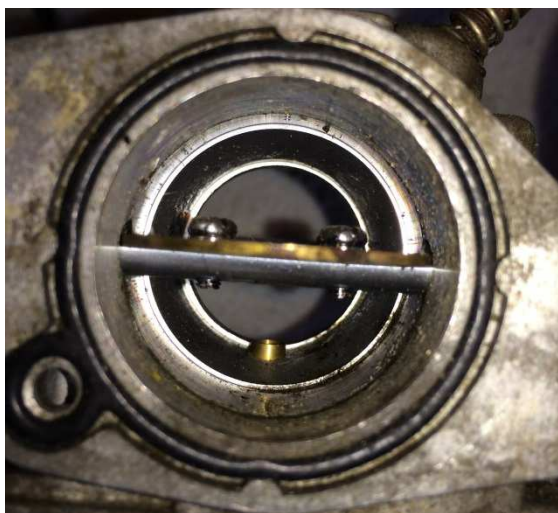
Intake plenum



Carburetor house



Throttle bore



Intake silencer



CD box Front



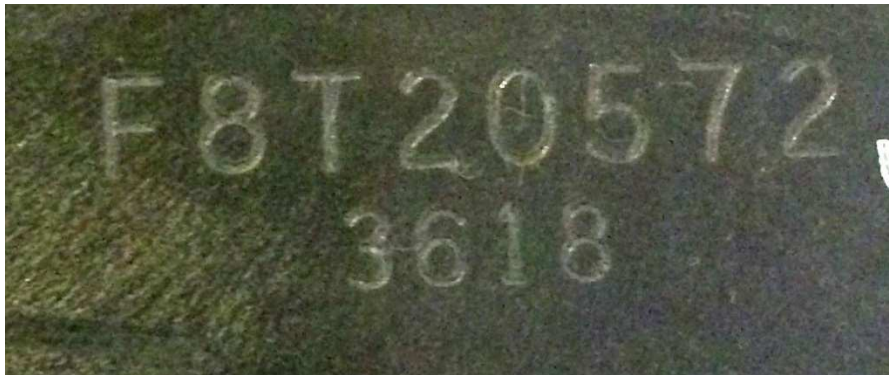
CD box Back



CD box side



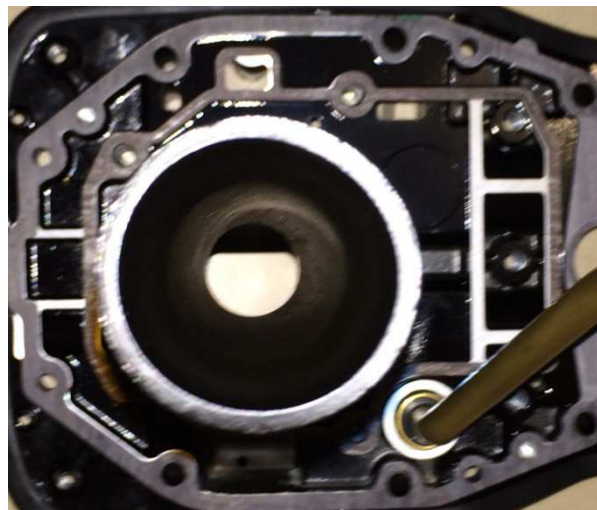
CD box part no



Exhaust plate – viewed from block side



Internal exhaust tuner – gear house side



Internal exhaust tuner



Internal exhaust tuner – viewed from engine side



Gear house – Port side



Gear house – Starboard side



Gear house skeg



Gear house skeg



Gear house Exhaust



Gear house Exhaust



MEASUREMENTS

ENGINE FUEL

Type:	Pertol non leaded
Minimum/Maximum octane reqd	89/98 RON

ENGINE TYPE

Number of cylinders:	3 Cylinders
Cylinder arrangement:	In-line

ENGINE MAX ROTATIONAL SPEED

At 5900rpm, the EMM (ECU) will shut off ignition spark to limit rotational speed of engine.

