

Figure 10. Careful measuring of the fans' installation depth is crucial to centering them in their housings and preventing interference with the intake guides.

8. Fashion a wire coat hanger into a holder for the fans. Place the left fan on the holder and immerse it up to the top of the hub in the boiling water.



Figure 11. Boiling the fans before pressing them on their shafts makes installation easy...and precludes the expensive breakage that can quadruple the cost of this repair!

- Carefully stand the new motor on its right shaft, its left shaft upright. (I recommend you have an assistant hold the motor to prevent its falling over.) Have your spark plug socket/extension ready. After the fan has heated for about two minutes, quickly remove it from the boiling water, start the fan's inboard hub opening onto the shaft, and then press it down on the shaft to the marked depth using the spark plug socket and extension as a mandrel. If the fan cools too quickly and gets stuck on the shaft beyond what applying reasonable force can press it fully down, simply return that fan, on the shaft, to the boiling water, heat it again for about two minutes, and then press it fully down to its mark again using the mandrel. **NOTE: If you install the first fan too *deeply* on the shaft past the mark, wait until AFTER the second fan is installed and has fully cooled. Then heat up the first fan again and use the counter-rotation technique to unscrew it back to the required depth.**



Figure 12. An improvised mandrel presses the left fan onto its shaft without putting pressure on the motor's bearings.

- Heat the second fan in the same manner as the first, but use the counter-rotation technique to screw the second fan onto the shaft to the installation depth mark. Do NOT use the mandrel to install the second fan. If you did, you'd be pressing down onto the fragile end of the opposite fan rather than against the stout motor shaft as you did with the *first* fan. As the important final step, bring the rotational alignment marks together to ensure the original factory balance is retained.

