

NDQ Fan Swap (4-blade to 7-blade) DIY

NDQ Fan Swap (4-blade to 7-blade) DIY (10/01/2019) REV 1 (10/03/2019)

(REVISED 10/03/2019 - NOTED IN STEP 3 and INSTRUCTION ILLUSTRATIONS)

This narrative is to accompany the installation instructions provided by Airxcel for swapping-out the OE 4-blade fan with an improved 7-blade fan on the NDQ AC unit.

FIRST and FOREMOST, WORK SAFETY IS PARAMOUNT!!

This work is performed on the NDQ AC unit in-place on the rooftop of your Travato. **DO NOT ATTEMPT** unless you (or your designated worker) are physically capable and have the proper-length ladder(s). The Travato must be as level as possible, on a solid flat surface (concrete, asphalt, etc.) that will allow the ladder feet to hold and not slip, and provide a stable base for the ladder(s).

**THE WORK IS DONE AT 9+ FEET ABOVE THE GROUND.
YOU WILL BE WORKING FROM THE LADDER, NOT ON THE ROOF.**

The DIY is do-able, provided you adhere to the **WORK SAFETY CAUTIONS**.

Tools required, as indicated by the Airxcel Instructions are a "Standard, Phillips-Head Screwdriver," a 4mm Allen Wrench (T-handle or L-wrench) and a Measuring Device, such as an "Adjustable Square."

Following the sequence outlined in the Airxcel Instructions, I will attempt to add my observations and facilitations.

Work Time for me was 90 minutes, but I was working solo, and was stopping for photos and checking my work at each step. Also, I have a '17K, with the AC positioned at approx mid-vehicle. This requires moving from side-to-side, and moving tools and ladder(s). On a G model, the AC is positioned to the rear, and could possibly be serviced from the rear. Others will have to verify and/or comment.

In addition, I placed a couple of "Moving Pads" on each side of the AC unit to allow for some cushioning (for me) and heat relief from sun on metal. The Primary Work Side is the Passenger Side (where you are leaning on and over the Awning Cover), where the fan is closely positioned, but screws need to be removed from the Driver Side as well, so again, the K model becomes more complicated in moving from side-to-side.

One other detail: Check to be certain there are no miscellaneous items attached to the AC Cover. In my case, when I DIY-Installed additional solar panels, I ran

wires under the AC cover and zip-tied them to cover fins to hold them from flapping around. As a result, I had to cut the zip-ties before removing the cover, and install new ones after the cover was back on. Just an FYI.

SECTION ONE: ACCESSING THE FAN BLADE

Step 1: DISCONNECT POWER

I had the Coach Power Switch OFF, and there was no Shore Power connection. EVERYTHING WAS OFF.

Step 2: REMOVE UNIT SHROUD (See my photo)

There are two screws at the bottom rear of the shroud, and two bolts with large washers at the top front that secure the shroud. It's a tightly-fitting component, and in my case, it was easier to release a couple of the click slots (see photo) on the side of the shroud to allow it to flex/open and be worked up, tail first. There are clips up front that need to be cleared as well, so having the shroud "opened" a bit eased removal. TAKE CARE! It's flexible plastic, but be gentle; like anything, it can break if you try to muscle it off.

REVISION 10/03/2019 --

THIS HAS BEEN CORRECTED BY AIRXCEL, AND THE INSTRUCTION ILLUSTRATIONS HAVE BEEN REPLACED.

Step 3: RELEASE CONDENSER and CONDENSER SHROUD

Note: Figure "b" shown on the Airxcel Instructions does not point to the correct component or screw locations (we are working to have that corrected).

The Condenser Shroud is black plastic, and has four "hook-type" lugs that locate it to the Condenser. Care should be taken to make sure these release, and are properly engaged during reassembly.

There are four screws securing the Condenser Filler Plates to the Base Pan, as instructed. Two at the rear (correctly noted) and two going vertically into the bottom of the pan (noted correctly illustrated). THE SCREWS ARE SMALL!! Take care to not have these jump out and get misplaced.

