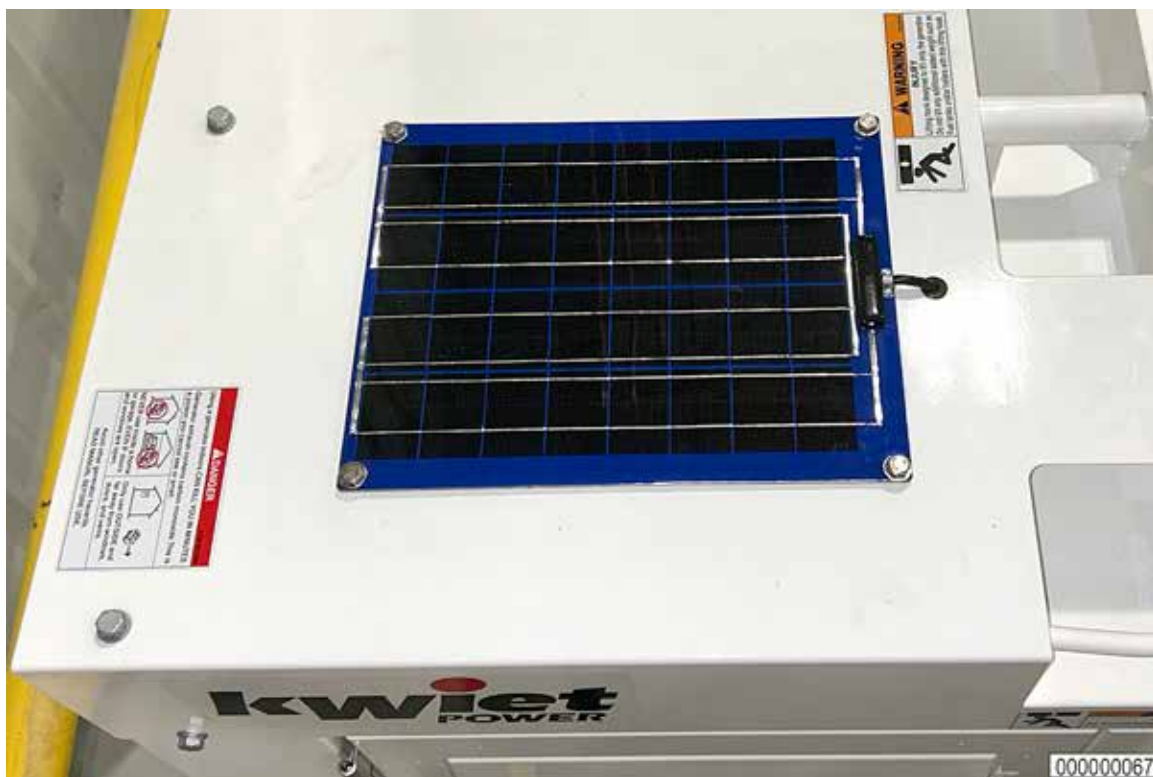




Installation Instructions

DGK14F\FU\Solar Panel



Kit Contents:

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



- (1) 1/4-20x1 " stainless steel bolt
- (4) 1/4-20x3/4" stainless steel bolts
- (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) DGK14F\FU Solar Panel Installation Template
- (1) DGK14F\FU 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 and **READ THROUGH THE INSTRUCTIONS BEFORE STARTING PROCEDURE!**

- Step 2: Disconnect **NEGATIVE** battery cable: Using a 10 mm ratchet wrench, loosen the nut that serves as part of battery cable clamp. Remove the **NEGATIVE** battery cable and position it out of the way to prevent unintentional contact with the battery. (Figure 1)



Figure 1

- Step 3: Using a 13mm socket and impact driver, remove all six (6) bolts securing the Left Enclosure Panel in place. Remove panel and secure in a safe manner. (Figure 2)

