






TWO STROKE OUTBOARD PETROL ENGINE HOMOLOGATION FILE

International Homologation File Number: 00501H			
Homologation Valid from	2017	Expiry: 2026 Dec 31	
Valid for the following classes:	CIRCUIT: OFFSHORE: Offshore 3C, D, X		
Manufacturer:	Mercury Racing		
Engine Model:	Optimax 200XS ROS, 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. 15	
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	Gear case for multiple engine	Page No.12	
Date Approved for Use	2021 September 05	Approved by	
Change Detail	Width transfer, boost port corrected	Page No.12	
Date Approved for Use	2023 March 01	Approved by	



**TWO STROKE OUTBOARD
PETROL ENGINE
HOMOLOGATION FILE**

International Homologation File Number: 00501 B

Homologation Valid from:

Expiry:

Valid for the following classes:

CIRCUIT:

OFFSHORE: Classes 3

Manufacturer: Mercury Outboard

Engine Model: 200 XS SS

Number Manufactured: 250

At the date: On receipt of bona fide orders

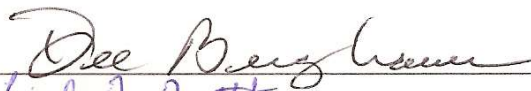
Certified by the National Authority of: USA

At the date: 13 October 2009

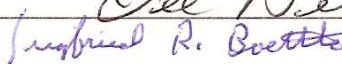


UIM Homologation Group Inspector: Dee Berghauer

At the date: 28 October 2009



UIM Certification Approval:



At the date: 10/31/09

Running Production Changes

Change Detail
"B"

Page Nos.

2B;3B;4B;5B;6B;7B;8B;9B;10B;11B;12B

Date Approved for Use

January 2010

Approved by



**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.

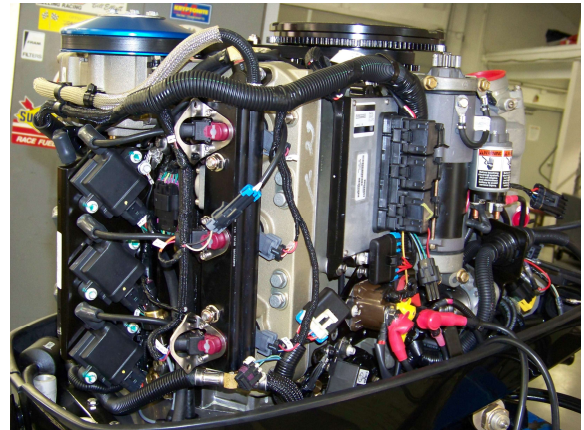


Photo without top cover, at the port side.



Photo without top cover, at the starboard side.

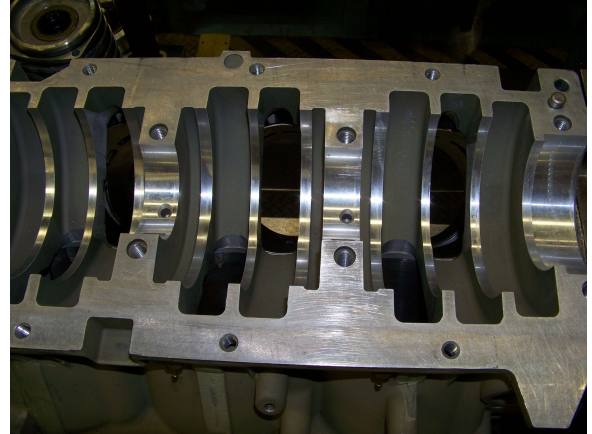


**TWO STROKE OUTBOARD
PETROL ENGINE**

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.



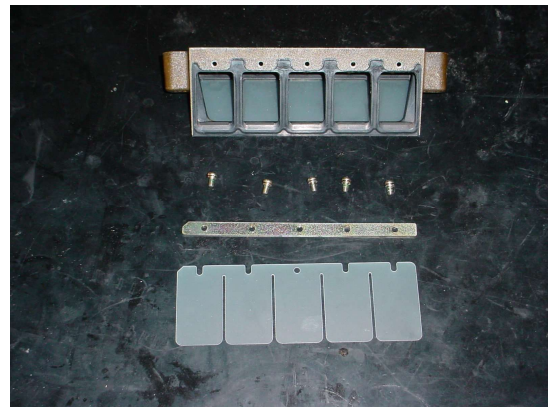
Piston viewed from the bottom



Piston, viewed 45° from the wrist pin.

