ORIGINAL

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'93. 4. 27 P1
J.M.B.A.

Union Internationale Motonautique

Monte Carlo, March 29, 1993

Outboard Engine Homologation Sheet No. 00463

International homologation effective from .....

Homologation valid for the following classes .....

.....

Manufacturer TOHATSU CORPORATION

Engine model M 50 D

Number manufactured 1.109 At the date '92.10.-1

Certified by the National Authority of Japan

At the date October 26, 1992 Signature Tsuneo Kaneko

Certified by the U I M At the date 18/2/93

Responsable U I M Homologation Group: Signature .....

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Running production changes:

Change specified on page No.		Approved at the date.	Signature.
Spredout sketch amend. page 5.		November. 11, 1996	
APPENDIX 1	EXHAUST PIPE	26.7.99	U.I.M.
APPENDIX 2	CYLINDER HEAD	26.7.99	

This form issued on January 1, 1988

APPENDIX 1.

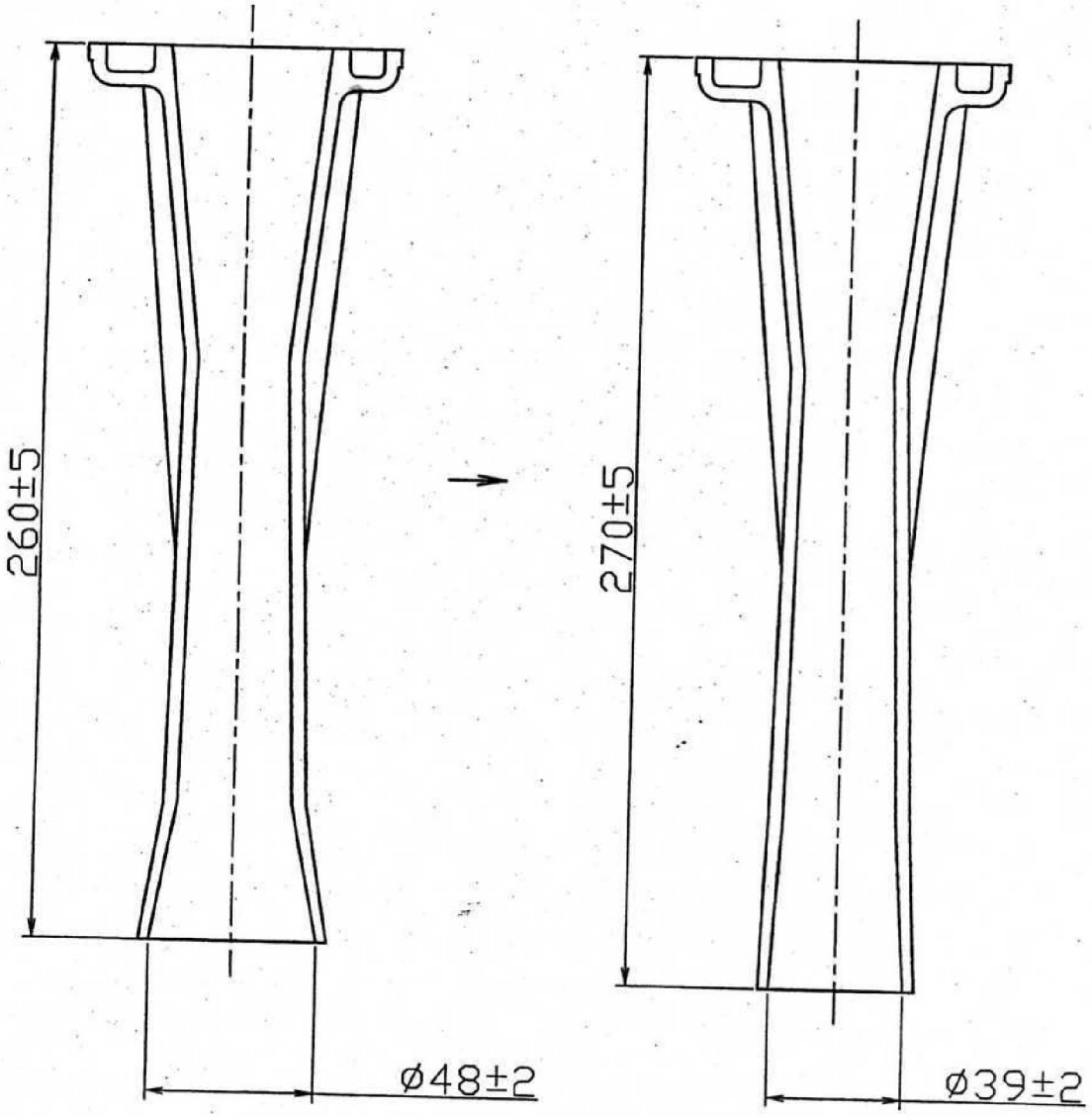
M50D₂ Exhaust Pipe

Size of Exhaust pipe

(DIMENSION mm)

Original Model
M50D

New Model
M50D₂



U.I.M.

DIFFERENCE OF THE SPECIFICATIONS BETWEEN ORIGINAL AND NEW MODELS

TOHATSU CORPORATION 1999-06-15

DIFFERENCE IN DATA					
ORIGINAL ENGINE MODEL	NEW ENGINE MODEL	TRANSOM HEIGHT	SIZE of Exhaust Pipe		VOLUME of Combustion Chamber
			Length	Diameter of tailend	
M50D	M50D$_2$	S L UL	260 mm → 270 mm	ø48 mm → ø39 mm	#1 25.0 cm^3 → 25.0 cm^3 (same sa original) #2 25.0 cm^3 → 26.7 cm^3 #3 25.0 cm^3 → 25.0 cm^3 (same sa original)

U.I.M.

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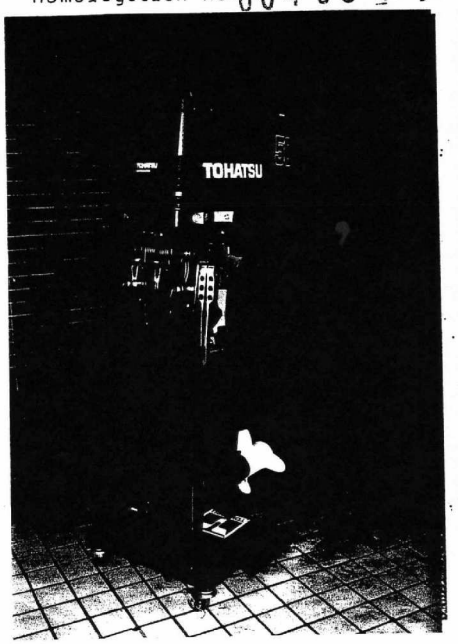
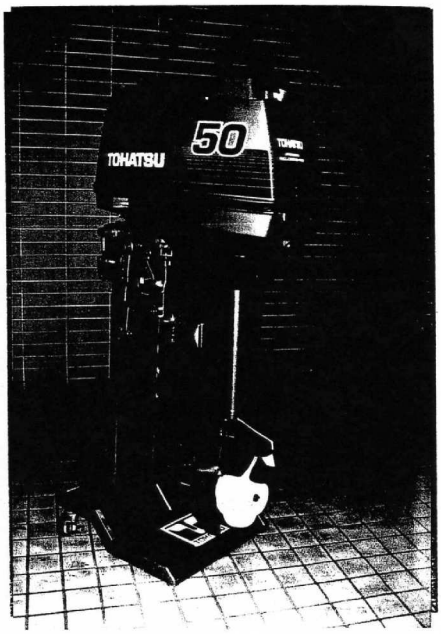
Homologation No. 00463 Engine model M50D





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Homologation No. 00463 Engine model M 50 D 4.(-12)

Photo of the piston from the inside.

