



TWO STROKE OUTBOARD PETROL ENGINE HOMOLOGATION FILE

International Homologation File Number: 00463A	
Homologation Valid from	Expiry: 31 December 2028
Valid for the following classes:	CIRCUIT: P750 OFFSHORE:
Manufacturer:	Tohatsu Corporation
Engine Model:	M50D2
Number Manufactured:	1000 +
At the date:	21st October 2016
Certified by the National Authority of:	
At the date:	
UIM Homologation Group Inspector	Gordon Sutherland
At the date:	21st October 2016
UIM Certification Approval:	Mikael Lundblad
At the date:	3rd March 2017
Running Production Changes	
Change Detail info	All of 00463 redone with support from Tohatsu.
Change Detail	Page No.
Date Approved for Use	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.



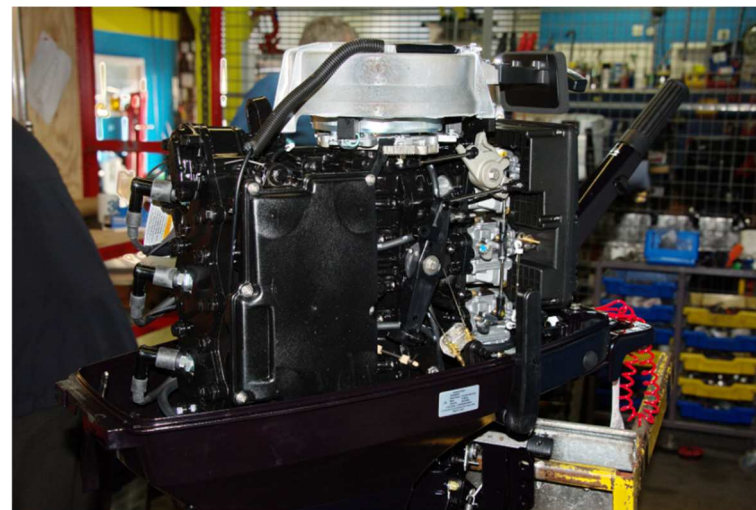
Photo without top cover, 45° from the front at the starboard side.



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



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



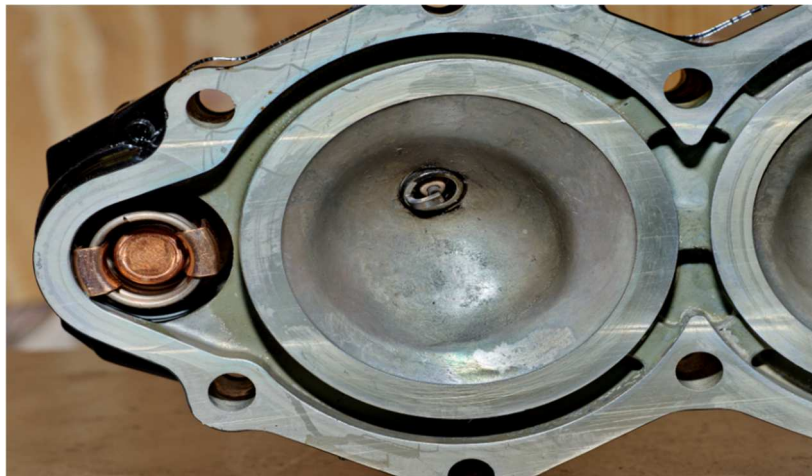
Cylinder head from the combustion chamber side



Cylinder head from the spark plug side.



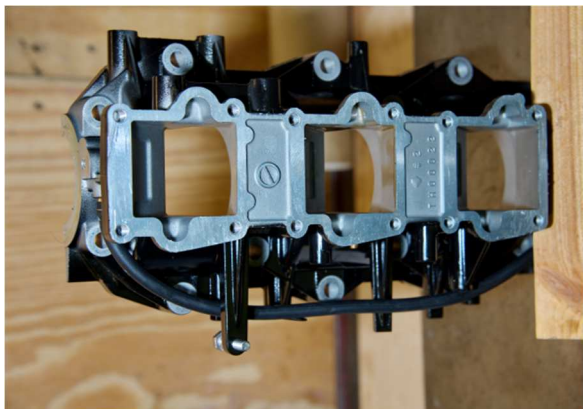
Combustion chamber top cylinder.



