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> Dorman 621-454 Engine Cooling Fan Assembly Instruction Manual

Dorman 621-454

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Model: 621-454 | Brand: Dorman

PRODUCT OVERVIEW

The Dorman 621-454 Engine Cooling Fan Assembly is engineered to provide a direct replacement for the original radiator fan on specific Mazda models. This assembly ensures efficient engine cooling, maintaining optimal operating temperatures and preventing overheating. It is designed to match the fit, form, and function of the factory part, ensuring reliable performance.

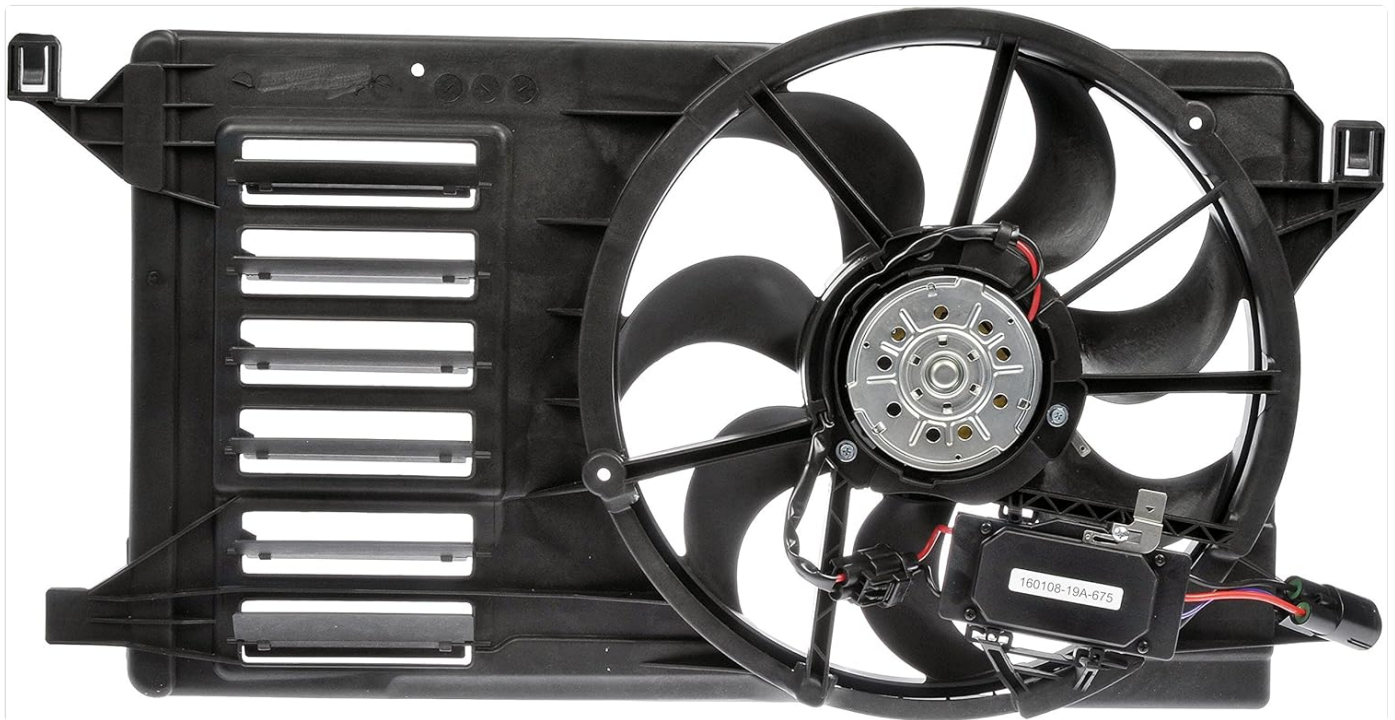


Image: Dorman 621-454 Engine Cooling Fan Assembly, showing the fan blades, motor, and shroud.

KEY FEATURES

- **Ideal Replacement:** Precision-engineered to match the fit and performance of the stock radiator fan assembly on specific

vehicles.

- **Complete Package:** Designed with the same materials and components as the original part for seamless integration.
- **Quality Assured:** Motors are rigorously tested in laboratory settings to ensure consistent and reliable performance.
- **Cost-Effective and Reliable:** Provides a trustworthy manufacturing solution at a significantly lower cost than dealership parts.
- **Vehicle Compatibility:** Compatible with select Mazda models, including Mazda 3 Sport (2010-2013) and Mazda 3 (2010-2013). Users should verify fitment using their vehicle's make, model, and trim level.

