If the outboard motor's serial number plate contains the CE mark in the lower left-hand corner, the following statement applies:

This outboard motor manufactured by Mercury Marine, Fond du Lac, WI, USA or Marine Power Europe Inc. Park Industrel, de Petit-Rechain, Belgium complies with the requirements of the following directives and standards, as amended:

Machinery Directive:

EMC Directive:

Pere

98/37/EC,

89/336/EC; std. EN50081-1, SAE J551 (CISPR Pub. 12), EN 50082-1, IEC 61000 PT4-2, IEC 61000 PT4-3

Patrick C. Mackey

President, Mercury Marine, Fond du Lac, WI USA

European Regulations Contact:

Product Environmental Engineering Department, Mercury Marine,

Fond du Lac, WI USA

EPA Emissions Regulations

Outboards manufactured by Mercury Marine in the United States are certified to the United States Environmental Protection Agency as conforming to the requirements of the regulations for the control of air pollution from new outboard motors. This certification is contingent on certain adjustments being set to factory standards. For this reason, the factory procedure for servicing the product must be strictly followed and, wherever practicable, returned to the original intent of the design. **Maintenance, replacement, or repair of the emission control devices and systems may be performed by any marine engine repair establishment or individual.**

Engines are labeled with an Emission Control Information decal as permanent evidence of EPA certification.

WARNING

The engine exhaust from this product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

Thank You

for your purchase of one of the finest outboards available. You have made a sound investment in boating pleasure. Your outboard has been manufactured by Mercury Marine, a world leader in marine technology and outboard manufacturing since 1939. Over the years, we have committed ourselves to produce the finest quality products. This led to Mercury Marine's reputation for strict quality control, excellence, durability, lasting performance and being the best at providing after-the-sale support.

Please read this manual carefully before operating your outboard. This manual has been prepared to assist you in the operation, safe use, and care of your outboard.

All of us at Mercury Marine took pride in building your outboard and wish you many years of happy and safe boating.

Again, thank you for your confidence in Mercury Marine.

The description and specifications contained herein were in effect at the time this manual was approved for printing. Mercury Marine, whose policy is one of continued improvement, reserves the right to discontinue models at any time, to change specifications, designs, methods, or procedures without notice and without incurring obligation.

Mercury Marine, Fond du Lac, Wisconsin U.S.A.

Litho in U.S.A.

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Maintenance Log

Maintenance Log

Boater's Responsibilities

The operator (driver) is responsible for the correct and safe operation of the boat and safety of its occupants and general public. It is strongly recommended that each operator (driver) read and understand this entire manual before operating the outboard.

Be sure at least one additional person on board is instructed in the basics of starting and operating the outboard and boat handling in case the driver is unable to operate the boat.

Before Operating Your Outboard

Read this manual carefully. Learn how to operate your outboard properly. If you have any questions, contact your dealer.

This manual as well as safety labels posted on the outboard use the following safety alerts to draw your attention to special safety instructions that should be followed.

WARNING

WARNING - indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION

CAUTION - indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury or property damage. It may also be used to alert against unsafe practices.

Boat Horsepower Capacity

WARNING

Using an outboard that exceeds the maximum horsepower limit of a boat can: 1) cause loss of boat control 2) place too much weight at the transom altering the designed flotation characteristics of the boat or 3) cause the boat to break apart particularly around the transom area. Overpowering a boat can result in serious injury, death or boat damage.

Do not overpower or overload your boat. Most boats will carry a required capacity plate indicating the maximum acceptable power and load as determined by the manufacturer following certain federal guidelines. If in doubt, contact your dealer or the boat manufacturer.



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High-Speed And High-Performance Boat Operation

If your outboard is to be used on a high speed or high performance boat with which you are unfamiliar, we recommend that you never operate it at its high speed capability without first requesting an initial orientation and familiarization demonstration ride with your dealer or an operator experienced with your boat/outboard combination. For additional information, obtain a copy of our **Hi-Performance Boat Operation** booklet (part number 90-848481) from your dealer, distributor, or Mercury Marine.



Lanyard Stop Switch

The purpose of a lanyard stop switch is to turn off the engine when the operator moves far enough away from the operator's position (as in accidental ejection from the operator's position) to activate the switch. A lanyard stop switch is included as part of the ignition module/wiring harness.

While activation of the lanyard stop switch will stop the engine immediately, a boat will continue to coast for some distance depending upon the velocity and degree of any turn at shut down. However, the boat will not complete a full circle. While the boat is coasting, it can cause injury to anyone in the boat's path as seriously as the boat would when under power.



2908

We strongly recommend that other occupants be instructed on proper starting and operating procedures should they be required to operate the engine in an emergency (e.g. if the operator is accidentally ejected).

WARNING

Should the operator fall out of the boat, the possibility of serious injury or death from being run over by the boat can be greatly reduced by stopping the engine immediately. Always properly connect both ends of the stop switch lanyard to the stop switch and the operator.

WARNING

Avoid serious injury or death from deceleration forces resulting from accidental or unintended stop switch activation. The boat operator should never leave the operator's station without first disconnecting the stop switch lanyard from the operator.

Accidental or unintended activation of the switch during normal operation is also a possibility. This could cause any, or all, of the following potentially hazardous situations:

- Occupants could be thrown forward due to unexpected loss of forward motion - a particular concern for passengers in the front of the boat who could be ejected over the bow and possibly struck by the gear case or propeller.
- Loss of power and directional control in heavy seas, strong current or high winds.
- Loss of control when docking.

Protecting People In The Water WHILE YOU ARE CRUISING

It is very difficult for a person in the water to take quick action to avoid a boat heading in their direction, even at slow speeds.



Always slow down and exercise extreme caution any time you are boating in an area where there might be people in the water.

Whenever a boat is moving (even coasting) and the gear shift is in NEUTRAL, there is sufficient force by the water on the propeller to cause the propeller to rotate. This neutral propeller rotation can cause serious injury.

WHILE BOAT IS STATIONARY

WARNING

Stop your engine immediately whenever anyone in the water is near your boat. Serious injury to the person in the water is likely if contacted by a rotating propeller, a moving boat, a moving gearcase, or any solid device rigidly attached to a moving boat or gearcase.

Shift into neutral and shut off the engine before allowing people to swim or be in the water near your boat.