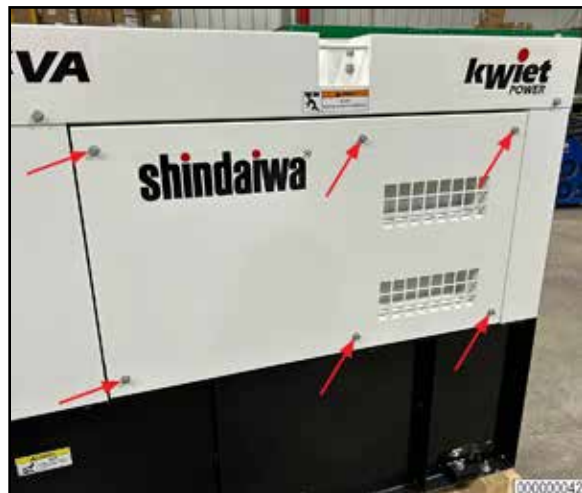


Figure 2

- Step 4: Using a 13mm socket and impact driver, remove all fifteen (15) bolts securing the Top Enclosure in place. (Figure 3)



Figure 3

- Step 5: Using a 17 mm ratchet wrench, remove four (4) bolts located on the top of the enclosure near each of the tie-down locations. (Figure 4)

NOTE: The step 5 requires two people to safely perform.

- Step 5: Remove Top Enclosure and place on a sturdy flat work surface.



Figure 4

- Step 6: Open Right Side Enclosure Rear Door. (Figure 5)



Figure 5

- Step 7: Using a 10mm socket and driver, remove two (2) bolts securing Right Side Enclosure Power Door. Safely store removed bolts for reassembly. (Figure 6)



Figure 6

- Step 8: Prepare the Solar Panel Template (included with kit) for use by using scissors or safety knife; cut along dashed lines as indicated.
- Step 9: Place the Solar Panel Template on the top of the Top Enclosure surface. Using notes and arrows on template, align template to the "Tie Down" pocket edge, and the right side of the template with the edge of the Top Enclosure. Secure in place with masking tape. (Figure 7)
- Step 12: 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 13: Drill a pilot hole in all five (5) hole locations using 1/8" drill bit and drill.



Figure 7

- Step 14: Enlarge all five (5) holes using 5/16" drill bit and drill. (Figure 8)
- Step 15: Enlarge Grommet hole using 7/16" drill bit and drill.
- Step 16: Remove and discard the template.
- Step 17: Deburr all holes.

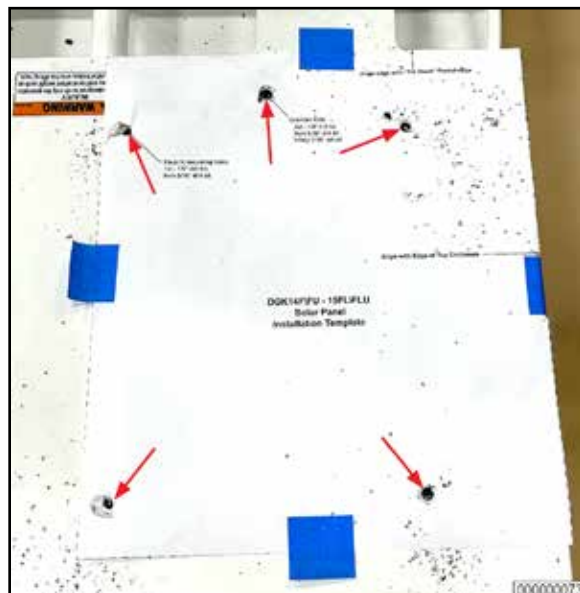


Figure 8

- Step 18: Install grommet into 7/16" grommet hole. Make certain the grommet edges sit flush with surface. (Figure 9)

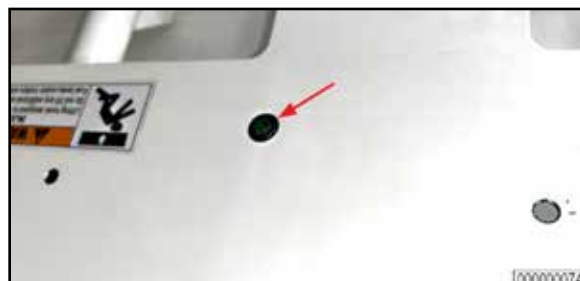


Figure 9

- Step 13: Flip the Top Enclosure over so that the underside is rightside up.
- Step 14: Using scissors or utility knife, remove a 1" square portion of foam insulation from the under side of each hole in the Top Enclosure to access the mounting holes (for hardware) and for the solar panel power cord. (Figure 10)