INSTALLATION GUIDE

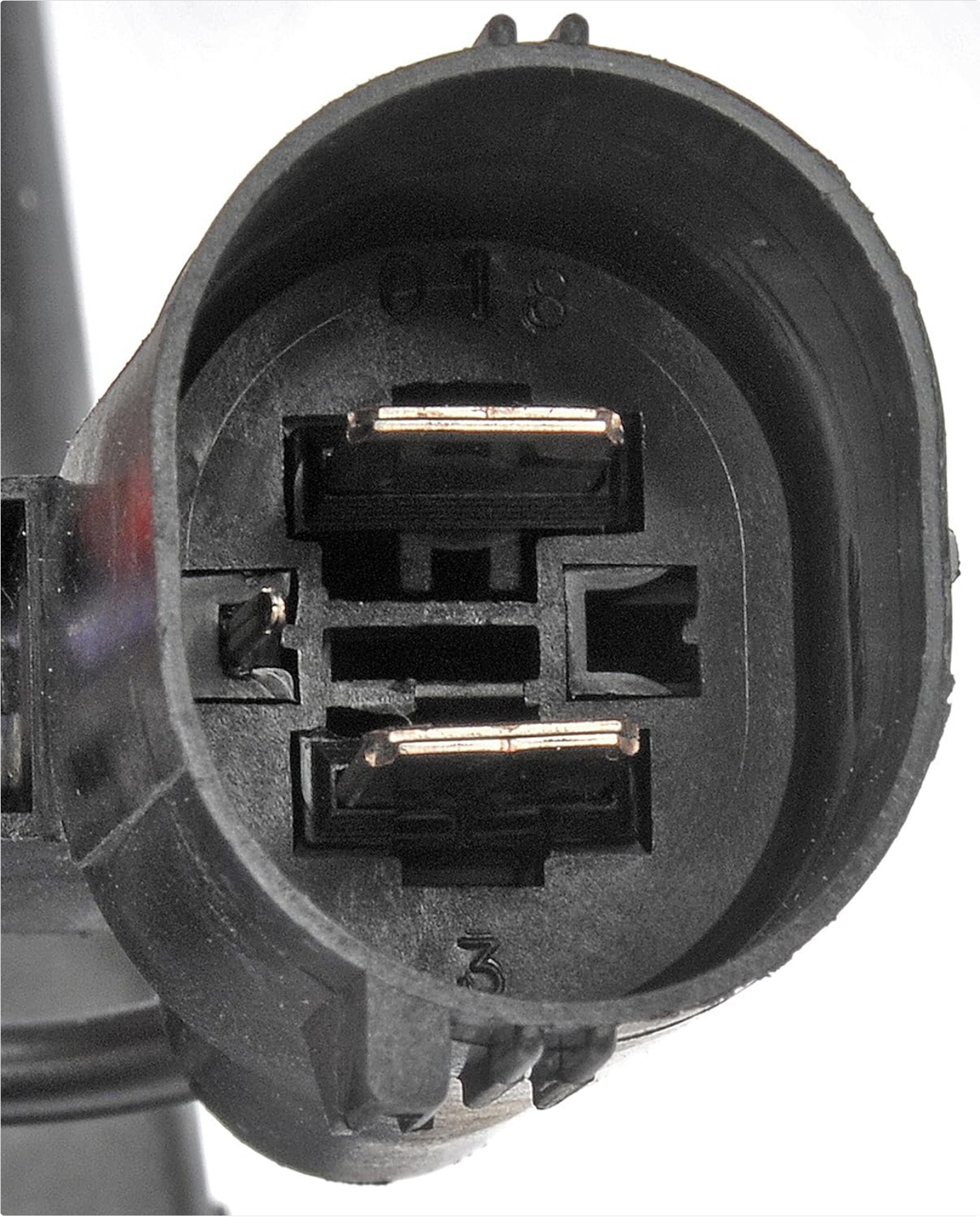
Installation of the Dorman 621-454 Engine Cooling Fan Assembly typically requires automotive repair knowledge and specialized tools. It is highly recommended that installation be performed by a qualified professional technician.

Pre-Installation Checks:

1. Ensure the vehicle's engine is cool and the battery is disconnected to prevent accidental starting or electrical shock.
2. Verify that the new fan assembly (Dorman 621-454) matches the original part in terms of mounting points and electrical connectors.
3. Inspect the vehicle's cooling system for any other issues, such as radiator leaks, damaged hoses, or faulty thermostats, which should be addressed prior to fan replacement.

General Installation Steps (Professional Recommended):

1. Safely lift and support the vehicle if necessary to access the fan assembly from underneath.
2. Drain a portion of the coolant if required to remove hoses or components obstructing access.
3. Disconnect the electrical connector(s) from the old fan assembly.
4. Remove any mounting bolts, clips, or shrouds securing the old fan assembly.
5. Carefully remove the old fan assembly from the vehicle.
6. Position the new Dorman 621-454 assembly into place, ensuring all mounting points align.
7. Secure the new assembly with the appropriate bolts, clips, and shrouds.
8. Connect the electrical connector(s) to the new fan assembly. Ensure a secure connection.
9. Refill the cooling system with the appropriate coolant and bleed any air from the system as per vehicle manufacturer specifications.
10. Reconnect the vehicle's battery.





