TWO STROKE OUTBOARD PETROL ENGINE HOMOLOGATION FILE

International Homologation File Number: 00501L		
Homologation Valid from	**2017**	**Expiry: 2026 dec 31**
Valid for the following classes:	**CIRCUIT: F2, S2** **OFFSHORE:**	
Manufacturer:	**Mercury Racing**	
Engine Model:	**Optimax 200XS SST**	
Number Manufactured:	**250+**	
At the date:	2017 may 06	
Certified by the National Authority of:		
At the date:		
UIM Homologation Group Inspector		
At the date:		
UIM Certification Approval:	**Mikael Lundblad**	
At the date:	2017 may 07	
Running Changes		
Change Detail	Hard rpm limit, Oil level sensor	Page No 13, 14
Date Approved for Use	2017 May 07	Approved by
Change Detail	Block and port height deleted	Page No.7
Date Approved for Use	2019 March 26	Approved by
Change Detail	Transfer, Boost port width corrected	Page 8
Date Approved for Use	2023 March 01	Approved by
Change Detail	Connecting Rod, Crankshaft, Cowling	Page No.14
Date Approved for Use	2026 Feb 24	Approved by

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TWO STROKE OUTBOARD PETROL ENGINE HOMOLOGATION FILE

International Homologation File Number: 00501 C

Homologation Valid from: Expiry:

Valid for the following classes:

CIRCUIT: F-2; S-2000; SL-250
OFFSHORE:

Manufacturer: Mercury Outboard

Engine Model: SST-200 XS

Number Manufactured: 30+

At the date: August 31, 2009

Certified by the National Authority of: USA

At the date: 13 October 2009

UIM Homologation Group Inspector: Dee Berghauer

At the date: 28 October 2009

UIM Certification Approval: Sanford R. Bassett

At the date: 10/31/09

Running Production Changes

Change Detail	Page Nos.	Date Approved for Use	Approved by
"C"	5C; 10C; 11C; 12C	January 2010	

TWO STROKE OUTBOARD
PETROL ENGINE

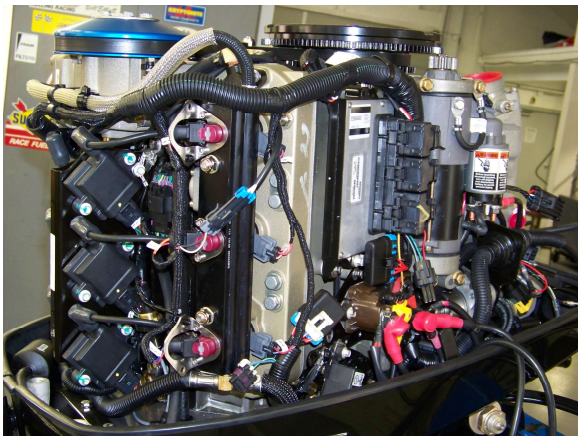
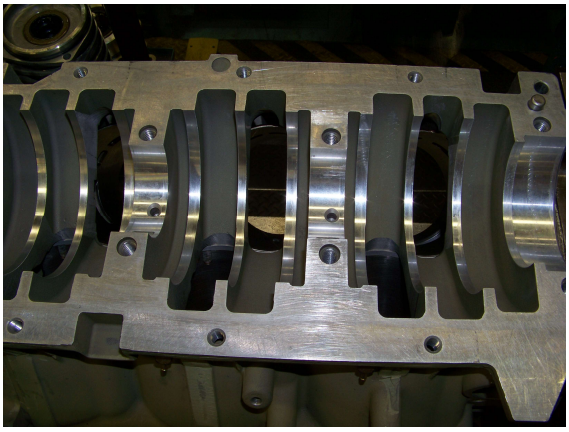
Photo of the complete engine, 45° from the front at the port side.	Photo of the complete engine, 45° from the front at the starboard side.
	

Photo without top cover, at the port side.	Photo without top cover, at the starboard side.
	