Step 4/5: REMOVE CONDENSER/FAN SHROUD

There are three screws holding the plastic shroud in place on the Base Pan. Two are accessed from the Driver Side, and one from the Passenger Side. The shroud comes loose easily, but you may find that you need to begin the pivot the

metal Condenser FROM THE PASSENGER SIDE to allow the shroud to clear easily. You have to pivot the Condenser anyway, to eventually remove the fan. Only pivot the Condenser as much as you need to. Note the caution about flexing/kinking the copper refrigerant tubes. BE GENTLE!

Note: You may find some debris (leaves, pine needles, dead bugs) in the cavity to the rear of the Condenser. Now is a good time to brush or blow that stuff out and away.

SECTION TWO: FAN BLADE DETAILS / REMOVE and REPLACE

Tools: 4mm Allen Wrench / "Adjustable Square"

DO NOT REMOVE THE OLD 4-BLADE FAN (just yet)

Take a few minutes to regroup and take a look at the work you will now need to do. Drink some water, "wash your hands," clear the work area, whatever you need to do to transition to the next, critical operations. In addition, "remember" what is required for reassembly and close-up at the end ("reassembly is the opposite of removal")

Steps 6-10: (See my photos)

NEW 7-blade Fan – The new fan is significantly different in profile to the OE, 4-blade fan. Note that you might find a metal clip affixed to a blade on the new fan (as I did). I assume that it is there for "balancing," which is a good thing. While I have not completely verified, I did not disturb it. Caution, as it's kind of sharp.

You can see easily, even with the old fan still in place, how the molded blades are quite different, and that presents a couple of challenges. The old fan will need to be "finessed" and not muscled, to remove it from the motor shaft. Take care not to bend or crush any fins on the Condenser (some of mine were already bent).

Based on the profiles of the two fans, the NEW 7-blade fan will be positioned further away from the motor on the shaft. The net result is that the blades will wind up being in the roughly the same relative position.

7.6 INCHES: This is the critical dimension for positioning the NEW 7-blade fan on the motor shaft. It is measured from the flat (not raised) surface of the motor plate to the rear of the Fan Hub (right where the GREEN CLAMP is located). First, let me say that you will have real difficulty getting a true measurement, as the NEW 7-blade fan offers very little space to position a small, "Adjustable Square."

IF I HAD TO DO THIS OVER AGAIN:

You really need a small piece of material, cut to 7.6 INCHES (just a tad under 7-5/8") to get in there to verify positioning. I would suggest sacrificing a PLASTIC CLOTHES HANGER, cutting and shaving the bottom rod section to EXACTLY 7.6" and then either eye-balling or squaring-off with another piece to get where you need to be.

You can also do this measurement AFTER you remove the OE 4-blade fan. You have free room to work, but, you will have to mark the motor shaft with a scribe or fine point marker, and not lose that position when putting the NEW 7-blade fan in place (this is why I encourage taking a breath before removing the OE 4-blade fan).

Okay, ready to go, and know what you are going to do? Loosen the 4mm Allen bolt from the OE 4-blade fan, and slide it toward the Condenser and off the shaft. Note that the fit is tight, and a blade will need to be flexed a bit to clear a depression in the Base Plate. Work it off carefully; again, watching those Condenser fins.

MAKE YOUR MEASUREMENT of 7.6 INCHES and MARK the MOTOR SHAFT. This is one of those things that you want to triple check, and then check again. When you put this all back together, you don't want sleepless nights wondering "if that was really 7.6 inches."

INSTALL NEW 7-blade fan: With the GREEN CLAMP on the Fan Hub facing the Motor, position the fan at your PERFECT 7.6 INCH location. CRITICAL!! Tighten the 4mm Allen bolt, making sure that the fan does not shift forward or back while doing this. It's a tight fit for your Allen wrench, and I had both a T-Handle and a Ball-End 4mm to work with. "NORMAL TIGHTNESS," DO NOT "MOOSE!" It's a metal clamp squeezing slotted plastic. Not need to over-tighten. CONGRATULATIONS!!

