

Two Stroke Outboard
Petrol Engine

EPA/CARB
CERTIFIED



International Homologation File Number: 00518

Homologation Valid from: 1st April 2006

Expiry: 31st December 2025

Valid for the following classes:

CIRCUIT: S3000, Endurance Cat Class 3, V Boat
Class 2, Pneumatic Class 5.

OFFSHORE: 3S/3S EPA/CARB (single)

Manufacturer: Mercury Racing

Engine Model: Optimax 300XS

Number Manufactured: 250+

At the date: 31st March 2006

EPA Cert: M9X-MSI-06-15

CARB Cert: U-W-001-0125

Certified by the National Authority of: U.S.A. (APBA)

At the date: 31st March 2006

UIM Homologation Group Inspector: Roger Trotman

At the date: 15th March 2006

UIM Certification Approval: Union Internationale Motonautique

At the date: 31st March 2006

Running Production Changes

Change Detail

Page No.

Date Approved for Use

Approved by

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Complete engine port rear view.

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Petrol Engine

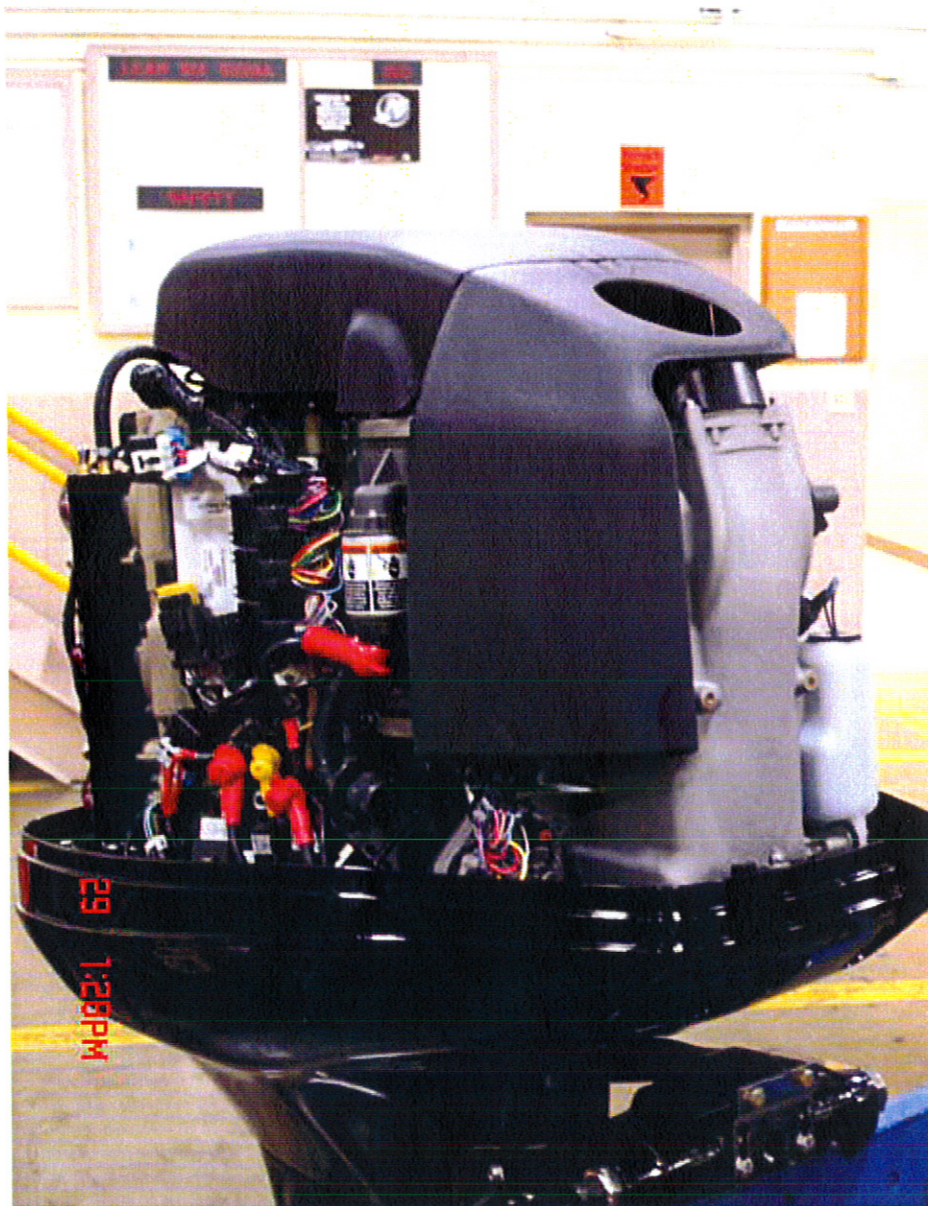
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Complete engine port front view.

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Powerhead starboard front view showing extra air intake hole in sound attenuator

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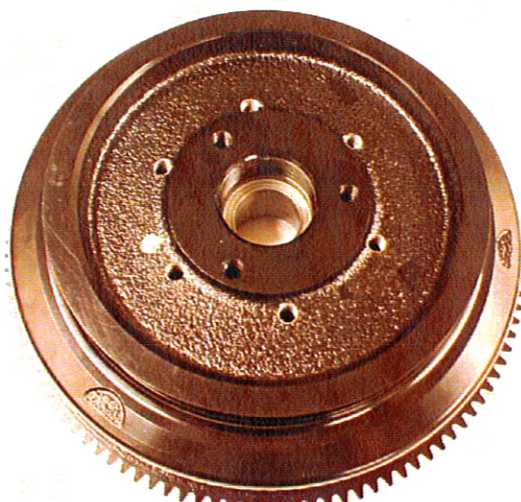
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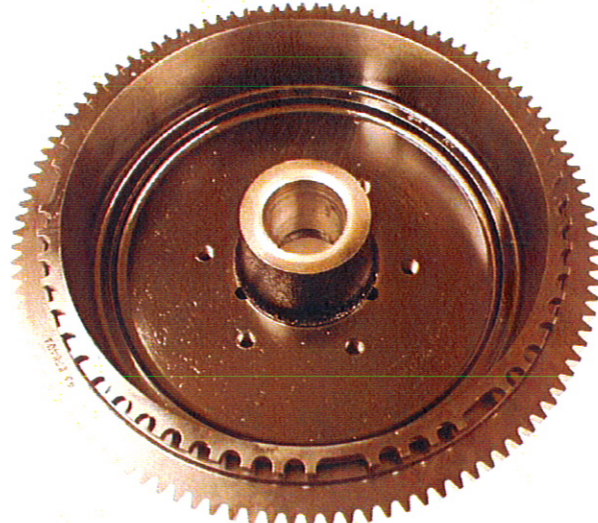
Powerhead (port rear)