Exhaust Emissions

BE ALERT TO CARBON MONOXIDE POISONING

Carbon monoxide is present in the exhaust fumes of all internal combustion engines. This includes the outboards, sterndrives and inboard engines that propel boats, as well as the generators that power various boat accessories. Carbon monoxide is a deadly gas that is odorless, colorless and tasteless.

Early symptoms of carbon monoxide poisoning which should not be confused with seasickness or intoxication, include headache, dizziness, drowsiness, and nausea.

WARNING

Avoid the combination of a running engine and poor ventilation. Prolonged exposure to carbon monoxide in sufficient concentration can lead to unconsciousness, brain damage, or death.

GOOD VENTILATION

Ventilate passenger area, open side curtains, or forward hatches to remove fumes.



Example of desired air flow through the boat.

POOR VENTILATION

Under certain running and/or wind conditions, permanently enclosed or canvas enclosed cabins or cockpits with insufficient ventilation may draw in carbon monoxide. Install one or more carbon monoxide detectors in your boat.

Although the occurrence is rare, on a very calm day, swimmers and passengers in an enclosed area of a stationary boat that contains or is near a running engine may be exposed to a hazardous level of carbon monoxide.

WHILE BOAT IS STATIONARY



ob00317

- a Running the engine when the boat is moored in a confined space.
- **b** Mooring close to another boat that has its engine running.

WHILE BOAT IS MOVING



- a Running the boat with the trim angle of the bow too high.
- **b** Running the boat with no forward hatches open.

Wave And Wake Jumping

Operating recreational boats over waves and wake is a natural part of boating. However, when this activity is done with sufficient speed to force the boat hull partially or completely out of the water, certain hazards arise, particularly when the boat re-enters the water.



The primary concern is the boat changing direction while in the midst of the jump. In such case the landing may cause the boat to veer violently in a new direction. Such a sharp change in direction can cause occupants to be thrown out of their seats, or out of the boat.

Avoid serious injury or death from being thrown within or out of a boat when it lands after jumping a wave or wake. Avoid wave or wake jumping whenever possible. Instruct all occupants that if a wake or wave jump occurs, get low and hang onto any boat hand hold.

There is another less common hazardous result from allowing your boat to launch off a wave or wake. If the bow of your boat pitches down far enough while airborne, upon water contact it may penetrate under the water surface and submarine for an instant. This will bring the boat to a nearly instantaneous stop and can send the occupants flying forward. The boat may also steer sharply to one side.

Impact With Underwater Hazards

Reduce speed and proceed with caution whenever you drive a boat in shallow water areas, or in areas where you suspect underwater obstacles may exist which could be struck by the outboard or the boat bottom. The most important thing you can do to help reduce injury or impact damage from striking a floating or underwater object is to control the boat speed. Under these conditions, boat speed should be kept to a minimum planing speed 24 to 40 km/h (15 to 25 MPH).



WARNING

To avoid serious injury or death from all or part of an outboard coming into the boat after striking a floating or underwater obstacle maintain a top speed no greater than minimum planing speed.

Striking a floating or underwater object could result in an infinite number of situations. Some of these situations could result in the following:

- Part of the outboard or the entire outboard could break loose and fly into the boat.
- The boat could move suddenly in a new direction. Such a sharp change in direction can cause occupants to be thrown out of their seats or out of the boat.
- A rapid reduction in speed. This will cause occupants to be thrown forward, or even out of the boat.
- Impact damage to the outboard and/or boat.

Keep in mind, the most important thing you can do to help reduce injury or impact damage during an impact is control the boat speed. Boat speed should be kept to a minimum planing speed when driving in waters known to have underwater obstacles.

After striking a submerged object, stop the engine as soon as possible and inspect it for any broken or loose parts. If damage is present or suspected, the outboard should be taken to an authorized dealer for a thorough inspection and necessary repair.

The boat should also be checked for any hull fractures, transom fractures, or water leaks.

Operating a damaged outboard could cause additional damage to other parts of the outboard, or could affect control of the boat. If continued running is necessary, do so at greatly reduced speeds.

WARNING

Avoid serious injury or death from loss of boat control. Continued boating with major impact damage can result in sudden outboard component failure with or without subsequent impacts. Have the outboard thoroughly inspected and any necessary repairs made.

Selecting Accessories For Your Outboard

Genuine Mercury Precision or Quicksilver Accessories have been specifically designed and tested for your outboard. These accessories are available from Mercury Marine dealers.

WARNING

Check with your dealer before installation of accessories. The misuse of acceptable accessories or the use of unacceptable accessories can result in serious injury, death, or product failure.

Some accessories not manufactured or sold by Mercury Marine are not designed to be safely used with your outboard or outboard operating system. Acquire and read the installation, operation, and maintenance manuals for all your selected accessories.

Safe Boating Suggestions

In order to safely enjoy the waterways, familiarize yourself with local and other governmental boating regulations and restrictions, and consider the following suggestions.

Use flotation devices. Have an approved personal flotation device of suitable size for each person aboard (it is the law) and have it readily accessible.

Do not overload your boat. Most boats are rated and certified for maximum load (weight) capacities (refer to your boat capacity plate). If in doubt, contact your dealer or the boats manufacturer.

Perform safety checks and required maintenance. Follow a regular schedule and ensure that all repairs are properly made.

Know and obey all nautical rules and laws of the waterways. Boat operators should complete a boating safety course. Courses are offered in the U.S.A. by 1) The U.S. Coast Guard Auxiliary, 2) The Power Squadron, 3) The Red Cross and 4) your state boating law enforcement agency. Inquiries may be made to the Boating Hotline, 1-800-368-5647 or the Boat U.S. Foundation information number 1-800-336-BOAT.

Make sure everyone in the boat is properly seated. Do not allow anyone to sit or ride on any part of the boat that was not intended for such use. This includes the back of seats, gunwales, transom, bow, decks, raised fishing seats, any rotating fishing seat; or anywhere that an unexpected acceleration, sudden stopping, unexpected loss of boat control, or sudden boat movement could cause a person to be thrown overboard or into the boat.

Never be under the influence of alcohol or drugs while boating (it is the law). Alcohol or drug use impairs your judgment and greatly reduces your ability to react quickly.