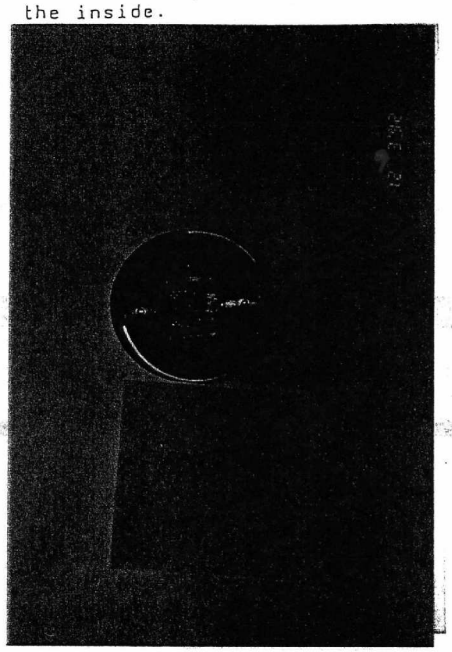
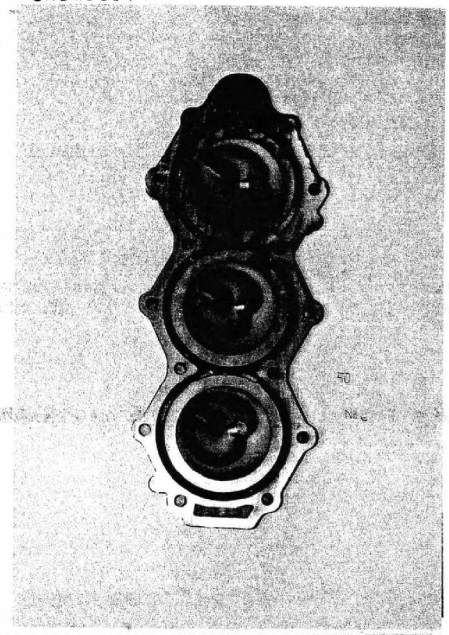
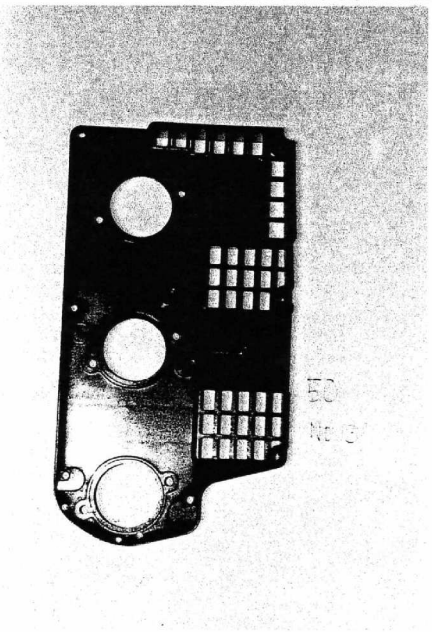
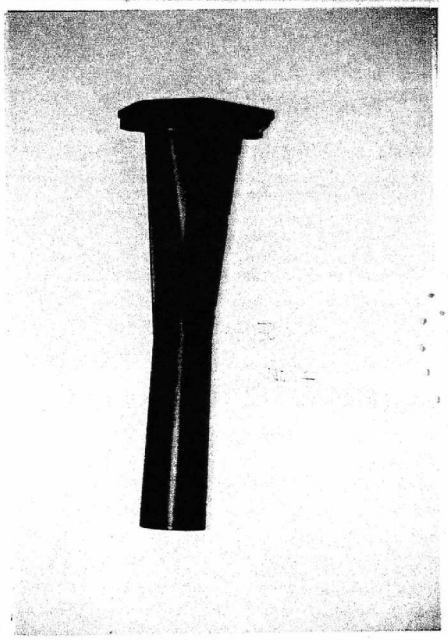


Photo of the combustion chamber.







