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Time to drain and refill that cooling system? Draining the coolant isn't too hard on most makes, but what about refilling? Purging all the air from the system during a refill can be difficult.

Heater cores can trap enough air to do a good impersonation of *The Poseidon Adventure*! And mini vans with rear heaters can be particularly difficult to bleed due to their large capacity and long, convoluted system of connecting hoses and pipes. If you aren't careful, you'll overheat the engine before the thermostat opens, and end up dodging a hot coolant shower when Old Faithful cuts loose.

This month, we'd like to test drive a pair of vacuum refill tools from **Uview**, designed to help you refill a cooling system—without having to burp the baby.



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Suck-shun!

The principle behind AIRLIFT vacuum refill tools is simple: pull a vacuum inside an empty cooling system, and then suck the system full of fresh coolant, eliminating trapped air in the process.

AIRLIFT model 550000 (left) and AIRLIFT II model 550500 (right).



Both tools are easy to use:

- Drain the cooling system, then insert the AIRLIFT into the coolant fill neck or overflow bottle.
- Connect the AIRLIFT vacuum unit to a compressed air supply, and venturi vacuum does the rest, pulling a partial vacuum inside the cooling system. (Those of you who have used a vacuum operated ac vacuum unit know the principle, although the AIRLIFT isn't nearly as annoying.)

If the vacuum holds, connect the fill hose to a bucket of fresh coolant, and open the fill valve.

Suck-shun.

AIRLIFT 550000

AIRLIFT 550000 is the original, professional-grade version, and comes packaged in its own blow-molded case.

Kit contents include:

- A hefty vacuum assembly machined from solid brass, fitted with a vacuum gauge (0-30 inches Hg) and ball-style shutoff valve.
- A set of rubber adapter rings and a tapered rubber cone. Use them to fit the vacuum assembly into different width fill necks or overflow bottles.
- A vacuum hose adapter to connect the vacuum assembly to your compressed air supply.
- A clear plastic fill hose with inlet strainer.

AIRLIFT Features: A Closer Look

The AIRLIFT is not designed to remove coolant, only to vacuum and then refill the system. Drain as much coolant as possible from the system before using it.

We warm the engine to normal operating temperature with the heat intensity set to MAX hot. Then we shut down the engine and open the radiator drain.

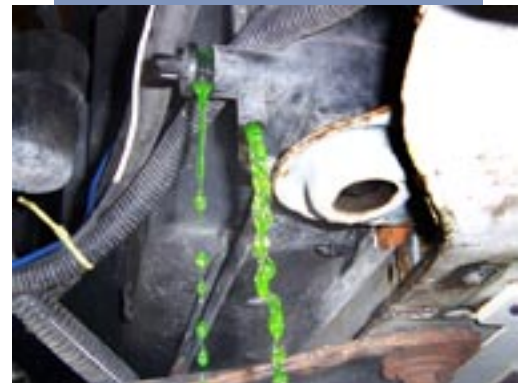
Measure how much coolant you remove. Compare it to total system capacity so you'll know if you've drained the system thoroughly, and also to know how much fresh coolant to mix.

The vacuum assembly has an expandable rubber collar. Insert the vacuum unit rubber neck into the radiator or overflow bottle, and screw down the knurled collar to swell the rubber until it grips the neck.

We've shown relaxed and expanded views of the collar for comparison. Don't overdue it; slight tension makes a good seal, and we don't want to stress and possibly damage older plastic radiator necks that are brittle from age and repeated heat cycling.



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Add one of three different diameter adjustment collars when working with larger fill necks.



Slip on the the cone adapter for smaller fill necks. This is the setup we'll be using today on a narrow-neck Japanese radiator.



This small adapter fits onto the vacuum unit to make a good seal in those Hondas, Toyotas, and Nissans that have a very narrow, shallow radiator neck opening.





Attach the vacuum tube or fill hose to the vacuum unit using the quick coupler. Here, the AIRLIFT with cone adapter installed is inserted into the fill neck. No need to push it in hard, its weight made a nice seal. The vacuum hose is installed on the AIRLIFT body, ready for the compressed air hose.



Next, connect the air supply and turn the red handle to open the ball valve. (Here it is closed.)



Air whistling through the vacuum unit creates vacuum in the cooling system. It takes less than a minute to pull 24-25 inches of vacuum in this system. The radiator hoses suck flat.



Close the valve, disconnect the air hose, and watch the gauge. If the needle falls back toward zero, you'll know you have a system leak to repair before you add fresh coolant. If vacuum holds, it's time to suck in fresh coolant.





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Mix coolant in a clean bucket. Remove the vacuum hose and attach the fill hose at the vacuum adapter. Make sure you have more coolant than the amount needed to refill the system: if you run short on fresh coolant before the system is filled, you'll suck air back into the system, exactly what we're trying to avoid.



Almost done. While the engine warms up, we scrub the coolant overflow bottle to remove dirt and silt accumulations.



The engine warms normally, the thermostat opens, the heater blows hot, and the coolant fans cycle, all with no additional bleeding.

We correct the coolant level in the overflow bottle, install the radiator cap, and go for a test drive.



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AIRLIFT II

AIRLIFT II is the less expensive model, and comes packaged in a clear molded clamshell. This model is made of plastic, not brass, and it's fitted with a one-size-fits-all tapered cone. No adapters.



Don't tear into the clamshell with a utility knife or cutters too quickly. If you pry it open at the corners, you can reuse it to hang the tool on the wall.



AIRLIFT II comes with a clear plastic fill hose with inlet strainer, vacuum gauge, and a simple push button control to apply vacuum to the system.





Since the AIRLIFT II body is plastic, be sure you use a backing wrench when installing the air hose nipple.



This time we're working from the overflow bottle, not the radiator, but the procedure is similar. We begin by draining the cooling system.

We close the system drain and insert the AIRLIFT II tapered cone into the overflow bottle. Then we attach the air hose and press the silver vacuum control button until the unit pulls a vacuum inside the system.



See if the system holds vacuum.

Ready to refill the system. We install the fill hose and suck a fresh mix back into the system.





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Miscellaneous Observations

Don't have a shop-sized compressed air system? We tested both with a large 20 gallon compressor and also with this small pancake unit that makes 90 psi. The pancake had enough pressure and volume to pull vacuum in a system in less than a minute.

- **A single draining didn't remove as much of the old coolant as we wanted.** We found that draining the system, pulling a second vacuum, and draining again, removed an additional half-quart to quart of old coolant.
- **If you are changing coolant types and really want as much of the old stuff removed as possible, you may want to drain, refill the entire system with fresh water, and drain again.** Repeat this process until the water runs clear. We found that the AIRLIFT speeds this process. Just remember that you'll have a quart or so of pure water trapped in the cooling system: make your final refill mixture a little antifreeze rich, or you won't have the proper 50/50 mix.
- **Both models worked as advertised.** The AIRLIFT (550000) is certainly sturdier, and its heavy brass construction looks durable enough for professional, daily use. The AIRLIFT II, however, won us over with its simplicity and ease of use.
- **Ford recommends this tool for testing EGR and oil cooler leaks in F-SuperDuty, Excursion, and E-Series engines.** See Ford TSB 08-3-7. Ford purchases the AIRLIFT and refers to it as the RADKITPLUSA.
- **While we didn't have to add coolant after a refill using the AIRLIFT during our tests, we obviously can't vouch for all systems.** It's still a good idea to run the engine to normal operating temperature, and make sure the heater works, that the thermostat opens, and that the cooling fans cycle normally, before shipping the finished product!



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