SouthMarine 6C5-85790-00

SouthMarine 6C5-85790-00 Temperature Sensor Assembly User Manual

For Yamaha Outboard Engines 25HP, 40HP, 50HP, 60HP

1. Introduction

This manual provides essential information for the proper installation, operation, and maintenance of your SouthMarine 6C5-85790-00 Temperature Sensor Assembly. Please read this manual thoroughly before installation and keep it for future reference. Correct installation and maintenance are crucial for the optimal performance and longevity of the sensor and your outboard engine.

2. Product Overview

The SouthMarine 6C5-85790-00 Temperature Sensor Assembly is a critical component designed to monitor the operating temperature of your Yamaha outboard engine. It sends temperature data to the engine's control unit, which helps prevent overheating and ensures efficient engine performance. This assembly includes the sensor probe, wiring, and a compatible electrical connector.

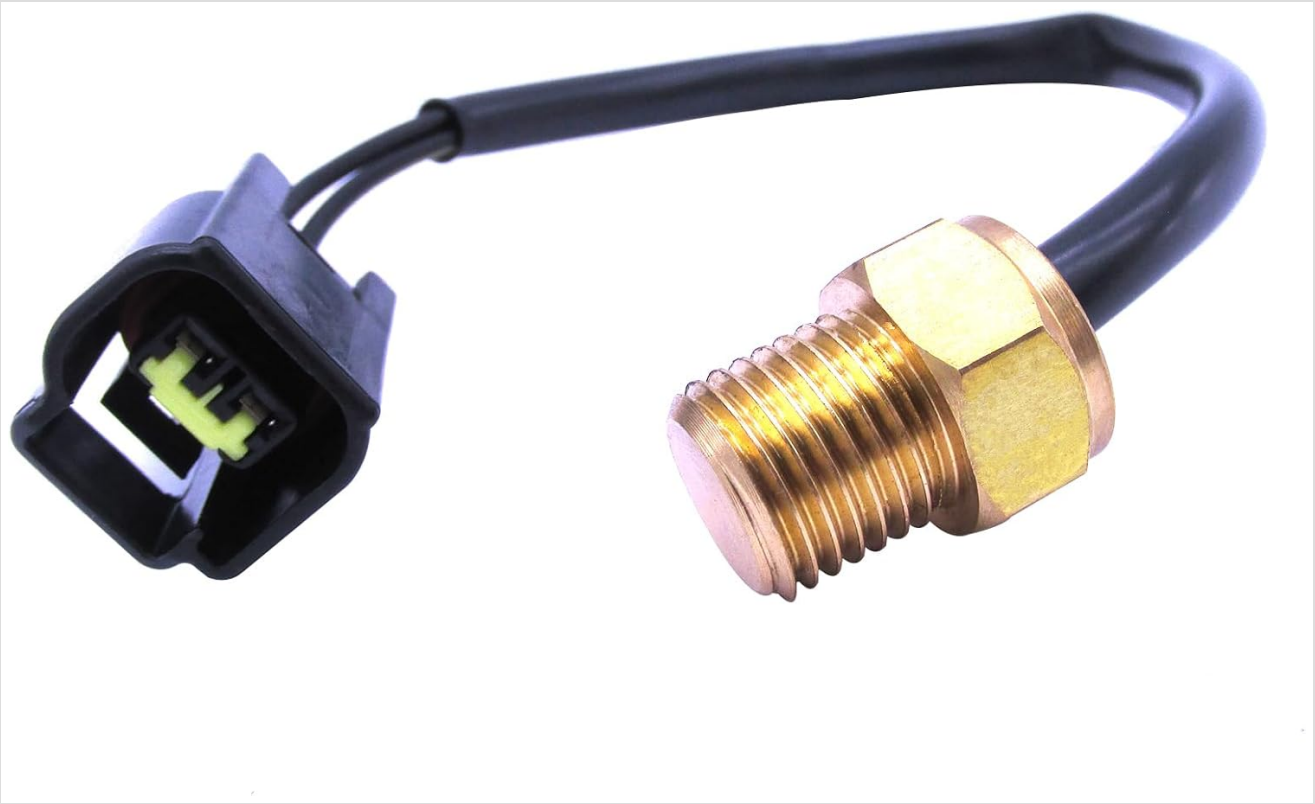


Figure 2.1: The SouthMarine 6C5-85790-00 Temperature Sensor Assembly, showing the brass sensor body, connecting wire, and electrical connector.



Figure 2.2: Detailed view of the sensor's threaded brass body and the electrical connector, highlighting the connection points.

