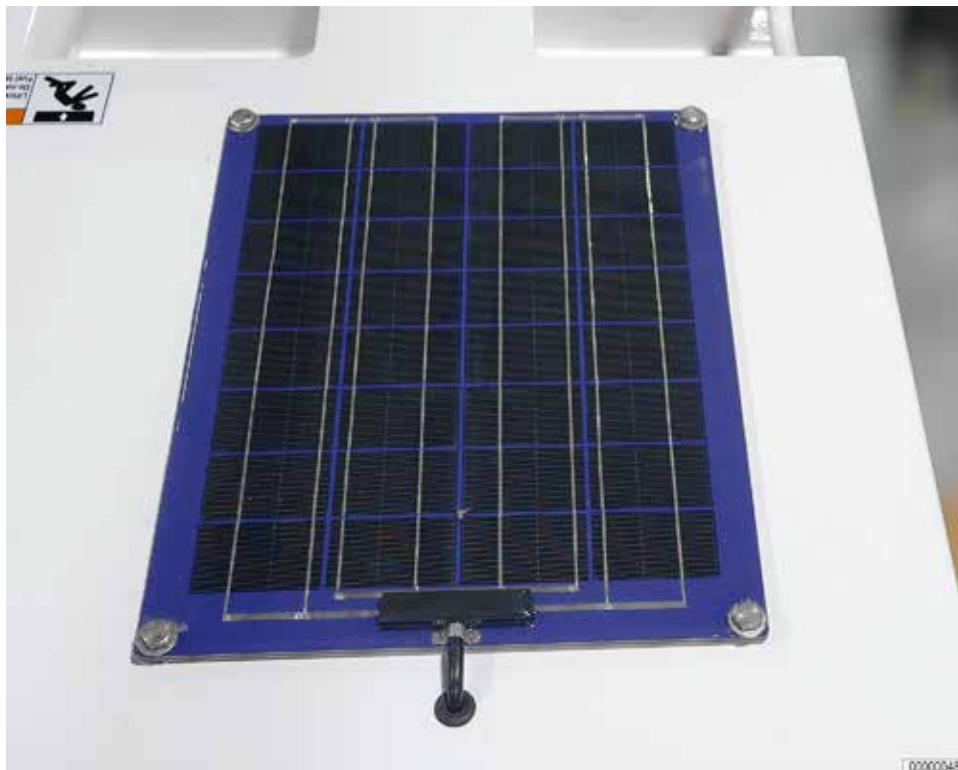




Installation Instructions

DGK70F\FU Solar Panel



Kit Contents:

- (1) 12v-12 Watt Solar Panel w/12v Pulse Charger



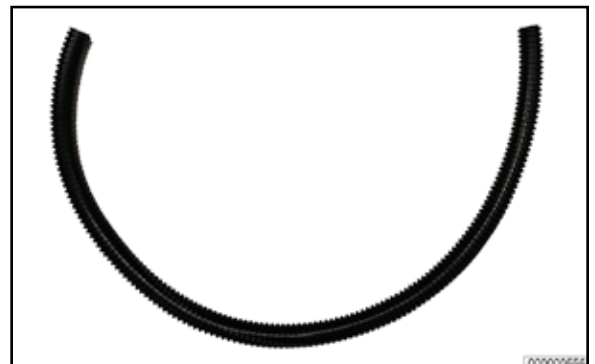
- (4) 1/4-20x3/4 " stainless steel bolts
- (1) 1/4-20x1" stainless steel bolt
- (8) 1/4-20 stainless steel flat washers
- (4) 1/4-20 stainless steel lock nuts.
- (2) 8-32x3/4 " stainless steel screws
- (2) 8-32 stainless steel flat washers
- (2) 8-32 stainless steel lock nuts
- (1) M8x1.25x20mm stainless steel bolt



- (1) 1/2"x 6" Black Heat Shrink Tubing
- (2) 18-22 ga Heat Shrink Butt Connectors
- (1) 1/8"x7/16" Grommet
- Black Cable Ties



- (1) 18"x3/8" Split Loom



- (1) DGK70F\FU Solar Panel Installation Template
- (1) DGK70F\FU Solar Panel Pulse Charger Installation Template