NOW, PUT IT ALL BACK TOGETHER:

Position the black plastic Condenser Fan Shroud over the new fan, then pivot the metal Condenser back into position. Now is a good time to make sure that the four lugs on the Fan Shroud are located properly on the metal Condenser frame. Before you begin to re-install the screws, just spin the fan by hand, noting any interference. As you re-install the screws, check the fan again for any interference. THERE SHOULD BE NO INTERFERENCE!

Take care when re-installing the small screws provided. They are only a few threads long, and over-tightening is not a good idea. Just snug; DON'T MOOSE!

If you are good to go, then remove all of your stuff, and get ready to put the Unit Cover/Shroud back on. If you need to "open" it a bit for re-installation, remember

to release the clips on the sides. Once you place it into position, make certain that you get those clips to properly re-engage. Be patient with this!

Re-install the 2 screws and 2 bolts that secure the Cover. If you have anything to reattach (like my solar panel wires) don't forget to do so.

Do a final visual check, remove all of your stuff from up top, and return to Earth!


FIRE IT UP!!

Re-energize the Travato, hopefully with Shore Power, and start the AC unit. Be ready to shut it off quickly if there is any issue, but if you are met with a quiet, smooth-running (NO INTERFERENCE) fan and the Compressor kicks on, YOU HAVE BEEN SUCCESSFUL!! (I let mine run for 30 minutes while I put my stuff away)

I hope that this Narrative/Process Walk-Through has been helpful. It is by no means "the only way," and as always, "Your Mileage May Vary." It can easily be done more efficiently if you have a capable partner, multiple tools, etc. It can certainly be a DIY (even for an old guy like me), or a roadmap for a Handyman or Shop person to execute. Just remember: WORK SAFETY IS FIRST!!






Sam Pellegrino ▸ **Travato Owners and Wannabees**
 Admin · 2 hrs · 🌐

4-blade hub

1 Comment

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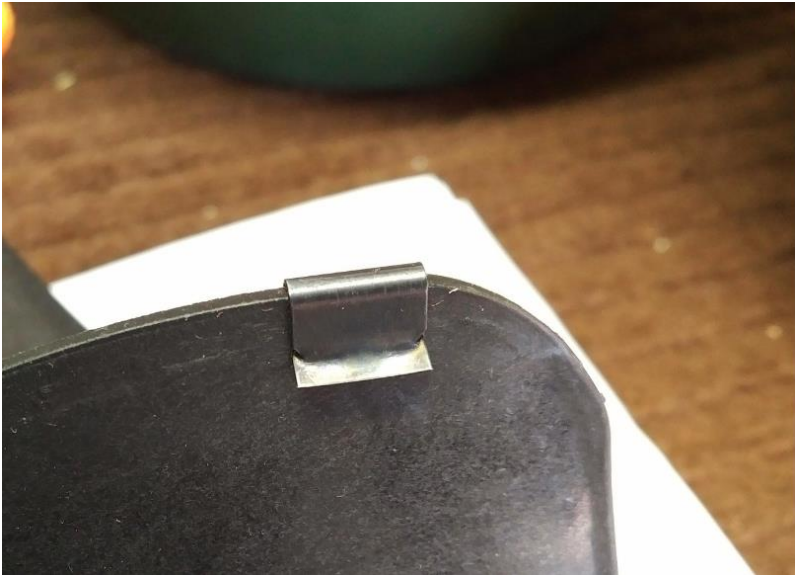



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7-blade hub. THIS SIDE FACES THE MOTOR WHEN PLACED ON THE MOTOR SHAFT

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METAL CLIP (for balancing) ON ONE BLADE OF THE NEW 7-BLADE FAN.

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AC COVER OPENED SLIGHTLY (release two slotted clips) ON BOTH SIDES FOR REMOVAL.