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Flywheel Upper View



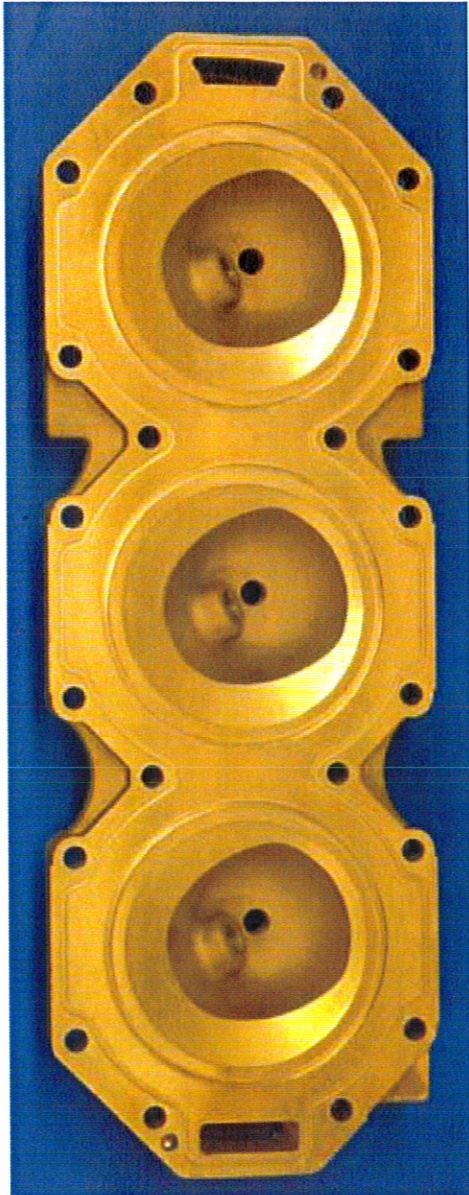
Flywheel Lower View



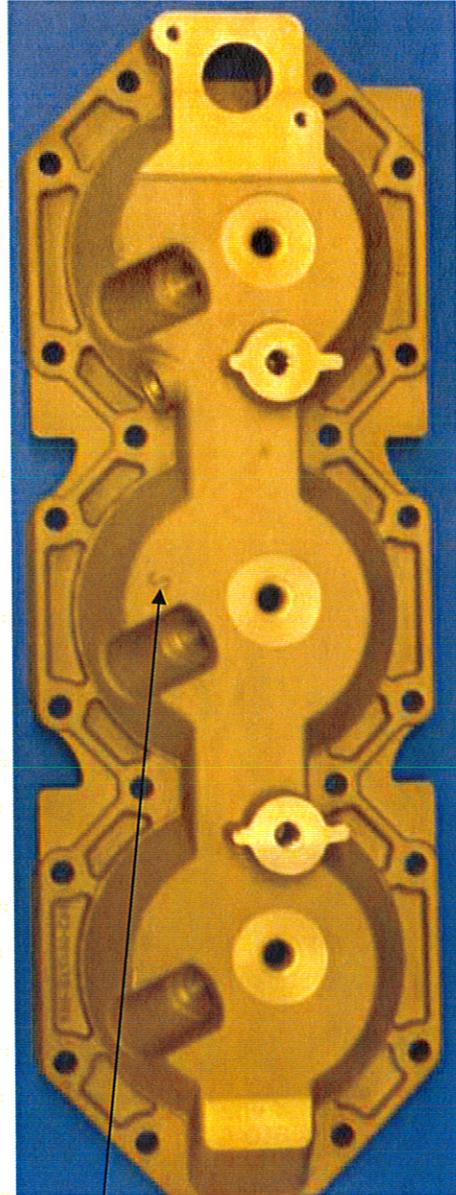
Harmonic balancer (fitted internally to flywheel)

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Port Cylinder Head (inner view)



Starboard Cylinder Head (outer view)

Note: Cylinder heads are handed Port & Starboard

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Cylinder Block Port Rear

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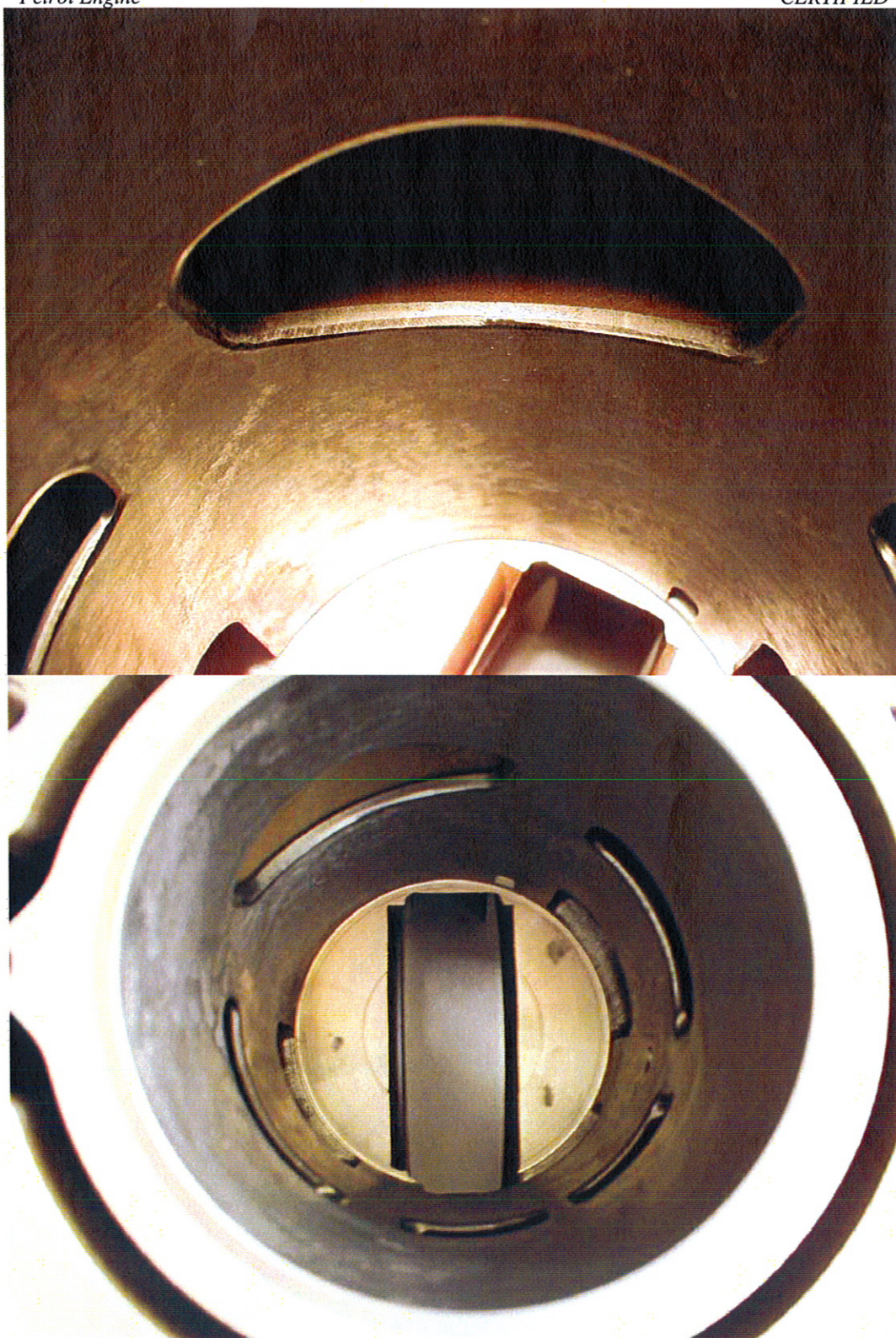
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Cylinder Block Starboard Front

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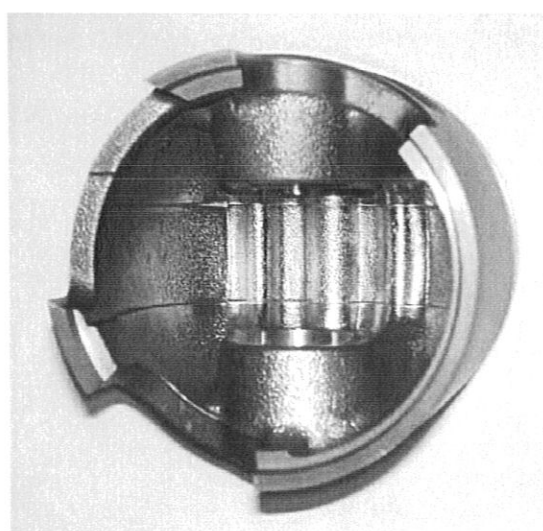
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Cylinder Port Layout

