

This first page of notes is mostly lifted from diyvan.com (the engineer there is Hein).

The step-by-step instructions (on the next page) assume that you are going to use both the adapter and the framing strips from diyvan.com. They are not strictly necessary, but sure make for a nice clean install.

The **adapter**: Patent Pending adapter matches the contour of the OEM roof so a standard RV style vent mounts to a flat surface. Prevents distorting the roof sheet metal or vent flange and can be used as an aid for locating the fan. They are CNC machined out of UV and fire-resistant expanded PVC. The fan mounts to the outside adapter. Fan adapters work with the Maxxair Deluxe series vent fans. The adapter fits both high and low roofs. If your Maxxair is a 4000K or 4500K please let us know, these fans require a wider adapter.

Longer screws than came with the vent fan may be needed (due to the thickness of the adapter).

The vent adapter outside dimension is 16 3/4 X 16 3/4. If you are using a Maxxair vent our adapter fits the deluxe series, other Maxxair fan vents have a wider flange. You will need a wider adapter. Please call.

The option with butyl tape includes 62" of tape. **If the butyl tape is stuck to the plastic, put it in the freezer for 30 minutes. It will release, then let the butyl tape return to room temperature.**

Hein at DIYVAN recommends 3M Window-Weld adhesive which you can get at Napa or other auto parts store.

The **framing strips** from diyvan.com will come in a separate box. Dimensions of the strips are .75" x 1.3" x 38". The framing strips are expanded PVC and are bonded to the roof with a thick bead of Window-Weld. They are more flexible than wood and plenty strong to support the vent and keep it from jiggling. They are essential if the span between the OEM roof beams is more than 18". They also provide a backing for the screws that hold up the vent interior bezel. They should be placed 1/4" away from the edge of the hole so that the screws for the vent go into the strips. They are a generic size and will need to be cut to length. These strips are not contoured to the van corrugations.

Good install videos:

Wander Libre

**Other Techniques** (these are not from diyvan.com)

Instead of Rustoleum, Levity Vans on YouTube suggests "415 Top Coat" (buy the spray can, and spray a bit into a cup and apply with cheap foam brush). Neutralizes rust, etc.

Instead of Window-Weld, Humble Road prefers to use 3M 5200 Marine Sealant, and some RV roof sealant (looks like butyl tape); note the order of placement – want it like flashing so that wind doesn't try and force seams open (place rear piece first, then sides, then front piece goes down last so that overlaps are "downwind"). About 6 minutes into his video with "one extra step" in the title.

Wander Libre made a wooden flange to go inside the van, up against the ceiling. They used pieces of 1x2 wood, double-thick to form a flange about 1.5" thick. They did not use the big white plastic trim piece that is supplied with the fan (and which people cut down to the needed size). I think it is easier to use Hein's "framing strips". We might, or might not, use the white trim piece provided with the fan.

## MaxxAir Fan Install procedure (assumes use of DIYVAN adapter and framing strips):

Some extra items you will need:

Window-Weld

Longer screws (stainless)

Washers (stainless)

Scotch-Brite pad

Deburring tool and/or tiny file set

Rustoleum paint (or similar)

Isopropyl alcohol

Masking tape, Sharpie, etc.

1. Create a good place to work on the roof. Clean the roof of your van. Place a packing blanket up there and place a piece of plywood (or similar) on the blanket to sit on and distribute your weight (this avoids dents on the roof). You can put tools and such on the blanket.
2. Locate the 14 x 14 hole. Stay clear of roof supports, obviously. You can use the center of the circle at the rear of the Sprinter roof as a reference point; ditto for the various ridges on the roof. Keep the location far enough from any framing on the van ceiling to allow room for the framing strips. Use the adapter as a template to mark the hole.
3. Cutting tips: Put masking tape around marked edge to protect paint from scraping from the jigsaw. Tape an open plastic bag underneath to catch metal waste. Deburr after cutting. We'll paint this edge later (after all holes have been drilled).
4. Before applying any glue (or Window-Weld or whatever) anywhere, go ahead and drill the holes through the adapter (lining up with holes in the white flange). Clamp the flange onto the adapter, and drill away.
5. Place the flange and adapter on the roof, line the holes up, clamp securely into place, and drill these same holes through the roof. Deburr the holes. Mark the orientation of the flange and adapter so that it will be easy to seat these properly when you are working with the Window-Weld.
6. If your van has any sound-deadening material (i.e., KILMAT) glued onto the ceiling (some Sprinter cargo vans come with this from the factory), and the material is at the edges where you cut the hole and/or will mount the framing strips, then you *might* want to scrape the sound deadening material off to create a flatter surface for the framing strips to bond to. This may well remove paint, so you will need to paint this in the next step. We scraped the KILMAT material away, and if I were doing it again I would just leave it there – there is no need to try and make the roof perfectly flat, as it is a little curved anyway.
7. Now that all of the cutting and drilling is complete, and the edges are all deburred, paint all of the holes and the edges to prevent rust. Notably, most people paint the edge of the hole, but not the 16 mounting holes.
8. Prepare to install the adapter with Window-Weld. On the roof, make a tape line 1/4" beyond the adapter perimeter. De-gloss the area with a Scotch-Brite pad. No need to scuff -- just dull the paint. Clean the roof and the adapter surfaces with isopropyl alcohol and let dry thoroughly. Use a blow dryer if it's wet and/or cold out.
9. Tips for using Window-Weld include warm up the WW with a heat gun to make it easier to flow and work with. Beware that Window-Weld is messy and an industrial (chemical) product – wear two disposable gloves, and be prepared to swap out your outer glove when it gets funky and put on a fresh outer layer.
10. For the MaxxAir fan, apply three 1/8" beads of the Window-Weld on the face of the adapter. For the Dometic RTX-2000, apply numerous thin beads on the adapter.

