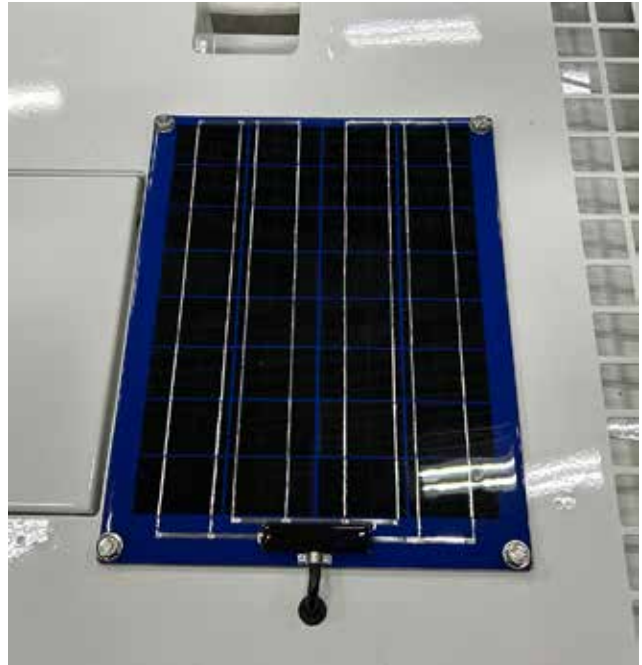




# Installation Instructions

## DGK7F\FU Solar Panel



### Kit Contents:

- (1) 12v-12 Watt Solar Panel w/12v Pulse Charger
- (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) 8-32-x3/4" stainless steel bolts
- (2) 8-32 stainless steel flat washers
- (2) 8-32 stainless steel lock nuts
- (1) 1/8"x7/16" Grommet
- (2) 18-22 ga Heat Shrink Butt Connectors
- (1) 1/2"x 6" Black Heat Shrink Tubing
- (10) 11" (280 mm) Black Cable Tie
- (1) Lift Warning Decal (Part # X505007550)
- (1) DGK7F\FU Solar Panel Installation Template
- (1) DGK7F\FU Pulse Charger Installation Template

### Tools & Materials Required:

- Masking 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

## INSTALLATION INSTRUCTIONS

- Step 1: Verify Kit Contents
- Step 2: Disconnect \remove the negative side battery cable from the battery.
- Step 3: Using a 10mm socket and impact driver, remove all eight (11) bolts (four (4) on right and left sides, three (3) on the rear enclosure frame, two (2) bolts in control cabinet above controls, and one (1) beneath the water inlet cover. (Figure 1)



Figure 1

- Step 4: Using the 17mm socket and impact driver, remove two (2) bolt located on the top of the enclosure near each of the tie-down locations. (Figure 2)

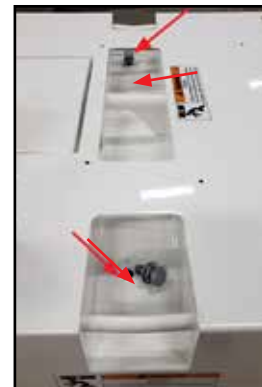


Figure 2

- Step 5: Open the right side door, then using a 13mm ratchet wrench, remove two (2) bolts securing the air cleaner housing to the underside of the Top Enclosure. (Figure 3)

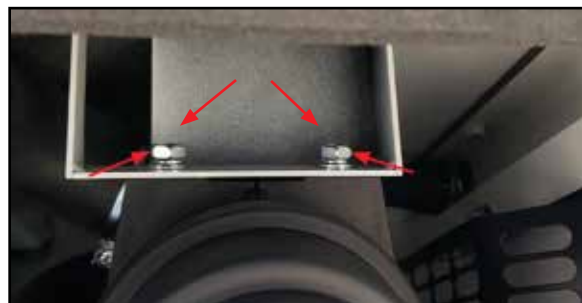


Figure 3

- Step 6: Using scissors or wire cutters, cut the two (2) cable ties securing the air inlet hose to the underside of the Enclosure Top. (Figure 4)



Figure 4

- **Step 7:** Remove "E clips" securing the hinge pins on the right side door. Remove hinge pins and carefully remove the door. Store right side door in a safe secure manner.
- **Step 8:** Remove four (4) bolts with 10 mm socket & driver securing right door. Remove right door and store in a safe secure manner.
- **Step 9:** Open fuel lid, remove fuel cap, strainer and fuel tank bushing (seal). Set aside in a safe secure manner.
- **Step 10:** Carefully lift control panel end of Top Enclosure and support/prop up the end. (Figure 5)



