



TWO STROKE OUTBOARD PETROL ENGINE HOMOLOGATION FILE

International Homologation File Number: 00535		
Homologation Valid from	01 April 2017	Expiry: 31 Dec 2027
Valid for the following classes:	CIRCUIT: OFFSHORE: 3C, 3X	
Manufacturer:	BRP US Inc.	
Engine Model:	Evinrude C200FL, C175PL, C175FL, C150FLH, C150PLH, C150PL	
Number Manufactured:	500+	
At the date:	30 March 2017	
Certified by the National Authority of:	SVERA, Sweden	
At the date:	30 March 2017	
UIM Homologation Group Inspector	Mikael Lundblad	
At the date:	30 March 2017	
UIM Certification Approval:	Mikael Lundblad	Thomas Kurth
At the date:	30 March 2017	11 May 2017
Running Production Changes		
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PICTURES

Photo of the complete engine, port side.



Photo of the complete engine, starboard side.



Photo of the complete engine, front side.



Photo of the complete engine, rear.



Photo of the engine cowl, port side.



Photo of the engine cowl, starboard side.



Photo of the engine cowl, front side.



Photo of the engine cowl, rear.



Photo without top cover, port side.



Photo without top cover, front side



Photo without top cover, starboard side



Photo without top cover, rear side.



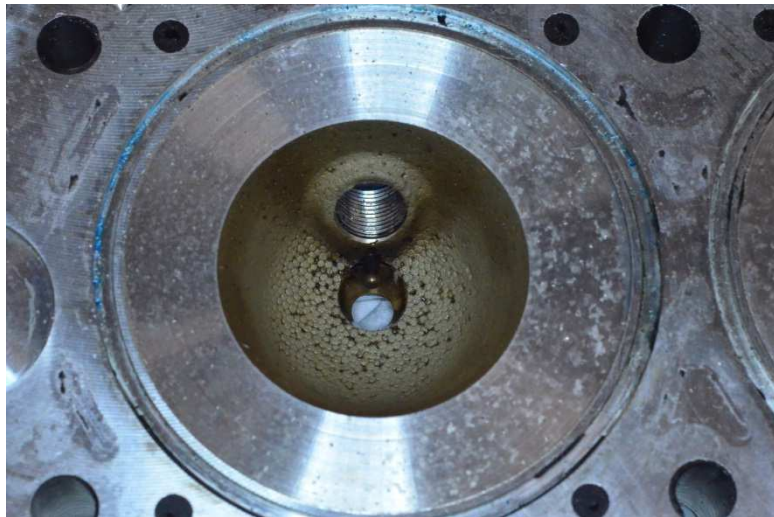
Cylinder head from the combustion chamber side



Cylinder head from the spark plug side.



Cylinder head showing combustion chamber.