Tools & Materials Required:

- Masking tape
- Electrical tape
- Measuring tape
- Scissors
- Safety knife
- Center punch
- Deburring tool
- 1/8" drill bit
- 3/16" drill bit
- 5/16" drill bit
- 13/64" drill bit
- Drill (electric or cordless)
- 11/32 socket & 1/4 drive
- 10 mm socket - 3/8 drive
- 17 mm socket - 3/8 drive
- 3/8 impact driver with 3" extension
- 13 mm combination ratchet wrench
- #2 Phillips screwdriver
- Needle Nose Pliers
- Wire cutter\stripper & crimper
- Heat Gun or equivalent
- Clear silicone sealant

NOTES

INSTALLATION INSTRUCTIONS

- Step 1: Verify Kit Contents
- Step 2: Read through installation instructions before beginning the procedure.
- Step 3: Release the Right Enclosure rear door latch, then open both right enclosure doors. (Figure 1)

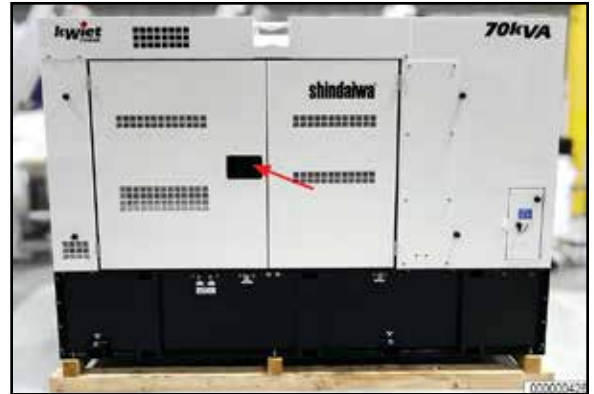


Figure 1

- Step 4: Remove nut and washer securing NEGATIVE battery cable to NEGATIVE terminal using a 13mm wrench. (Figure 2)



Figure 2

- Step 5: Position the negative battery cable out of the way, then reinstall washer and nut to battery terminal. (Figure 3)



Figure 3

- **Step 6:** Prepare the Solar Panel Template (included with kit) for use by using scissors or safety knife; cut along dashed lines as indicated.
- **Step 7:** Place the Solar Panel Template on the Top Enclosure surface. Using the notes and arrows on template, align the Right Side Edge of the template with the Pocket Edge as shown, and the Bottom of the template with the Right Side Edge as shown. Secure in place with masking tape. (Figure 4)
- **Step 8:** Using center punch and hole location indicated on template, transfer hole center locations to the Top Enclosure surface.

NOTE: All drilling is intended to be done with template remaining taped in place.

- **Step 9:** Drill a pilot hole in all five (5) hole locations using 1/8" drill bit and drill.
- **Step 10:** Enlarge all five (5) holes using 5/16" drill bit and drill.
- **Step 11:** Enlarge Grommet hole using 7/16" drill bit and drill.
- **Step 12:** Remove and discard the template.
- **Step 13:** Deburr all holes.
- **Step 14:** Install grommet into 7/16" grommet hole. Make certain the grommet edges sit flush with surface. (Figure 5)