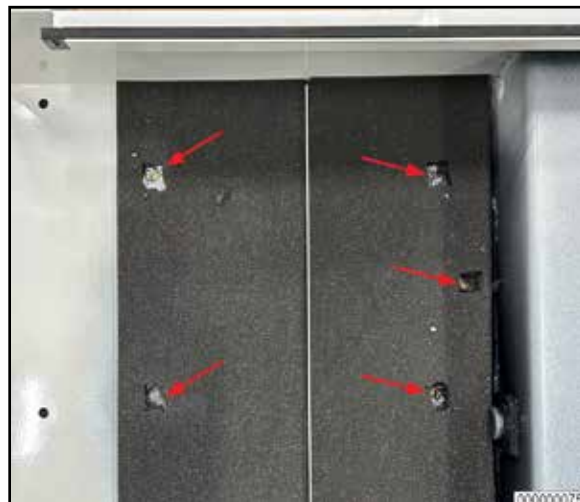


Figure 10

NOTE: The kit contains a 1/4-20x1" stainless steel bolt that is not used in this application.

- Step 15: In preparation to attaching the solar panel to the Top Enclosure, place a pea size bead of silicone RTV sealant to the underside of each of the 1/4-20 bolt heads supplied in the kit. (Figure 11)
- Step 16: Remove Solar Panel from packaging; set panel on Top Enclosure.



Figure 11

- Step 17: Uncoil power cable and using measuring tape, measure out approximately 13 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 12)
- Step 18: 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 12

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 19: Attach solar panel to Top Enclosure.** Using four (4) 1/4-20x3/4" stainless steel bolts and four (4) 1/4-20 stainless steel flat washers on top of the solar panel mounting holes, and securing to the underside of top enclosure with four (4) 1/4-20 stainless steel flat washers and four (4) stainless steel 1/4-20 locknuts. **DO NOT OVERTIGHTEN** - Snug the bolts and locknuts only. (Figure 13)

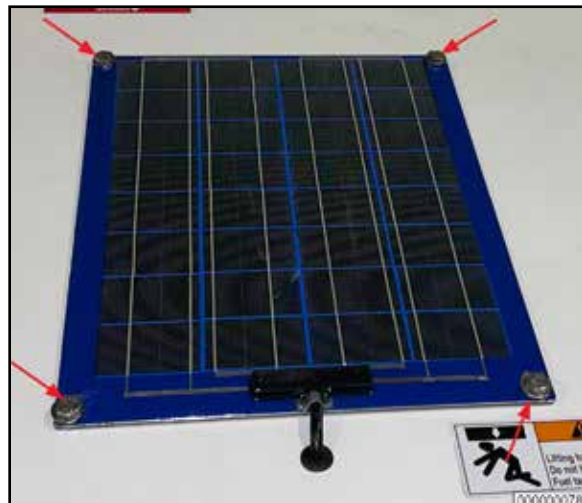


Figure 13

- **Step 20: Locate the DGK14F\FU Solar Pulse Charger Mounting Template;** prepare it for use by cutting it out using scissors or safety knife.
- **Step 21: Position the template on the upright rear corner of the Control Box as shown.** Secure in place with masking tape. (Figure 14)
- **Step 22: Using center punch, indicate hole locations.**
- **Step 23: Use 3/16" drill bit and drill to create solar pulse charge mounting holes through template.** Remove and discard template.

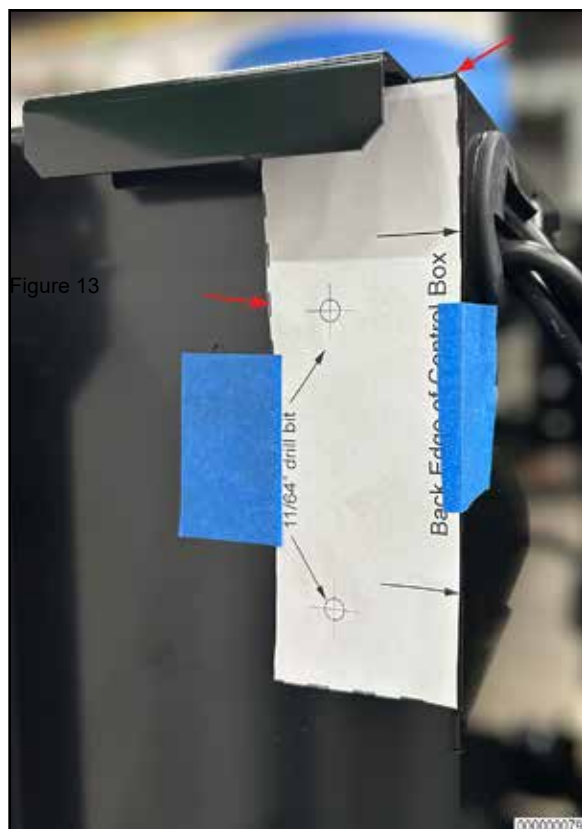


Figure 14

- Step 24: Deburr mounting holes.
- Step 25: Attach Solar Pulse Charger to upper 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 15)