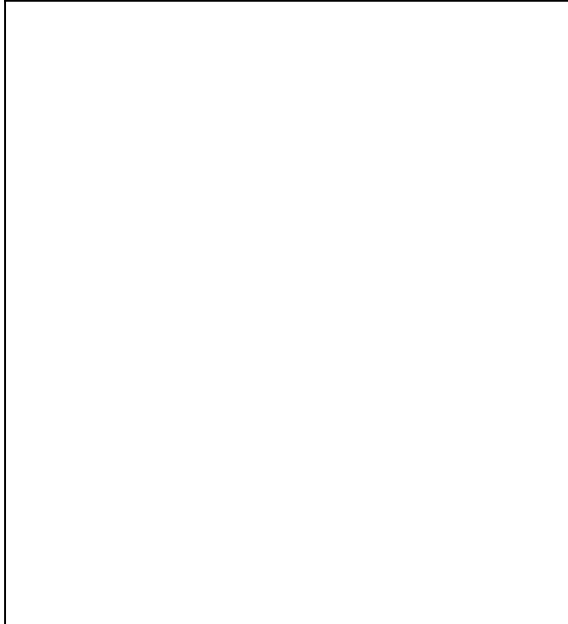


Reed block and reeds.

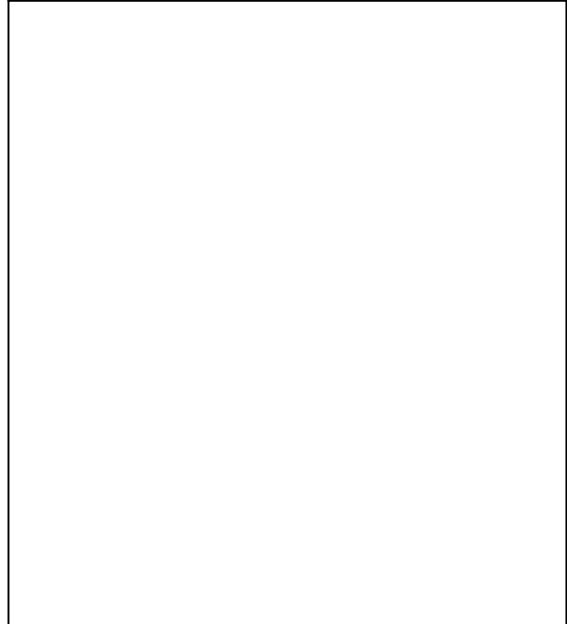


**TWO STROKE OUTBOARD
PETROL ENGINE**

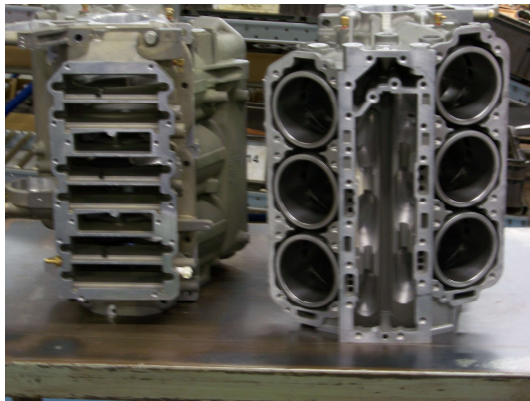
Intake silencer air intakes



Internal exhaust tuner



Cylinder block.



Cylinder block, viewed from rear.