Prepare other boat operators. Instruct at least one other person on board in the basics of starting and operating the outboard, and boat handling, in case the driver becomes disabled or falls overboard.

Passenger boarding. Stop the engine whenever passengers are boarding, unloading, or are near the back (stern) of the boat. Just shifting the outboard into neutral is not sufficient.

Be alert. The operator of the boat is responsible by law to maintain a proper lookout by sight and hearing. The operator must have an unobstructed view particularly to the front. No passengers, load, or fishing seats should block the operators view when operating the boat above idle speed.

Never drive your boat directly behind a water skier in case the skier falls. As an example, your boat traveling at 40 km/h (25 MPH) will overtake a fallen skier 61 m (200 ft.) in front of you in 5 seconds.

Watch fallen skiers. When using your boat for water skiing or similar activities, always keep a fallen or down skier on the operator's side of the boat while returning to assist the skier. The operator should always have the down skier in sight and never back up to the skier or anyone in the water.

Report accidents. Boat operators are required by law to file a Boating Accident Report with their state boating law enforcement agency when their boat is involved in certain boating accidents. A boating accident must be reported if 1) there is loss of life or probable loss of life, 2) there is personal injury requiring medical treatment beyond first aid, 3) there is damage to boats or other property where the damage value exceeds \$500.00 or 4) there is complete loss of the boat. Seek further assistance from local law enforcement.

Recording Serial Number

It is important to record this number for future reference. The serial number is located on the outboard as shown.



- a Serial number
- b Model year
- c Model designation
- d Year manufactured
- e Certified Europe insignia

Specifications - SST-200XS OptiMax GENERAL

Description	Specifications
Cylinder Configuration	60 Degree V6
Propshaft Horsepower	200

Description	Specifications
Propshaft Kilowatts	149
Engine Weight	129 kg (285 lb.)
Number of Cylinders	6
Idle rpm	650 ± 25 rpm
Full Throttle rpm Range	6500-7000 rpm
Overspeed Rev Limit	7000 rpm
Engine Displacement	2508 cc (153 cu. in.)
Cylinder Bore	88.4 mm (3.50 in.)
Stroke	67.3 mm (2.65 in.)
Recommended Spark Plug	NGK PZFR5-11
Spark Plug Gap	1.0 mm (0.040 in.)
Firing Order	1-2-3-4-5-6
Maximum Timing:	Not Adjustable: Controlled by ECM
Idle Timing:	
Fuel Line Pressure	613.5 ± 13.8 kPa (89 ± 2 psi)
Air Pressure	544.0 ± 13.8 kPa (79 ± 2 psi)
Gear Ratio	15:17 (1.13:1 IV SSM)
Required Fuel	Refer to Fuel and Oil
Recommended Oil	Refer to Fuel and Oil
Gearcase Oil	Hi-Performance Gear Lube
Gearcase Lubricant Capacity	474 ml (16 fl oz)
Battery Rating	1000-MCA (Marine Cranking Amps) 800-CCA (Cold Cranking Amps) 105 Amp Hours
Charging System Output	50 Amps Max.

NOTE: Where applicable, specifications are derived at sea level.

Special Tools and Kits KITS

Description	Part Number
Oil Pump Kit	842727A01
Ignition Module	84-816625A20

Lubricants/Sealants/Adhesives

Tube Ref. #	Description	Mercury Part Number	Quicksilver Part Number
34 (0	Special Lubricant 101	92-802865A1	92–802865Q1
87 (0	High Performance Gear Lube	92-802854A1	92–802854Q1
94 (0	Anti-Corrosion Grease	92-802867A1	92–802867Q1
95 🗇	2-4-C with Teflon	92-802859A1	92-802859Q1
114 🛈	Power Trim and Steering Fluid	92-802880A1	92–802880Q1
115 🕜	Premium Plus 2-cycle TC-W3 Outboard Oil	92–813743A2	N/A
119 (0	Storage Seal Rust Inhibitor	92–802878–56	92–802878Q56
120	Corrosion Guard	92–802878 55	92–802878Q55
124 0	Fuel System Treatment and Stabilizer Concentrate	92–802876A1	92–802876Q1

GENERAL INFORMATION Component Identification 1 2 14 3 13 12 4 11 5 C) 6 109 8 2907

- 1 Top cowl
- **2** Cowl-mounted trim switch
- 3 Rear cowl latch
- 4 Tell tale
- 5 Drive shaft housing
- 6 Exhaust
- 7 Propeller

- 8 Skeg
- 9 Coolong water intake holes
- 10 Serial number location (port)
- 11 Transom mounting bracket
- 12 Tilt tube
- 13 Bottom cowl
- 14 Front cowl latch

INSTALLATION

Top Cowl Removal and Installation

WARNING

Avoid serious injury or death. Do not remove or install the cowl while the engine is running.



To remove the top cowl:

- 1. Rotate the rear latch handle clockwise.
- 2. Pull the front latch out and lift the front of the top cowl.
- 3. Lift the cowl from the engine.

To install the cowl:

- 1. Lower the top cowl into position over the engine.
- 2. Rotate the rear latch counter-clockwise until secure.
- 3. Pull out on the front latch and push down on the front of the cowl to engage the front latch.

Coil Plate and Air Compressor Assembly

Tighten the coil plate and air compressor bolts to the specified torque values in the sequence shown.

INSTALLATION

IMPORTANT: The air compressor is mounted using four bolts (two separate torque values).



2911

INSTALLATION



Ref.	Description	Nm	lb. in.	lb. ft.
1	Compressor Locknut	34		25
2	Coil Plate Bolts	34		25
3				
4				
5				
6	Coil Plate Adaptor Bolts	34		25
7				
8	Air Compressor Bolts	34		25
9				
10	Air Compressor Bolts	55.5		41
11				

Fuel Requirements

Use a major brand of unleaded gasoline, preferably without alcohol.

CAUTION

Use of improper fuel can seriously damage your engine. Engine damage resulting from use of improper fuel is considered misuse of the engine and damage caused thereby will not be covered under the Mercury Racing limited warranty.