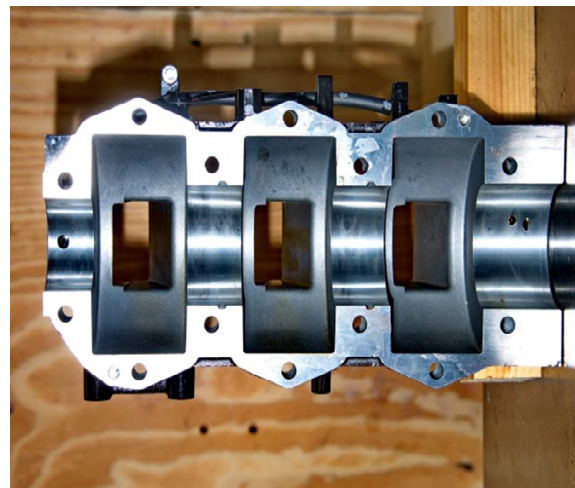
Combustion chamber middle cylinder



Crankcase half reed valve side



Crankcase half – Inlet side



Reed block and reeds



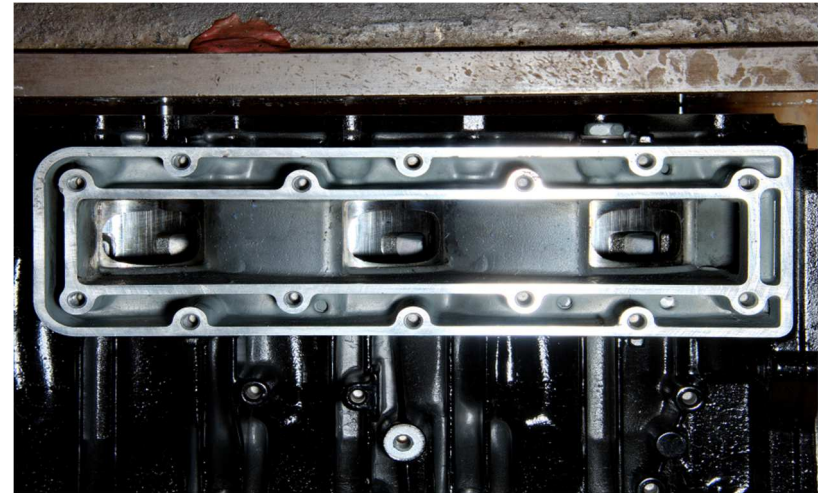
Reed block - Close up



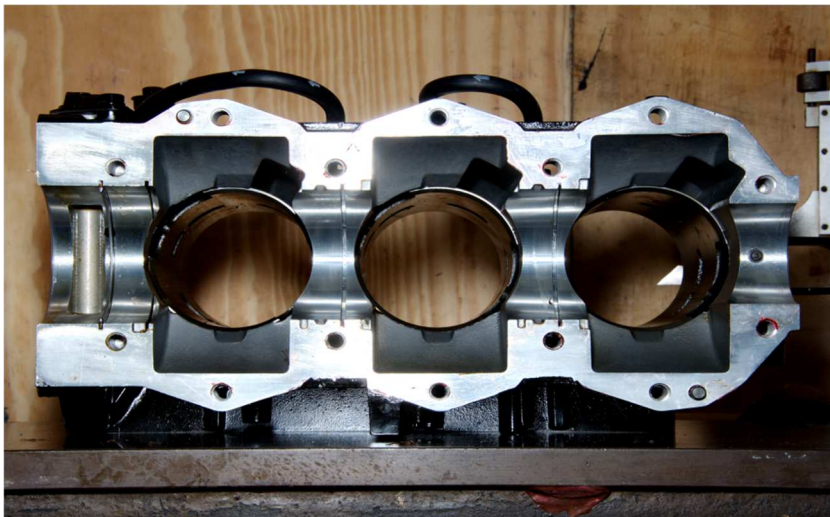
Reed stop measurement.