Images: Views of the 2-pin electrical connector on the Dorman 621-454 Engine Cooling Fan Assembly, crucial for proper electrical connection during installation.

OPERATING PRINCIPLES

The Dorman 621-454 Engine Cooling Fan Assembly operates automatically, controlled by the vehicle's engine control unit (ECU) or a dedicated fan control module. Its primary function is to draw air through the radiator to dissipate heat from the engine coolant, especially when the vehicle is stationary or moving at low speeds where natural airflow is insufficient.

- When the engine coolant temperature reaches a predetermined threshold, the ECU activates the fan.
- The fan also typically activates when the air conditioning system is engaged to help cool the condenser.
- The fan speed may vary depending on the cooling demand, controlled by the vehicle's system.



Images: Illustrative diagram showing the typical placement of a radiator fan assembly within a vehicle's engine bay, and a close-up view of the fan blades and radiator fins.

MAINTENANCE

The Dorman 621-454 Engine Cooling Fan Assembly is designed for long-term reliability and typically requires minimal direct maintenance. However, regular inspection of the overall cooling system is crucial for its longevity and proper function.

- **Visual Inspection:** Periodically check the fan blades for any cracks, damage, or debris accumulation. Ensure the fan spins freely when the engine is off and cool.
- **Electrical Connections:** Inspect the electrical connector for corrosion, looseness, or damage. A secure connection is vital for proper operation.
- **Radiator and Condenser:** Ensure the radiator and A/C condenser fins are clean and free of obstructions (leaves, dirt, bugs) to allow for efficient airflow.
- **Coolant Level and Condition:** Regularly check the engine coolant level and condition. Low or contaminated coolant can lead to overheating, putting extra strain on the cooling fan.
- **Hoses and Clamps:** Inspect radiator hoses for cracks, leaks, or swelling, and ensure clamps are secure.

TROUBLESHOOTING

If you experience issues with your engine cooling fan, consider the following common problems and potential solutions. For complex issues, professional diagnosis and repair are recommended.

Problem	Possible Cause	Solution
Fan not turning on	Blown fuse, faulty relay, wiring issue, faulty fan motor, faulty temperature sensor, faulty fan control module.	Check fuses and relays. Inspect wiring for damage. Test fan motor directly (if safe and knowledgeable). Consult a professional for sensor or module diagnosis.
Fan running constantly	Stuck relay, faulty temperature sensor, wiring short, faulty fan control module.	Check relay. Diagnose temperature sensor. Inspect wiring. Professional diagnosis for control module.
Excessive noise from fan	Damaged fan blades, worn motor bearings, foreign object lodged in fan.	Inspect fan blades for damage. Remove any obstructions. If motor bearings are worn, replacement of the assembly is likely needed.
Engine overheating despite fan operation	Low coolant, clogged radiator, faulty thermostat, water pump issue, air in cooling system.	Check coolant level and condition. Inspect radiator for blockages. Test thermostat. Professional diagnosis for water pump or air bleeding.

SPECIFICATIONS

Attribute	Detail
Brand	Dorman
Model Number	621-454
Part Type	Engine Cooling Fan Assembly
Compatible Devices	Select Mazda Models (Mazda 3 Sport: 2010-2013, Mazda 3: 2010-2013)
Power Connector Type	2-Pin
Voltage	12 Volts
Wattage	80 watts
Cooling Method	Water (refers to the system it cools)
Noise Level	4 dB
Material	Aluminum (likely for some components, main shroud is plastic)
Maximum Rotational Speed	3500 RPM
Item Weight	5 pounds
Product Dimensions	33.75 x 5.5 x 20.75 inches
UPC	019495411932

WARRANTY AND SUPPORT

Dorman Products are manufactured to high-quality standards. For specific warranty information regarding the Dorman 621-454 Engine Cooling Fan Assembly, please refer to the official Dorman warranty policy available on their website or contact Dorman customer support directly.

For technical assistance, installation guidance, or product inquiries, you may visit the official Dorman store or contact their customer service:

- **Dorman Store:** [Visit the Dorman Store on Amazon](#)
- **Manufacturer:** Dorman Products
- **Support:** Refer to Dorman's official website for contact information and further support resources.



Image: Dorman brand banner highlighting their commitment to support and quality.

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This manual is for informational purposes only. Always consult a qualified professional for vehicle repairs.