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MAHLE TSW 31

MAHLE TSW 31 Temperature Switch User Manual

Model: TSW 31

1. Product Overview

The MAHLE TSW 31 is a temperature switch designed for radiator fan control in various vehicle models. This component plays a crucial role in regulating engine temperature by activating the radiator fan when the coolant reaches a specified temperature, ensuring optimal engine performance and preventing overheating.

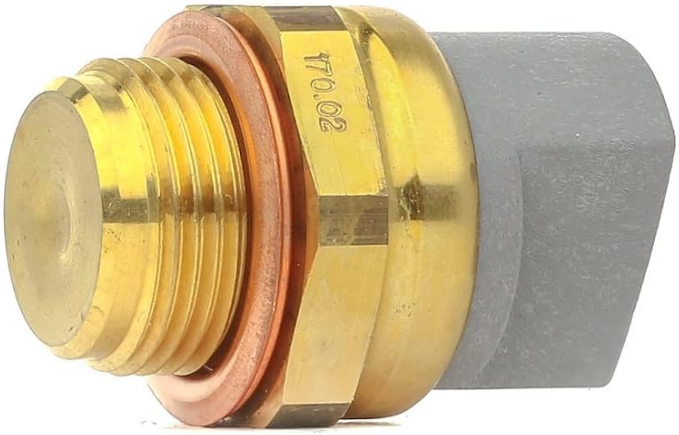


Figure 1: Front view of the MAHLE TSW 31 Temperature Switch, showing the threaded end and electrical connector.

2. Key Features

- **Torque:** 50 Nm
- **Cut-out Temperature:** 91.0°C; 84°C
- **Switch-on Temperature:** 95°C; 102.0°C
- **Additional Information:** Includes gasket for proper sealing.
- **Thread Size:** M22 x 1.5
- **Number of Poles:** 3

3. Compatibility

The MAHLE TSW 31 temperature switch is compatible with a range of vehicle models. Below is an example list of compatible vehicles. It is essential to verify compatibility with your specific vehicle model before installation.

- VW Golf III 1.6 (1991-1998) 55 kW
- VW Golf III 1.8 (1991-1998) 66 kW
- VW Golf III 1.8 (1991-1998) 55 kW
- VW Golf III 1.4 (1991-1998) 44 kW
- VW Passat Variant 1.6 (1997-2001) 74 kW
- VW Golf III 1.6 (1991-1998) 74 kW
- VW Passat Variant 1.9 TDI (1997-2001) 85 kW
- VW Passat Variant 1.8 (1997-2001) 92 kW
- Audi 80 Sedan 2.0 (1991-1994) 66 kW
- VW Golf III Cabriolet 1.8 (1993-1998) 66 kW

Please use the product search function on the retailer's website to confirm suitability for your specific vehicle.

4. Specifications

Attribute	Value
Manufacturer	Mahle Aftermarket GmbH
Item Model Number	TSW 31
Product Dimensions (L x W x H)	31.2 x 20.87 x 13.83 cm; 60 grams
Operating Voltage	1 Volts
Contact Type	Normally Open
Connector Type	Crimp
Switch Type	Temperature Switch
Terminal	Through Hole
Material	Plastic
Circuit Type	1-way
Contact Material	Silver
Date first available on Amazon.com.be	July 3, 2013
No longer produced by manufacturer	No
Spare Parts Availability	Information unavailable



Figure 2: The MAHLE TSW 31 Temperature Switch alongside its product packaging.

5. Setup and Installation

Installation of the MAHLE TSW 31 temperature switch should ideally be performed by a qualified automotive technician. Incorrect installation can lead to vehicle damage or improper operation of the cooling system.

General Installation Guidelines:

1. **Safety First:** Ensure the vehicle's engine is cool and the ignition is off. Disconnect the battery's negative terminal to prevent electrical hazards.
2. **Locate the Old Switch:** Identify the existing temperature switch, typically located on the radiator or engine block.
3. **Drain Coolant:** Partially drain the engine coolant to a level below the switch's mounting point to prevent spills.
4. **Remove Old Switch:** Carefully disconnect the electrical connector and unscrew the old temperature switch. Be prepared for some coolant spillage.
5. **Install New Switch:** Ensure the new MAHLE TSW 31 switch has its gasket in place. Screw the new switch into its mounting hole. Tighten to the specified torque of 50 Nm.
6. **Reconnect Electrical:** Reattach the electrical connector firmly.
7. **Refill Coolant:** Refill the cooling system with the appropriate coolant to the correct level.
8. **Bleed Air:** Bleed any air from the cooling system as per your vehicle's service manual.
9. **Test:** Reconnect the battery and start the engine. Monitor the temperature gauge and radiator fan operation to ensure proper function. Check for any leaks.



Figure 3: Close-up view of the MAHLE TSW 31 Temperature Switch, highlighting the 3-pole electrical connector.

6. Operation

The MAHLE TSW 31 temperature switch operates automatically based on the engine coolant temperature. When the coolant temperature reaches the specified switch-on temperature (e.g., 95°C or 102°C), the switch closes its internal circuit, sending a signal to activate the radiator fan. The fan then draws air through the radiator, helping to dissipate heat from the coolant.

Once the coolant temperature drops to the specified cut-out temperature (e.g., 91°C or 84°C), the switch opens its circuit, deactivating the radiator fan. This cycle ensures the engine maintains an optimal operating temperature range, preventing both overheating and overcooling.

7. Maintenance

The MAHLE TSW 31 temperature switch is a sealed unit and does not require routine maintenance. However, regular inspection of the cooling system is recommended to ensure its longevity and proper function:

- **Coolant Level:** Regularly check the coolant level and top up as necessary with the correct type of coolant for your vehicle.
- **Coolant Condition:** Periodically inspect the coolant for discoloration or debris, which may indicate a need for a coolant flush and refill.
- **Hoses and Connections:** Check radiator hoses and connections for cracks, leaks, or swelling. Ensure all clamps are secure.
- **Electrical Connections:** Ensure the electrical connector to the temperature switch is clean, secure, and free from corrosion.



Figure 4: View of the threaded end of the MAHLE TSW 31 Temperature Switch, showing the M22 x 1.5 thread and included gasket.

8. Troubleshooting

If you suspect an issue with your radiator fan or cooling system, consider the following troubleshooting steps. Always consult a professional mechanic if you are unsure or uncomfortable performing these checks.

Common Issues and Solutions:

- **Radiator Fan Not Activating:**
  - Check the coolant level.
  - Inspect the fuse for the radiator fan.
  - Verify electrical connections to the temperature switch and fan motor.
  - Test the temperature switch for continuity at specified temperatures (requires specialized tools and knowledge).
  - Check the radiator fan motor for proper operation.
- **Radiator Fan Running Constantly:**
  - The temperature switch may be stuck in the closed position.
  - Check for a short circuit in the wiring to the fan or switch.
- **Engine Overheating:**
  - Ensure adequate coolant level.
  - Check for coolant leaks.

- Verify radiator fan operation.
- Consider other cooling system components like the thermostat or water pump.

9. Warranty and Support

For information regarding warranty coverage for your MAHLE TSW 31 temperature switch, please refer to the documentation provided at the time of purchase or contact your retailer. For technical support or further assistance, please reach out to MAHLE Aftermarket GmbH customer service or visit their official website.

Note: Specific warranty terms may vary by region and retailer.

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