**TWO STROKE OUTBOARD
PETROL ENGINE**

ENGINE FUEL

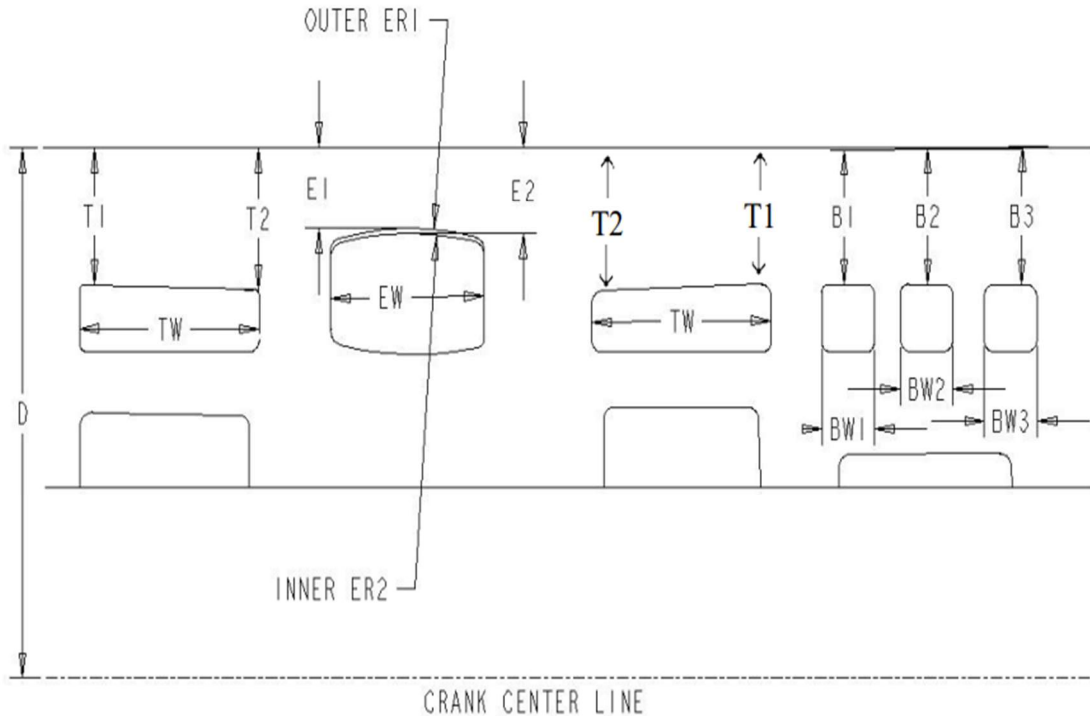
Type:	Petrol
Minimum octane required:	98 RON

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)
<i>(Block and Cylinder port dimesion and layout illustrated on page 8G)</i>		
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 (H)	14.8 +/- 1.0
BW2	22.9 +/- 1.0
BW3 (H)	14.8 +/- 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 (H)	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.

**TWO STROKE OUTBOARD
PETROL ENGINE**

CYLINDER HEAD

Cylinder head material		<u>Aluminum</u>
Volume of combustion chamber (flat plate volume w/ plug and inj. installed)	...min...	51 cc (B)
Compression ratio	...max ...	_____

PISTONS

Material of piston		<u>Aluminum</u>
Number and thickness of rings		<u>2 x 1.5 mm</u>
Type of rings		<u>half keystone</u>

CONNECTING ROD

Length of rod from big end to small end (centre to centre)	+/- 0.2	139.7 mm
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CRANKSHAFT

Number of main bearing journals		_____
Diameter of main bearing journals	+/-	_____ mm
Diameter of connecting rod journals	+/-	_____ mm
Surface finish of crankshaft		<u>Ground</u>

TYPE OF BEARINGS

Piston Pin		<u>Loose Needle</u>
Connecting Rod journal		<u>Caged Roller</u>
Main journal		<u>Caged Roller</u>

CARBURETORS

Number fitted		<u>None</u>
Make		_____
Type		_____
Total number of venturis		_____
Diameter of venturis		_____

**TWO STROKE OUTBOARD
PETROL ENGINE**

FUEL INJECTION

Make (ECU)

Mercury
Electric fuel
Belt-drive Air

Type of pump, model no.