Cylinder block, showing exhaust port gallery



Cylinder block viewed from crankshaft side



Cylinder block viewed from starboard side



Cylinder block, showing exhaust outlet to mid section



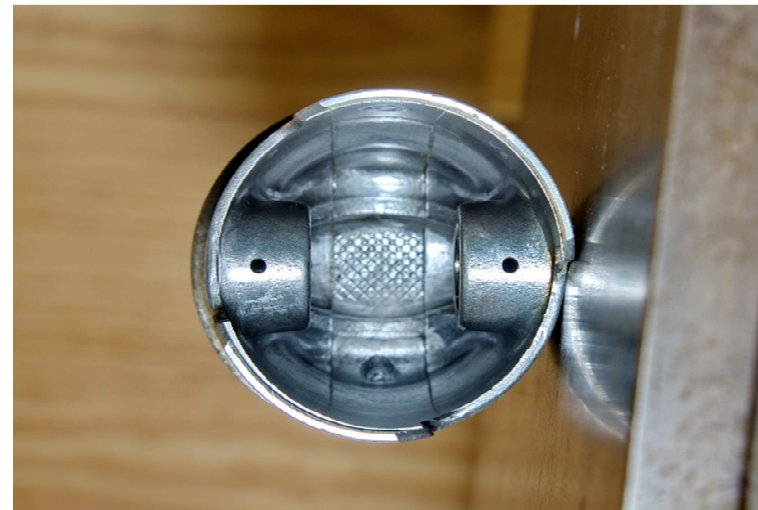
Cylinder bore



Piston viewed from the top



Piston viewed from the bottom



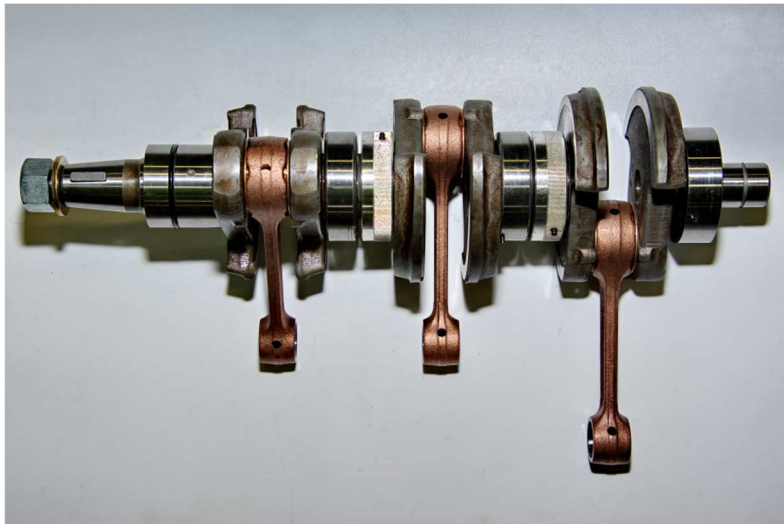
Piston, viewed 45° from the wrist pin.



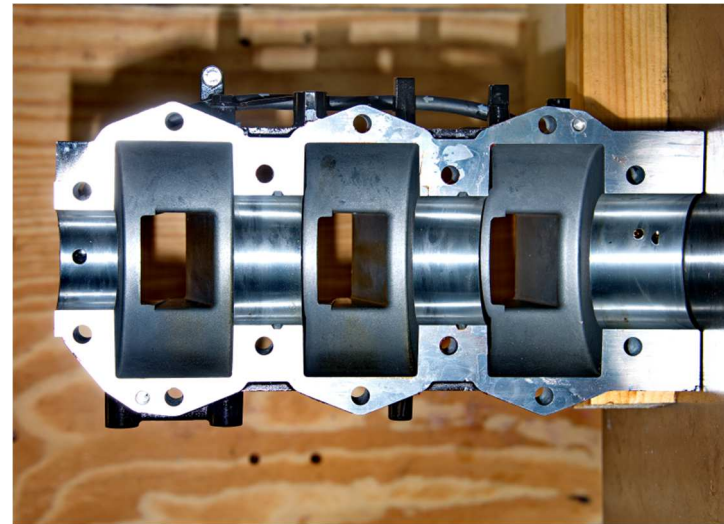
Piston, viewed 45° from the wrist pin.