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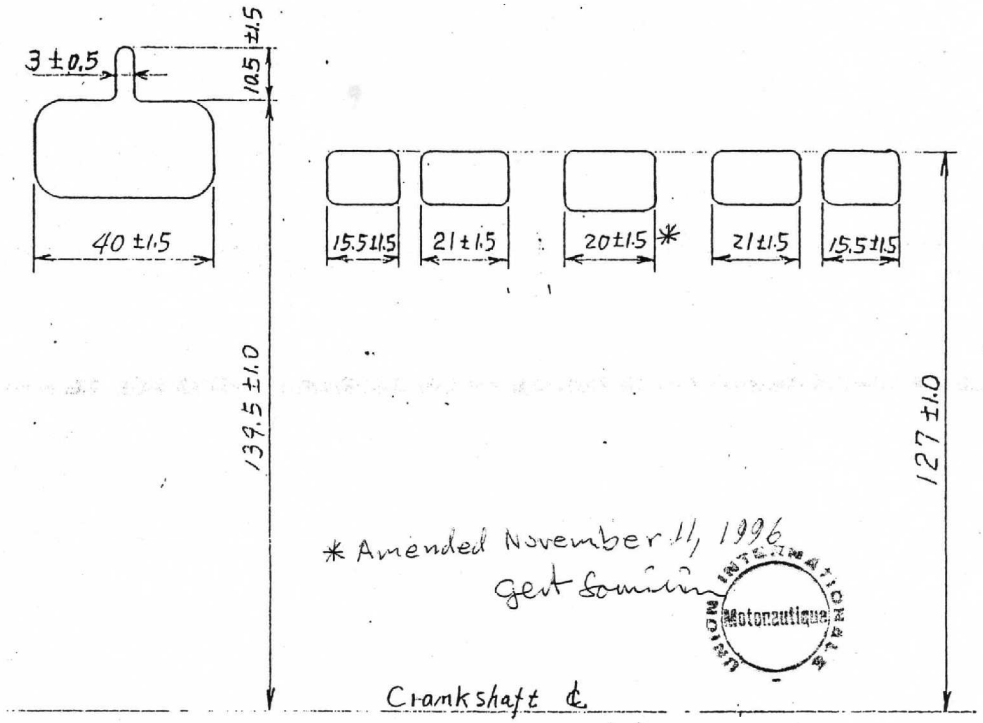
CORRECT

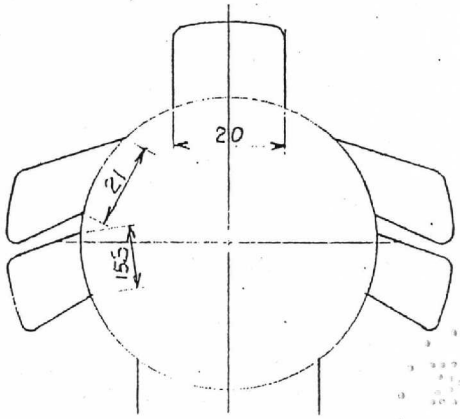
5.(-12)

Homologation No. 0.0463 Engine model .... M 50 D .....

Spread-out sketch of the cylinder-wall with location and dimension measurements of the scavenging ports noted.
- All port width dimensions are chordal measurements.



* Amended November 11, 1996
Gert Somlin



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Homologation No. 00463 Engine model M50D 3.(-12)

Photo of the cylinder block, showing the exhaust mainfold.