ENGINE BLOCK	Tolerance	Measurement	Unit
Bore	+/- 0.03	68.00	mm
Stroke	+/- 0.05	64.00	mm
Capacity per cylinder	max	232.8	cc
Total Capacity	max	698.4	cc
Cylinder block material		Aluminium	
Cylinder liner material		Grey Iron	
Distance from crankshaft centreline to cylinder block deck face.	+/- 0.25	180.1	mm
<i>Volume of combustion chamber (without volume of spark plug hole)</i>	<i>min</i>	<i>Cyl. 1 25.2cc Cyl. 2 27.6cc Cyl. 3 25.2cc</i>	
<i>Thickness of cylinder head - Without water jacket cover plate</i>	+/- 0.30	33.7	mm

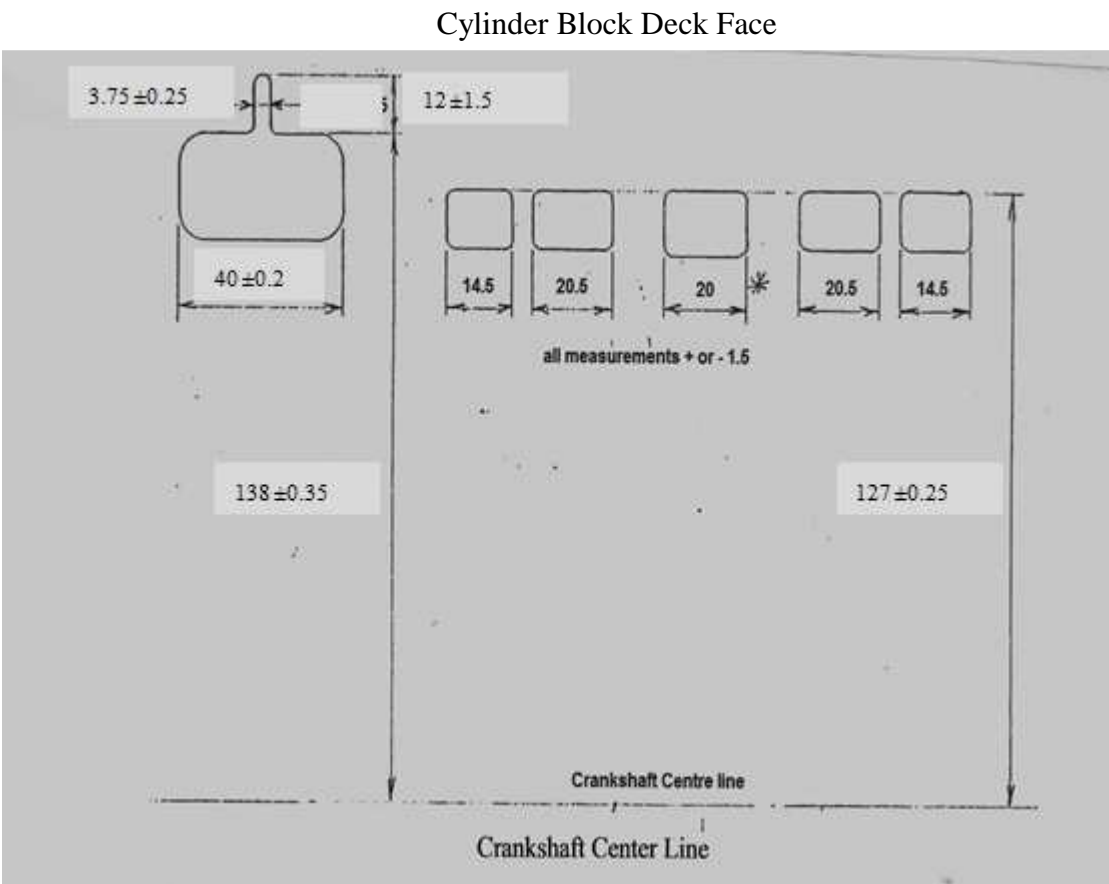
REED VALVE	Tolerance	Measurement	Unit
Reed thickness	+/- 0.02	0,20	mm
Reed lift <i>H</i> (stop height, see picture 29.3 total both)	max	10.0	mm
Reed material		Stainless steel	
Number and size of reed ports	max	(4x) 30.0x15.0	mm