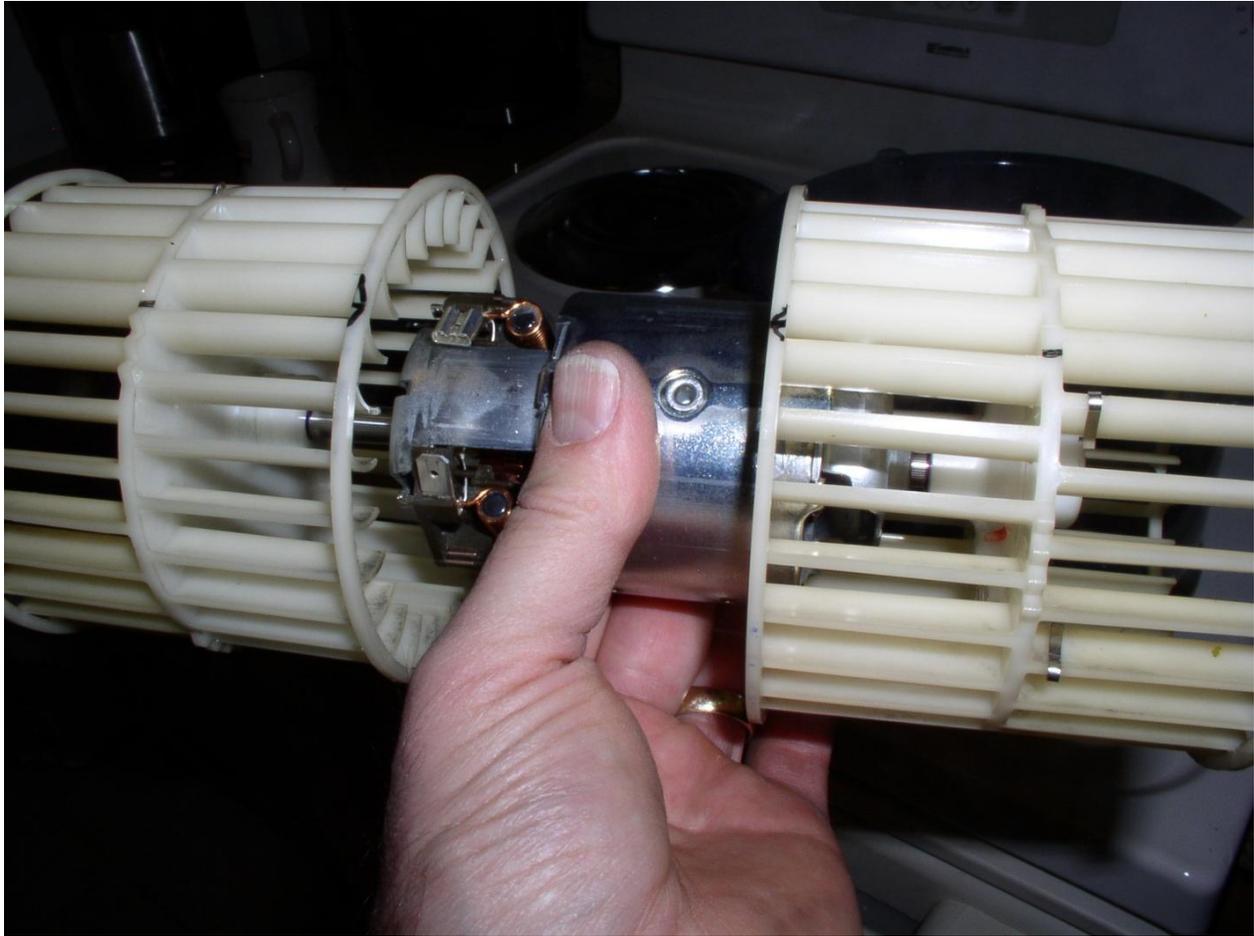


Figure 13. When the second fan is counter-rotated onto its shaft, the important final step is to realign the two fans as you marked them during disassembly. This ensures the factory balance is restored.

11. Inspect both fans to ensure they're both installed properly—both to correct depth, left fan on left shaft, ends installed outward, realigned, etc., just as you marked them in the first phase. Move all the clean housing parts, mounting clips, and the new motor with fans attached back to the work bench.

#### **Reassembly of the Heater Blower Unit**

1. Place the bottom housing on the work bench with its front facing you.
2. Reinstall the inner guides' lower sections. (The inner lowers are half-round crescents, while the inner uppers are squared off. The airfoils on *all* guides are offset *toward* their respective fans.)