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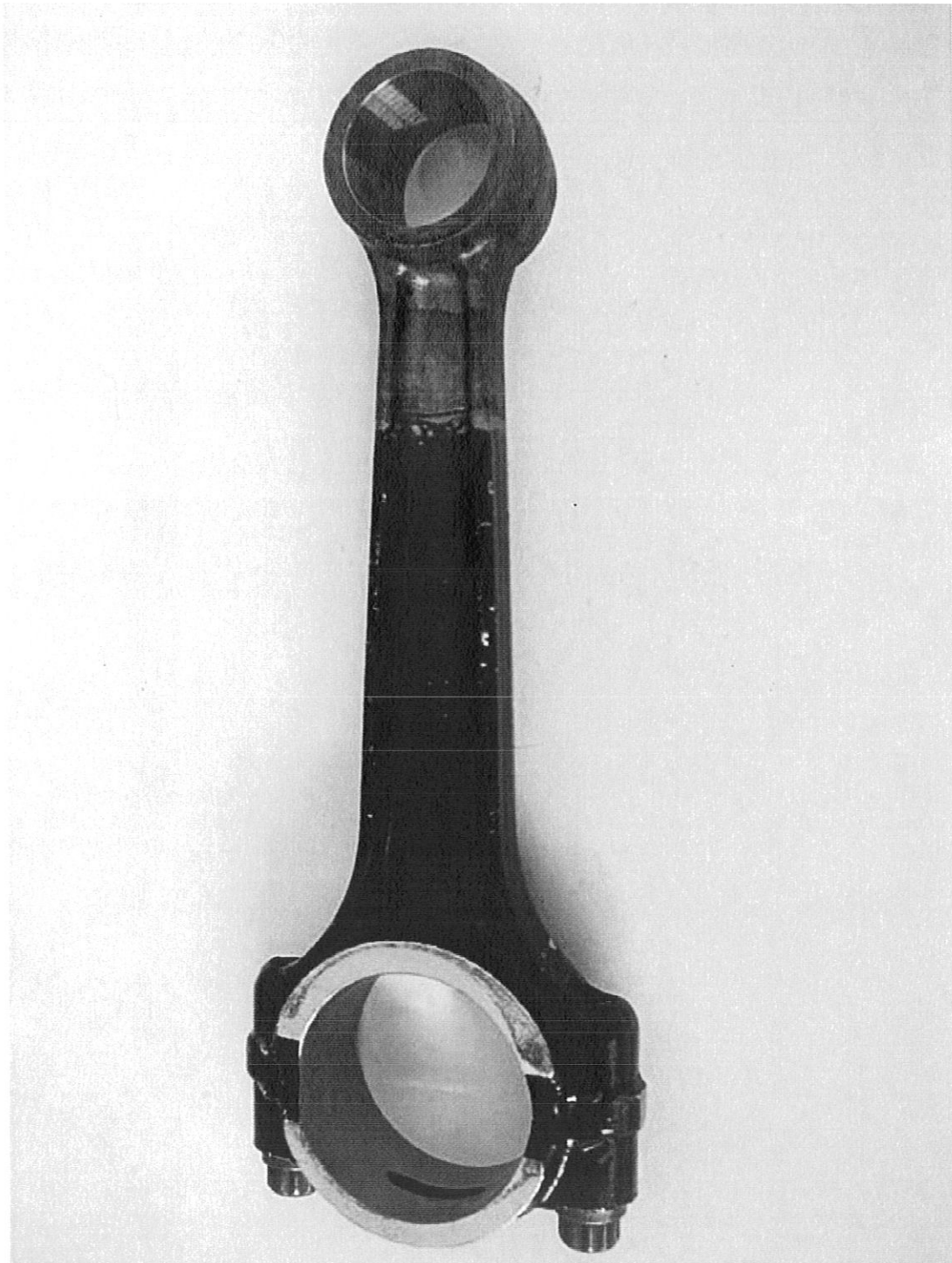
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Piston (views)

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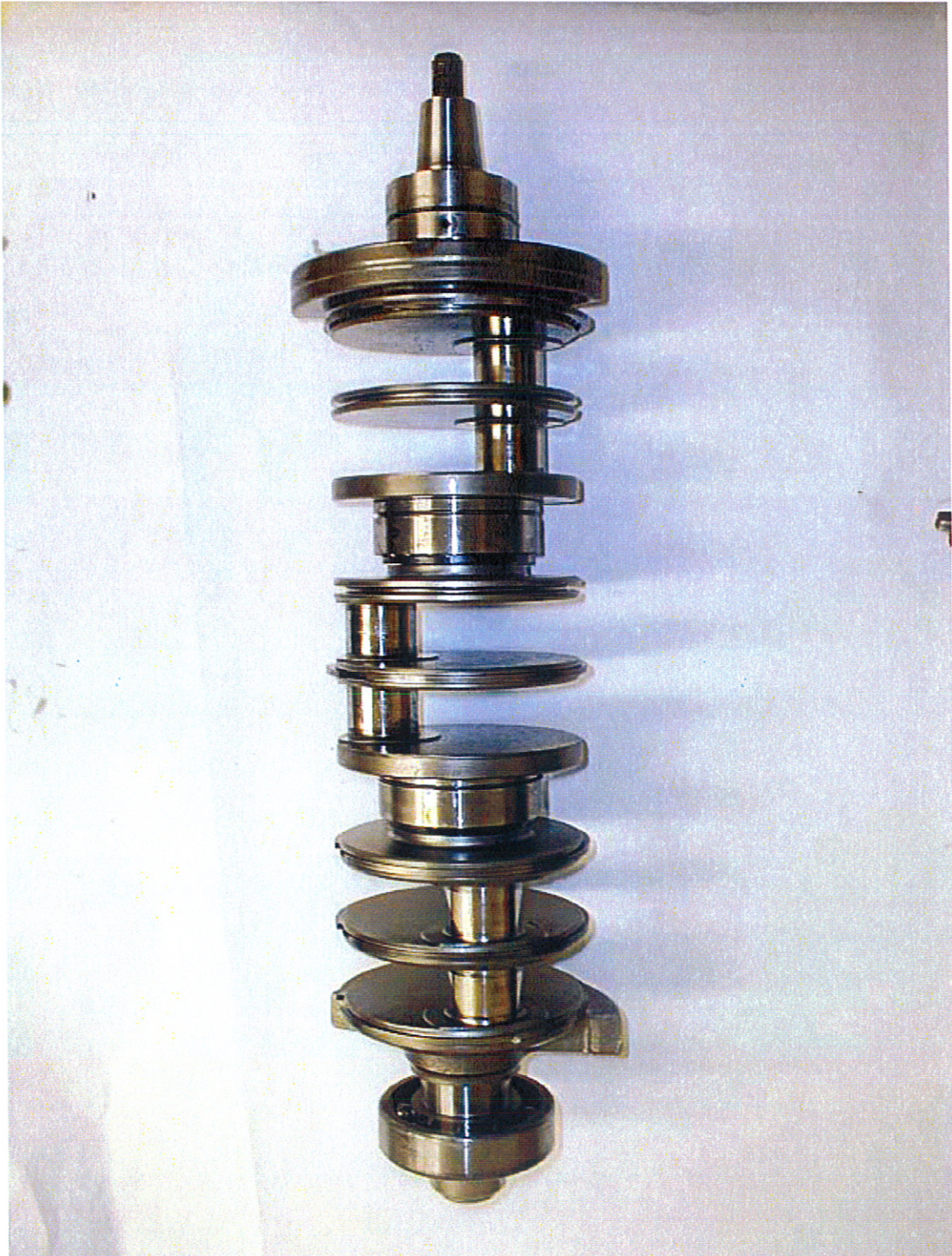
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Connecting Rod