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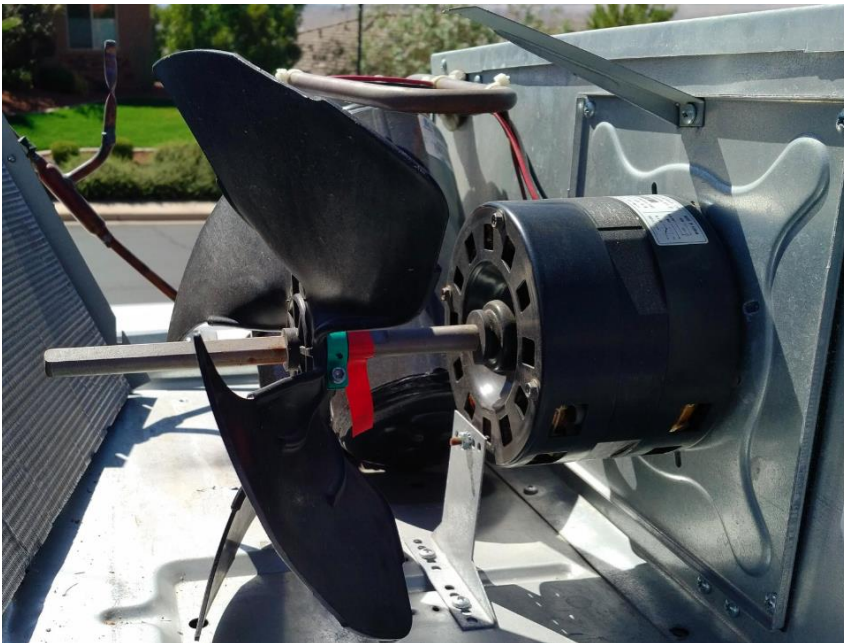



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ACCESS!! OE 4-Blade Fan prior to removal.

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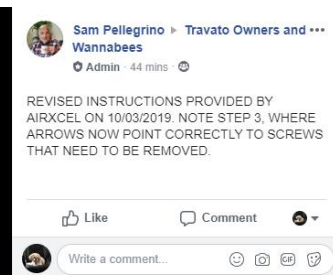
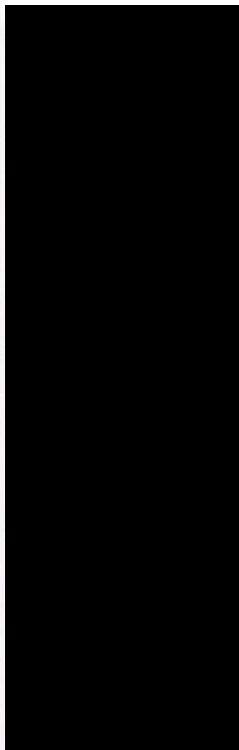
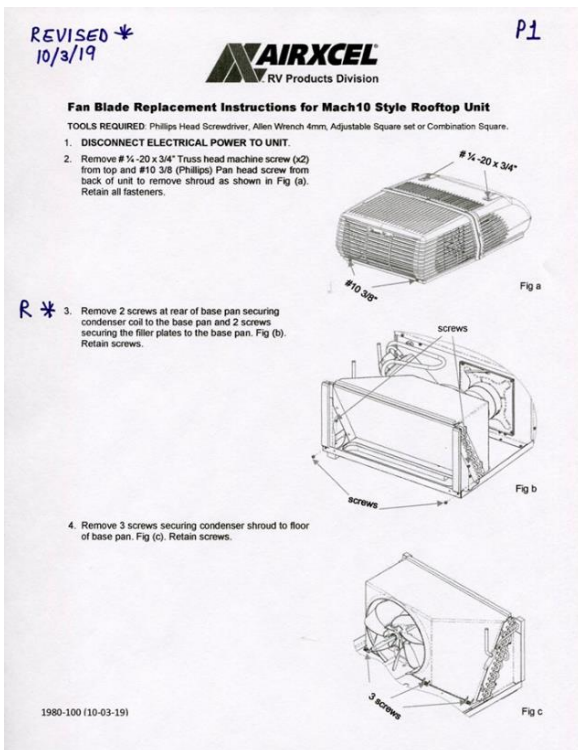
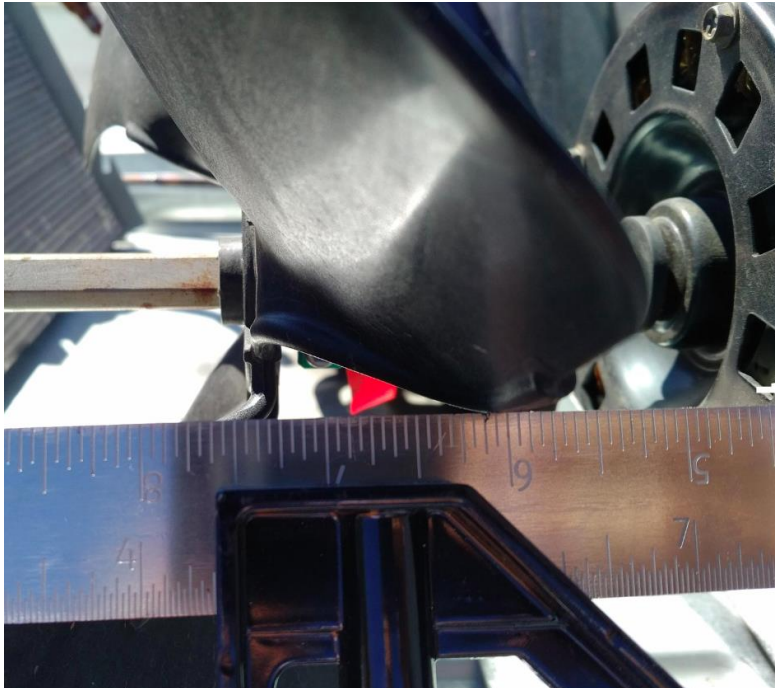