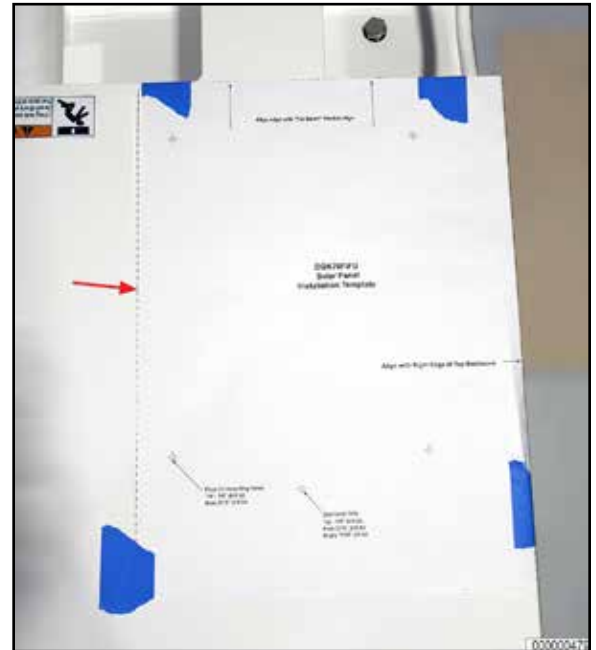


Figure 4

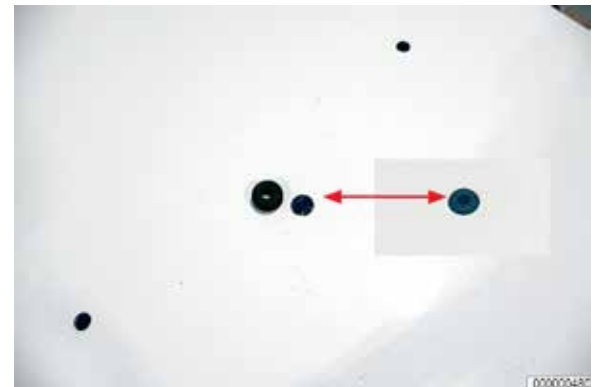


Figure 5

- **Step 15:** Using a 10 mm 3/8 drive socket and wratchet wrench or driver, remove six (6) bolts securing the Right Enclosure Duct Panel. Retain the bolts and cover for reinstallation. (Figure 6)



Figure 6

- **Step 16:** Using scissors or utility knife, remove a 1" square portion of foam insulation from the under side of the Top Enclosure as shown. (Figure 7)



Figure 7

- **Step 17:** In preparation to attaching the solar panel to the Top Enclosure, select four (4) 1/4-20x3/4" bolts. Place a pea size bead of silicone RTV sealant to the underside of each of the 1/4-20 bolt heads as shown. (Figure 8)

Note: The kit contains a 1/4-20x1" bolt that is not used in this application, and may be discarded.



Figure 8

- Step 18: Remove Solar Panel from packaging; set panel on Top Enclosure.

- Step 19: Uncoil power cable and using measuring tape, measure out approximately 20 inches as shown. Cut power cable with wire cutters. DO NOT DISCARD remaining portion of power cable - it will be used later in the installation. (Figure 9)

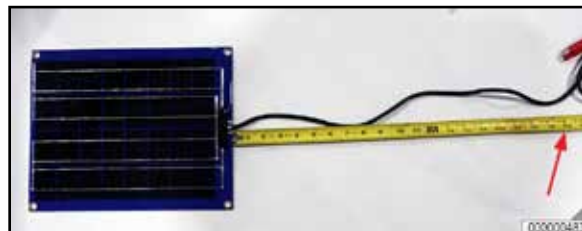


Figure 9

- Step 20: Insert short end of cable (attached to solar panel) into the grommet, pushing the cable through till approximately an inch and a half (1-1/2") is remaining. (Figure 10)

NOTE: If the power cable is difficult to push through the grommet, use of a lubricant such as glass cleaner or alcohol on the cable can be used.

- Step 21: Attach solar panel to Top Enclosure. Using the four (4) 1/4-20x3/4" stainless steel bolts along with four (4) 1/4-20 stainless steel flat washers on top of the solar panel mounting holes and four (4) 1/4-20 stainless steel flat washers under the solar panel mounting holes, and securing to the underside of top enclosure with four (4) stainless steel 1/4-20 locknuts. DO NOT OVERTIGHTEN - Snug the bolts and locknuts only. (Figure 10)

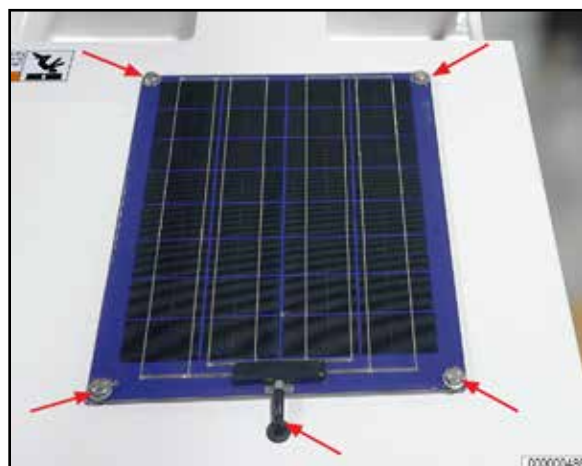


Figure 10

- Step 22: Route Solar Panel Power Cable down through the Top Enclosure and Right Side Enclosure Duct as shown. Attach split loom to power cable where shown. Use electrical tape to secure the ends and middle of the split loom to prevent it from moving or coming off. (Figure 11)