Cylinder head showing - detail



Crankcase half showing reed valve assembly



Crankcase half – Inlet side



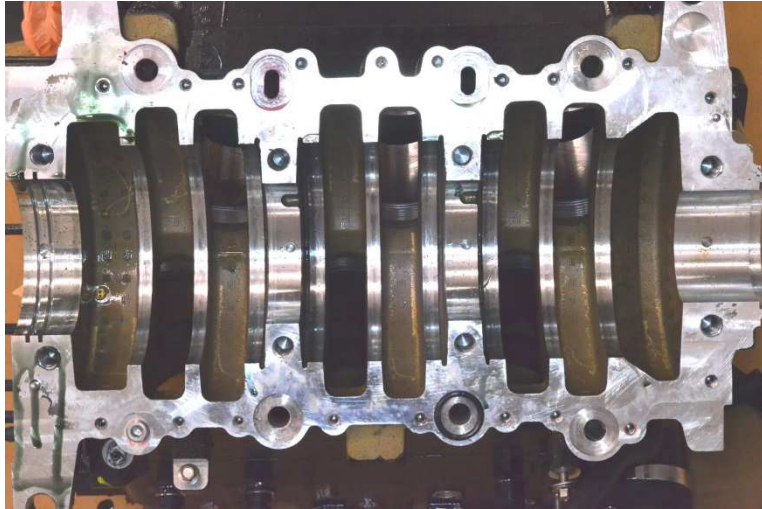
Reed block and reeds



Reed block – Measure lift



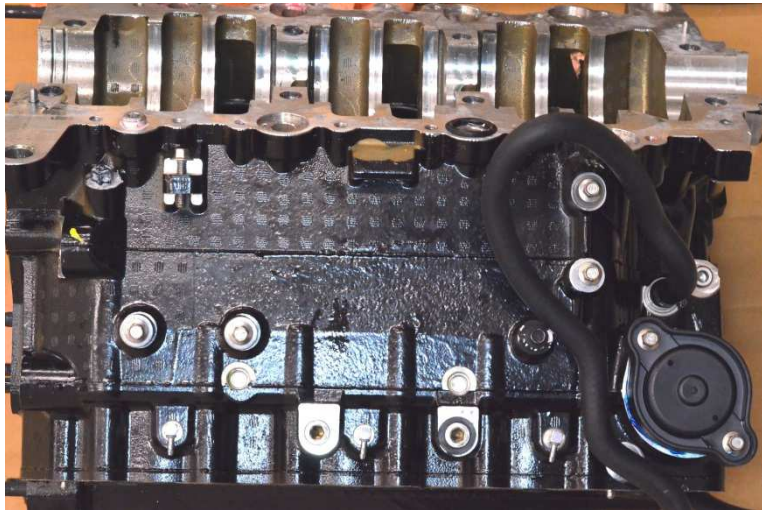
Cylinder block, viewed from crankshaft side.



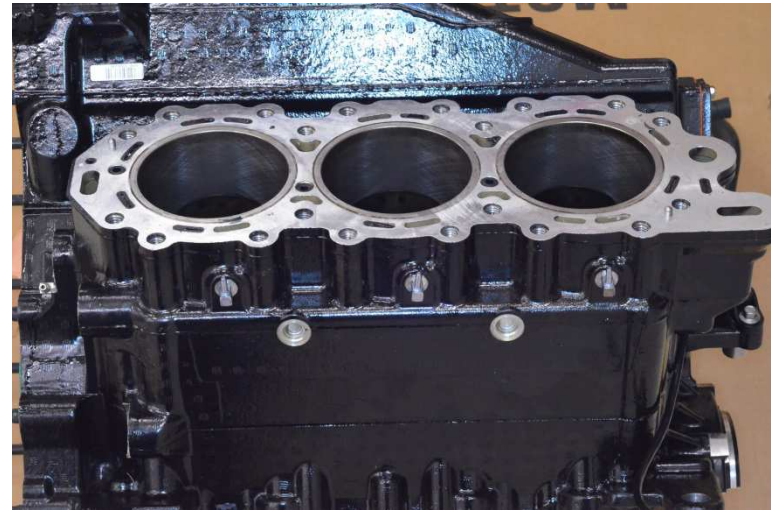
Cylinder block, showing exhaust port gallery



Cylinder block viewed from port side



Cylinder block viewed from starboard side



Cylinder bore



Ports - Detail



Piston viewed from the top



Piston viewed from the bottom



Piston, viewed 45° from the wrist pin.



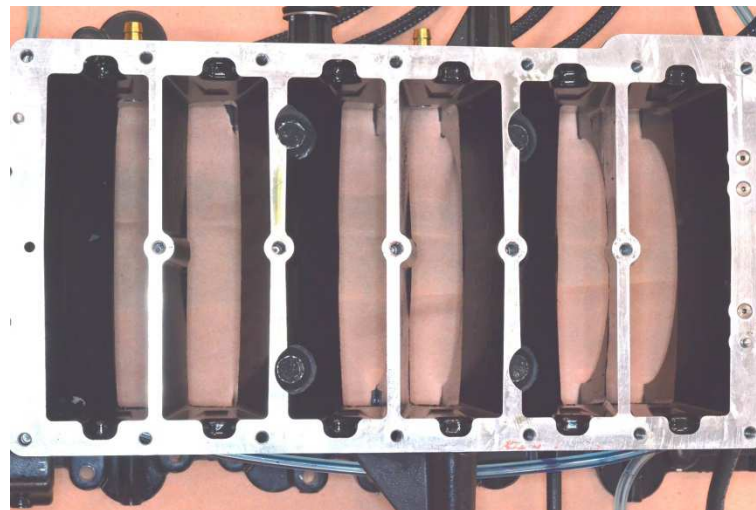
Crankshaft.