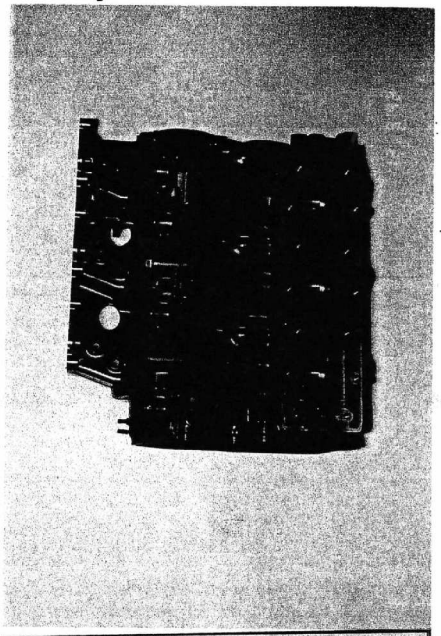
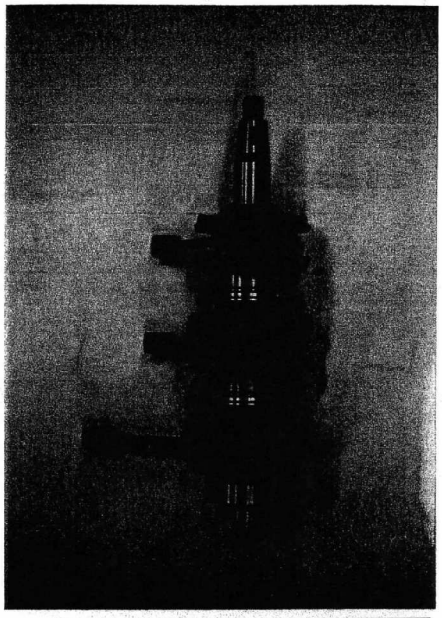
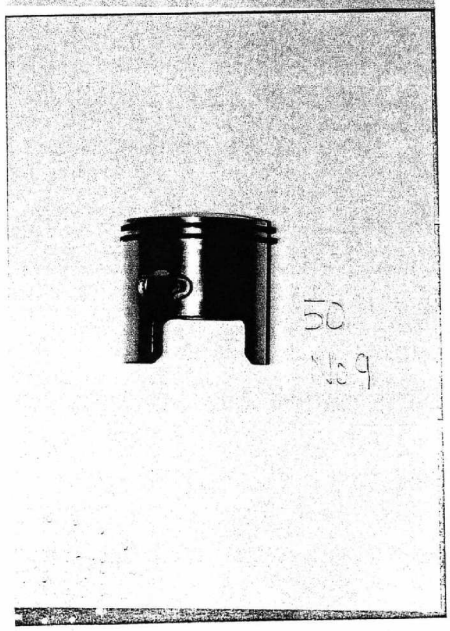
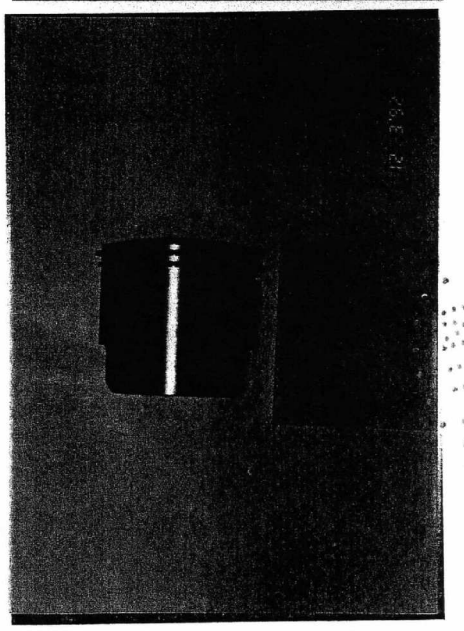


Photo of the crank shaft with connecting rods.







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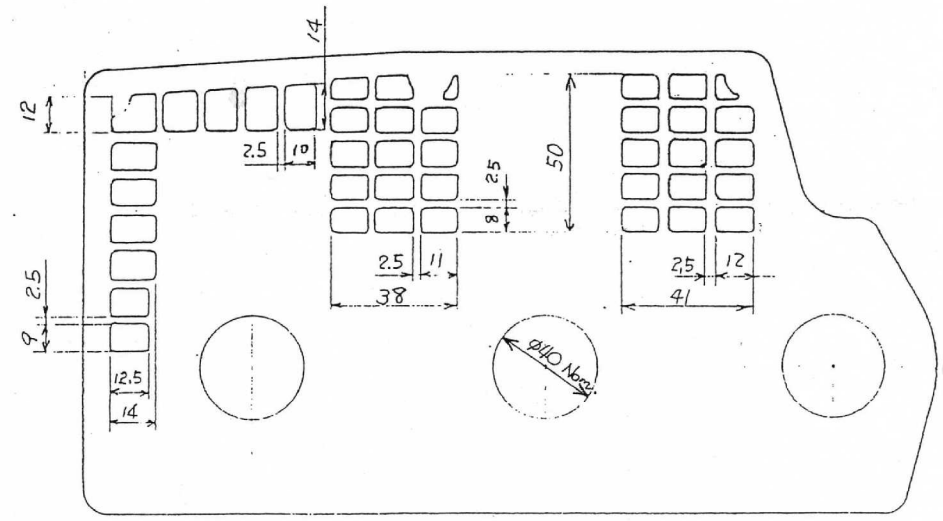
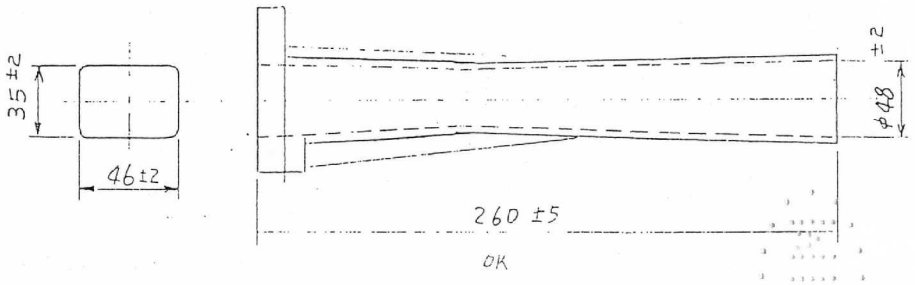
Homologation No. 00463 Engine model M50Đ