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**

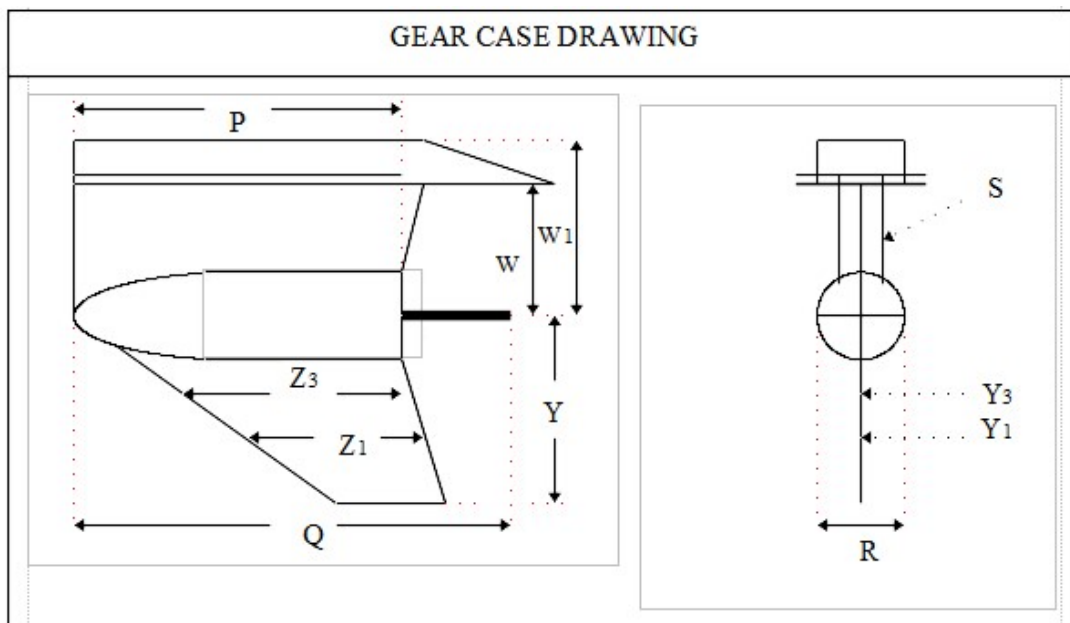
UNDERWATER UNIT (singel engine)

Gear Ratio

13:21; 12:21; 15:28; 14:28

P	Longtitudinal length of gearcase torpedo	+/-5.0	455 mm
Q	Longtitudinal dimension of gearcase including propeller shaft	+/-max	616 mm
R	Transverse dimension of gearcase	+/-min	122 mm (B)
S	Thickness of strut	+/-min	50 mm
Z1	Skeg chord length, 25mm above bottom	+/-5.0	165 mm (B)
Z3	Skeg chord length, 75mm abobe bottom	+/-5.0	193 mm (B)
W1	Distance from propeller shaft to upper flange	+/-5.0	261 mm (B)
W	Distance from propeller shaft to anti-ventilation plate	+/-5.0	207 mm (B)
Y1	Thickness of skeg, 25mm above bottom	+/-min	6.0 mm (B)
Y3	Thickness of skeg, 75mm above bottom	+/-min	9.0 mm
Y	Skeg depth from propeller shaft	+/-5.0	236 mm (B)

Gearcase must have torque tab when used as single engine.
Gearcase has an anti-blow-out ring at rear of torpedo.



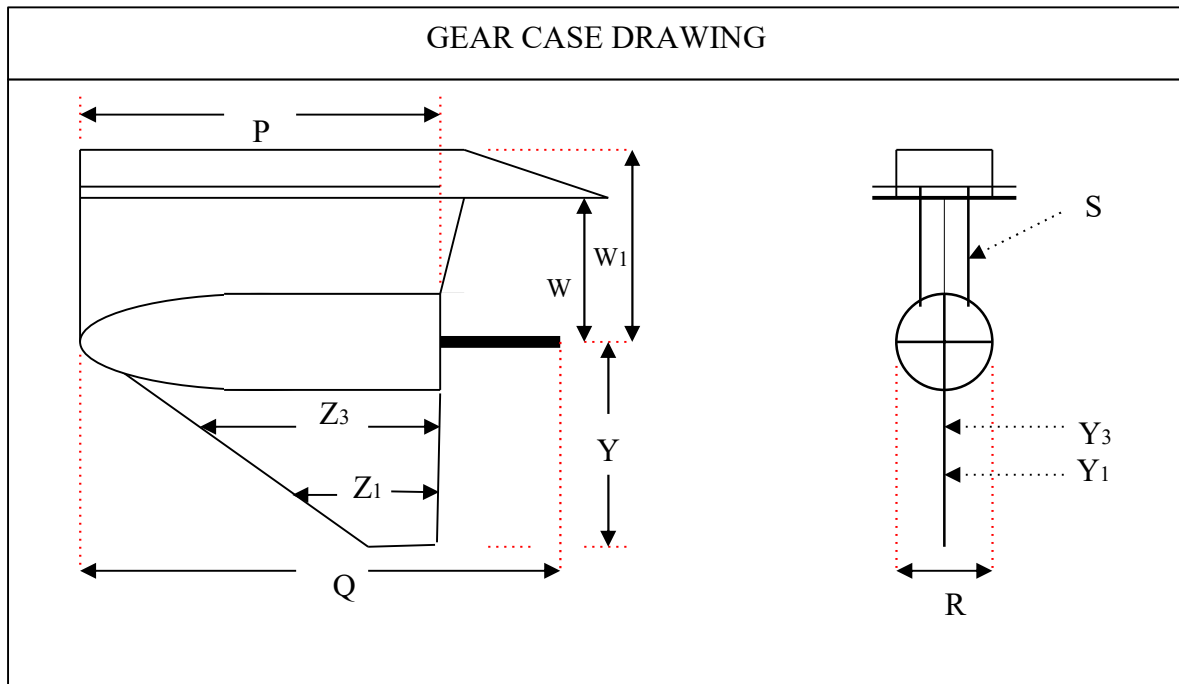
(G) UNDERWATER UNIT (multiple engine)