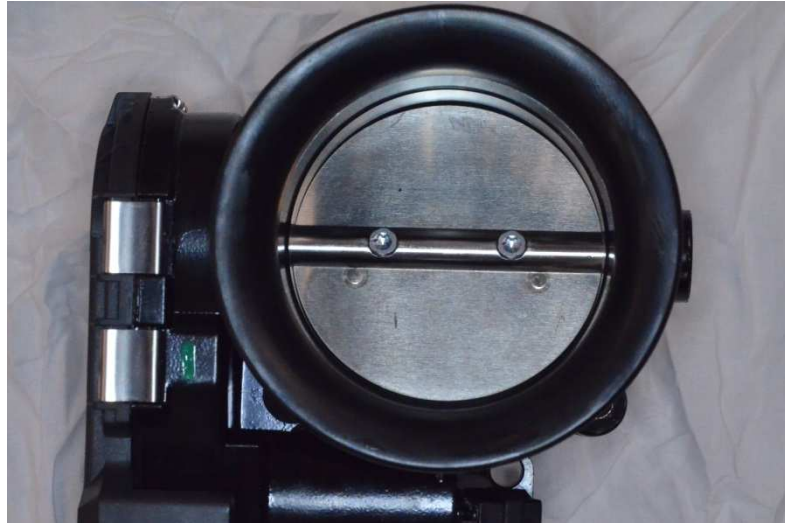
Connecting rod



Intake plenum



Throttle house



Throttle House



Fuel Injector



Fuel Injector - Close up



Fuel Injector



Fuel Injector – Tag with calibration



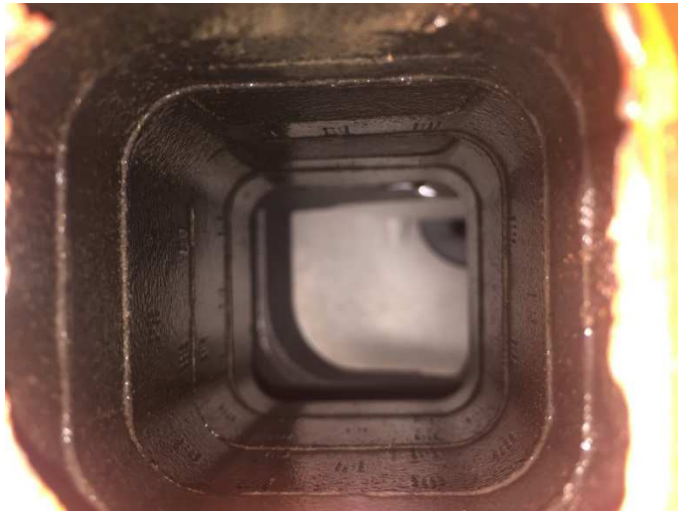
EMM box Front



EMM part number for C200FL



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



Gear house



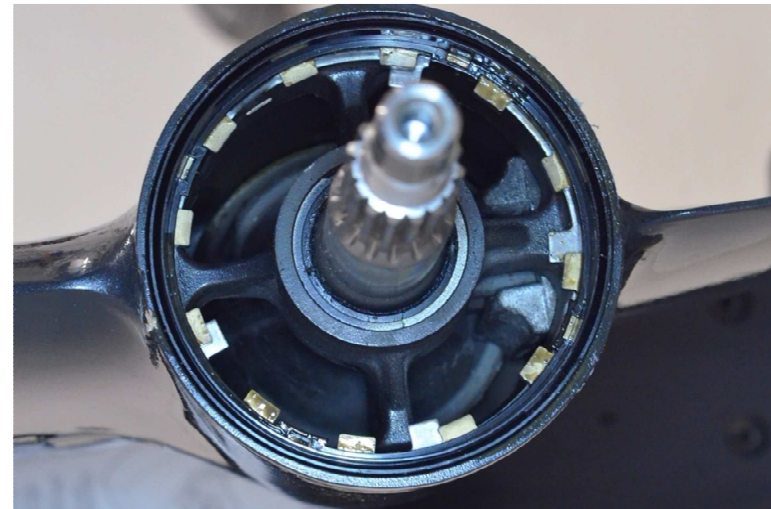