3. Compatibility

This temperature sensor assembly is a direct replacement for Yamaha OEM Part Number 6C5-85790-00. It is compatible with various Yamaha outboard engine models, including:

- Yamaha 25HP Outboard Engines
- Yamaha 40HP Outboard Engines
- Yamaha 50HP Outboard Engines
- Yamaha 60HP Outboard Engines

If you are unsure about compatibility, please verify the OEM part number on your existing sensor or consult your engine's service manual.

4. Safety Information

Always observe the following safety precautions when working on your outboard engine:

- **Disconnect Battery:** Before performing any electrical work, always disconnect the battery to prevent accidental engine startup or electrical shock.
- **Engine Cool Down:** Allow the engine to cool completely before working on any components related to the cooling system or engine block to avoid burns.
- **Use Proper Tools:** Use appropriate tools for installation to prevent damage to the sensor or engine components.
- **Fluid Spills:** Be prepared for potential coolant or oil spills during removal or installation. Dispose of fluids responsibly.
- **Professional Assistance:** If you are not confident in your ability to perform the installation, seek assistance from a qualified marine technician.

5. Setup and Installation

Follow these steps for the correct installation of the temperature sensor assembly:

1. **Preparation:**
    - Ensure the engine is turned off and the battery is disconnected.
    - Allow the engine to cool down completely.
    - Locate the existing temperature sensor on your Yamaha outboard engine. Refer to your engine's service manual for the exact location.
2. **Removal of Old Sensor:**
    - Carefully disconnect the electrical connector from the old sensor.
    - Using an appropriately sized wrench, slowly unscrew the old sensor from its mounting point. Be prepared for a small amount of coolant or water to drain.
    - Clean the mounting area thoroughly to remove any debris or old sealant.
3. **Installation of New Sensor:**
    - Apply a small amount of thread sealant (suitable for marine applications) to the threads of the new SouthMarine sensor.
    - Carefully thread the new sensor into the mounting hole by hand to ensure it starts correctly and avoids cross-threading.
    - Tighten the sensor with a wrench to the manufacturer's specified torque.**Do not overtighten**, as this can

damage the sensor or the engine block.
    - Connect the electrical connector firmly to the new sensor. Ensure a secure and snug fit.
4. **Post-Installation:**
    - Reconnect the battery.
    - Start the engine and check for any leaks around the sensor.
    - Monitor the engine temperature gauge to ensure the sensor is providing accurate readings.