OCTANE REQUIREMENTS (U.S./CANADA)

FU	EL	ΤY	ΡE

MINIMUM POSTED OCTANE

Unleaded premium^{1.}

91 (R+M)/2

OCTANE REQUIREMENTS (OUTSIDE THE U.S./CANADA)

FUEL TYPE	MINIMUM POSTED OCTANE
Unleaded premium ^{1.}	96 RON

USING REFORMULATED (OXYGENATED) FUELS (USA ONLY)

This type of fuel is required in certain areas of the U.S. The two types of oxygenates used in these fuels are alcohol (Ethanol) or Ether (MTBE or ETBE). If Ethanol is the oxygenate that is used in the gasoline in your area, refer to the **Fuel Containing Alcohol** section.

These reformulated fuels are acceptable for use in your Mercury engine.

FUEL CONTAINING ALCOHOL

If the fuel in your area contains either methanol (methyl alcohol) or ethanol (ethyl alcohol), you should be aware of certain adverse effects that can occur. These adverse effects are more severe with methanol. Increasing the percentage of alcohol in the fuel can also worsen these adverse effects.

Some of these adverse effects are caused because the alcohol in the fuel can absorb moisture from the air, resulting in a separation of the water/ alcohol from the gasoline in the fuel tank.

^{1.} Mercury Racing does not recommend using leaded gasoline. Read the information in the Fuel Containing Alcohol section.

The fuel system components on your Mercury engine will withstand up to 10% alcohol content in the gasoline. We do not know what percentage your boat's fuel system will withstand. Contact your boat manufacturer for specific recommendations on the boats fuel system components (fuel tanks, fuel lines, and fittings).

Fuel containing alcohol may increase:

- Corrosion of metal parts.
- Deterioration of rubber or plastic parts.
- Fuel permeation through rubber fuel lines.
- Starting and operating difficulties.

CAUTION

When operating a Mercury engine with fuel contailing alcohol, avoid storing the fuel in the fuel tank for long periods of time. Long storage periods, common to boats, create unique problems. In cars, alcohol-blend fuelos are normally consumed before they can absorb enough mositure tocause trouble. However, boats often sit idle long enough for phase seperation to take place. In addition, internal corrosion may take place during storage if alcohol has washed protective oil films from internal components.

IMPORTANT: Because of possible adverse effects of alcohol in gasoline, it is recommended that only alcohol-free fuel be used where possible.

If only fuel containing alcohol is available, or if the presence of alcohol is unknown, increased inspection frequency for leaks and abnormalities is required.

Oil Recommendation

Recommended Oil Premium Plus 2-Cycle TC-W3 Outboard Oil	lus 2-Cycle TC-W3 Outboard Oil
---	--------------------------------

TC-W3 Premium Plus Outboard Oil is a higher grade oil that provides increased lubrication and extra resistance to carbon buildup when used with good or varying grades of gasoline.

IMPORTANT: Oil must be NMMA certified TC-W3 2-Cycle oil.

Periodically consult with your dealer to get the latest gasoline and oil recommendations. If Quicksilver 2-Cycle Outboard Oil is not available, substitute another brand of 2-Cycle outboard oil that is NMMA Certified TC-W3. The use of an inferior 2-Cycle outboard oil can reduce engine durability. Damage from use of inferior oil may not be covered under the limited warranty.

Filling Remote Oil Tank

Remove filler cap and fill with the specified oil. Oil tank capacity is 11.5 l (3 gal). Replace filler cap and tighten securely.

IMPORTANT: Always ensure that the cap to this oil tank is vented.



Filling Engine Mounted Oil Reservoir Tank

NOTE: Filling this tank is only necessary if the oil level should ever drop and the low oil warning system is activated.

- 1. Remove the top cowl.
- 2. Turn the ignition switch to "ON." This will activate the oil pump and fill the engine-mounted reservoir.

3. Run the pump until all the air is vented out of the engine-mounted reservoir and the reservoir and oil return line are filled with oil.



a - Oil return hose

b - Engine-mounted oil reservoir

Filling Gasoline Tank

- Fill fuel tanks outdoors away from heat, sparks, and open flames.
- Remove portable fuel tanks from boat to refill them.
- Always stop engine before refilling tanks.
- Do not completely fill the fuel tanks. Leave approximately 10% of the tank volume unfilled. Fuel will expand in volume as its temperature rises and can leak under pressure if the tank is completely filled.

Avoid serious injury of death from a gasoline fire or explosion. Always stop the engine and do not smoke or allow open flames or sparks in the area while filling fuel tanks.

FEATURES AND CONTROLS

Power Trim

NOTE: Outboard position can be adjusted by pressing trim switch. This range is used while operating your boat on plane.

- **Pressing "DN":** Moves the outboard in closer to the boat transom, called trimming IN or DOWN.
- **Pressing "UP":** Moves the outboard further away from the boat transom, called trimming OUT or UP.
- **The term "trim"** generally refers to the adjustment of the outboard within the first 20° range of travel.

Power Trim Operation

With most boats, operating around the middle of the trim range will give satisfactory results. Trimming your outboard all the way in or out may improve performance, but cause some potential control hazards.

WARNING

Avoid possible serious injury or death. When the outboard is trimmed IN or OUT beyond a neutral steering condition, a pull on the steering wheel in either direction may result. Failure to keep a continuous firm grip on the steering wheel when this condition exists can result in loss of boat control as the outboard can turn freely. The boat can now spin out or go into a very tight maximum turn, which, if unexpected, may result in occupants being thrown within or out of the boat.

Consider the following lists carefully.

Trimming in/down can:

- Lower the bow of the boat.
- Result in quicker planing off.
- Generally improve the ride in choppy water.
- Increase steering torque or pull to the left (with the left-hand rotation propeller).
- In excess, lower the bow to a point at which the boat begins to plow with the bow in the water while on plane. This can result in an unexpected turn in either direction called bow steering or over steering if any turn is attempted, or if a significant wave is encountered.

Trimming out/up can:

- Lift the bow higher out of the water.
- · Generally increase top speed.

FEATURES AND CONTROLS

- Increase steering torque or pull to the right at a normal installation height (with the left hand rotation propeller).
- In excess, cause boat porpoising (bouncing) or propeller ventilation.
- Cause engine overheating if any cooling water intake holes are above the water line.

Hydraulic Up/Down Adjustment

Your outboard can be raised up and down approximately 2.54 cm (1 in.) hydraulically. The hydraulic system allows the operator to raise or lower the outboard while on plane.