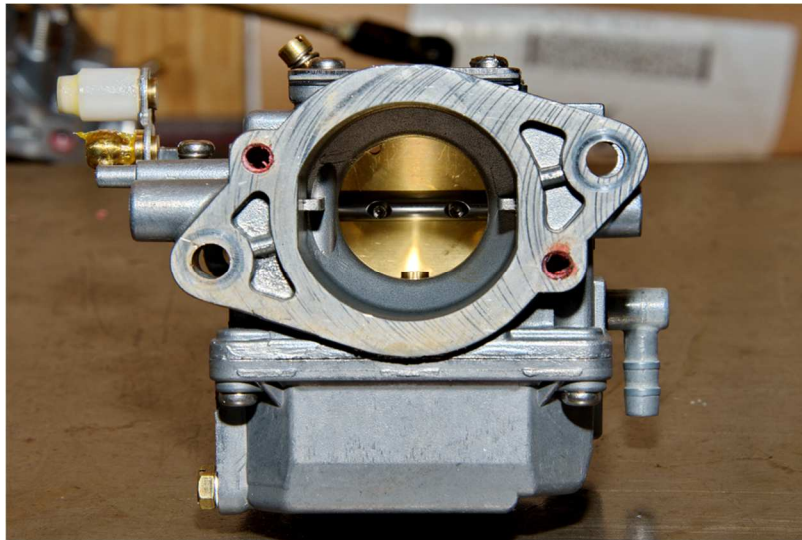
Connecting rod and crankshaft.



Intake plenum



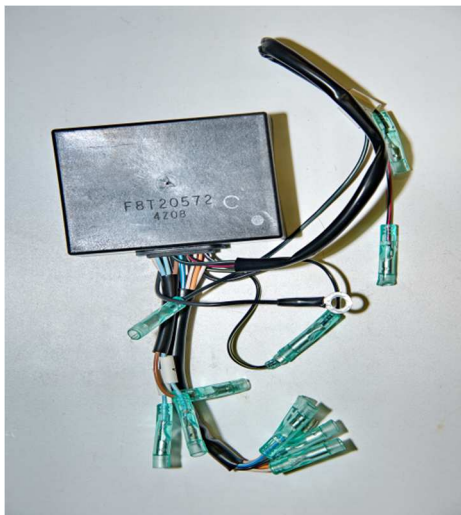
Throttle bore



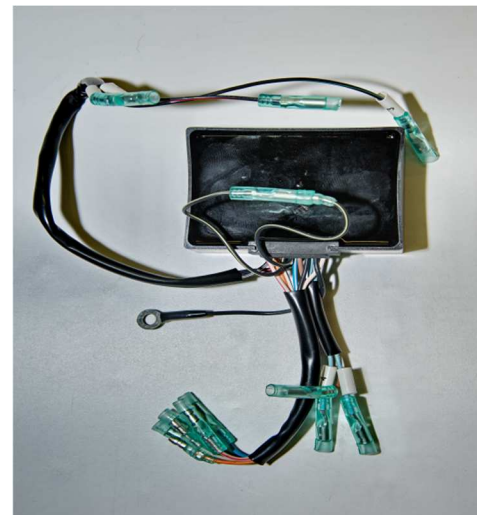
Intake silencer air intakes



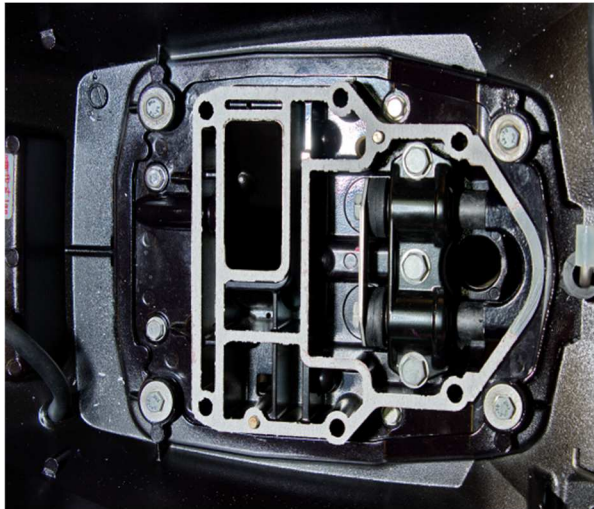
CDI Unit Front.



CDI Unit Back.



