

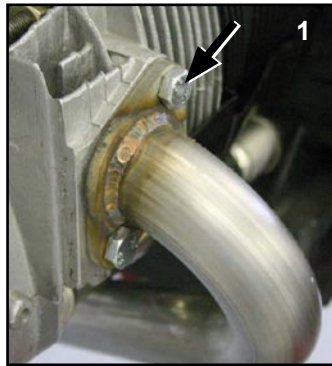
Installing the 2-into-1 Exhaust (052108)

ACV-E01-02 2-into-1 Exhaust System

The 2-into-1 exhaust kit consists of:

Qty.	Part No.	Description
1.....	ACV-E01-20.....	Exhaust Manifold, Right Side
1.....	ACV-E01-21.....	Exhaust Manifold, Left Side
2.....	ACV-E01-22.....	Exhaust Extension
6.....	ACV-E01-23.....	Springs
8.....	ACV-Z01-39.....	Exhaust Attach Bolts

- Using the supplied Exhaust Attach Bolts, temporarily attach the exhaust manifolds to the cylinder heads *without exhaust gaskets*.



Note: If your cylinder heads have exhaust studs installed they will need to be removed to fit the 2-into-1 exhaust.

- Slide an extension pipe onto each manifold. It may be necessary to shorten the length of the exhaust manifold if the extensions interfere with the firewall. **Do not shorten the expanded portion of the extension pipes.**

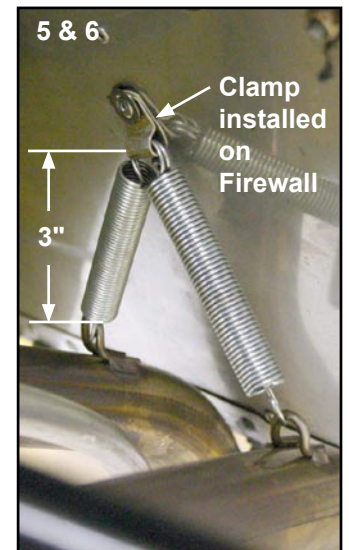


Trim the end of each exhaust manifold (arrow) as needed to get the exhaust extensions to exit the cowl in the desired location.

- After each exhaust manifold has been trimmed to the proper length, remove the manifolds from the cylinder heads and re-install them with new exhaust gaskets (supplied with the AeroVee 2180 engine kit).
- Attach a spring between each pair of spring clips. It may be necessary to shorten the springs for your particular installation.



- Attach a loop-type line support clamp (AN742 or equivalent) to the firewall approximately 3" above the spring clips on the exhaust extensions.



- Attach a spring between the support clamp and each exhaust extension. It may be necessary to shorten the springs for your particular installation.

- Trim the ends of the exhaust pipes to final length. The pipes must be long enough to ensure the exhaust gases exit the cowl, yet pipes which extend too far below the cowl will add drag and reduce your airspeed.

Cowling Considerations

The 2-into-1 exhaust will work with any of the Sonex-provided cowls.

Cowl with Pre-molded (Fiberglass) Exhaust Tunnels.

If your cowling has the premolded exhaust tunnels, the tunnels must be opened as described in the Sonex/AeroVee Installation Guide. These openings provide the necessary outlet for the engine's cooling air.

You will also need to make a cowling cut-out at the firewall large enough for the exhaust pipes to exit. The cutout should be large enough to clear the exhaust, but not over-sized. If the cut-out for the exhaust is too large it can degrade engine cooling.

A small deflector lip must also be fitted in front of the exhaust pipe outlet, and a curved stainless steel deflector may be added to the bottom of the fuselage skin for the exhaust to spill against.



*This photo shows the standard outlet for a 2-into-1 exhaust fitted to a cowl **without** pre-molded tunnels. If you are fitting a cowl **with** pre-molded exhaust tunnels, this opening must only be large enough to allow the exhaust pipes to exit. The small tube in this photo is the oil breather.*

Universal Cowl with Aluminum Exhaust Tunnels.

If your universal cowling has aluminum exhaust tunnels installed, you will need to follow the installation outlined above for "Cowl with Pre-molded (Fiberglass) Exhaust Tunnels".

Universal Cowl with No Existing Exhaust Tunnel

Fitting the 2-into-1 exhaust to a cowling with no existing outlets is very simple.

A 4" x 12.5" cut-out is made on the lower aft edge of the cowling, where it attaches to the bottom of the firewall. This opening provides both an outlet for the exhaust pipes as well as an outlet for the engine's cooling air. No other cooling air outlets should be added to the cowl.

Note: The loss of piano hinge in this area has no impact on the strength and security of the cowl installation.

An aluminum exhaust lip must be added to the front of the opening. The lip should be 1" high and rake back 60 degrees from front to back.

A stainless steel deflector may be added to the bottom of the fuselage floor to guide and deflect the exhaust gases.



*This photo shows the standard outlet for a 2-into-1 exhaust fitted to a cowl **without** pre-molded tunnels. The cut-out measures 4" x 12.5". No additional cowl outlets are needed for cooling air. The small tube in this photo is the oil breather.*