Gear house - Exhaust cooling



Gear house skag



Gear house skag - Close up from bottom side



MEASUREMENTS

ENGINE FUEL

Type:	Gasoline
Minimum octane required:	90 RON

ENGINE TYPE

Number of cylinders:	6 Cylinders
Cylinder arrangement:	66° V

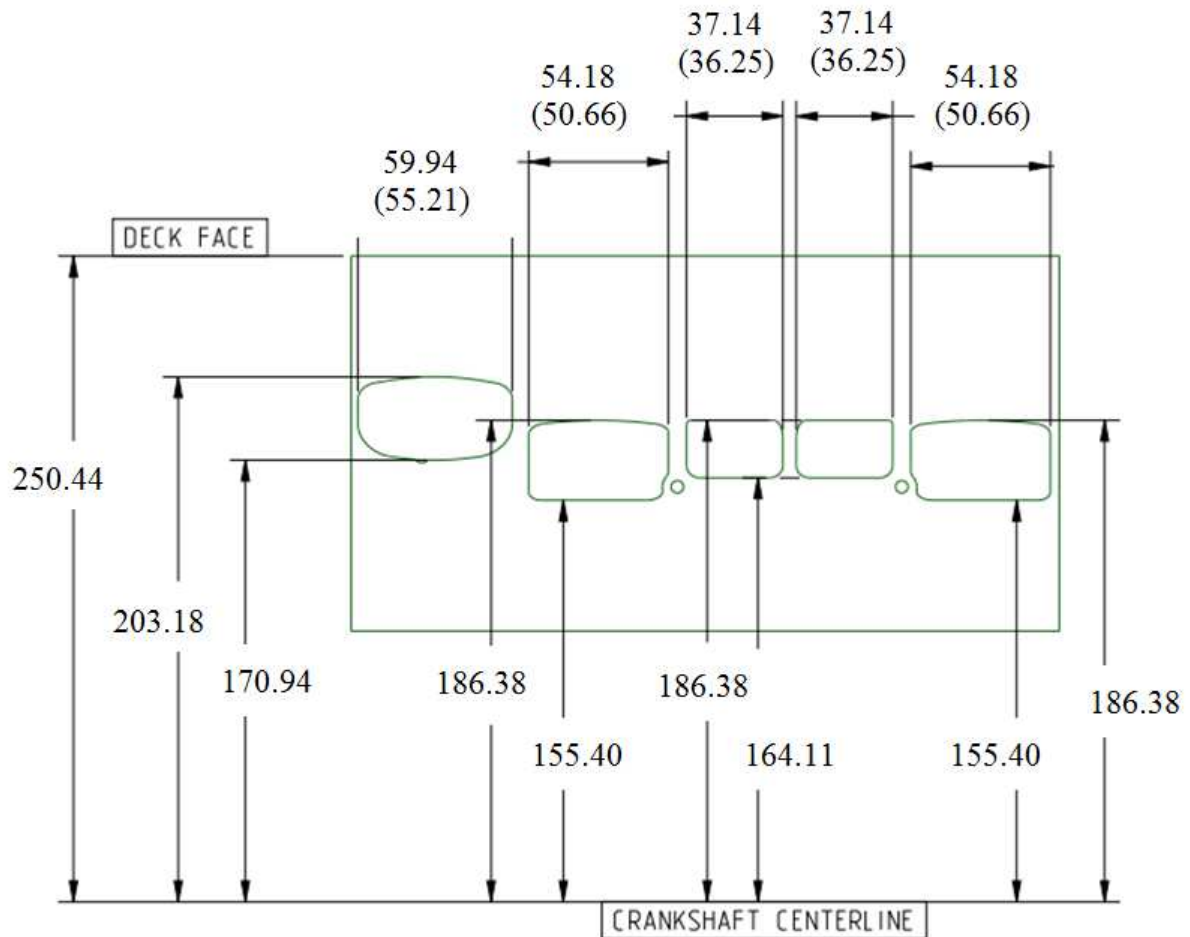
ENGINE MAX ROTATIONAL SPEED

At 6,250 rpm, the ECU will shut off fuel to limit rotational speed of engine.

