

TECH TIP

RADIATOR INSTALLATION GUIDE



AUTO-KOOL

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This radiator installation guide is intended as a reference to be used as general guidance by those with the automotive knowledge, experience, tools, and facilities necessary to conduct this work in accordance with mandated safety protocols. This guide is not appropriate for those without adequate automotive knowledge and repair qualifications. Professional service is recommended when replacing the radiator.

Safety First! Wear gloves and safety goggles and ensure the vehicle engine is cool before proceeding. It is important to wait until the radiator is cool to touch (if possible, 8+ hours) as most engines are designed to operate with coolant temperatures over 160°F. Failure to ensure the engine/radiator is cool can result in serious burns/injury.

RECOMMENDED TOOLS:

- Gloves and safety glasses
- Plier, wrench, ratchet and socket, and screwdriver sets
- Antifreeze or premixed coolant, rags and drain pan
- New hose clamps and radiator cap
- If needed, car jack and stand set

BEFORE REMOVING THE RADIATOR

1. Disconnect battery starting with the negative cable first, then positive and secure battery cables to avoid accidentally activating the engine.
2. Make sure the engine is cool, the radiator is cool to the touch, and slowly remove the radiator cap. The coolant in the radiator is pressurized so take caution.
3. Next, drain the radiator using the drain plug. If there is no drain plug, disconnect the bottom radiator hose to drain coolant. Be sure to collect and dispose of the coolant as mandated by local waste facilities. Do not dispose of coolant on ground or storm water channels.
4. If needed, the engine oil and transmission oil cooler lines should be disconnected before radiator removal. Be sure not to bend or damage these lines, especially if aluminum constructed, to prevent leaks. Coolant disposal and engine/transmission oil must be collected and disposed as mandated by local waste facilities.
5. Be sure that the A/C condenser is supported to prevent damage to the system. Should the condenser be damaged requiring repair, be cautious and consult the manufacturer's specifications and EPA guidelines for proper procedures regarding refrigerant and A/C system repair.
6. Take note/photo of surrounding mounts, bolts and fan shrouds to ensure installation of new radiator matches (radiator mounts vary by application). Fan shrouds could be clipped or bolted directly to the radiator or mounted to the support panel.
7. Disconnect any electrical connections fitted to the radiator.



8. Disconnect any hoses/lines fitted to the radiator and inspect for damage. Cracks or excessive wear may leak to coolant leaks if not replaced.
9. Remove radiator and compare to the new replacement radiator. Some brackets, electrical sensors, or mounts may need to be reused/replaced.

BEFORE INSTALLING THE NEW RADIATOR

1. With climate control settings on high heat, flush the system with a water hose. Place the water hose into the bottom radiator hose pointing towards the engine. Unless the thermostat is closed, water should cycle through the bottom radiator hose to the top radiator hose. System flush is complete when water coming out of the top radiator hose runs clear.
2. Transfer and install all necessary items (brackets, electrical sensors, mounts, etc.) from the old radiator onto the new replacement radiator.

INSTALLING THE NEW RADIATOR

1. Gently place the new radiator into engine without bending the radiator fins.
2. Carefully hand thread mounting bolts and reconnect engine and transmission oil lines. Tighten bolts and fittings per manufacturer's specifications and inspect for proper fit. Do not use power tools. Cross threading bolts may void warranty.
3. Reconnect fan shrouds, electrical connections. Tighten per manufacturer's specifications. Inspect for proper fit.
4. Reconnect hose lines with new hose clamps.
5. Refer to the manufacturer's specifications for coolant requirements (typically, a 50/50 antifreeze and distilled/deionized water mixture). Premixed aftermarket options ensure proper mix and save time.
6. Check and renew engine/transmission oil per manufacturer's specifications.
7. Before replacing the radiator cap, ensure all lines and electrical connections are reconnected and start the vehicle leaving the radiator cap off. Climate settings should be on high heat and fan speed on max setting. This will remove excess air. If the vehicle is equipped with an air bleed valve (usually located at the highest point of the cooling system), it must be opened to let air out. Wait until the vehicle reaches operating temperature. At operating temperature, the thermostat will open, and coolant flow will be noticeable as engine temperature increases. Measure coolant level in reservoir tank and refill as needed.
8. Inspect fittings and hoses. Check engine/transmission oil lines with the engine running.
9. Install NEW radiator cap. Do not reuse old radiator cap.
10. Test drive vehicle to verify climate control and engine cooling system operating conditions. Watch the temperature gauge. If the temperature is above normal operating temperature, station vehicle and allow engine to cool completely. When engine is cooled and radiator is cool to touch, repeat installation procedure to identify faults (non-secure fittings, trapped air bubbles, cracks/leaks in hose lines, etc.).

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