Figure 11

- **Step 23:** Locate the DGK70F\FU Solar Pulse Charger Mounting Template; prepare it for use by cutting it out using scissors or safety knife.
- **Step 24:** Position the template on the lower rear corner of the Control Box Edge, securing it in place with masking tape as shown. (Figure 12)
- **Step 25:** Using center punch, indicate hole locations.
- **Step 26:** Use 11/64" drill bit and drill to create solar pulse charge mounting holes through template. Remove and discard template.
- **Step 27:** Deburr mounting holes.

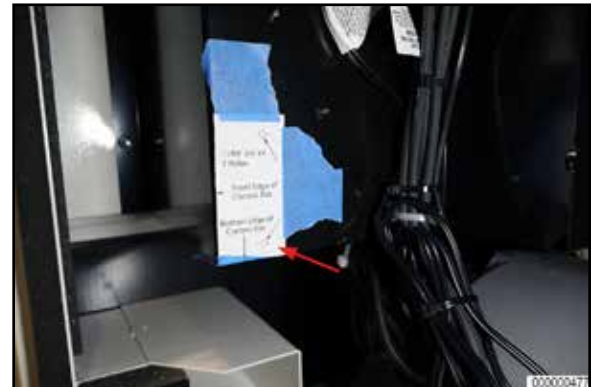


Figure 12

- **Step 28:** Attach Solar Pulse Charger to lower rear corner of Control Box using two (2) stainless steel 8-32x3/4" bolts, flat washers and locknuts using 11/32" socket and driver and #2 Phillips screwdriver. DO NOT OVERTIGHTEN - Snug bolts and nuts. (Figure 13)



Figure 13

- **Step 29:** Using the power cable previous cut in step 19, measure approximately 10 inches from the red plug end, and cut the cable once again. (Figure 14)

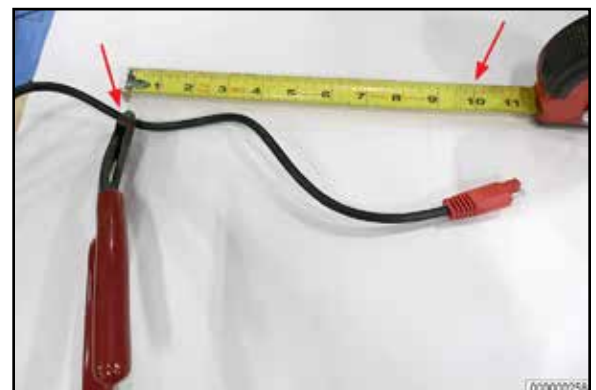


Figure 14

- **Step 30:** Using wire strippers, remove approximately two (2) inches of outer sheathing from the solar panel power cable and from the red plug end cable, exposing the red and black wire within. Take care not to cut through into either of the wires. (Figure 15)



Figure 15

- **Step 31:** Place a "Butt" connectors (supplied in kit) over the exposed ends of each wire and using a wire crimper, secure the butt connectors to each wire. (Figure 16)