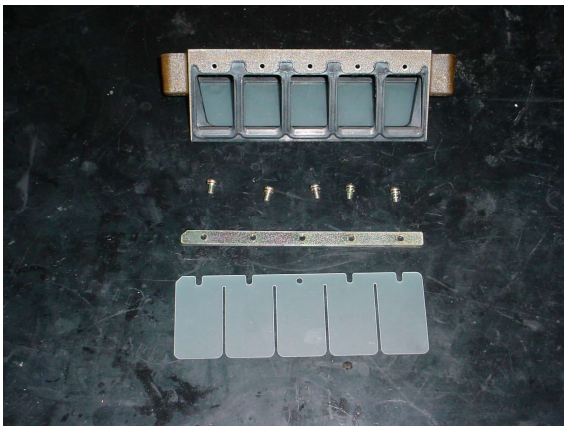
TWO STROKE OUTBOARD
PETROL ENGINE

Cylinder head from the combustion chamber side	Cylinder block from crankcase side
	

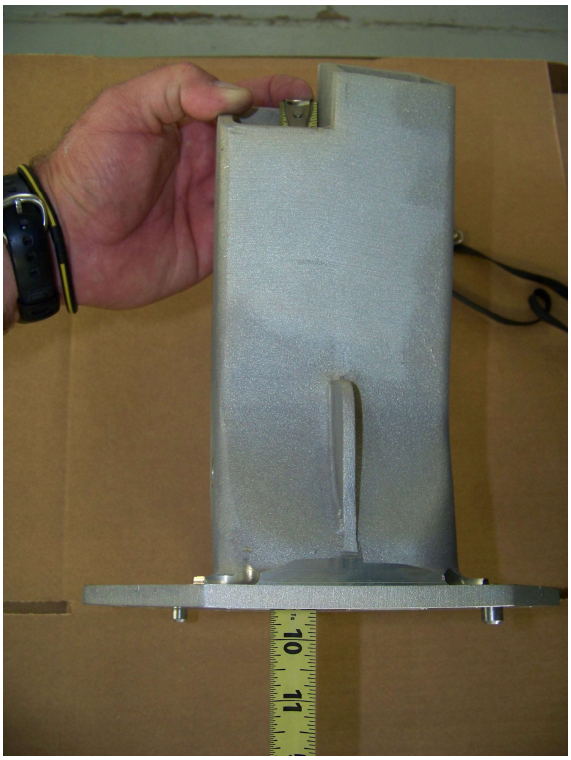
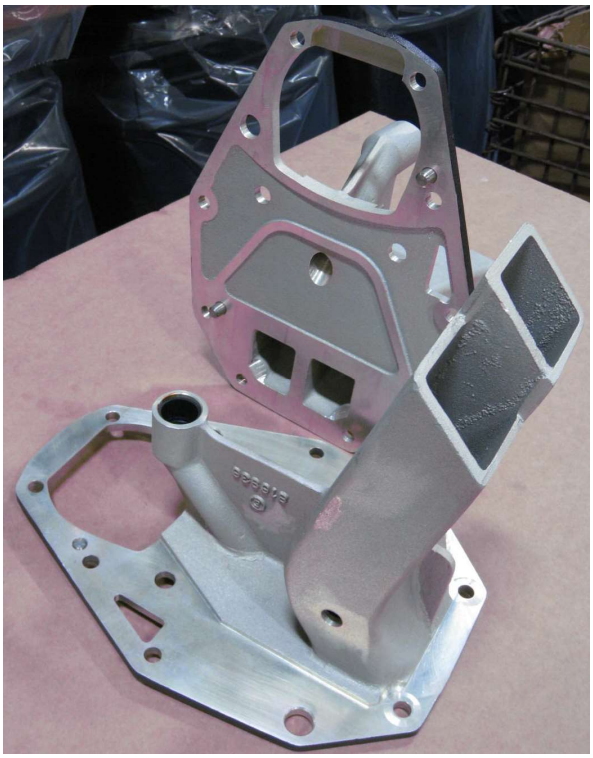
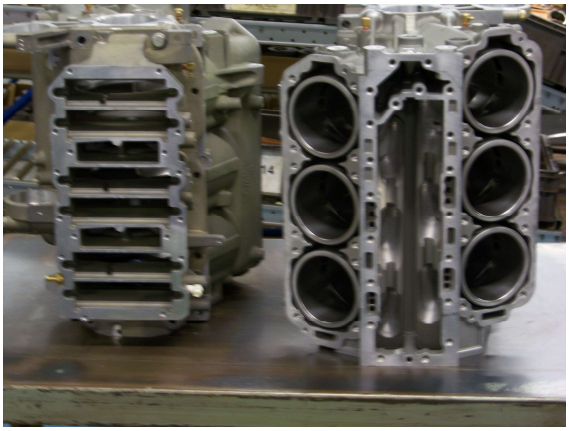
Crankcase half showing reed valve assembly	Cylinder block showing exhaust port gallery
	

TWO STROKE OUTBOARD PETROL ENGINE

Piston viewed from the top.	Piston viewed from the bottom
	

Piston, viewed 45° from the wrist pin.	Reed block and reeds.
	