Exhaust tuner	Tolerance	Measurement	Unit
Vertical length	+/- 5.0	270.0	mm
Exhaust tuner inlet	+/- 2.0	45.9x34.6	mm
Exhaust tuner outlet	+/- 2.0	39.0	mm

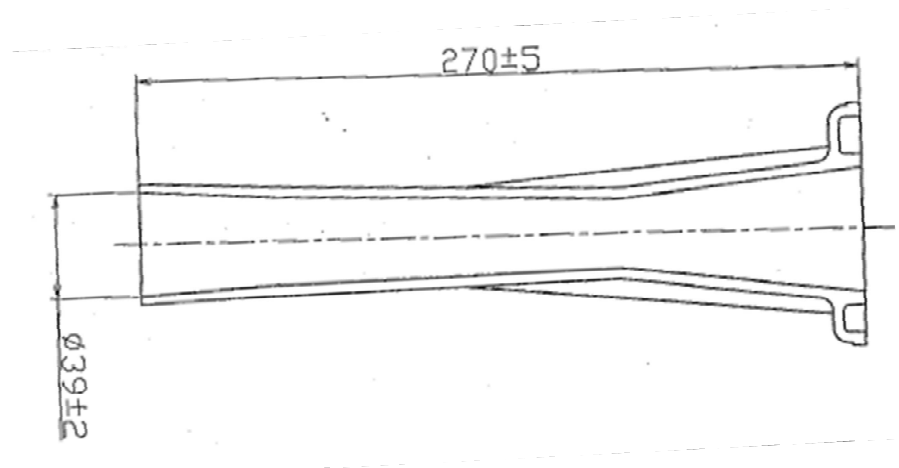
CYLINDER HEAD	Tolerance	Measurement	Unit
Cylinder head material		Aluminium	

CYLINDER PORT LAYOUT

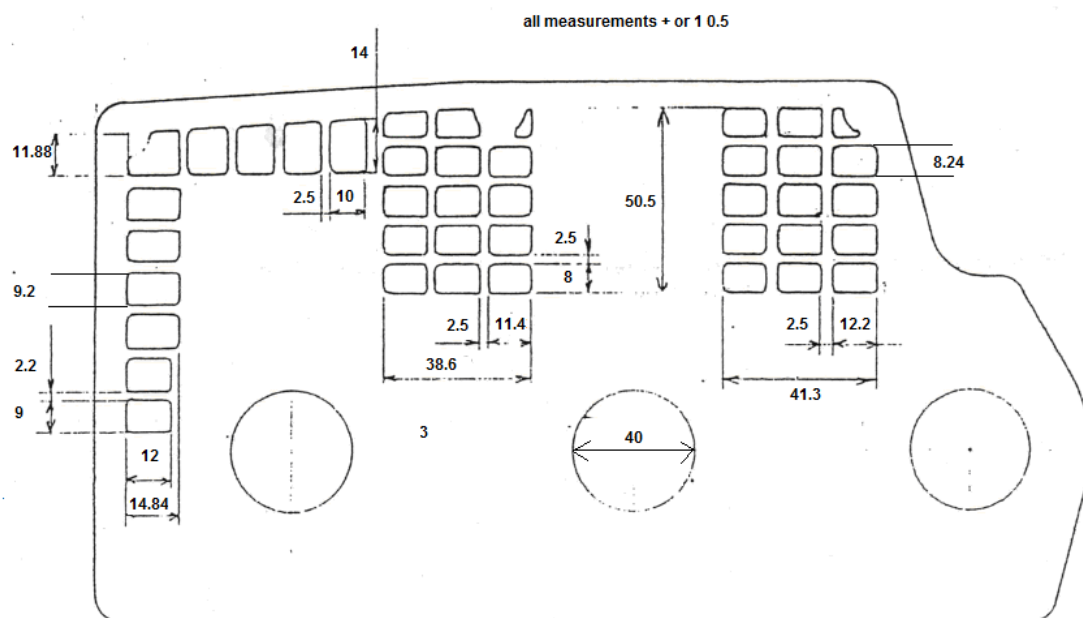
Exhaust ports have chamfers
Dimensions shown ignore chamfers