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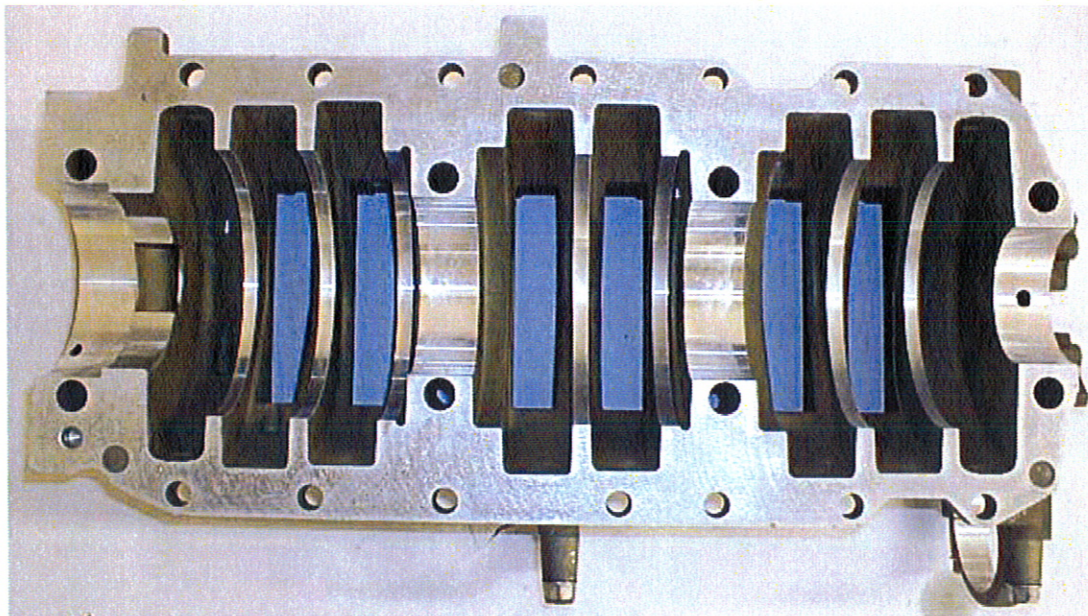
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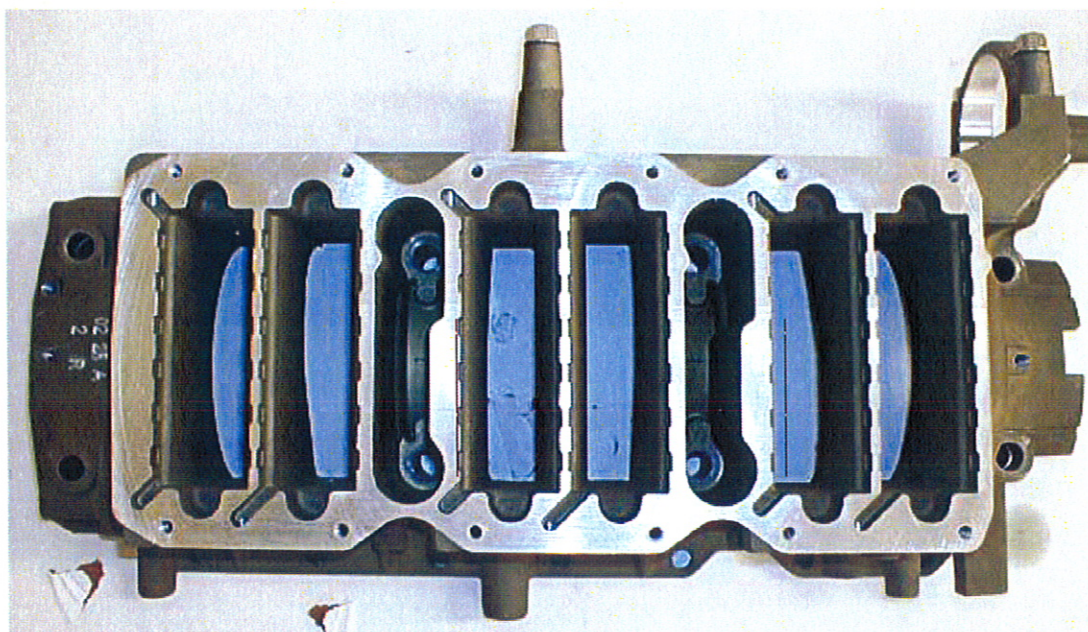
Crankshaft Assembly

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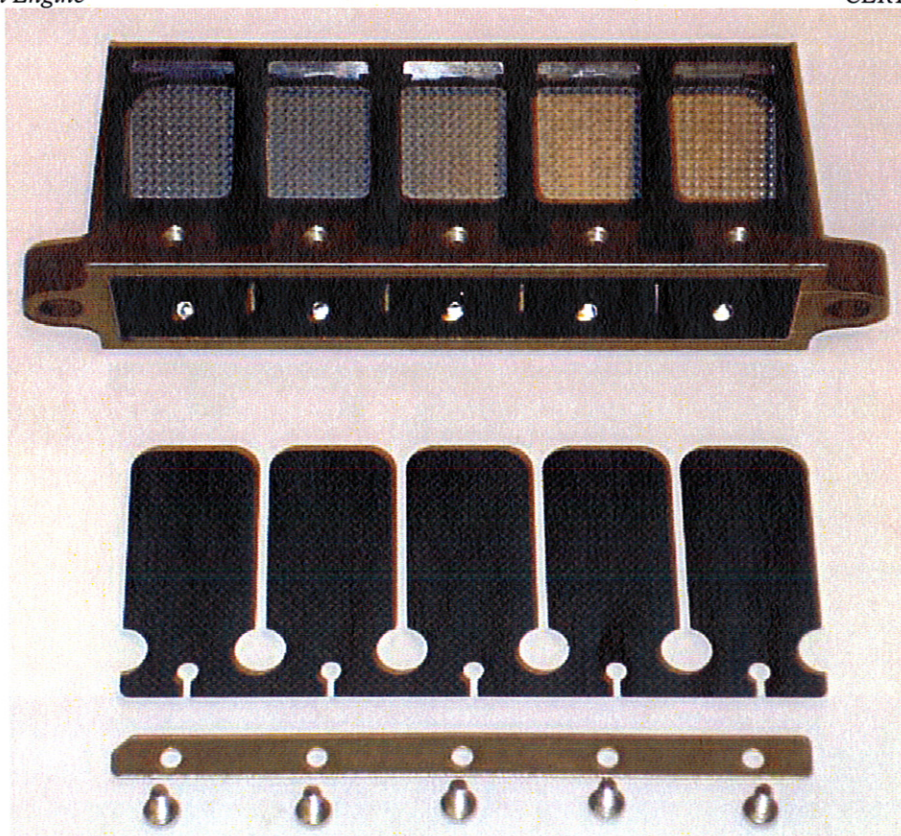
Crankcase Half (Inner View)



Crankcase Half (Outer View)

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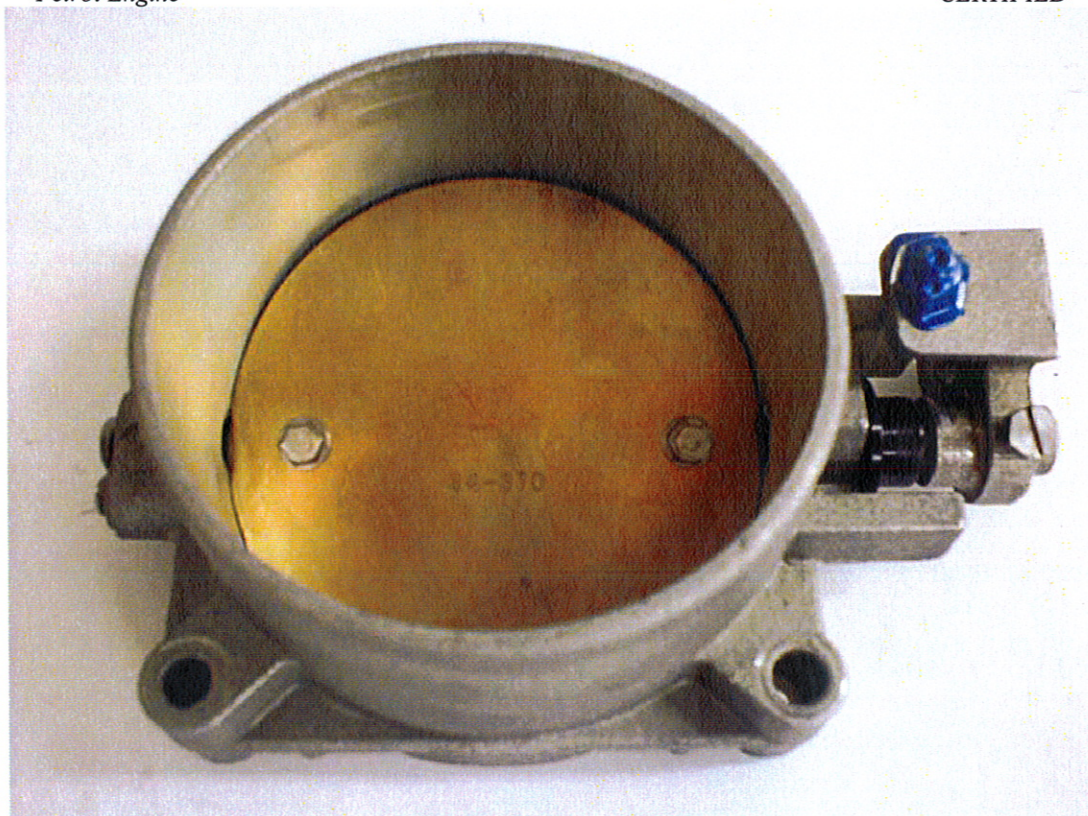
Reed Cage Assembly