TWO STROKE OUTBOARD PETROL ENGINE

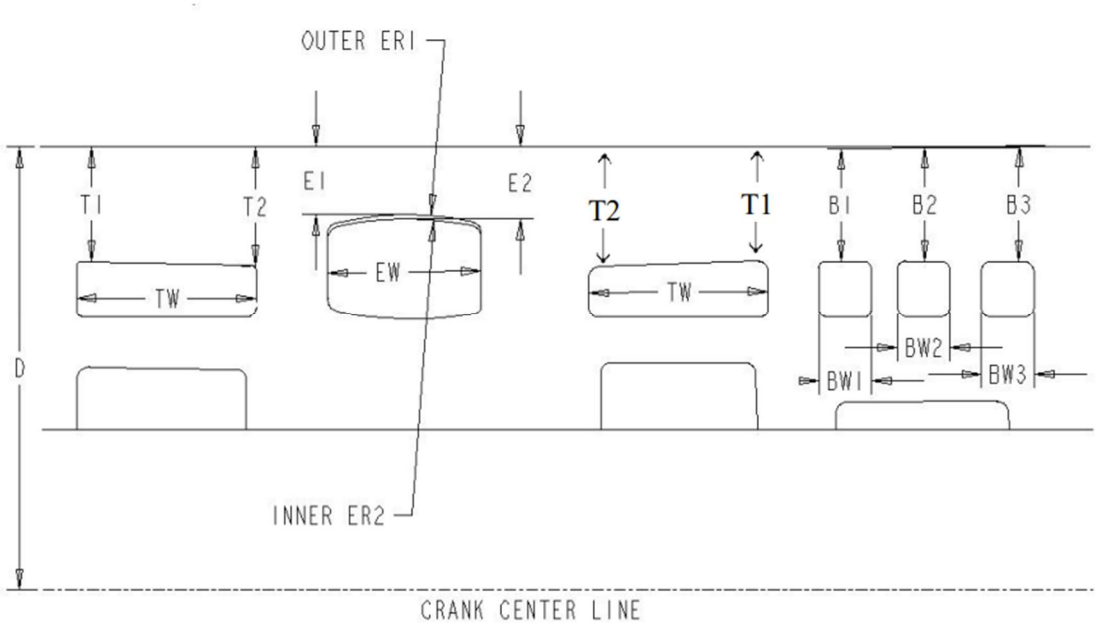
Internal exhaust tuner measuring procedure	Internal exhaust tuner
	
Cylinder block.	Cylinder block, viewed from rear.
	

TWO STROKE OUTBOARD

PETROL ENGINE

ENGINE FUEL			
Type:		**Petrol**	
Minimum octane required:		**98**	RON
ENGINE TYPE			
Number of cylinders		**6**	
Cylinder arrangement and angle:		**60° V**	
ENGINE BLOCK	Tolerance	Measurement	
Bore	+/- 0.15	**88.9**	mm
Stroke	+/- 0.3	**67.3**	mm
Capacity per cylinder	max	**421**	cc
Total Capacity	max	**2526**	cc
Cylinder block material		**Aluminum**	
Cylinder liner material		**Steel**	
(E) ~~*Distance from crankshaft centreline to cylinder block deck face*~~	~~*min*~~	~~***212.2***~~	~~*mm*~~
(E) ~~*Distance from crankshaft centreline to top edge of of transfer ports*~~	~~*+/-0.5*~~	~~***156.2***~~	~~*mm (B)*~~
(E) ~~*Distance from crankshaft centreline to top edge of exhaust ports*~~	~~*+/-0.5*~~	~~***170.4***~~	~~*mm (B)*~~
(Block and Cylinder port dimesion and layout illustrated on page 8)			
REED VALVE	Tolerance	Measurement	
Reed Thickness	+/-0.05	**0.50**	mm (B)
Reed Lift (stop height)		**NA**	(B)
Reed Material		**Plastic Composite**	
Number and Size of Reed Ports	max	**5 ports: 31.5 x 20.3**	mm

TWO STROKE OUTBOARD
PETROL ENGINE



Spread out sketch of the cylinder wall with location and dimension measurements of the scavenging ports noted.