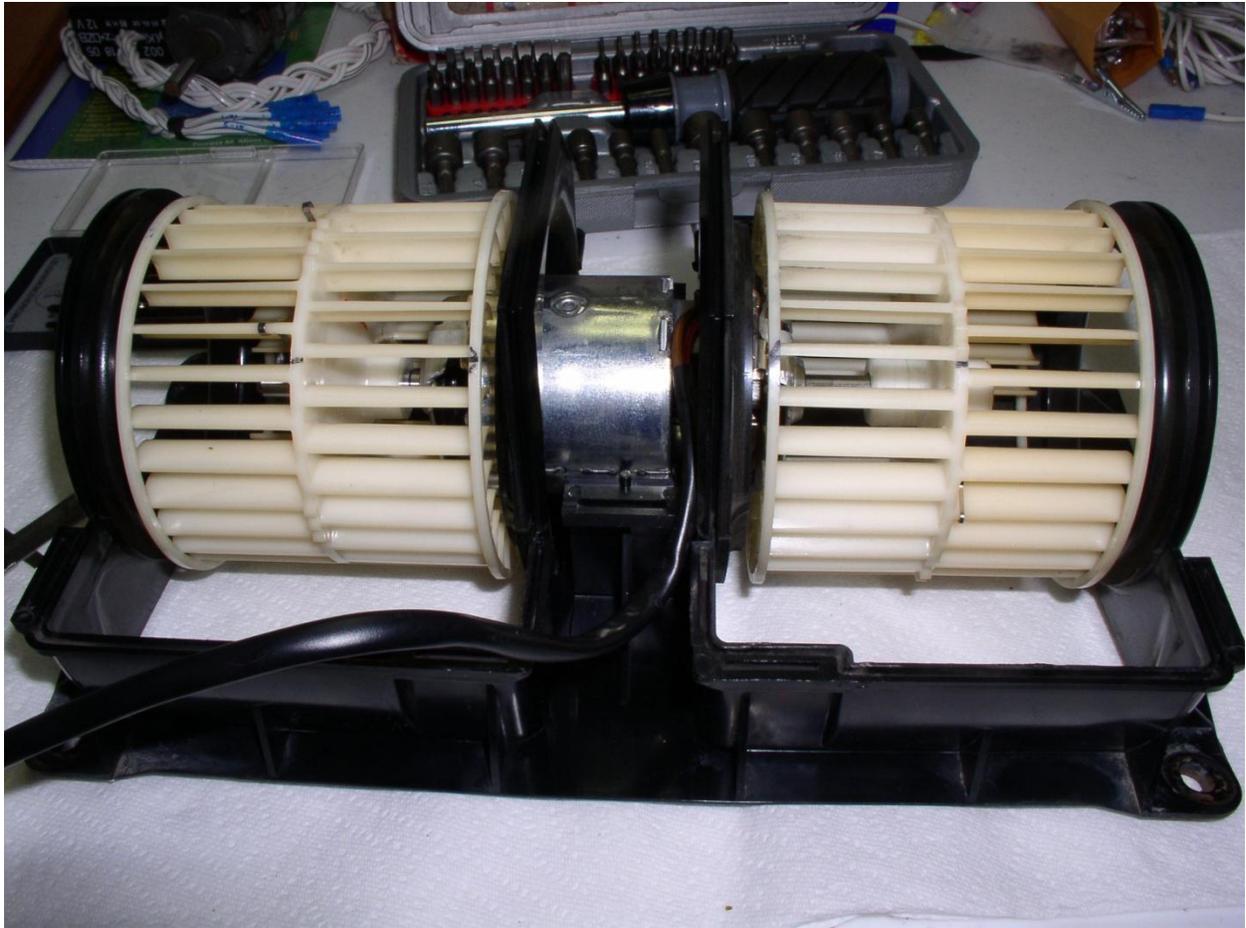


Figure 14. New motor nestled into its pinned saddle; the four air intake guides are reassembled and ready to receive the upper housing. (I actually found it easier to install the outer guides and the top halves of the inner guides in the *upper* housing first before joining the halves, but either approach works.)

3. Place the motor and fans into the lower housing. The center grommet on the bottom of the motor engages with a pin at the bottom left of the housing. Carefully seat it.
4. Connect the power cables to their respective spade connectors on the new motor. Secure the cable to the motor with its spring clip and route the cable out of the lower center of the housing as it was originally.
5. Install the center upper guides. Above photo notwithstanding, I actually found it easiest to do this by pre-installing them into their plates in the *upper* housing rather than trying to blindly engage them when lowering the upper housing onto the lower housing.
6. With both sets of lower guides in place, **check the clearance of the inboard and outboard edges of both fans with the edges of their lower guides. *THIS IS CRITICAL!*** The axial (side-to-side) clearance of each fan's edge to each guide should be fairly equal to allow for future axial play when the motor bearings wear. By NO means should any fan's edge touch—or even *nearly* touch—a guide. If either or both fans are too close for comfort, adjust their position on the shaft by returning to the kitchen one more time, heating up the offending fan in the boiling water again, and using the counter-

rotation method to move the fan in the desired direction to the optimum position—*about 1/8" (3mm) clearance from the edge of each fan to its respective air intake guide.*



Figure 15. It's **IMPORTANT** to ensure each fan edge has at least about 1/8" (3mm) clearance from its guide. Despite careful measuring and marking, I had to readjust one of my fans slightly outward on its shaft to better clear its inside guide.

7. If/when all fan-to-guide clearances are in order, replace the top of the housing onto the lower housing. Spin the fans to ensure nothing is binding, and visually check to see both inner guides' pins have mated and that the outer guides' flat sides are seated in the bottom housing.