ENGINE BLOCK	Tolerance	Measurement	Unit
Bore	+0.025 -.013	86.00	Mm
Stroke	+/- 0.05	78.74	mm
Capacity per cylinder	max	457.6	cc
Total Capacity	max	2746	cc
Cylinder block material		Aluminium	
Cylinder liner material		Cast Iron	
Distance from crankshaft centreline to cylinder block deck face.	+/- 0.13	250.44	mm
REED VALVE	Tolerance	Measurement	Unit
Reed thickness	+/- 0.015	0.25	mm
Reed lift (stop height)	max	20.8	mm
Reed material		Stainless Steel	
Number and size of reed ports	max	(12x)17.8X35.1	Mm
CYLINDER HEAD	Tolerance	Measurement	Unit
Cylinder head material	0358564	Aluminium	
Volume of combustion chamber (without volume of spark plug hole)	+/-1.5cc	50.0	cc
Compression ratio	Nominal	7.0:1	
Thickness of cylinder head from screw face to deck	+/- 0.25	35.17	mm

CYLINDER PORT LAYOUT

All ports have chamfers of 2.50 mm which extends 0.80 mm into the port
 Dimensions shown ignore chamfers and widths are along cylinder wall. Measures in brackets are secant measures (straight line)



All port manufacture to a tolerance of ± 0.26 mm except for exhaust port which has tolerance of ± 0.15 mm

PISTONS

Material of piston	Aluminium		
Type and thickness of rings	2 x Steel Rectangular	1.928 +/-0.01	mm

CONNECTING ROD

	Tolerance	Measurement	Unit
Length of rod from big end to small end (centre to centre)	+/- 0.05	165.1	mm

CRANKSHAFT

	Tolerance	Measurement	Unit
Number of main bearing journals	1 upper, 2 internal, 1 lower		
Diameter of main bearing journals	+/- 0.010	upper 41.15	mm
	+/- 0.010	internal 55.55	mm
	+/- 0.010	lower 40.00	mm
Diameter of connecting rod journals	+/- 0.010	38.10	mm
Surface finish of crankshaft	Machine/Ground		

TYPE OF BEARINGS

Piston Pin	Needle roller
Connecting Rod journal	Needle roller
Center journals	Needle roller
Lower main	Ball bearing

FUEL INJECTION

	Tolerance	Measurement	Unit
Make	BRP		
Type of pump, model no.	2-Electric 1-Mechanical Pulse driven		
Total number of injectors		6	Injectors
Type of injectors	BIP fuel injectors		
Diameter of throttle bore	max	68.0	mm
Fuel Pressure–High Pressure Pump	min max	26 to 32 psi (179 to 220 kPa) @ 5500 rpm 34 to 40 psi (234 to 275 kPa) @ idle	

COOLING SYSTEM

Type	Watercooled
Method	Thermostat controlled
Pump	Rubber impeller vane pump
Number of impeller blades	6
Thermostat start opening temperature	52 °C
Thermostat fully opened	74 °C

SENSOR TESTS

Cylinderblock Coolant Temperature Sensor Resistance

680 $\Omega \pm 5\%$ @ 100°C
10 000 $\Omega \pm 1\%$ @ 25°C
32 654 $\Omega \pm 2.5\%$ @ 0°C

Air Temperature Sensor

680 $\Omega \pm 5.25\%$ @ 100°C
10 000 $\Omega \pm 1.5\%$ @ 25°C
32 654 $\Omega \pm 3,0\%$ @ 0°C