Features :	Engine Model: 200 XS / SST 200
Boost Ports	**3**
B1	**56.0 +/- 0.5**
B2	**56.0 +/- 0.5**
B3	**56.0 +/- 0.5**
BW1 *(J)*	***14.8 +3.0* /-1.0***
BW2	**22.9 +/- 1.0**
BW3 *(J)*	***14.8 +3.0* /-1.0***
Deck Height	
D	**212.2 +/- 0.2**

Exhaust	**1**
E1	**38.7 +/- 0.5**
E2	**41.1 +/- 0.5**
ER1	**89.0 +/- 2.0**
ER2	**51.0 +/- 2.0**
EW	**59.4 +/- 1.0**

Transfer Ports	**2**
T1	**56.1 +/- 0.5**
T2	**57.1 +/- 0.5**
TW *(J)*	***42.7 +/- 1.0***

All measures are to be taken 1.0 mm into the ports measured perpendicular from the cylinder wall. All port width dimension are cordial measures.

* Tolerance on the positive side is extra large to take into account for errors printed in earlier homologation sheet. *(J)*

TWO STROKE OUTBOARD

PETROL ENGINE

CYLINDER HEAD		
Cylinder head material		**Aluminum**
Volume of combustion chamber (flat plate volume w/ plug and inj. installed)	…min…	**51** cc (B)
Compression ratio	…max …	
PISTONS		
Material of piston		**Aluminum**
Number and thickness of rings		**2 x 1.5 mm**
Type of rings		**half keystone**
CONNECTING ROD		
Length of rod from big end to small end (centre to centre)	+/- 0.2	**139.7** mm
CRANKSHAFT		
Number of main bearing journals		
Diameter of main bearing journals	+/-	mm
Diameter of connecting rod journals	+/-	mm
Surface finish of crankshaft		Ground
TYPE OF BEARINGS		
Piston Pin		**Loose Needle**
Connecting Rod journal		**Caged Roller**
Main journal		**Caged Roller**
CARBURETORS		
Number fitted		None
Make		
Type		
Total number of venturis		
Diameter of venturis		

TWO STROKE OUTBOARD

PETROL ENGINE

FUEL INJECTION

Make (ECU)		**Mercury Electric fuel**
Type of pump, model no.		**Belt-drive Air**
Total number of injectors		**6 air; 6 fuel**
Number of throttle bodies & diameter at butterfly	…max …	**1 x 69.9** mm (B)

SUPERCHARGER/TURBOCHARGER(if fitted)

Method of supercharging/turbocharging	_____
Make of supercharger/turbocharger	_____
Type/model no.	_____
Number fitted	_____

COOLING SYSTEM

Type	**Water**
Method	**Thermostat control**
Pump	**Impeller**
Number of Impeller blades	**6**

SPARK PLUG

Brand	**NGK**
Type	**IZFR7M**

WEIGHTS

Piston (bare)	min	**530**	g
Piston Pin	min	**101**	g
Connecting Rod (with bearings & thrust washers)	min	**353**	g
Crankshaft (inc main bearings & housings & seal rings)	min	**11 793**	g
Flywheel (with all rotating attachments)	min	**6 350**	g