Figure 15

- Step 26: Reinstall the Top Enclosure, securing in place with fifteen (15) previously removed bolts in Step 4, using a 13 mm socket and impact driver. (Figure 16)



Figure 16

- **Step 27: Complete the Top Enclosure installation by reinstalling four (4) top bolts and securing in place using a 17 mm ratchet wrench. (Figure 17)**



Figure 17

- **Step 28: Reinstall the Left Enclosure Panel and secure in place with six (6) bolts and using a 13mm socket and impact driver. (Figure 18)**



Figure 18

- **Step 29: Using the power cable previous cut in step 17, measure approximately 10 inches from the red plug end, and cut the cable once again.**
- **Step 30: Using wire strippers, remove approximately two (2) inches of outer sheathing from the power cable, exposing the red and black wire within. Take care not to cut through into either of the wires.**
- **Step 31: Using the wire strippers, remove approximately 1/2" inch of insulation from both the red and black wires. (Figure 19)**
- **Step 32: Repeat Steps 25 and 26 for the power cable coming from the solar panel.**



Figure 19

- **Step 33:** 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 20)

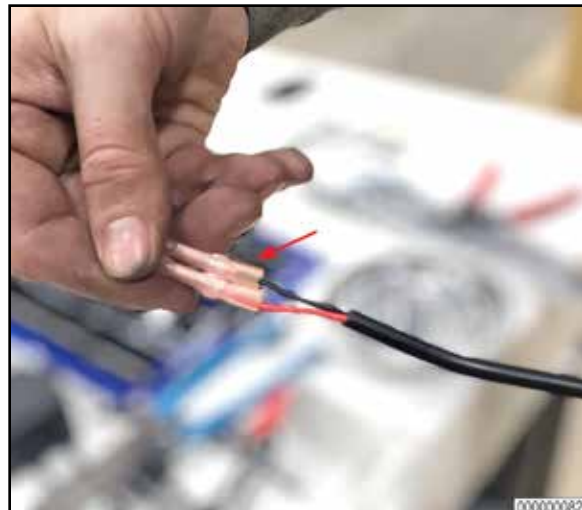


Figure 20

- **Step 34:** 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 21)



Figure 21

- **Step 35:** Place ends of wires from solar panel cable into the butt connectors of the same color, securing each connection by crimping. (Figure 22)
- **Step 36:** Using heat gun, shrink butt connectors to seal wires.



Figure 22

- **Step 37:** 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 23)



Figure 23

- **Step 38:** Connect plug ends of solar panel to solar pulse charger. To prevent plugs from separating, secure with electrical tape (Figure 24)



Figure 24

- **Step 39:** Remove bolt securing cables to POSITIVE side of battery using a 13 mm ratchet wrench. Discard bolt.
- **Step 40:** Combine RED wire lead from solar charger connector with cable and reinstall to POSITIVE side of battery using new bolt from kit and 13 mm ratchet wrench. DO NOT OVERTIGHTEN - Snug bolt (Figure 25)



Figure 25

- **Step 41: Secure positive wire lead with fuse holder to existing cables with cable tie. (Figure 26)**



Figure 26

- **Step 42: Connect plug ends (from solar charger and to the the battery). To prevent plugs from separating, secure with electrical tape. (Figure 27)**



Figure 27

- **Step 43: Secure power cables from both solar panel and solar charger to existing wire harness using a cable ties. (Figure 28)**



Figure 28

- **Step 44:** Combine new negative wire lead from solar charger to Negative battery cable end using bolt and nut used to secure battery cable to battery as shown. (Figure 29) Secure negative wire lead to Negative battery cable with cable tie. Secure the battery clamp using a 10mm ratchet wrench.



Figure 29

- **Step 45:** Close the Right Side Enclosure Power Door and secure in place using two (2) bolts using a 10mm socket and driver. (Figure 30)
- **Step 46:** Close Right Side Enclosure Rear Door.

The Solar Panel Installation is now complete



Figure 30