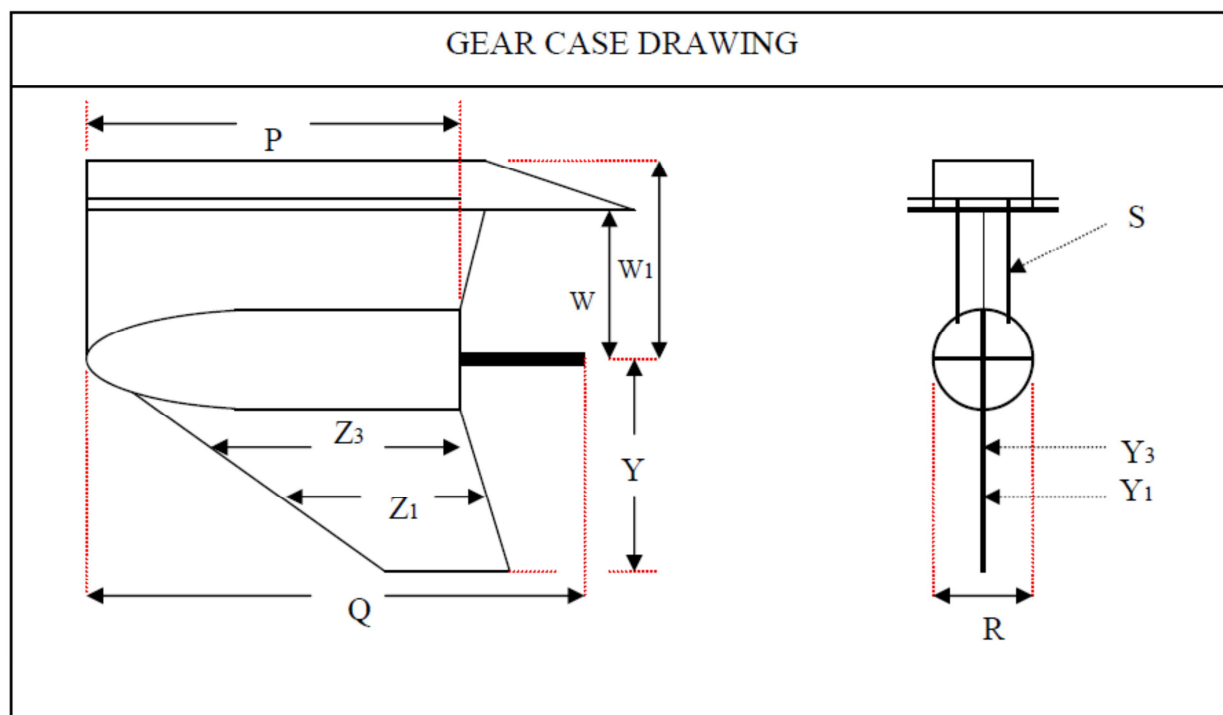
Exhaust Temperature Sensor

680 $\Omega \pm 5.25\%$ @ 100°C
10 000 $\Omega \pm 1.5\%$ @ 25°C
32 654 $\Omega \pm 3,0\%$ @ 0°C

WEIGHTS

	Tolerance	Measurement	Unit
Piston (with rings)	Min	546.0	g
Piston Pin	Min	124.0	g
Connecting Rod (with bearings & screws)	Min	626.0	g
Crankshaft (inc main bearing & housings & seal rings)	Min	17 570	g
Flywheel (with all rotating attachments)	Min	8 200	g

