PowerFilm SOLAR

ASSEMBLED IN THE USA

400W International Fairing Solar Panel Installation Instructions

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Required Materials

To complete the installation of the 400W PowerFilm International Fairing Solar Panel Kit, you'll need the following tools and materials:

Cleaning Supplies:

- Isopropyl alcohol (90% or greater concentration)
- Lint-free shop rags or clean cloths

Measurement & Marking Tools:

- Tape measure
- Permanent marker

Unpacking Tools:

- Scissors, utility knife, or hook tool (for cutting stretch wrap carefully)

Installation Tools:

- 1–2 squeegees (for setting panels without air bubbles, included with the kit)

- Zip ties and mounting blocks (included with the kit)
- Screws for mounting charge controller (included with the kit)
- Drill or screwdriver (for mounting the charge controller)

Electrical Testing Tools:

- Multimeter (for verifying battery voltage and polarity)
- DC amp clamp (for measuring current from the panel)

Additional (Optional but Recommended):

- Ladder or platform (for easier roof access)
- Protective gloves (to avoid fingerprints and cuts)
  Extra zip ties for cable management if needed

Step 1: Clean the Truck Surface

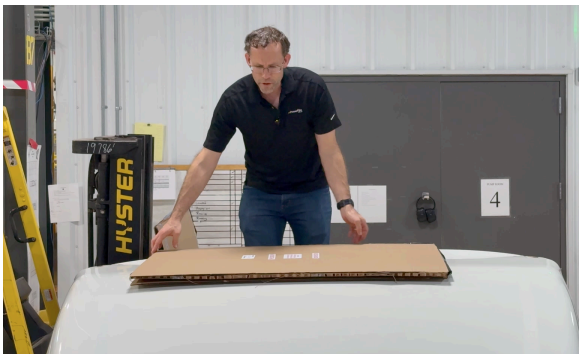
A clean surface ensures strong adhesion that lasts the life of the panel (10+ years).

1. Spray isopropyl alcohol onto both the truck surface and your rag.
2. Wipe the fairing down thoroughly to remove dirt, oil, and grease.
3. Wipe a second time to ensure nothing is left behind.
4. It's helpful to have one person working from the top and one from below.

Step 2: Identify and Mark the Center

1. Use consistent reference points, such as bolt holes on each side, to ensure accuracy.
2. Measure between the inside edges of both reference points.
3. Divide that number in half to find the center—mark this with your marker.
4. Note: The bottom of the International fairing comes to a natural point, making horizontal centering easier.

Step 3: Positioning the Panel for Installation



1. Place the packaged panel on the fairing with the "This Side Up" label facing up.
2. Do not cut any stretch wrap bands yet.
3. Once the panel is flat and in position, cut the banding carefully (cut upward, not down—to avoid damaging the panel).
4. Remove the cardboard from the top and bottom.
5. Avoid lifting or sliding the panel unnecessarily—minor sliding for positioning is acceptable.

Step 4: Deploy and Adhere the Center Panel (Driver's Side)

1. Open the panel like a book along its hinge using the support cardboard. Do not lift the unsupported side.
2. Remove plastic clips on the center section only.
3. Fan out the release liner for the center section.
4. Align the panel with your center marks, both top and bottom.
5. Lightly stretch the panel with your hands to match the fairing's curve.
6. Use the pull tab at the top to begin removing the bottom liner. Pull 1–2" of the liner to expose the adhesive.
7. Begin tacking the panel down: use the squeegee to press from the center upward and then outward.
8. Continue pulling the liner in 5–6" increments, squeegeeing as you go.
9. Once the top edge is reached, remove the liner from the lower flap and simultaneously squeegee the flap in place.

Step 5: Adhere the Outside Panel Section (Driver's Side)

1. Remove the clips and fan out the liner for the outer section.
2. Gently pull down on the panel to conform it to the fairing.
3. Pull 1–2" of liner to expose the adhesive near the first silver bar.
4. Begin squeegeeing from that point upward through the center and outward.
5. Continue pulling liner 5–6" at a time while applying pressure with the squeegee.
6. Always pull the liner straight backward—never upward—to avoid bending the panel.
7. Once fully adhered, finish by removing the final lower flap's liner and squeegee it down.

Step 6: Install the Passenger Side Panel

Repeat the same process as above for the passenger side panel:

1. Ensure "Passenger Side" and "This Side Up" labels are correct.
2. Cut banding once the panel is laid flat in position.
3. Slide out the cardboard carefully—avoid lifting the panel.
4. Open the hinged panel and remove the clips from the center section.

5. Align the center section top and bottom.
6. Fan out and pull the release liner in increments, tacking the panel down and squeegeeing as you go.
7. Once the center is bonded, move to the outside section.
8. Pull and squeegee gradually up and out.
9. Finish with the final bottom flap.

Step 7: Cable Routing and Battery Connection

SCAN THE QR CODE BELOW TO WATCH THE BATTERY CONNECTION VIDEO

OR CLICK HERE TO WATCH THE BATTERY CONNECTION VIDEO



1. Route the cable from the panel to the charge controller using the included zip ties and mounting blocks.
    - **IMPORTANT:** Clean the areas where mounting blocks will be applied using >90% isopropyl alcohol.
2. Mount the charge controller securely to a mechanically sound surface (e.g., battery box or metal frame) using the included screws.
3. Remove the fuse from the wiring harness before connecting to the battery.
4. Connect the ring terminals:
    - **Red** to positive (+)
    - **Black** to negative (–)
5. Use a multimeter to measure the battery voltage and confirm:
    - 12V system
    - Correct polarity

6. Reinstall the fuse in the harness.
7. When the solar panel is exposed to sunlight, measure battery voltage again—it should be slightly higher based on sunlight intensity.
8. Use a DC amp clamp around the wire with the fuse installed to measure current:
    - Current will vary between 0–7A
    - A 0 or low reading may indicate the battery is fully charged (above 14.2V) or deeply discharged (below 9.5V)

Final Inspection & Tips

- Recheck that the panel edges are fully adhered with no loose spots.
- Go over the entire panel again with the squeegee to remove any remaining bubbles or wrinkles.
- Avoid placing weight (such as a knee or palm) directly on the panel during installation.
- Slight cell cracks will not kill performance, but may reduce efficiency.

You've completed a successful installation of the 400W International Solar Panel!