Size of inlet of airintake silencer

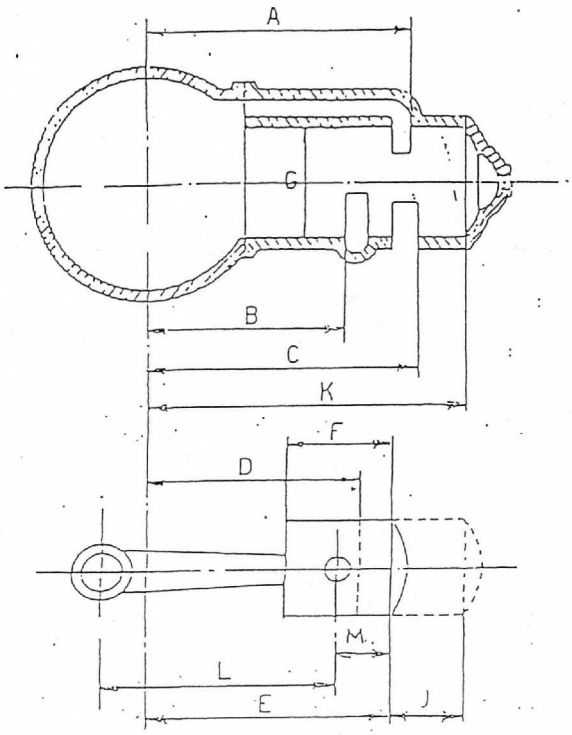
Airintake: All openings ±1.0



Size of exhaust pipe



OK


A
G
B
C
K
F
D
M
L
E
J

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7.1-12.

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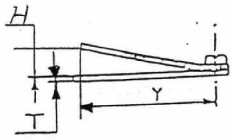
Model . M50D

	Cycle 2 stroke			2 Stroke
	Number of cylinders			3
	Cylinder arrangement			In Line
		Tolerances		
ENGINE	G Bore	± 0.03	mm	68
	J Stroke	± 0.05	mm	64
	Capacity per cylinder	maxim.	cm3	232.8
	Total cylinder capacity	maxim.	cm3	698.4
	Material of cylinder block			Aluminium Alloy
	Material of sleeves			Cast Iron
	Material of cylinder head			Aluminium Alloy
	Thickness of compressed head Gasket	± 0.2		1.2
	Volume of combustion chamber (± volume one spark plug hole when the piston is at top dead center.)	minim.	cm3	25.0
	Material of piston			Alluminium Alloy
	Number of rings & thickness			2 x 2
	Type of ring	Top: Tapered		Bottom: Plain
A	Distance from crankshaft centreline of top edge of transfer ports	± 1.0	mm	127
B	Distance from crankshaft centreline to lower edge of inlet ports	±	mm	~~0~~
C	Distance from crankshaft centreline to top edge of exhaust ports	± 1.0	mm	139.5
F	Thickness of piston (less baffle = at port opening corner.)	± 0.4	mm	67
K	Distance from crankshaft centreline to top face of block at centreline of cylinders.	± 0.2	mm	180
L	From big end centreline to crosshead end centreline of connecting rod	± 0.05	mm	116
H	Distance from the gudgeon pin centreline to the top of the piston (= port opening corner)	± 0.2	mm	32
	Number and size (=) of inlet ports 1.0 from cylinder wall	±	mm	
	Number and size (=) of exhaust ports 1.0 from cylinder wall	± 1.5	mm	1 x 40 x 20
	Number and size (=) of transfer ports 1.0 from cylinder wall	± 1.5	mm	1 x 20 x 20 2 x 21 x 20 2 x 15.5 x 20