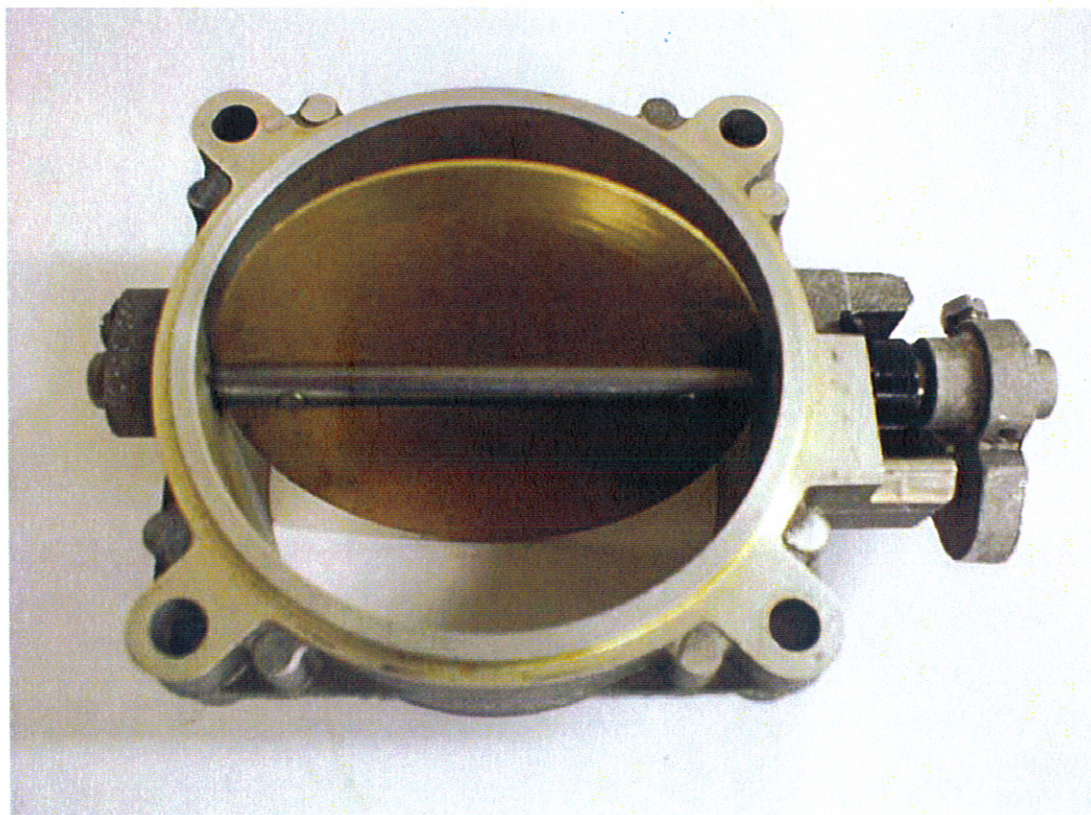
Sound Attenuator showing extra intake hole.

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Throttle Body (outer view)



Throttle Body (Inner View)

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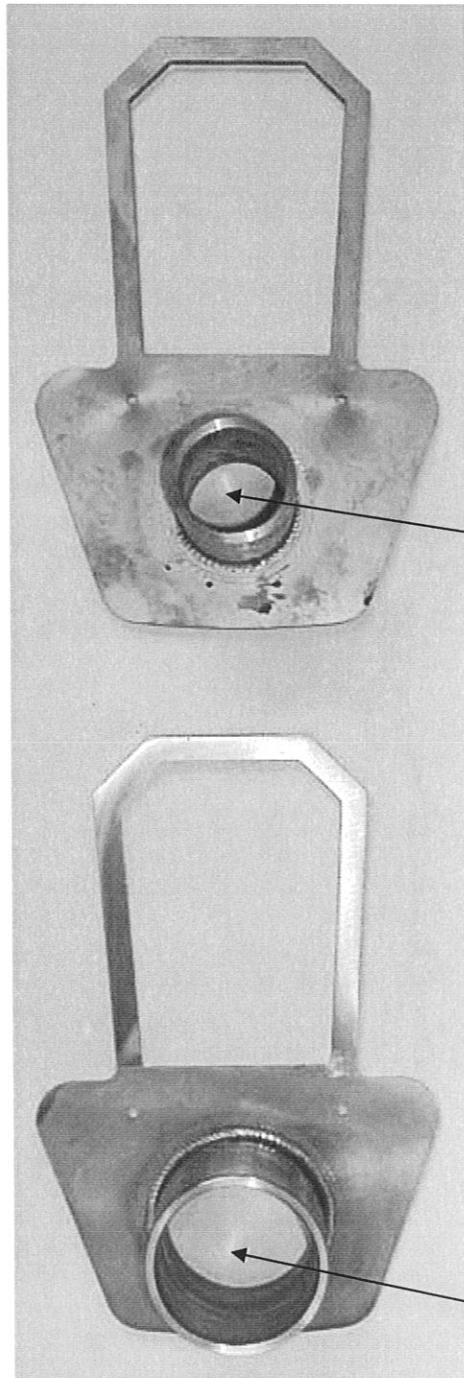
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Exhaust tuner & muffler showing specific fabrication detail