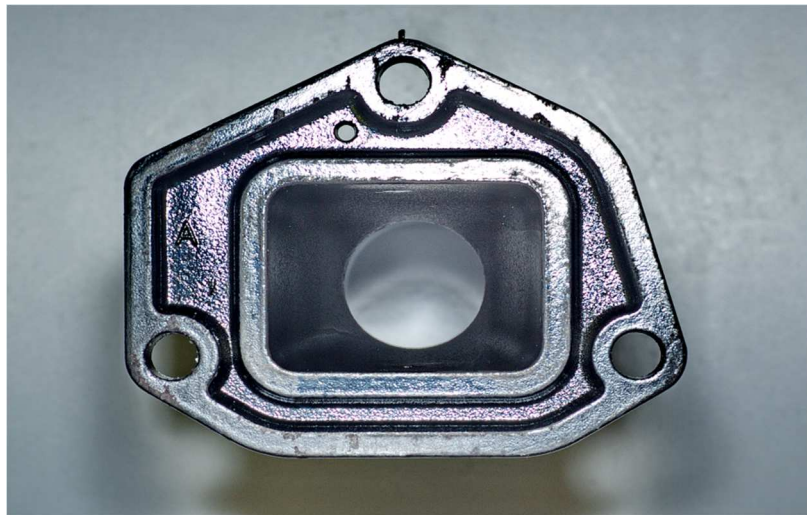
Exhaust plate, viewed from block side



Exhaust tuner



Internal exhaust tuner – viewed from block side



Internal exhaust tuner – viewed from gear case side

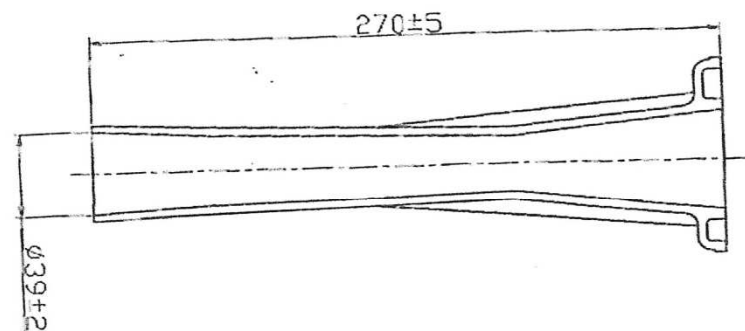


Flywheel – viewed from top side