00463



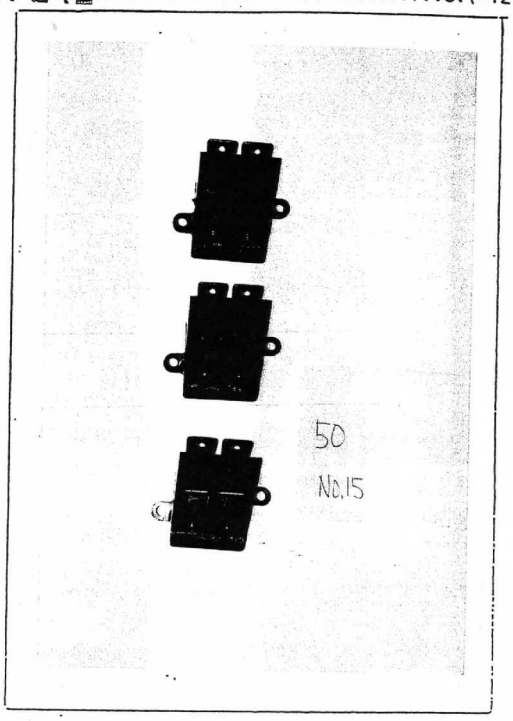


Photo of the complete rotary valve arrangement

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9.(-1

Reed valve	T Reed Thickness	Tolerances ± 0.02		0.20
	H Lift	± 0.7	mm	9.3
	Y Reed Material / Checking distance	± 0.5	mm	Stainless Steel / 35.3
	Number and size of inlet ports	± 0.5		4 Ports
	Reed valve design, see photo on page 8			30 × 15
Rotary valve	d Diameter of disc	±		
	Valve opening time before TDC	±	°	
	Valve closing time after TDC	±	°	
	Dimension of intake opening in cylinder block or crankcase	±	mm	
	Rotary valve design , see photo on page 8			
	Valve Material			
Weight	Piston with rings, wrist pin and fastenings	minim.	gr	290
	Connecting rod with bearings in both ends and thrust washers	minim.	gr	253
	Flywheel with rotating attachments	minim.	gr	4000
	Crankshaft with connecting rods	minim.	gr	7000
Carburettors	Number fitted			3
	Type			TEIKEI
	Total number of Venturis			3
	Diameter of Venturis	± 0.5	mm	26
	Diameter of Throttle Housing	± 0.7	mm	32
	Airintake silencer standard equipment, dimensions marked on page 4			(Yes) . . No
Injection	Make			
	Type of pump			
	Number of injectors			
	Type of injectors			
	Number of Throttle Bores & Diameter			