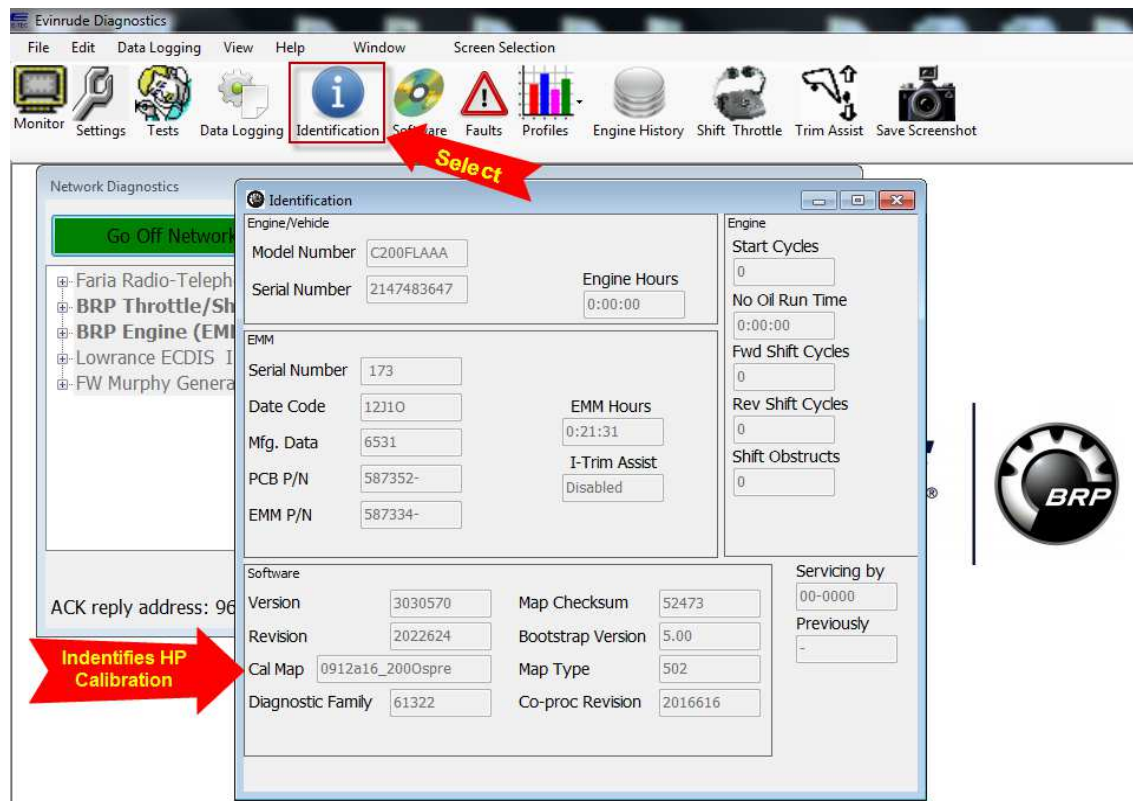
UNDERWATER UNIT	Tolerance	Measurement	Unit
Gear Ratio		(2.16:1) 0.46	
P Longitudinal length of gearcase torpedo	+/-5.0	434.7	mm
Q Longitudinal dimension of gearcase including propeller shaft	max	602.0	mm
R Transverse dimension of gearcase	min	125.4	mm
S Thickness of strut at thickest section 24.5 behind driveshaft centerline	min	52.0	mm
Z1 Skeg chord length, 25mm above bottom Camber side	+/- 5.0	162.5	mm
Z3 Skeg chord length, 75mm above bottom Camber Side	+/- 5.0	210.0	mm
W1 Distance from propeller shaft to upper flange	+/- 0.5	284.5	mm
W Distance from propeller shaft to anti-ventilation plate	+/- 0.5	224.0	mm
Y1 Thickness of skeg, 25mm above bottom	min	5.25	mm
Y3 Thickness of skeg, 75mm above bottom	min	8.45	mm
Y Skeg depth from propeller shaft	+/- 2.0	224.0	mm
Diameter Exhaust outlet at propeller resess	+/- 0.2	120.0	mm