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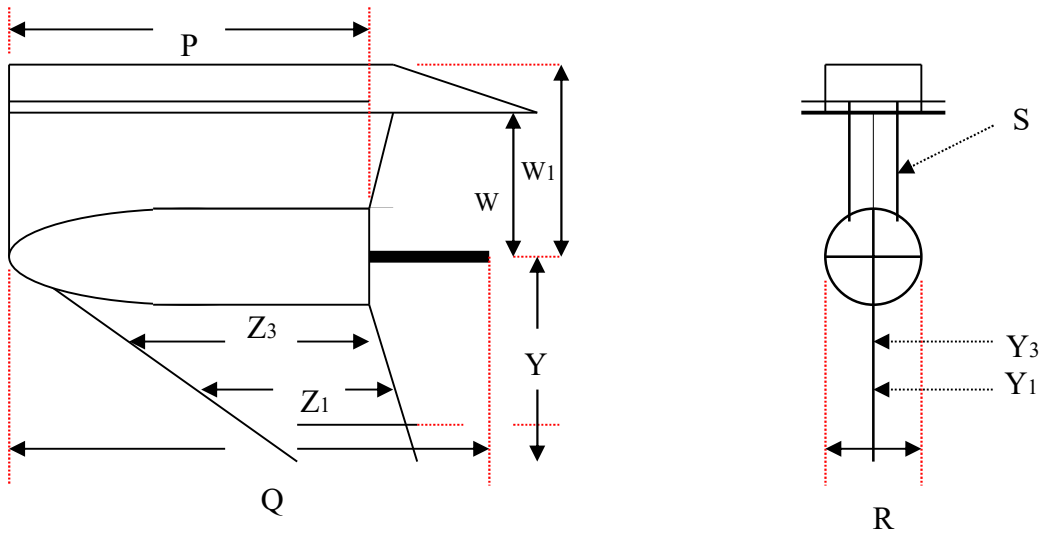
PETROL ENGINE

UNDERWATER UNIT

Gear Ratio		**15:17 (0.88:1)**
P Longtitudinal length of gearcase torpedo	Max	**450** mm (B)
Q Longtitudinal dimension of gearcase including propeller shaft	Max	**575** mm
R Transverse dimension of gearcase	Min	**64.5** mm
S Thickness of strut	Min	**40.0** mm
Z1 Skeg chord length, 25mm above bottom	+/-	**111** mm
Z3 Skeg chord length, 75mm abobe bottom	+/-	**145** mm
W1 Distance from propeller shaft to upper flange	+/-	**225** mm
W Distance from propeller shaft to anti-ventilation plate	+/-	**NA** mm
Y1 Thickness of skeg, 25mm above bottom	Min	mm
Y3 Thickness of skeg, 75mm above bottom	Min	mm
Y Skeg depth from propeller shaft	+/-	mm

Gearcase skeg must conform to Mercury skeg template, part number 91-840671 (see photo on page 13F)

GEAR CASE DRAWING



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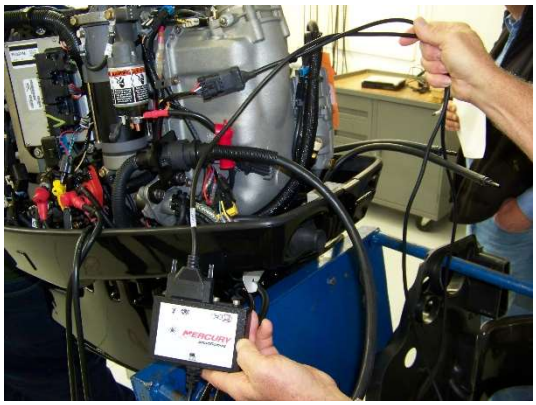
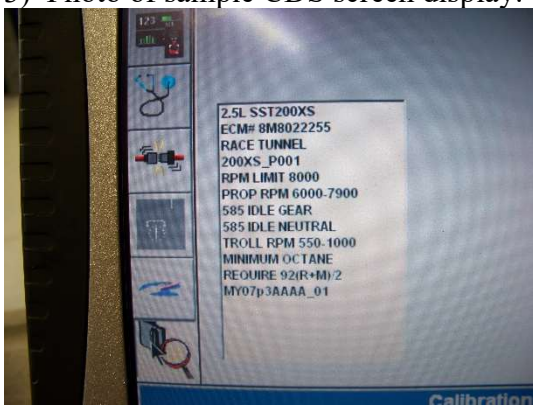
NOTES

1) Photo of Electronic Unit – PCM 0801 – Mercury Part Number 8M8022255 – Limited to 8000 RPM:

2) Photos of Mercury CDS (Computer Diagnostic System) Tool in use to check correctness of PCM unit:



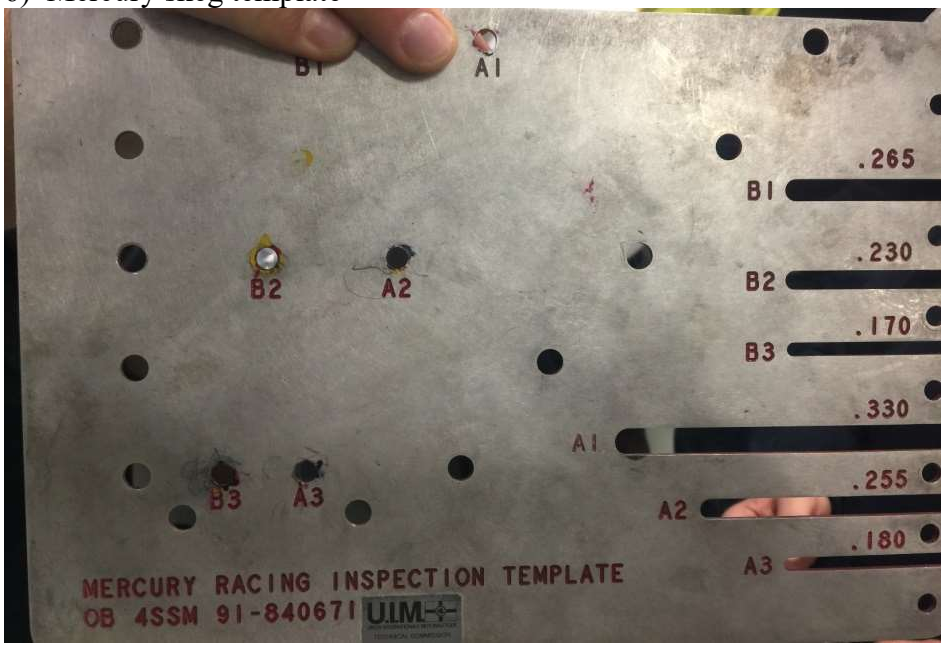
3) Photo of sample CDS screen display:



4) Only the drive shaft housing pictured must be used to maintain the proper calibration of the engine due to the difference in exhaust backpressure with any earlier model drive shaft housings.

5) Engine must use spark plug brand and model NGK IZFR7M

6) Mercury skeg template



ENGINE MAXIMAL ROTATIONAL SPEED (max rpm)

Maximal rotational speed (hard limits where the spark ignition is shut off) for the two versions of Mercury Optimax 200XS are:

Model	ECU part number	Hard rpm limit
200XS ROS	8M8024675	7050 rpm
200XS SST	8M8022255	8050 rpm

OIL LEVEL SENSOR

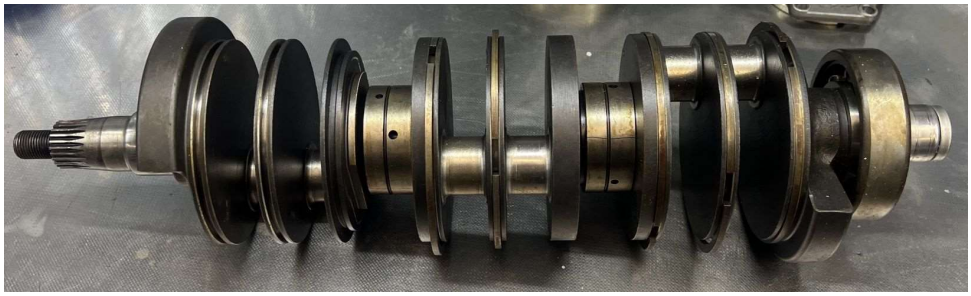
Due to problem with engine going into safety mode from oil level sensor alarm it is allowed to disconnect the sensor at the bullit terminals and connect the two bullit terminals leading to the ECU. Removal of any part is not allowed

Connecting Rod (L)

F1 connecting rod from Auro Verdi is allowed as replacement for OEM

Crankshaft (L)

The crankshaft from the standard 2.5L Mercury Optimax outboard with two less sealing rings are allowed



Cowling (L)

Cowlings may be either Mercury OEM as shipped or may be a lightweight facsimile of the production cowling. External latches may be added or replacing original latches. Mercury decals must appear with contrasting color on any substituted cowling in a manner similar to Mercury OEM cowlings