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25/30" models

28.70mm
Internal
Diameter

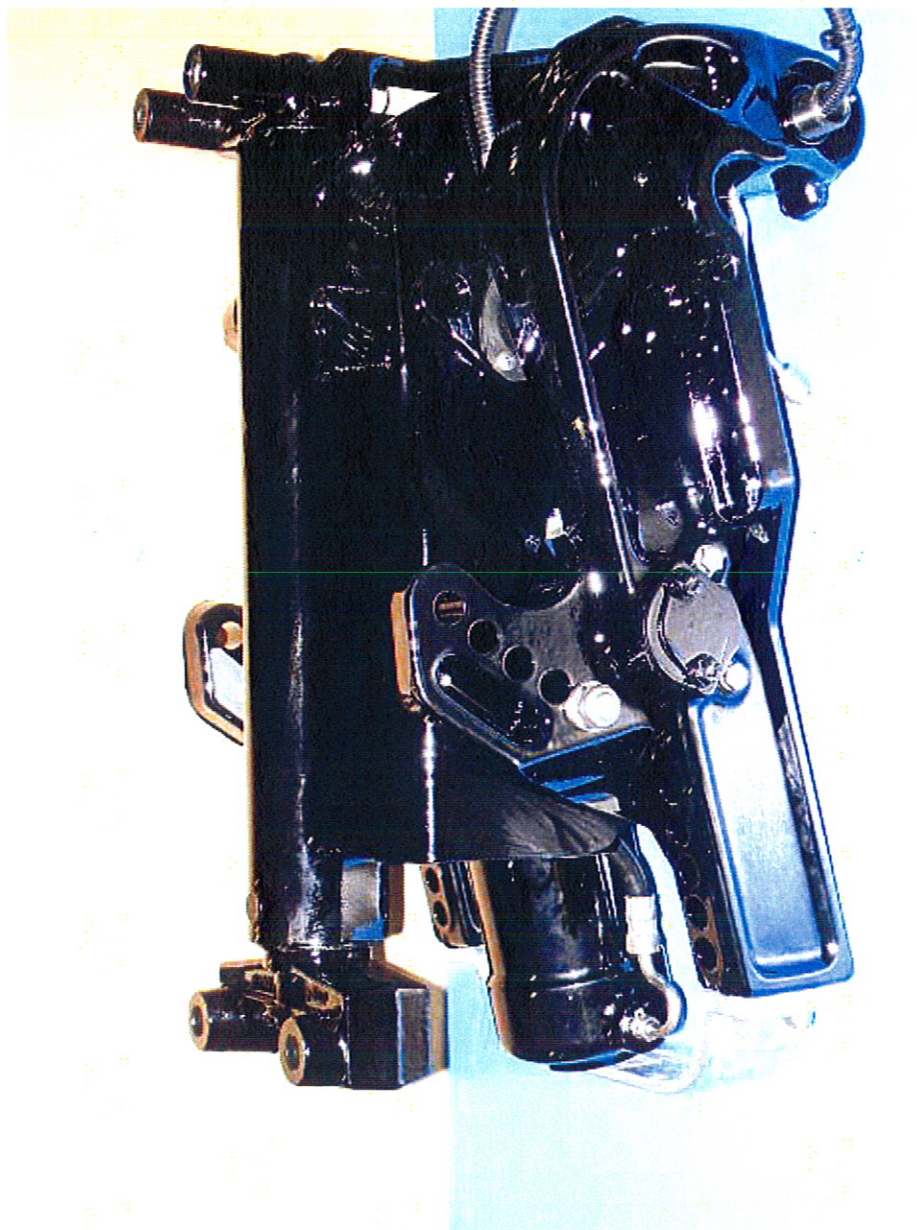
20" models

44.45mm
Internal
Diameter

Exhaust Insert Tube Restrictors
Upper 25/30 inch models.
Lower 20 inch models.

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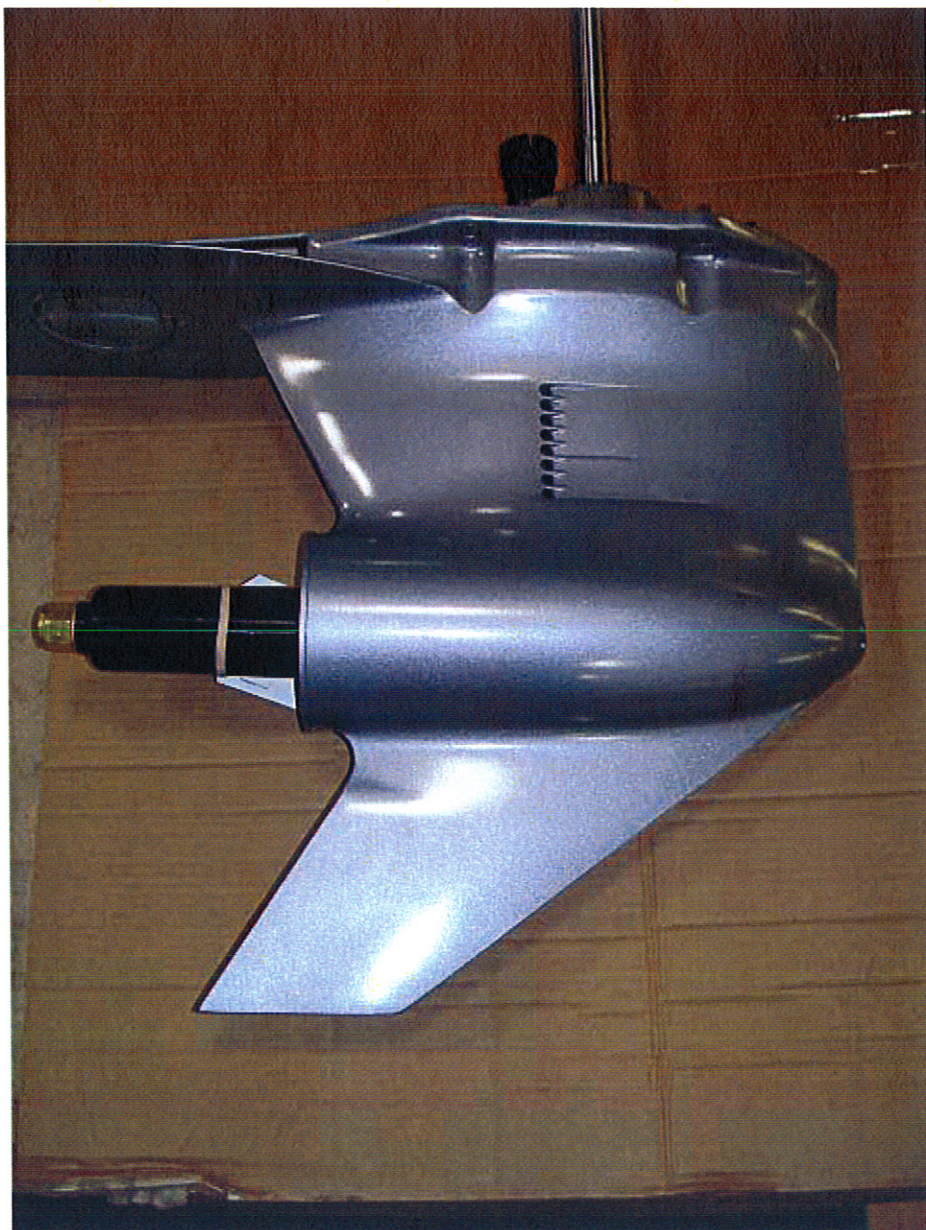
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Heavy Duty Transom Assembly

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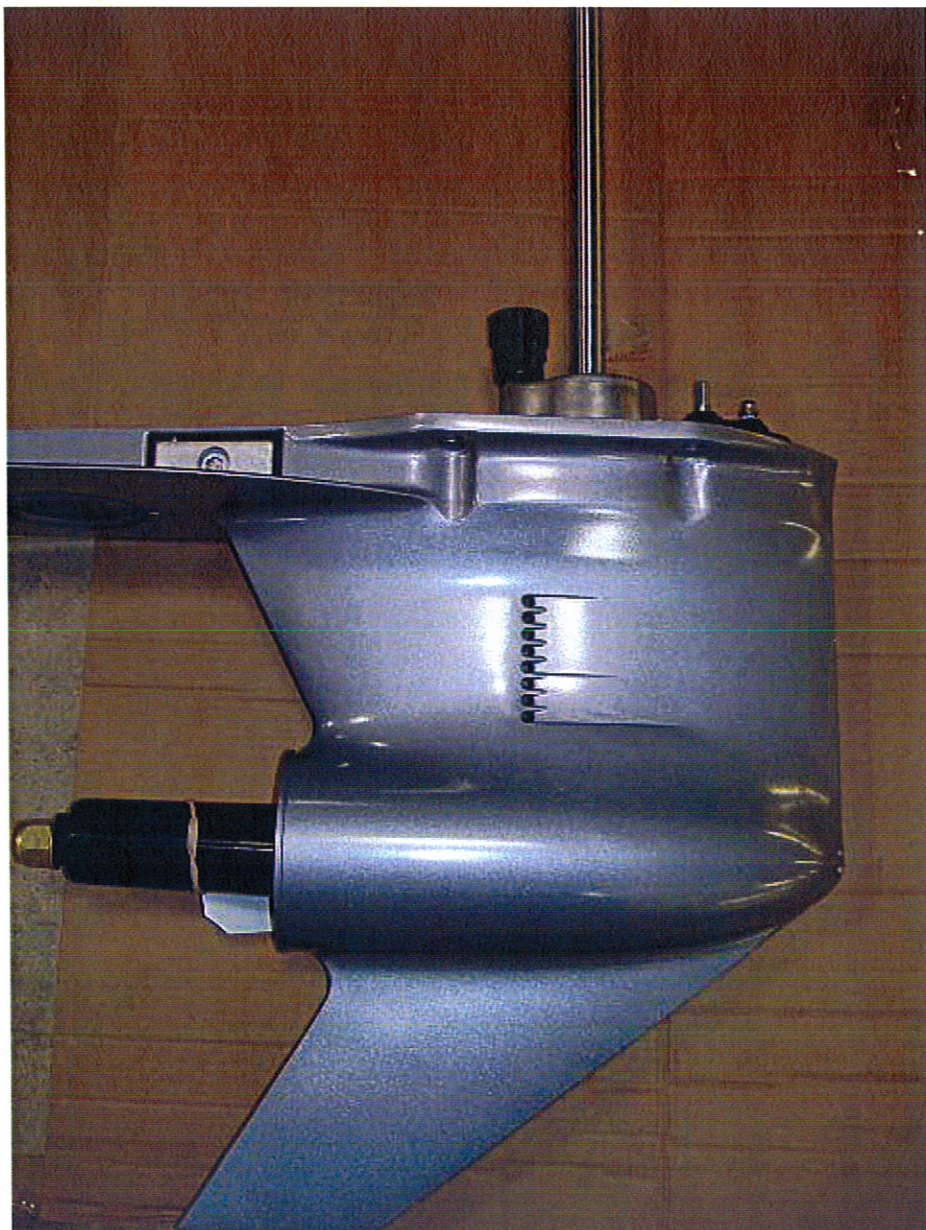
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Torquemaster gearcase