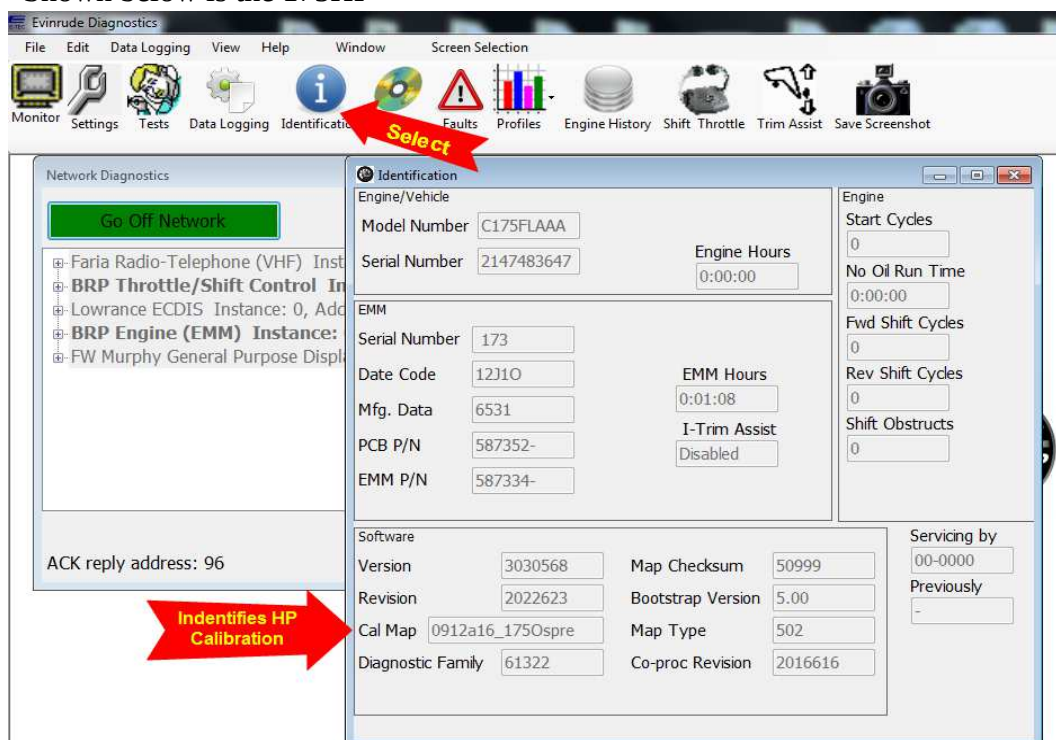
NOTES**Inspection of EMM (ECU)**

Using BRP Evinrude Diagnostic version 6 and go on bus then select BRP EMM from the device list. From there select the Identification Tab.

Shown below is the 200HP



Shown below is the 175HP



Shown below is the 150HO HP

Evinrude Diagnostics

File Edit Data Logging View Help Window Screen Selection

Monitor Settings Tests Data Logging Identification Faults Profiles Engine History Shift Throttle Trim Assist Save Screenshot

Network Diagnostics

Go Off Network

- Faria Radio-Telephone (VHF) Instance: 0
- BRP Throttle/Shift Control Instance: 0
- Lowrance ECDIS Instance: 0, Address: 0
- BRP Engine (EMM) Instance: 0
- FW Murphy General Purpose Display Instance: 0

ACK reply address: 96

Identification

Engine/Vehicle

Model Number C150PLHAAA

Serial Number 2147483647

Engine Hours 0:00:00

Engine

Start Cycles 0

No Oil Run Time 0:00:00

Fwd Shift Cycles 0

Rev Shift Cycles 0

Shift Obstructs 0

EMM

Serial Number 173

Date Code 12J10

Mfg. Data 6531

PCB P/N 587352-

EMM P/N 587334-

EMM Hours 0:01:42

I-Trim Assist Disabled

Software

Version 3030558

Revision 2022621

Cal Map 0824a16_150HOOsp

Diagnostic Family 61322

Map Checksum 36850

Bootstrap Version 5.00

Map Type 502

Co-proc Revision 2016616

Servicing by 00-0000

Previously -

Shown below is the 150HP

Evinrude Diagnostics

File Edit Data Logging View Help Window Screen Selection

Monitor Settings Tests Data Logging Identification Faults Profiles Engine History Shift Throttle Trim Assist Save Screenshot

Network Diagnostics

Go Off Network

- Faria Radio-Telephone (VHF) Instance: 0
- BRP Throttle/Shift Control Instance: 0
- FW Murphy General Purpose Display Instance: 0
- Lowrance ECDIS Instance: 0, Address: 0
- BRP Engine (EMM) Instance: 0

ACK reply address: 96

Identification

Engine/Vehicle

Model Number C150PLAAA

Serial Number 2147483647

Engine Hours 0:00:00

Engine

Start Cycles 0

No Oil Run Time 0:00:00

Fwd Shift Cycles 0

Rev Shift Cycles 0

Shift Obstructs 0

EMM

Serial Number 173

Date Code 12J10

Mfg. Data 6531

PCB P/N 587352-

EMM P/N 587334-

EMM Hours 0:01:07

I-Trim Assist Disabled

Software

Version 3030567

Revision 2022620

Cal Map 0824a16_150Ospre

Diagnostic Family 61322

Map Checksum 43269

Bootstrap Version 5.00

Map Type 502

Co-proc Revision 2016616

Servicing by 00-0000

Previously -

Part number for EMM for all versions are 587334-2861605600. Different engine models have different calibration maps

Modell	Calibration Map
C200FL	0912a16_200Ospre
C175PL, C175FL,	0912a16_175Ospre
C150FLH,C150PLH	0824a16_150Oosp
C150PL	0824a16_150Ospre

Engine RPM history can be viewed by selecting the Profiles Tab.

Midsection

C150PL and C150PLH are available also without BRP power steering using standard type of steering.