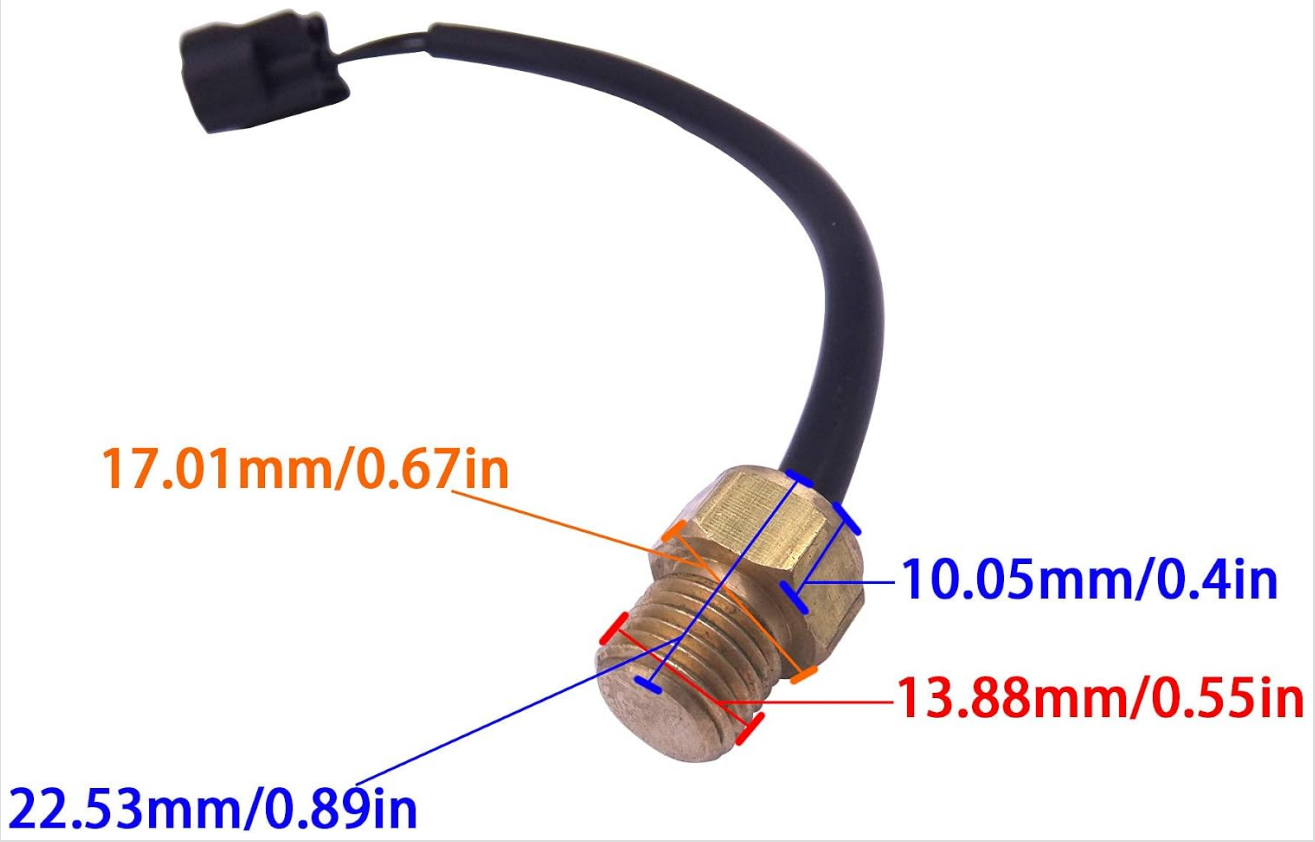


Figure 5.1: Dimensional drawing of the sensor, indicating key measurements for proper fitment and installation.

6. Operating

The SouthMarine 6C5-85790-00 Temperature Sensor Assembly operates automatically once installed. It continuously measures the engine's temperature and transmits this data to the engine's Electronic Control Unit (ECU) or directly to the temperature gauge on your dashboard. There is no manual operation required for this component. Its primary function is to provide real-time temperature feedback, allowing the engine to adjust its performance for optimal efficiency and to alert the operator in case of overheating.

7. Maintenance

The temperature sensor assembly is designed for durability and requires minimal maintenance. However, periodic inspection can help ensure its continued reliability:

- **Visual Inspection:** Periodically inspect the sensor and its wiring for any signs of physical damage, corrosion, or loose connections.
- **Cleanliness:** Ensure the sensor's exposed tip is free from excessive buildup of marine growth, salt, or debris, which could affect its accuracy. Clean gently with a soft cloth if necessary.
- **Wiring Integrity:** Check the wiring harness for chafing, cuts, or brittle insulation. Repair or replace as needed.

No user-serviceable parts are contained within the sensor assembly itself. If the sensor is suspected to be faulty, it should be replaced.

8. Troubleshooting

If you experience issues with your engine's temperature readings, consider the following troubleshooting steps:

Symptom	Possible Cause	Recommended Action
Inaccurate or erratic temperature readings	• Loose or corroded electrical connection • Damaged wiring • Sensor tip fouled with debris • Faulty sensor	• Check and secure electrical connections. Clean any corrosion. • Inspect wiring for damage; repair or replace if necessary. • Clean the sensor tip. • If other checks fail, replace the sensor.
No temperature reading	• Disconnected electrical connector • Broken wiring • Completely failed sensor • Issue with engine's gauge or ECU	• Ensure the connector is fully seated. • Inspect wiring for breaks. • Test sensor continuity (if possible with appropriate tools). • Consult a marine technician for diagnosis of gauge/ECU.
Engine overheating warning (but engine feels normal)	• Faulty sensor providing incorrect high reading • Issue with engine's gauge or ECU	• Verify engine temperature with an external thermometer if safe to do so. • Replace sensor if suspected faulty. • Consult a marine technician for diagnosis.

Always ensure the engine's cooling system is functioning correctly (water pump, thermostat, clear water intakes) before assuming a sensor fault, especially if actual overheating is suspected.

9. Specifications

Feature	Specification
Brand	SouthMarine
Model Number	6C5-85790-00
Material	Metal (Brass)
Item Weight	0.03 Kilograms (approx. 1.13 ounces)
Mounting Type	Flange Mount (Threaded)
Output Type	Digital (Signal to ECU/Gauge)

Feature	Specification
Upper Temperature Rating	120 Degrees Celsius
Package Dimensions	2.99 x 2.8 x 0.83 inches

10. Warranty and Support

For warranty information and technical support regarding your SouthMarine 6C5-85790-00 Temperature Sensor Assembly, please contact the seller or the manufacturer directly. Keep your purchase receipt as proof of purchase for any warranty claims.

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