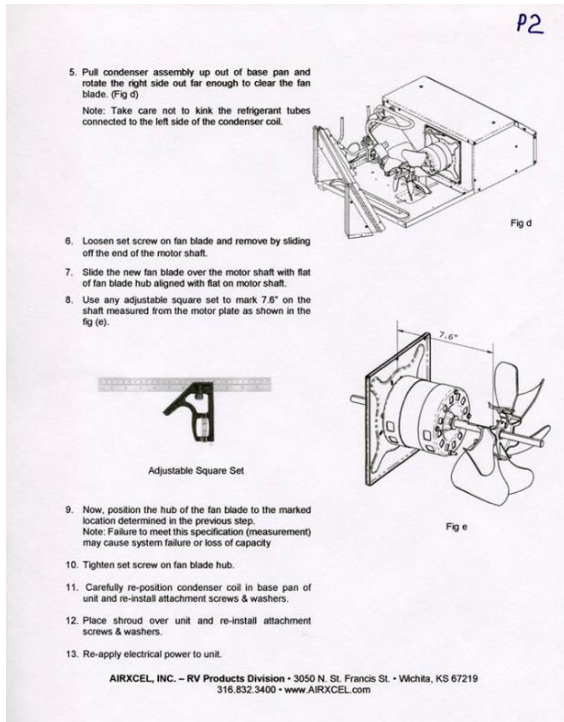

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NOTE STAMPED STEEL MOTOR MOUNTING PLATE, WITH "RELIEF," THE FLAT AREA IS WHERE YOU MAKE YOUR "7.6-INCH" MEASUREMENT FROM, NOTE GOUGE IN CONDENSER FINS (existing). ALSO, NOTE DEPRESSION IN BASE PLATE BELOW FAN BLADE. THE NEW-7-BLADE FAN WILL BE POSITIONED APPROX 1 INCH TO THE LEFT OF THE 4-BLADE LOCATION.

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P2 of REVISED INSTRUCTIONS PROVIDED BY AIRXCEL ON 10/03/2019. No changes; just the 2-page layout is different.

1 Comment

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Sam Pellegrino 📍 So, your 7.6-inch measurement is from the "FLAT AREA" of the MOTOR PLATE (NOT THE "DEBOSS") out along the MOTOR SHAFT, and will mark the position of the "rear" (CLAMP SIDE) of the NEW 7-blade fan. The CLAMP SIDE of the NEW 7-blade fan is the SAME SIDE ...
[See More](#)

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