11. After applying the WW to the adapter, press the adapter down onto the roof until the adhesive oozes out the sides. It's not necessary to clamp. If you do, use a lot of lightly set clamps and spread out the clamp force over the whole surface area (using a stiff board or similar will help spread the clamp load). Using the adhesive that oozes out (and/or by adding a bead if not much oozed out), make a fillet around the adapter with a double gloved finger. Pull the tape within 15 minutes. Cure is fast on outside.
12. If installing a MaxxAir fan with framing strips, this is a good time to keep working with Window-Weld: install the framing strips, which go on the ceiling of the van; place them 1/4" from the edge of the opening. Cut them to fit, then attach with a thick bead of Window-Weld. Lightly clamp into place.
13. Let the Window-Weld cure overnight and then proceed with the fan or RTX-2000 install.
14. If installing the RTX-2000, Window-Weld the spacer to the adapter, then use 3M-90 to adhere the foam seal to the spacer. Then use silicone RTV between the AC unit and the foam seal (instead of adhesive, which means that you can more easily remove the AC unit if it ever needs service or replacement). You then secure the AC using the metal braces and the four long bolts. With the addition of the spacer, you will need longer bolts. The supplied bolts that go through the metal braces and up into the unit are M8 (1.25mm threads), with length of 100mm. I found some 150mm length stainless steel bolts on Amazon, and cut one-half inch off to make them the proper length.
15. These next steps are for the MaxxAir fan.
16. If installing the MaxxAir fan, Hein recommends using butyl tape between the flange and the adapter. Cover the fan flange with 1 1/8" wide butyl tape. I used a single strip of butyl tape, and in hindsight wish I had used two. One is presumably OK, but hardly any butyl squeezed out the sides. Place flange onto adapter (be sure to place the 4 clips on the sides – not at front and rear!) and press down.
17. You can now secure the flange to the adapter by screwing the 16 screws into the framing strips. *You will need longer screws than were provided, due to the thickness of the adapter.* You will want 1.5" stainless steel #8 pan head sheet metal screws and #8 stainless steel washers. You want the screws to penetrate the framing strips on the ceiling of the van. No need to drill pilot holes in the framing strips; the screws will go in nicely without splitting. Tighten the screws very lightly against the fan flange (too hard and the plastic will eventually crack and fail, although the washers help with this a little bit). Some butyl will ooze out which you can trim off.
18. Coat the fan flange (including the screws), the adaptor, and onto the roof about 1/2" with brush-on bed-liner (or use Flexseal from the TV guy; the Wander Libre guy uses 3M 4000 UV Marine Sealant). Dicor self-leveling sealant also works but looks a little messy. Some sealants will melt the fan plastic so you might try it on a portion of the interior trim-piece first (the large square white bezel; there is plenty of extra material as you will cut a lot of the bezel off). We used EternaBond tape as it will adhere to the vertical surface instead of "sliding down" due to gravity and the inherent nature of "self-leveling" sealant. Our thinking is that the other materials provide a good waterproof seal, and that EternaBond serves to protect those seals from UV and other harsh conditions. In other words, the EternaBond is a protective layer to keep the waterproof material intact.
19. Good idea to check the integrity and reapply the sealant every so often. Probably not an issue with EternaBond, as the manufacturer says it lasts for 18 to 35 years. The product has been around for decades, so it has a proven track record.