Gear Ratio

13:21; 12:21; 15:28; 14:28

P	Longitudinal length of gearcase torpedo	+/-5.0	455 mm
Q	Longitudinal dimension of gearcase including propeller shaft	+/-max	616 mm
R	Transverse dimension of gearcase	+/-min	122 mm (B)
S	Thickness of strut	+/-min	50 mm
Z1	Skeg chord length, 25mm above bottom	+/-5.0	120 mm (G)
Z3	Skeg chord length, 75mm above bottom	+/-5.0	165 mm (G)
W1	Distance from propeller shaft to upper flange	+/-5.0	261 mm (B)
W	Distance from propeller shaft to anti-ventilation plate	+/-5.0	207 mm (B)
Y1	Thickness of skeg, 25mm above bottom	+/-min	6.0 mm (B)
Y3	Thickness of skeg, 75mm above bottom	+/-min	9.0 mm
Y	Skeg depth from propeller shaft	+/-5.0	236 mm (B)

Gearcase has an anti-blow-out ring at rear of torpedo.



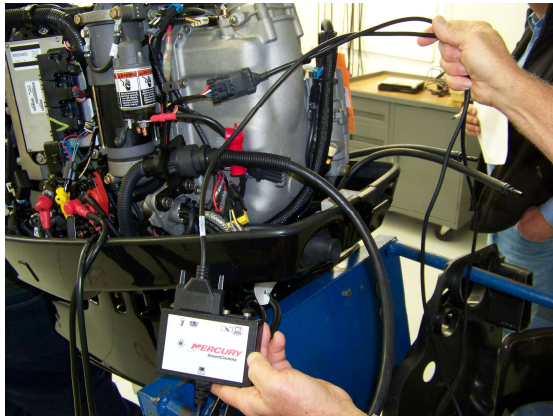
**TWO STROKE OUTBOARD
PETROL ENGINE**

NOTES

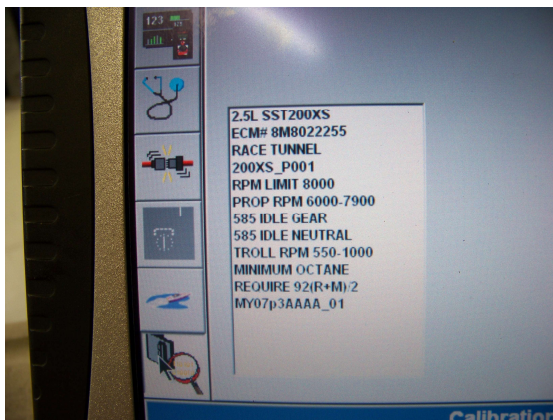
- 1) Photo of Electronic Unit – PCM 0801 – Mercury Part Number 8M8024675 – Limited to 7000 RPM:



- 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) Photo of mandatory exhaust outlet plate (must be installed):



5) Photo of exhaust port showing unique machining which must be present:



6) Photo of flywheel cover with added air inlet hole, maximum diameter of 120 mm.



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

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 bullet terminals and connect the two bullet terminals leading to the ECU. Removal of any part is not allowed