HYDRAULIC UP/DOWN OPERATION

The optimum height adjustment for your boat will depend on many variables such as water conditions, boat design, propeller size and design, weight distribution, etc. During a race both water conditions and fuel load could/will change which could greatly affect the optimum height adjustment of your outboard. Care must be given to optimize safe handling throughout a race or other operation of the boat and to maintain adequate water supply to the engine at all times.

Avoid possible serious injury or death. Do not operate your outboard at a height adjustment that could cause unsafe handling conditions or a lack of cooling water to the engine. When racing, extensive testing is necessary for the operator to be familiar with all aspects of the boat's handling, which can be greatly affected by the up/down adjustment.

Trim Pump Thermal Switch Operation

Release the trim switch as soon as the outboard reaches the end of its travel or an overload switch will stop the pump motor operation. If the overload switch opens, do not press the trim switch for approximately one minute. After one minute, the overload switch resets, allowing you to operate the pump.

Engine Break-in

Severe damage to the engine can result by not complying with the engine break-in proceedure. Engine damage may not be covered by the limited warranty.

CAUTION

It is the boat operator's responsibility to always drive in a safe manner. Improper trim angle of the outboard when driving at high speeds can be difficult and dangerous. Trim angle is specified to help guide the operator in determining how to put the proper load on the engine during the break-in period. These guidelines do not suggest or require unsafe boat operation.

BREAK-IN PROCEDURE

Always vary throttle settings during Break-in

1st HOUR

- Allow engine to warm-up for 30 60 seconds.
- Do not idle for more than 5 minutes
- Run the engine the majority of the time between 4000 5400 rpm (approximately three quarter throttle).
- Change engine speed approximately every two (2) minutes.
- Avoid trimming the outboard out (up) beyond a vertical trim position during operation.

NEXT 3 HOURS: Change engine speed every 10 minutes.

Engine Break-in Fuel Mixture

Avoid engine damage. Do not add oil to the gasoline in the fuel tank.

The Propulsion Control Module (PCM) controls oil and fuel mixture during engine break-in.

GASOLINE REQUIREMENT

Refer to Fuel and Oil.

OIL RECOMMENDATION

Use Mercury Precision Premium Plus 2-Cycle TC-W3 Outboard Oil.

Pre-Starting Check List

- Engine lowered to run position with all water intake holes submerged
- Fuel tank vent cap open or fuel drain valve ON.
- Fuel supply OK
- Lanyard stop switch in RUN position and cord connected.
- Top cowl latches secure.
- Make inspection checks listed in the Inspection and Maintenance Schedule. Refer to **Maintenance** section.

Operating In Freezing Temperatures

When using your outboard or having your outboard moored in freezing or near freezing temperatures, keep the outboard tilted down at all times so the gearcase is submerged. This prevents trapped water in gearcase from freezing and causing possible damage to the water pump and other components.

If there is a chance of ice forming on the water, the outboard should be removed and drained completely of water. If ice should form at the water level inside the outboard driveshaft housing, it will block water flow to the engine causing possible damage.

Operating In Salt Water Or Polluted Water

We recommend that you flush the internal water passages of your outboard with fresh water after each use in salt or polluted water. This will prevent a buildup of deposits from clogging the water passages. Refer to **Maintenance - Flushing The Cooling System**.

Operating at High Elevations

Your engine automatically compensates for high elevation changes. A different pitch propeller may help reduce some normal performance loss resulting from reduced oxygen in the air. Consult your dealer.

Effects of Elevation and Weather on Performance

The following conditions lower engine performance and cannot be compensated by the engine fuel or electronic management systems.

- Above sea level elevations
- High temperature.

- Low barometric pressure.
- High humidity.

These conditions above reduce air density to the engine, which in turn lowers the following:

- Boost pressure on supercharged engines
- Horsepower and torque throughout the rpm range
- Peak rpm
- Cranking compression

EXAMPLE: An engine run at an elevation of 8,000 feet will have over a 30% power loss while a loss of engine power on a hot and humid day could be as much as 14%. These losses apply to normally aspirated and supercharged engines.

Compensating for power robbing conditions:

- Switch to lower pitch propeller.
- Change gear ratio.

Some boat performance can be regained by dropping to a lower pitch propeller but engine performance will still remain lower. In some cases, a gear ratio reduction may be more beneficial. To optimize engine performance, prop the engine to allow it to operate at or near the top end of the recommended maximum rpm range at wide-open-throttle with a normal boat load.

Other advantages to propeller or gear ratio changes:

- Reduces the possibility of detonation.
- Enhances overall reliability and durability of the engine.

Starting the Engine



To start the engine:

- 1. Connect the lanyard to the stop switch.
- 2. Flip the ignition switch to "ON."

NOTE: The red warning light illuminates when the harness is energized and ready to start the engine, or if the engine goes into Guardian mode. Since this system does not include a warning horn, the red light acts as a visible warning system.

3. Depress the start switch to "START;" release when the engine fires.

Stopping the Engine

To stop the engine, flip the ignition switch to "OFF."

Power Package Care

To ensure safety and retain dependability keep your power package in the best operating condition by performing the periodic inspections and maintenance listed in the Inspection and Maintenance Schedule. Record maintenance performed in Maintenance Log at the back of this book. Save all maintenance work orders and receipts.

WARNING

Neglected power package inspection and maintenance or performing maintenance or repairs you are not familiar with could result in personal injury, death, or product failure.

Submerged Power Package

A submerged power package requires prompt service by an authorized dealer after recovery. This immediate attention is necessary once the engine is exposed to the atmosphere to minimize internal corrosion damage to the engine.

Replacement Parts for Your Power Package

Mercury recommends using original Mercury Precision replacement parts and lubricants.

WARNING

Using a replacement part that is inferior to the original part could result in personal injury, death, or product failure.

EPA Emissions Regulations

All new outboards manufactured by Mercury Marine are certified to the United States Environmental Protection Agency, as conforming to the requirements of the regulations for the control of air pollution from new outboard motors. This certification is contingent on certain adjustments being set to factory standards. For this reason, the factory procedure for servicing the product must be strictly followed and, wherever practicable, returned to the original intent of the design. Maintenance, replacement, or repair of the emission control devices and systems may be performed by any marine spark ignition (SI) engine repair establishment or individual.