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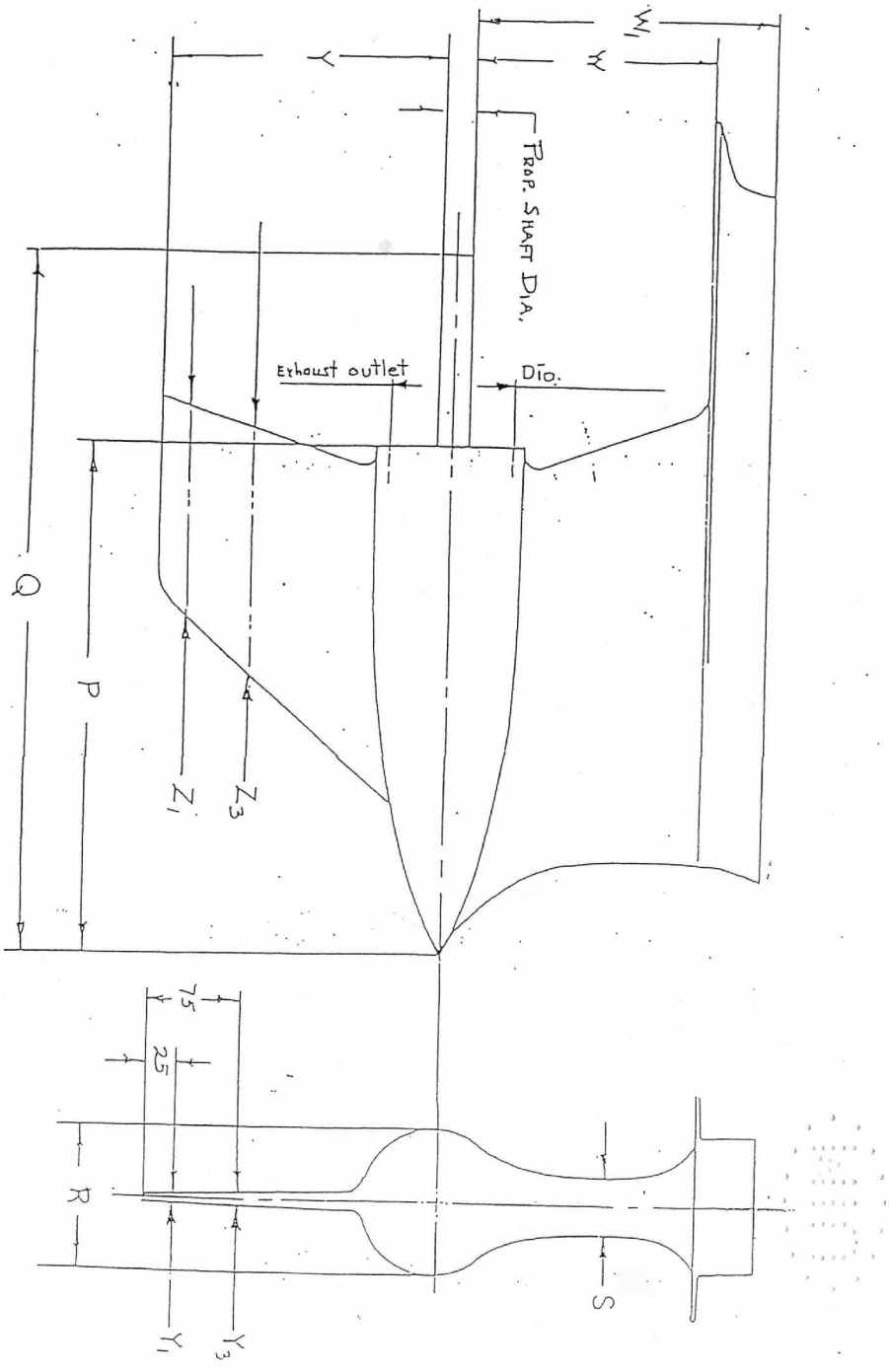
Homologation No. 00463 Engine Model M 50 D 10.(-12)



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Homologation 00463 Manufacturer ..... Model M50D

11.(-12)

		Tolerances		
Ignition	Type ALTERNATOR DRIVEN CAPACITOR DISCHARGE			Flywheel Magneto CDI
Cooling	Type			Water
	Method			Direct
	Pump			PDR
	Number of pump rotor blades			6
Exhaust system	Where are the exhaust outlets located?			Through Prop
	Dimension of exhaust outlets			I.D / O.D
	Exhaust outlet dia. in the rear end of torpedo	± 2.0	mm	44 / 72
	Internal exhaust pipe standard equipment ..... Dimensions marked on the picture page 4	± 2.0	mm	81
				(Yes) ... No
Supercharger	Type			
	Gear ratio			24:13
Underwater unit	P Longitudinal length of gear case torpedo	± 5	mm	246
	Q Longitudinal dimension of gear case including the propeller shaft	± Max	mm	369
	R Transversal dimension of gear case	± 3	mm	87
	S Thickness of union leg	± 2	mm	40
	Z_1 Skeg chord length, 25mm above bottom	± 2	mm	80
	Z_2 Skeg chord length, 75mm above bottom	± 2	mm	132
	W_1 Distance from propellershaft to the upper flange	± 5	mm	237.5
	W Distance from propeller shaft to anti-cavitation plate (see sketch page 10)	± 5	mm	152
	Y_1 Thickness of skeg, 25mm above bottom	± 1	mm	4.5
	Y_2 Thickness of skeg, 75mm above bottom	± 1	mm	6.0
	Y Skeg depth from propeller shaft	± 5	mm	156.5
	Dia of propellershaft ~~bearing & seal retainer only required for gearcase without propeller~~	± 0.5	mm	21