All port manufacture to a tolerance of ± 1.5 mm if tolerance not given



Exhaust tuner



Intake Silencer

PISTONS

		Measurement	Unit
Material of piston		Aluminium	
Type and thickness of rings	Keystone	1.95	mm
	Plane	2.05	mm

CRANKSHAFT

	Tolerance	Measurement	Unit
Number of main bearing journals		1 upper, 2 center, 1 lower	
	+/- 0.013	upper 46.95	mm
Diameter of main bearing journals	+/- 0.013	center 61.90 x 2	mm
	+/- 0.013	lower 64.93	mm
Diameter of connecting rod journals		43.35-43.98	mm

TYPE OF BEARINGS

Piston Pin	Needle roller
Connecting Rod journal	Needle roller
Main journal	All Ball Bearing

CARBURATOR

	Tolerance	Measurement	Unit
Make of Carburator		TACC	
Type of fuel pump, model no.		1 Mechanical	
Number of carburetors		3	
Diameter of throttle bore	+/- 0.70	32.00	mm
Diameter of venturi	+/- 0.50	26.00	mm
Main jet size		Upper, Center #132 Lower #135	

COOLING SYSTEM

Type	Water
Method	Thermostat controlled
Pump	Pump
Number of impeller blades	6 blades

WEIGHTS	Tolerance	Measurement	Unit
Piston (with rings)	min	240.0	g
Piston Pin	min	55.0	g
Crankshaft (inc main bearing & housings & seal rings & rods & pistons)	min	8 400	g
Flywheel (with all rotating attachments)	min	4 300	g

UNDERWATER UNIT	Tolerance	Measurement	Unit
<i>Gear Ratio</i>		13:24	
<i>P Longitudinal length of gearcase torpedo</i>	+/- 5.0	246.0	<i>mm</i>
<i>Q Longitudinal dimension of gearcase including propeller shaft</i>	<i>max</i>	370.0	<i>mm</i>
<i>R Transverse dimension of gearcase</i>	<i>min</i>	84.5	<i>mm</i>
<i>S Thickness of strut</i>	<i>min</i>	40.0	<i>mm</i>
<i>Z1 Skeg chord length, 25mm above bottom</i>	+/- 5.0	78.0	<i>mm</i>
<i>Z3 Skeg chord length, 75mm above bottom</i>	+/- 5.0	132.0	<i>mm</i>
<i>W1 Distance from propeller shaft to upper flange</i>	+/- 5.0	248.0	<i>mm</i>
<i>W Distance from propeller shaft to anti-ventilation plate</i>	+/- 5.0	160.0	<i>mm</i>
<i>Y1 Thickness of skeg, 25mm above bottom</i>	<i>min</i>	6.3	<i>mm</i>
<i>Y3 Thickness of skeg, 75mm above bottom</i>	<i>min</i>	8.0	<i>mm</i>
<i>Y Skeg depth from propeller shaft</i>	+/- 5.0	167.0	<i>mm</i>
<i>Diameter Exhaust outlet at propeller recess</i>	+/- 1.0	80.0	<i>mm</i>

NOTES

Pencil rubbing of cylinder bore



Exhaust casting mark only on 3 sides and one of those sides is almost undetectable.