EMISSION CERTIFICATION LABEL

An emission certification label, showing emission levels and engine specifications directly related to emissions, is placed on the engine at time of manufacture.



- a Idle speed
- **b** Engine horsepower
- c Piston displacement
- d Date of manufacture
- e Valve clearance (if applicable)

- f Family number
- g Maximum emission output for the engine family
- h Timing specification
- i Recommended spark plug and gap

OWNER RESPONSIBILITY

The owner/operator is required to have routine engine maintenance performed to maintain emission levels within prescribed certification standards.

The owner/operator is not to modify the engine in any manner that would alter the horsepower or allow emissions levels to exceed their predetermined factory specifications.

Fuel System

IMPORTANT: Use an approved container to collect and store fuel. Wipe up any spillage immediately. Material used to contain spillage must be disposed of in an approved receptacle.

Before servicing any part of the fuel system:

- Stop engine and disconnect the battery.
- Drain the fuel system completely.
- Perform fuel system service in a well ventilated area.
- Inspect any completed service work for sign of fuel leakage.

FUEL LINE INSPECTION

Visually inspect the fuel line and primer bulb for cracks, swelling, leaks, hardness, or other signs of deterioration or damage. If any of these conditions is found, the fuel line or primer bulb must be replaced.

WATER SEPARATING FUEL FILTER

NOTE: The warning system will turn on when water in the fuel filter reaches the full level. Refer to **Warning System** in the **Features and Controls** section.

This filter removes moisture and debris from the fuel. If the filter becomes filled with water, the water can be removed. If the filter becomes plugged with debris, replace the filter.

Refer to the **Inspection and Maintenance Schedule** for the proper maintenance interval.

Removal



2909

- 1. Turn ignition key switch to OFF position.
- 2. Disconnect the harness connection at the bottom of the filter.
- 3. Unscrew the filter in a clockwise direction to remove.
- 4. Tip the filter to drain any fluid into a suitable container.

Installation

- 1. Lubricate the sealing ring on the filter with oil.
- 2. Install the filter and tighten securely by hand.
- 3. Reconnect the harness to the filter.

IMPORTANT: Visually inspect for fuel leakage from the filter while squeezing the primer bulb until firm, forcing fuel into the filter.

Steering and Throttle Systems

WARNING

Avoid serious injury or death. If you experience increased effort or binding while turning the steering wheel, excessive free-play, or an unusual sound while steering, inspect or service the steering system/ control cables immediately. Avoid operating the boat before making repairs. If boat operation is necessary, use extreme care and operate at slow speeds.

Fuses

IMPORTANT: Always carry spare 15 and 20 amp fuses.

The electrical wiring circuits on the engine are protected from overload by fuses in the wiring. If a fuse is blown, try to locate and correct the cause of the overload. If the cause is not found, the fuse may blow again.

- 1. Open the fuse holder and look at the silver colored band inside the fuse. If band is broken, replace the fuse.
- 2. Replace fuse with a new fuse with the same rating.

The fuses and circuits are identified as follows:



- a SmartCraft data bus circuit -15 amp fuse
- **b** Accessories 20 amp fuse
- c Ignition Coil Circuit 20 amp fuse
- d Electric fuel pump/ECM driver power/Oil pump circuit SFE 20 amp fuse

Propeller Replacement

Some damaged Mercury Marine propellers can be repaired. Consult Mercury Racing for available repairs and costs:

Mercury Racing N7480 County RD. "UU" Fond du Lac, WI 54936 920–921–5330

WARNING

If the propeller is rotated while the engine is in gear, there is the possibility that the engine will crank over and start. To prevent this accidental engine starting and possible serious injury caused from being struck by a rotating propeller, always shift outboard to neutral position and remove spark plug leads before you service the propeller.

- 1. Disconnect the spark plug leads.
- 2. Remove the propeller nut and washer.
- 3. Pull the propeller straight off of the shaft. If the propeller is seized to the shaft and cannot be removed, have the propeller removed by an authorized dealer.
- 4. Remove the splined forward thrust washer from the propeller shaft.

IMPORTANT: To prevent the propeller hub from corroding and seizing to the propeller shaft, especially in salt water, apply a coat of Anti–Corrosion Grease or 2–4–C Marine Lubricant with Teflon to the entire shaft at the recommended maintenance intervals and each time the propeller is removed.

5. Coat the propeller shaft with Anti–Corrosion Grease or 2–4–C with Teflon.



Tube Ref. No.	Description	Where Used	Part Number
94 (0	Anti-Corrosion Grease	Propeller Shaft	92-802867Q1

6. Install the propeller, splined washer, outer washer, and propeller nut. Torque the propeller nut to the specified value.

Description	Nm	lb-in.	lb-ft
Propeller Nut	75		55

Spark Plug Inspection And Replacement

WARNING

Avoid serious injury or death from fire or explosion caused by damaged spark plug boots. Damaged spark plug boots can emit sparks. Sparks can ignite fuel vapors under the engine cowl. To avoid damaging spark plug boots, do not use any sharp object or metal tool such as pliers, screwdriver, etc. to remove spark plug boots.

1. Remove the spark plug leads. Twist the rubber boots slightly and pull off.



2. Remove the spark plugs to inspect. Replace spark plug if electrode is worn or the insulator is rough, cracked, broken, blistered or fouled.



3. Set the spark plug gap. See General Information - Specifications.



4. Before installing spark plugs, clean off any dirt on the spark plug seats. Install plugs finger tight, and then tighten to the specified value.

Description	Nm	lb-in.	lb-ft.
Spark plug	27		20

Battery Inspection

The battery should be inspected at periodic intervals to ensure proper engine starting capability.

IMPORTANT: Read the safety and maintenance instructions which accompany your battery.

- 1. Turn off the engine before servicing the battery.
- 2. Add water as necessary to keep the battery full.
- 3. Make sure the battery is secure against movement.
- 4. Battery cable terminals should be clean, tight, and correctly installed. Positive to positive and negative to negative.