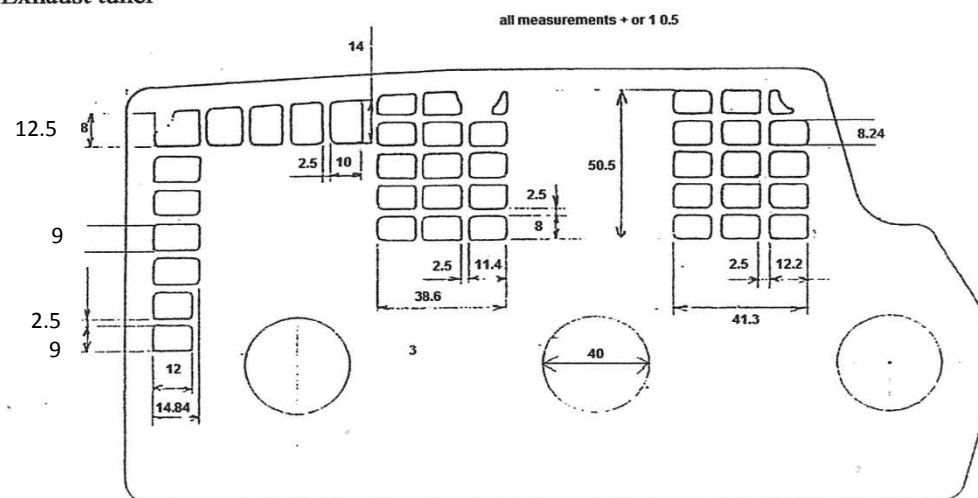


Flywheel – viewed from bottom side



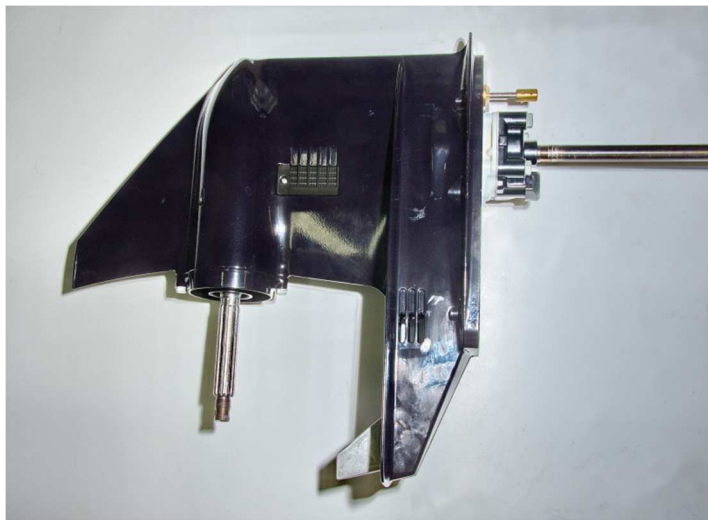


Exhaust tuner



Intake Silencer

Gear house



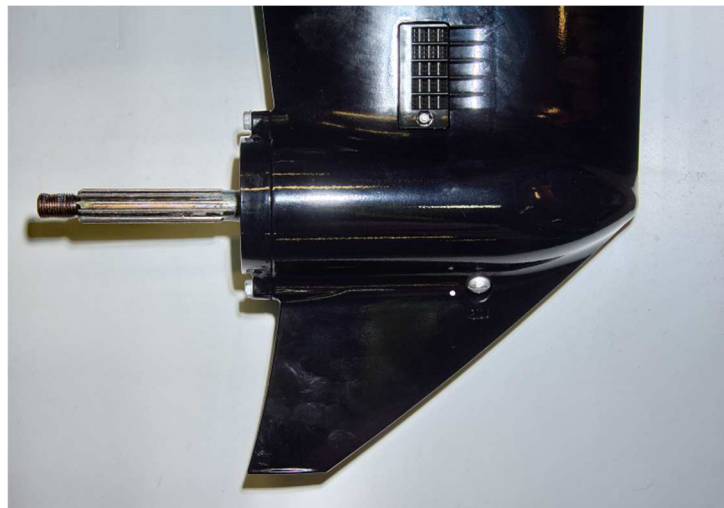
Gear house - Exhaust



Gear house skeg. Port side.



Gear house skeg. Starboard side.