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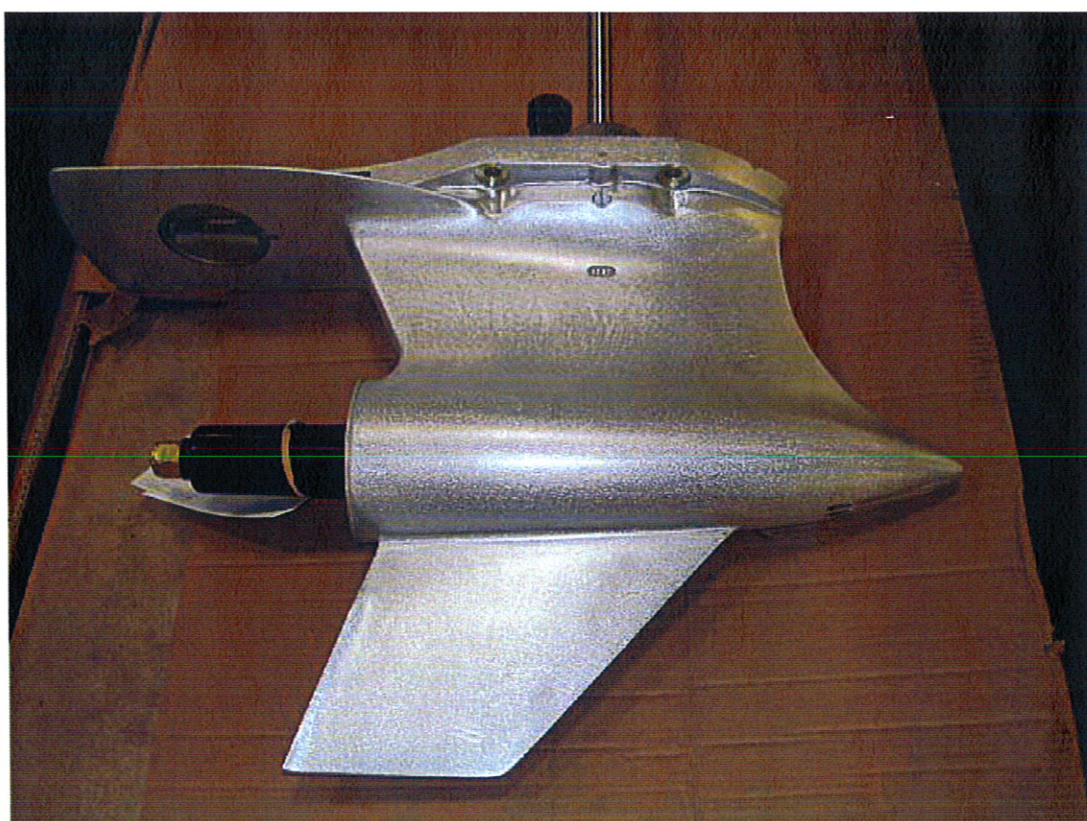
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Fleetmaster gearcase

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Sportmaster gearcase

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ENGINE FUEL

Type: *Petrol*

Minimum octane rating: *91 RON*

ENGINE RPM MAXIMUM (as declared by manufacturer) *6400 RPM*
Sustained use of 6300+rpm will result in electronic retardation of rpm.

ENGINE TYPE

Number of cylinders: *6*

Cylinder arrangement: *60° Vee*

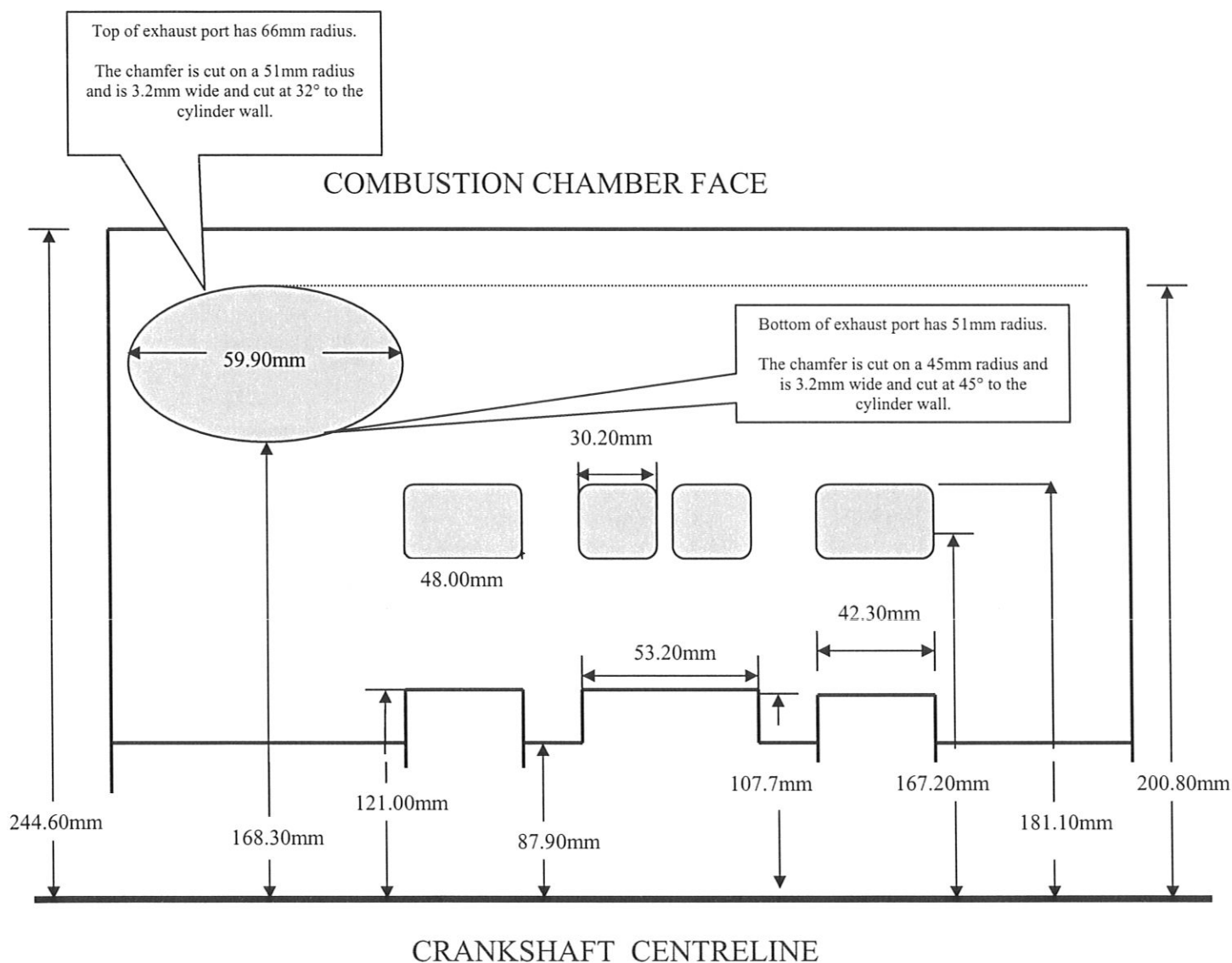
ENGINE BLOCK

	<u>Tolerance</u>	<u>Measurement</u>
Bore (Including any oversize available)	<i>+/- 0.013mm</i>	<i>92.11mm</i>
Stroke	<i>+/- 0.04mm</i>	<i>78.99mm</i>
Capacity per cylinder (Including any oversize available)	<i>...max...</i>	<i>528cc</i>
Total Capacity (Including any oversize available)	<i>...max...</i>	<i>3169cc</i>
Cylinder block material		<i>Aluminium</i>
Cylinder liner material		<i>Steel</i>