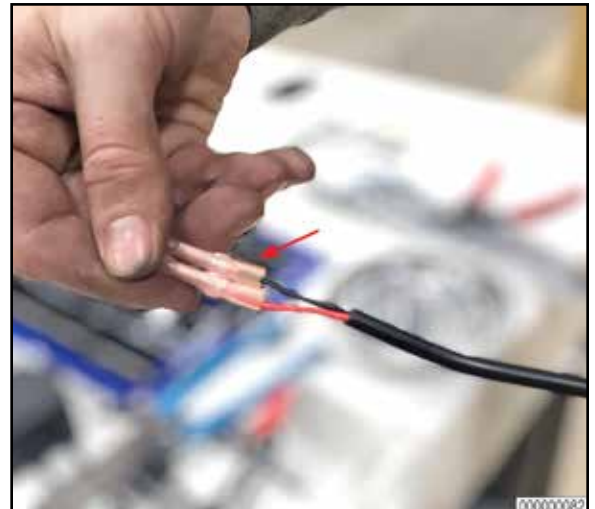


Figure 16

- **Step 32:** Place a 1/2"x 6" piece heat shrink tube (supplied in kit) over plug end portion of cable, exposing the wire butt connection as shown. Use a heat gun to shrink/seal the butt connectors to the wires. (Figure 17)



Figure 17

- **Step 33:** Place ends of wires from solar panel cable into the butt connectors of the same color, securing each connection by crimping. (Figure 18)
- **Step 34:** Using heat gun or equivalent, shrink butt connectors to seal wires.



Figure 18

- **Step 35:** Slide the 1/2" x 6" heat shrink tube up over butt wire connections. Starting from the bottom, working upward using the heat gun, slowly shrink the tubing over the power cable, wires and butt connectors. (Figure 19)



Figure 19

- **Step 36: Connect plug ends of solar panel to solar pulse charger. To prevent plugs from separating, secure with electrical tape (Figure 20)**



Figure 20

- **Step 37: Route the Solar Panel Power cable over towards back of the Control Cabinet box, securing the cable and excess cable in place to existing cables using cable ties as shown. Remove excess cable ties ends (Figure 21)**



Figure 21

- **Step 38:** Pull back the RED Positive Battery Terminal Cover to uncover the terminal; remove the bolt securing cables to POSITIVE side of battery using a 1/2 inch ratchet wrench or equivalent. Discard the bolt.
- **Step 39:** Locate Solar Pulse Charger to Battery Connector Cable in kit. (Figure 22)

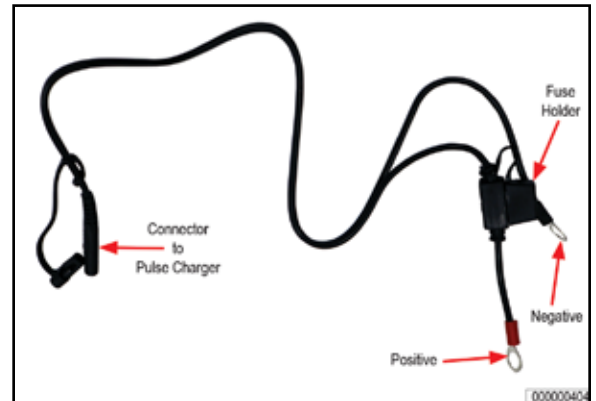


Figure 22

- **Step 40:** Route the RED (Positive) wire lead from the solar pulse charger connector through the RED Positive Terminal cover and combine with Positive battery cable on terminal. Secure red wire lead from pulse charger with positive battery cable using new bolt from kit and using a 13 mm ratchet wrench or equivalent. **DO NOT OVERTIGHTEN - Snug bolt** (Figure 23)
- **Step 41:** Return RED Positive terminal cover to it's original position.



Figure 23

- **Step 42:** Secure positive wire lead with fuse holder to existing cables with cable tie. Remove excess cable tie ends (Figure 24)



Figure 24

- **Step 43: Connect plug ends (from solar charger and to the battery). To prevent plugs from separating, secure with electrical tape. (Figure 25)**



Figure 25

- **Step 44: Remove bolt and lockwasher from NEGATIVE battery terminal. Reposition and reattach NEGATIVE battery cable to NEGATIVE battery terminal, adding the new negative wire lead from Solar Pulse Charger to Negative battery cable along with any other Negative leads. Secure the bolt and washer using a 13mm wrench. DO NOT OVERTIGHTEN bolt - Snug only. (Figure 26)**



Figure 26

- **Step 45: Secure power cables from both solar panel and solar charger to existing wire harness using a cable ties. Remove excess cable tie material (tails)(Figure 27)**



Figure 27

- **Step 46: Close the Right Enclosure Rear Doors, making sure the latch completely engages. (Figure 28)**



Figure 28

The Solar Panel Installation is now complete