5. Make sure the battery is equipped with a nonconductive shield to prevent accidental shorting of battery terminals.

Lubrication Points



Tube Ref. No.	Description	Where Used	Part Number
94 0	Anti-Corrosion Grease	Propeller Shaft Splines	92-802867Q1.
95 (0	2-4-C with Teflon	Tilt Tube and Idler Pulley	92-802859Q1

Checking Power Trim or Hydraulic Up/Down Fluid

- 1. Place the outboard in the full down/in position.
- 2. Remove the trim pump fill/vent screw.

- 3. Wipe the fill/vent screw with a clean lint-free cloth.
- 4. Re-insert it back into the pump, but do not thread into the pump.
- 5. Remove the fill/vent screw and note the oil level. The oil level must be between the "ADD" and "FULL" marks on dipstick.



- a Power trim pump fill/vent screw
- b "FULL" level
- c "ADD" level
- 6. If necessary, add fluid through the fill/vent screw hole to bring level up to the "FULL" mark on the dipstick. Do not overfill.

Tube Ref. No.	Description	Where Used	Part Number
114 0	Power Trim and Steering Fluid	Fill/Vent Screw	92-802880Q1

- 7. To purge the system of air, raise the outboard two or three times. Re-check the fluid level and add if necessary.
- 8. Reinstall the fill/vent screw by turning it all the way in, then loosen one and a half turns.

CAUTION

Fill/Vent screw must be backed out one and a half (1-1/2) turns (after bottoming out) to vent pump reservoir. Failure to loosen the screw could damage the pump.

Storage Preparation

The major consideration in preparing your outboard for storage is to protect it from rust, corrosion, and freezing water damage.

The following storage procedures should be followed to prepare your outboard for out of season storage or prolonged storage (two months or longer).

CAUTION

Never start or operate your outboard (even momentarily) without water circulating through all the cooling water intake holes in the gearcase to prevent damage to the water pump (running dry) or overheating of the engine.

POSITIONING OUTBOARD FOR STORAGE

Store outboard in an upright (vertical) position to allow water to drain out of outboard.

If outboard is stored tilted up in freezing temperature, water may enter the propeller exhaust outlet in the gearcase and could freeze causing damage to the outboard.

FUEL SYSTEM

IMPORTANT: Fuel containing alcohol (ethanol or methanol) can cause a formation of acid during storage and can damage the fuel system. If the fuel being used contains alcohol, it is advisable to drain as much of the remaining fuel as possible from the fuel tank, remote fuel line, and engine fuel system.

To prevent varnish or gum buildup during extended storage, we recommend adding Fuel System Treatment and Stabilizer to the fuel tank and operation of the engine to introduce the additives to the system.

CAUTION

Prevent damage to the water pump or overheating of the engine. Never start or operate your outboard (even momentarily) without an adequate water supply to the engine.

1. Portable Fuel Tank - Pour the required amount of Mercury Precision Fuel System Treatment and Stabilizer (follow instructions on container) into fuel tank. Tip fuel tank back and forth to mix stabilizer with the fuel.

STORAGE

- 2. Permanently Installed Fuel Tank Pour the required amount of Mercury Precision Fuel System Treatment and Stabilizer (follow instructions on container) into a separate container and mix with approximately one quart (one liter) of gasoline. Pour this mixture into the fuel tank.
- 3. Place the outboard in the water or connect the flushing attachment for circulating cooling water. Run the engine for ten minutes to allow treated fuel to fill the fuel system.

PROTECTING INTERNAL ENGINE COMPONENTS

NOTE: Before performing the following steps, make sure the fuel system has been prepared for storage. Refer to **Fuel & Oil** section.

- 1. Remove the spark plugs.
- 2. Using an oil syringe, add approximately 30 ml (1 oz) of fresh engine oil into each spark plug hole.
- 3. Rotate the flywheel manually several times to distribute the oil in the cylinders.
- 4. Reinstall the spark plugs.
- Remove the water separating fuel filter and empty contents in a suitable container. Refer to Maintenance section for removal and installation of filter. Replace fuel filter annually, or every 100 hours of operation, or if large amount of fuel contamination is present.

PROTECTING EXTERNAL OUTBOARD COMPONENTS

- 1. Lubricate all outboard components listed in the Inspection and Maintenance Schedule.
- 2. Touch up any paint nicks. See your Mercury dealer for touch-up paint.
- 3. Spray Corrosion Guard on external metal surfaces

IMPORTANT: Do not apply on corrosion control anodes. GEARCASE

Drain and refill the gearcase lubricant (see maintenance procedure).

BATTERY STORAGE

- 1. Follow the battery manufacturers instructions for storage and recharging.
- 2. Remove the battery from the boat and check water level. Recharge if necessary.
- 3. Store the battery in a cool, dry place.
- 4. Periodically check the water level and recharge the battery during storage.

TROUBLESHOOTING

Starter Motor Will Not Crank the Engine POSSIBLE CAUSES

- Blown 20 Amp fuse in the starting circuit. Refer to Maintenance.
- Outboard is not shifted to neutral position.
- Weak battery or battery connections are loose or corroded.
- Ignition key switch failure.
- Wiring or electrical connection faulty.
- Starter motor solenoid or slave relay failure.

Engine Will Not Start POSSIBLE CAUSES

- Lanyard stop switch not in RUN position.
- Battery not fully charged.
- Incorrect starting procedure. Refer to Operating section.
- Old or contaminated gasoline.
- Fuel is not reaching the engine.
 - Fuel tank is empty.
 - Fuel tank vent not open or restricted.
 - Fuel line is disconnected or kinked.
 - Primer bulb not squeezed.
 - Primer bulb check valve is faulty.
 - Fuel filter is obstructed. Refer to Maintenance section.
 - Fuel pump failure.
 - Fuel tank filter obstructed.
- Blown 20 amp fuse. Check fuses, refer to Maintenance section.
- Threaded connection of an air hose is loose.
- Ignition system component failure.
- Spark plugs fouled or defective. Refer to Maintenance section.

Engine Runs Erratically POSSIBLE CAUSES

- Spark plugs fouled or defective. Refer to Maintenance section.
- Incorrect setup and adjustments.
- Fuel is being restricted to the engine.
 - a. Engine fuel filter is obstructed. Refer to Maintenance section.

TROUBLESHOOTING

- b. Fuel tank filter obstructed.
- c. Stuck anti-siphon valve on built in fuel tank.
- d. Fuel line is kinked or pinched.
- e. Injector plugged.
- Threaded connection of an air hose is loose.
- Fuel pump failure.
- Ignition system component failure.