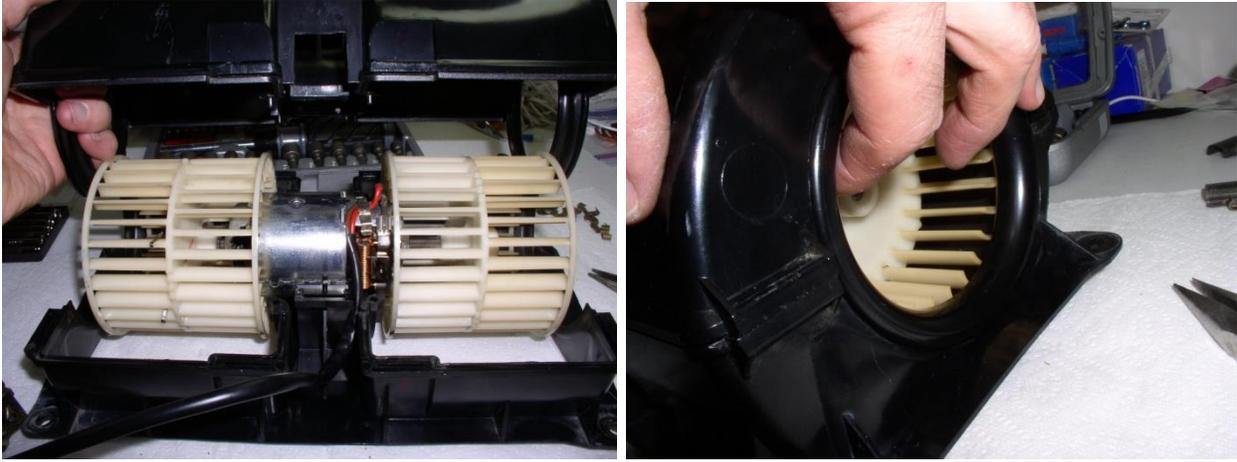


Figure 16. Lower the upper housing, carefully seat it, and check for binding by spinning the fan. Note both outer air guides and the upper halves of the two inner air guides are pre-installed in the upper housing.

8. Reinstall 8 small clips to their positions on the joined housings. Use snap ring pliers (or needle nose pliers as before) to reinstall the two large center housing clips.



Figure 17. Install eight small and two large housing clips. The large clips should be spread by a pair of snap ring pliers to make installing them easier and avoid stressing the plastic housing.

9. The heater blower unit now has a fresh, new motor, it's been cleaned, its balance has been restored, it's been properly reassembled, and it's ready to install back into your SL.



Figure 18. With a fresh new Bosch motor, the blower unit is ready for installation.

### **Test, Reinstallation of Heater Blower Unit**

1. Return the newly rebuilt heater blower unit to the car and insert it into the well. Don't fasten it down yet, though, test it first.
2. With ignition OFF, Fan OFF, Climate Control push button "O" depressed, and the heater unit back in the well, reconnect the heater blower unit's resistor block receptacle to the car's heater blower cable plug.
3. Turn ignition key to Position II. **Caution: DO NOT START CAR, as air cleaner is not installed and air intake is covered.**
4. Press fan speed button to HIGH.
5. Depress DEFROSTER button on push button unit. Ensure fan begins to run, that it pushes air, that there are no abnormal sounds, and that its speed is high.
6. If unit successfully checks out, complete reinstalling the unit using the reverse of removal instructions. Tighten the blower housing flared nuts very judiciously to avoid cracking the plastic housing, and use blue Loctite on the threads to prevent them from coming loose. Note that the top cover rubber gasket has several nubs that fit into holes along the front of the cover mounting surface.



Figure 19. The top cover gasket must be installed only one way for these nubs to line up with their holes. When the cover is screwed down, remove the engine air intake covering and reinstall the air cleaner.

7. You're done! Head back to the kitchen and pop open your favorite beverage of choice, rightfully proud of retaining the considerable amount of money you would have blown (pun intended) for exchange fans, or worse, on a new or even used heater blower unit. (Might ought to rinse out that sink and wipe off the stovetop between brews, too, to remove any evidence of what you've been up to in her kitchen from the frau.)

Good road,

---

## GlueckAuf

Sterling Heights, MI

**1987 Mercedes-Benz 560SL *Benzedrine***

**2002 Volvo S80 T6**

**2004 Litespeed Vortex/Campagnolo Record**