Figure 5

- **Step 11:** Pinch clamp securing spill containment hose to underside of Top Enclosure using needle nose pliers - sliding clamp away. Carefully remove hose. (Figure 6)



Figure 6

- **Step 12:** Remove Top Enclosure and place on a sturdy flat work surface.
- **Step 13:** Prepare the Solar Panel Template (included with kit) for use by using scissors or safety knife; cut along dashed lines as indicated.
- **Step 14:** Place the Solar Panel Template on the top of the Top Enclosure surface. Using notes and arrows on template, align top of template to the "Tie Down" pocket edge and the left side of the template with the venting squares. Secure in place with masking tape.
- **Step 15:** Using center punch and hole location indicated on template, transfer hole center locations to the Top Enclosure surface (template removed for location clarity).

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

- **Step 16:** Drill a pilot hole in all five (5) hole locations using 1/8" drill bit and drill. (Figure 7)

**NOTE:** In some models, a 1" square portion of foam insulation must be removed on the under side of the Top Enclosure to access the mounding hole.

- **Step 17:** Enlarge all five (5) holes using 5/16" drill bit and drill.
- **Step 18:** Enlarge Grommet hole using 7/16" drill bit and drill.
- **Step 19:** Remove and discard the template.
- **Step 20:** Deburr all holes.



Figure 7

- Step 21: Install grommet into 7/16" grommet hole. Make certain the grommet edges sit flush with surface. (Figure 8)

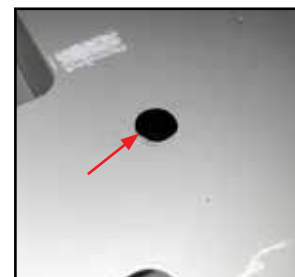


Figure 8

- Step 22: Remove Solar Panel from packaging; set panel on Top Enclosure.

- Step 23: Uncoil power cable and using measuring tape, measure out approximately 13 inches (13") 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 24: 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.

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

- Step 25: 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. Place new Lift Warning Decal on surface near location of one now cover by the solar panel.

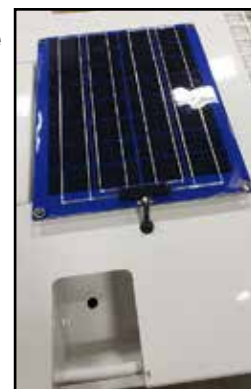


Figure 10

- Step 26: Reinstall Top Enclosure - This requires two individuals to safely and properly perform. Set the top enclosure back on the enclosure frame, propping up the controls end as previously done in Step 9 during the removal.
- Step 27: Reattach the spill containment hose removed in Step 11. Using needle nose pliers, position hose clamp and secure hose in position.
- Step 28: Reinstall two (2) bolts previously removed in step 4, using a 17 mm socket and impact driver.
- Step 29: Reinstall all eleven (11) bolts previously removed in step 3, using a 10 mm socket and impact driver to secure the Top Enclosure to the enclosure frame.
- Step 30: Reattach air cleaner housing to underside of Top Enclosure previously removed in step 5, using two (2) previously removed 13mm bolts & washers using a 13mm ratchet wrench. Do not overtighten. Snug bolts only.



- **Step 31:** Reinstall right door, previously removed in step 8. Secure using four (4) previously removed bolts and 10 mm socket and impact driver.
- **Step 32:** Reattach air inlet hose to underside of Top Enclosure using two cable ties (provide in kit). Secure inlet hose, then remove excess (tails) from cable ties using scissors or wire cutters. (Figure 11)

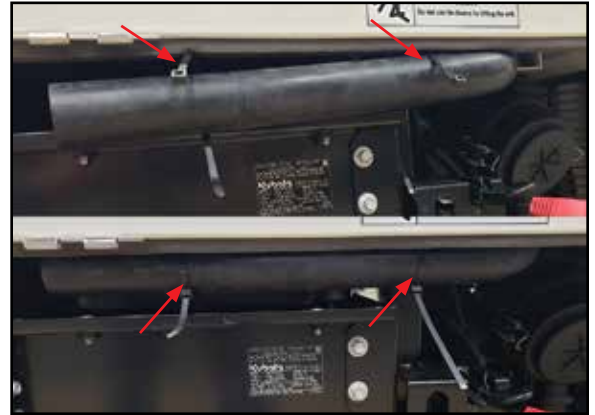


Figure 11

- **Step 33:** Using the power cable previous cut in step 23, measure approximately 10 inches from the red plug end, and cut the cable once again.
- **Step 34:** 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 35:** Using the wire strippers, remove approximately 1/2" inch of insulation from both the red and black wires.
- **Step 36:** 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 12)
- **Step 37:** 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 13)
- **Step 38:** Repeat steps 33 and 34 to power cable end coming from the solar panel.