Performance Loss POSSIBLE CAUSES

- Throttle not opening fully.
- Damaged propeller or improper propeller size.
- Boat overloaded or load improperly distributed.
- Excessive water in bilge.
- Boat bottom is dirty or damaged.
- Warning horn failure.
- Engine block pressure sensor or coolant temperature sensor failure (Guardian is activated).

Warning Horn Activates (With Power Loss) POSSIBLE CAUSES

- Intermittent horn sound:
 - The oil level in the engine-mounted oil reservoir tank is low. Refill the reservoir tank and the remote oil tank. Refer to Fuel and Oil for details.
 - Battery voltage is out of limits.
 - Throttle position sensor failure.
- Continuous horn sound:
 - The oil level in the engine-mounted oil reservoir tank is critically low. Refill the reservoir tank and the remote oil tank. Refer to **Fuel and Oil** for details.
 - The oil pump has failed, halting the oil supply to the engine.
 - Engine speed exceeds the maximum-allowable rpm. The system limits the engine to within the allowable range. If the overspeed condition continues, Guardian places the engine into power reduction. Overspeed may be caused by incorrect propeller pitch, engine height, trim angle, etc.
 - High engine temperature or low block water pressure.

TROUBLESHOOTING

- Cooling system clogged.
- Engine overloaded (cannot attain recommended rpm).
- Incorrect transom height (water pickups not getting adequate water supply).

Warning Horn Activates (No Power Loss) POSSIBLE CAUSES

- Warning horn activates on start up. This is normal operation.
- Water is detected in the water-separating fuel filter. Refer to **Maintenance** for procedures on removing water from the filter.

Battery Will Not Hold Charge POSSIBLE CAUSES

- Battery connections are loose or corroded.
- Low electrolyte level in battery.
- Worn out or inefficient battery.
- Excessive use of electrical accessories.
- Defective rectifier, alternator, or voltage regulator.

WIRING DIAGRAMS

Ignition Module Wiring Diagram

e - Power trim connection

(optional)



j - Harness connection - powerhead (optional)



For all other wiring digrams, refer to the 200XS OptiMax Service Manual.

OWNER SERVICE ASSISTANCE

Local Repair Service

Always return your outboard to your local authorized dealer should the need for service arise. Only he has the factory trained mechanics, knowledge, special tools, equipment, and genuine parts and accessories to properly service your engine should the need occur. He knows your engine best.

Service Away From Home

If you are away from your local dealer and the need arises for service, contact the nearest authorized dealer. Refer to the Yellow Pages of the telephone directory. If, for any reason, you cannot obtain service, contact the nearest Mercury Marine Service Office.

Parts And Accessories Inquiries

All inquiries concerning genuine replacement parts and accessories should be directed to your local authorized dealer. The dealer has the necessary information to order parts and accessories for you. When inquiring on parts and accessories, the dealer requires the model and serial number to order the correct parts.

Service Assistance

Your satisfaction with your outboard product is very important to your dealer and to us. If you ever have a problem, question or concern about your outboard product, contact your dealer or any authorized Mercury Marine dealership. If additional assistance is required, take these steps.

- 1. Talk with the dealership's sales manager or service manager. If this has already been done, then contact the owner of the dealership.
- Should you have a question, concern, or problem that cannot be resolved by your dealership, please contact Mercury Marine Service Office for assistance. Mercury Marine will work with you and your dealership to resolve all problems.

The following information will be needed by the service office:

- Your name and address
- Daytime telephone number
- Model and serial number of your outboard
- The name and address of your dealership
- Nature of problem

OWNER SERVICE ASSISTANCE

Mercury Marine Service Offices

For assistance, call, fax, or write. Please include your daytime telephone number with mail and fax correspondence.

United States			
Telephone	Fax	Mercury Marine	
(920) 929-5040	(920) 929-5893	P.O. Box 1939 Fond du Lac, WI 54936-1939	

United States (Mercury Racing)			
Telephone	Fax	Mercury Racing	
(920) 924-2088	(920) 924-2096	Fond du Lac, WI 54935-9585	

Canada		
Telephone	Fax	Mercury Marine Ltd.
(905) 567-6372	(905) 567-8515	2395 Meadowpine Bivd. Mississauga, Ontario L5N 7W6 Canada

Australia, Pacific			
Telephone	Fax	Mercury Marine Australia	
(61) (3) 9791-5822	(61) (3) 9793-5880	Dandenong, Victoria 3164 Australia	

Europe, Middle East, Africa			
Telephone	Fax	Marine Power - Europe,	
(32) (87) 32 • 32 • 11	(32) (87) 31 • 19 • 65	inc. Parc Industriel de Petit- Rechain B-4800 Verviers, Belgium	

OWNER SERVICE ASSISTANCE

Mexico, Central America, South America, Caribbean			
Telephone	Fax	Mercury Marine	
(954) 744-3513	(954) 744-3535	Miramar, FL 33025 U.S.A.	

Japan		
Telephone	Fax	Mercury Marine - Japan
81-53-423-2500	81-53-423-2510	Shizuoka, 435-0005 Japan

Asia, Singapore			
Telephone	Fax	Mercury Marine Singapore	
5466160	5467789	72 Loyang Way Singapore, 508762	

Ordering Literature

Before ordering literature, please have the following information about your power package available:

Engine Model:	Horsepower:	
Serial Number:	Model year:	

UNITED STATES AND CANADA

For information on additional literature that is available for your particular Mercury/MerCruiser power package and how to order that literature contact your nearest dealer or contact:

MERCURY MARINE			
Telephone Fax Mail			
(920) 929-5110	(920) 929-4894	Mercury Marine Attn: Publications Department P.O. Box 1939 Fond du Lac, WI 54936-1939 ,	

OWNER SERVICE ASSISTANCE OUTSIDE THE UNITED STATES AND CANADA

Contact your nearest dealer or Marine Power Service Center for information on additional literature that is available for your particular Mercury/MerCruiser power package and how to order that literature.

MAINTENANCE LOG

Maintenance Log

Record all maintenance performed on your outboard here. Be sure to save all work orders and receipts.

Date	Maintenance Performed	Engine Hours