(Cylinder port layout illustrated on following page)

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All measurements in millimetres
Port dimensions do not include chamfers
Manufactured tolerance ± 0.50 mm for all ports

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CYLINDER HEAD

Cylinder head material	Aluminium
Volume of combustion chamber (+ volume of injector hole, with spark plug fitted) ...min...	72.50cc
Compression ratio ...max ...	6.2:1

PISTONS

Material of piston	Aluminium
Number and thickness of rings	2 x 2.00mm
Type of rings	Chrome faced half-keystone

CONNECTING ROD

Length of rod from big end to small end (centre to centre) +/- 0.03mm	165.10mm
--	----------

CRANKSHAFT

Number of main bearing journals	Four
Diameter of main bearing journals +/- 0.06mm	55.56mm
Diameter of connecting rod journals +/- 0.06mm	35.99mm
Surface finish of crankshaft	Ground

TYPE OF BEARINGS

Piston Pin	Needle
Connecting Rod journal	Caged Roller
Main journal	Caged Roller

CARBURETORS (if fitted)

Number fitted

Make

Type

Number of venturis

Diameter of venturis at butterfly

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FUEL INJECTION (if fitted)

Make	Mototron (Mercury)
ECU, model no.	PCM07
Total number of injectors	Six
Number of throttle bodies & diameter at butterfly ...max ...	1 x 88.5mm

REED VALVES

Reed valve material	Carbon Fibre
Material thickness ...max...	0.49mm
Width of reed block opening size ...max...	17.33mm
<i>Note: Reed block opening is rubber moulded</i>	

SUPERCHARGER/TURBOCHARGER(if fitted)

Method of supercharging turbocharging

Make of supercharger turbocharger

Type model no.

Number fitted

COOLING SYSTEM

Type	Total Loss
Method	Thermostat
Pump	Centrifugal
Number of Impeller blades	Six (6)

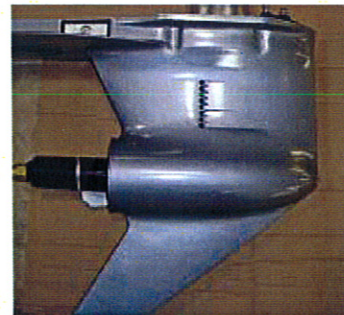
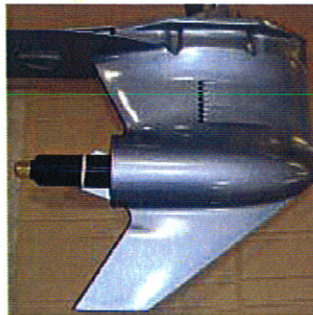
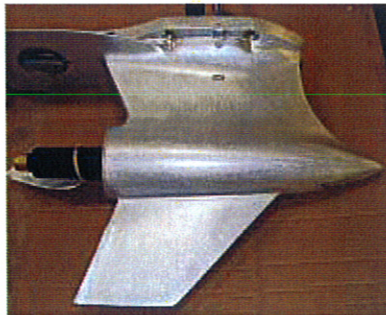
WEIGHTS

Piston & Pin only	min	675gm
Connecting Rod	min	530gm
Crankshaft (including main bearings & & seal rings)	min	18500gm
Flywheel (including all rotating attachments)	min	8156gm

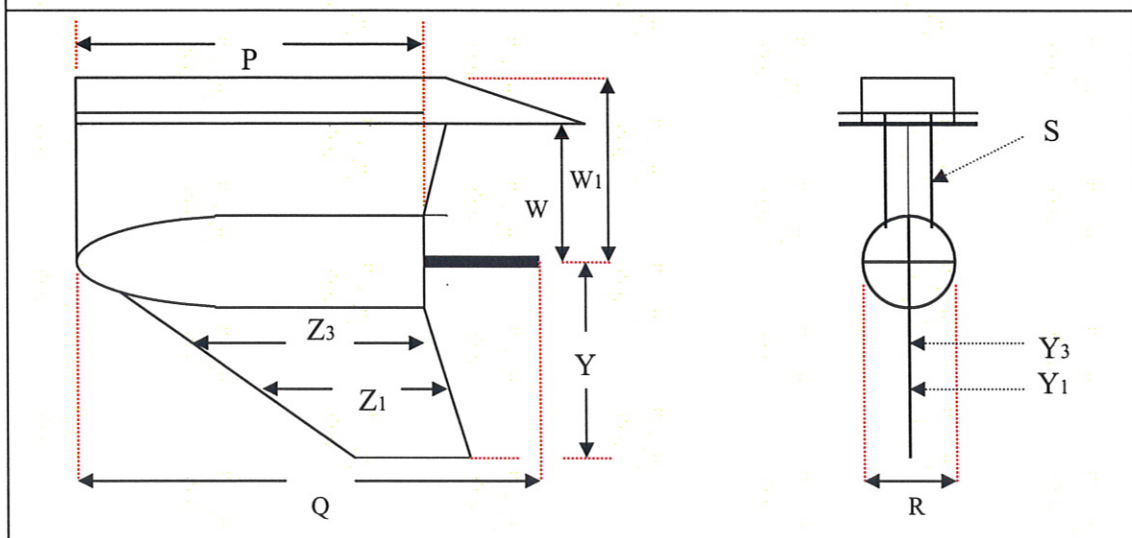
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UNDERWATER UNIT		Sportmaster Gearcase	Torquemaster Gearcase	Fleetmaster Gearcase
P Longitudinal dimension of gearcase including speedo pickup insert	+/- 5.0	455mm	343mm	343mm
Q Longitudinal dimension of gearcase including propeller shaft	Max	616mm	508mm	508mm
R Transverse dimension of gearcase at rear edge of torpedo	Min	121mm	118mm	118mm
R2 Gearcase blow-out ring (additional dia)	Min	+2.0mm	+1.5mm	+1.5mm
S Thickness of strut	Min	50mm	52mm	52mm
Z1 Skeg chord length, 25mm above bottom	+/- 5.0	166mm	131mm	131mm
Z3 Skeg chord length, 75mm above bottom	+/- 5.0	192mm	171mm	171mm
W1 Distance from propeller shaft to upper flange	+/- 5.0	258mm	258mm	258mm
W Distance from propeller shaft to anti-ventilation plate	+/- 5.0	209mm	209mm	209mm
Y1 Thickness of skeg, 25mm above bottom	Min	7.0mm	8.0mm	7.6mm
Y3 Thickness of skeg, 75mm above bottom	Min	9.0mm	10.3mm	10mm
Y Skeg depth from propeller shaft	+/- 5.0	222mm	230mm	230mm



GEAR CASE DRAWING



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NOTES

Optionals technical configurations of the Mercury 300XS.

<i>Shaft Length</i>	<i>20 Inch</i>	<i>25 Inch</i>	<i>30 Inch</i>
Sportmaster Gearcase *Optional CounterRotation	✓ Std Duty or Heavy Duty Transom Assembly	✓ Heavy Duty Transom Assembly	✓ Heavy Duty Transom Assembly
Fleetmaster Gearcase *Optional CounterRotation		✓ Heavy Duty Transom Assembly	✓ Heavy Duty Transom Assembly
Torquemaster Gearcase	✓ Std Duty Transom Assembly	✓ Std Duty Transom Assembly	