Figure 12



Figure 13

- **Step 39:** Place ends of wires from solar panel cable into the butt connectors of the same color, securing each connection by crimping.
- **Step 40:** Using heat gun, shrink butt connectors to seal wires (Figure 14)



Figure 14

- **Step 41:** Slide 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 15)



Figure 15

- **Step 42:** Locate the DGK7F1FU Solar Pulse Charger Mounting Template; prepare for use by cutting it out using scissors or safety knife
- **Step 43:** Position the template on the Top Enclosure mounting bracket as shown. Secure in place with masking tape. (Figure 16)



Figure 16

- Step 44: Using center punch indicate hole locations. (Figure 17)
- Step 45: Use 3/16" drill bit and drill to create solar pulse charge mounting holes through template. Remove and discard template.

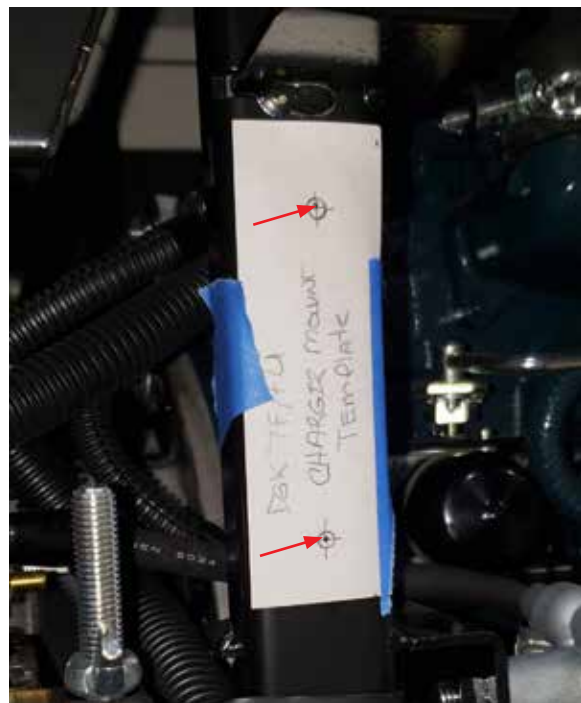


Figure 17

- Step 46: Attach Solar Pulse Charger to top enclosure mounting bracket 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 18)



Figure 18

- **Step 47:** Connect plug ends of solar panel to solar pulse charger. To prevent plugs from separating, secure with electrical tape (Figure 19)



Figure 19

- **Step 48:** Secure power cables from both solar panel and solar charger to side of Top Enclosure Mounting Bracket using a cable tie. (Figure 20)



Figure 20

- **Step 49:** Remove bolt securing cables to POSITIVE side of battery using a 13 mm ratchet wrench.
- **Step 50:** Combine RED wire lead from solar charger connector with cables removed in step 48, and reinstall to POSITIVE side of battery using previously removed bolt and 13 mm ratchet wrench. **DO NOT OVERTIGHTEN - Snug bolt** (Figure 21)



Figure 21



- Step 51: Secure positive wire lead with fuse holder to existing cables with cable tie. (Figure 22)



Figure 22

- Step 52: Connect plug ends (from solar charger and to the battery). To prevent plugs from separating, secure with electrical tape. (Figure 23)



Figure 23

- Step 53: Secure excess length of power cables\wires to Top Enclosure Mounting Bracket with cable tie. (Figure 24)



Figure 24

- **Step 54:** Combine new negative wire lead from solar charger with previously removed **NEGATIVE** battery cables and secure using 13 mm bolt with 13 mm ratchet wrench to negative battery terminal. (Figure 25)



Figure 25

- **Step 55:** Remove all excess cable tie tails using wire cutters.
- **Step 56:** Install right side door with install hinge pins and secure hinge pins with "E-clips" previous removed in step 7.

**The Solar Panel Installation is now complete**