MEASUREMENTS

ENGINE FUEL

Type:	Petrol/Oil Mix
Minimum octane required:	89 RON

ENGINE TYPE

Number of cylinders:	3 Cylinders
Cylinder arrangement:	In Line

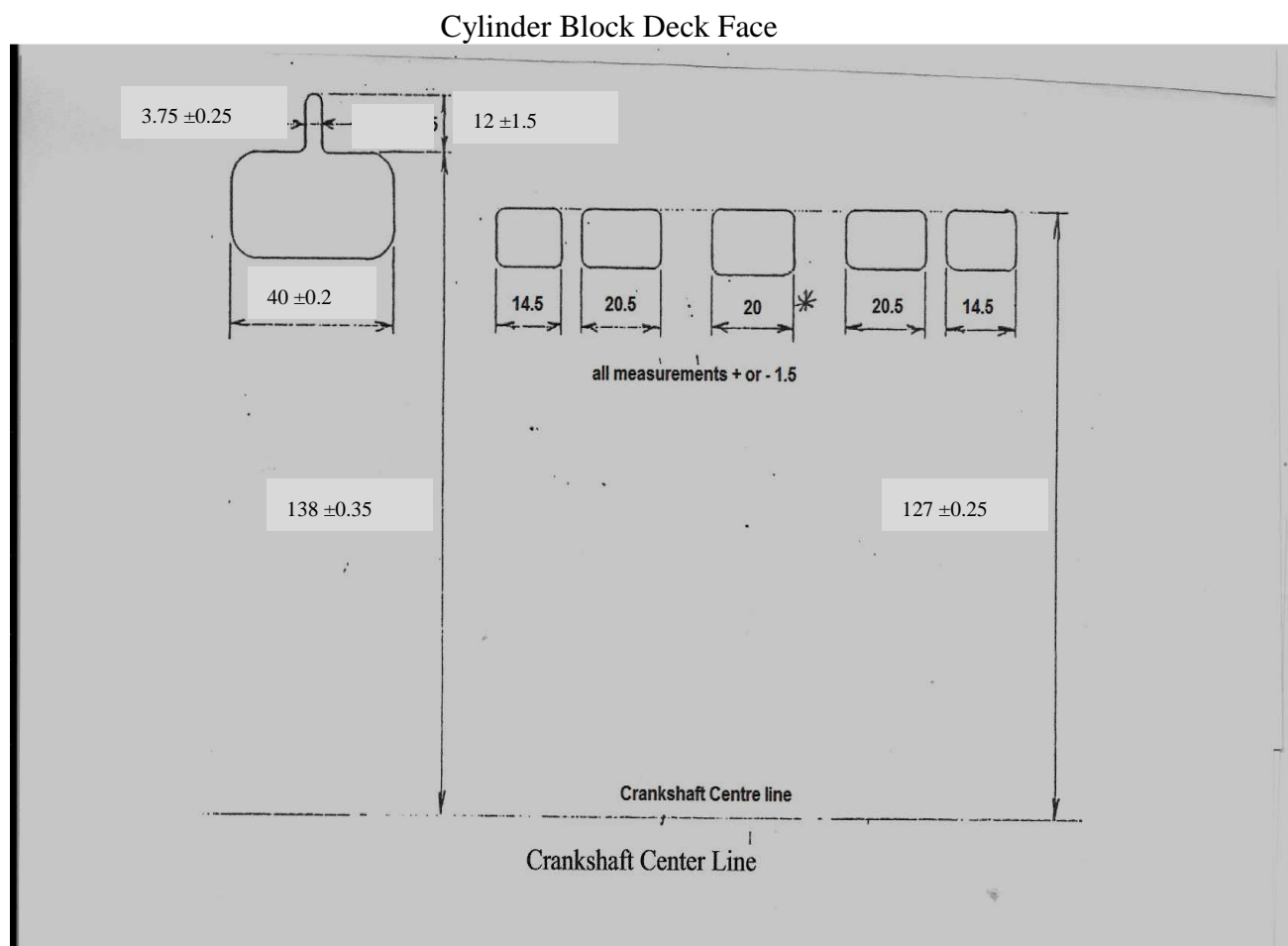
ENGINE MAX ROTATIONAL SPEED

At 5900 rpm, the ECU will reduce rpm to limit rotational speed of engine.

ENGINE BLOCK	Tolerance	Measurement	Unit
Bore	+/- 0.02	68.00	mm
(including any available oversize) 0.5 O/S	+/- 0.03	68.50	mm
Stroke	+/- 0.01	64.00	mm
Capacity per cylinder (including any available oversize)	max	235.86	cc
Total Capacity (including any available oversize)	max	707.55	cc
Cylinder block material		Aluminium Alloy	
Cylinder liner material		Cast Iron	
Distance from crankshaft centreline to cylinder block deck face.	+/- 0.10	180.0	mm
REED VALVE	Tolerance	Measurement	Unit
Reed thickness	+/- 0.02	0.20	mm
Reed lift (stop height)	max	10.00	mm
Reed material		Stainless steel	mm
Number and size of reed ports	max	(4x) 30.0 x 15.0	mm
CYLINDER HEAD	Tolerance	Measurement	Unit
Cylinder head material		Aluminium Alloy	
Volume of combustion chamber with head on engine (without volume of spark plug hole)	min	Cyl. 1 25.2cc Cyl. 2 27.6cc Cyl. 3 25.2cc	
Thickness of cylinder head - Without water jacket cover plate	+/- 0.30	33.7	mm

CYLINDER PORT LAYOUT

All ports have chamfers which extend into the port
Dimensions shown ignore chamfers



All port manufacture to a tolerance of ± 1.5 mm

PISTONS

Material of piston	Aluminium		
Type and thickness of rings	Keystone	1.98	mm
	Rectangular	2.00	mm

CONNECTING ROD

	Tolerance	Measurement	Unit
Length of rod from big end to small end (centre to centre)	+/- 0.05	116.0	mm

CRANKSHAFT

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

TYPE OF BEARINGS

Piston Pin	Caged Needle Roller
Connecting Rod journal	Loose Needle Roller
Main journal	Upper, Needle Roller, Lower, 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	Impeller
Number of impeller blades	6

WEIGHTS	Tolerance	Measurement	Unit
Piston (with rings)	min	240.0	g
Piston Pin	min	55.0	g
Crankshaft (inc Main Bearings, Housings, Seal rings, Rods & Pistons)	min	8 400	g
Flywheel (including starting cup)	min	4 300	g

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

