220W SOLAR KIT

P/N 2881506

APPLICATION

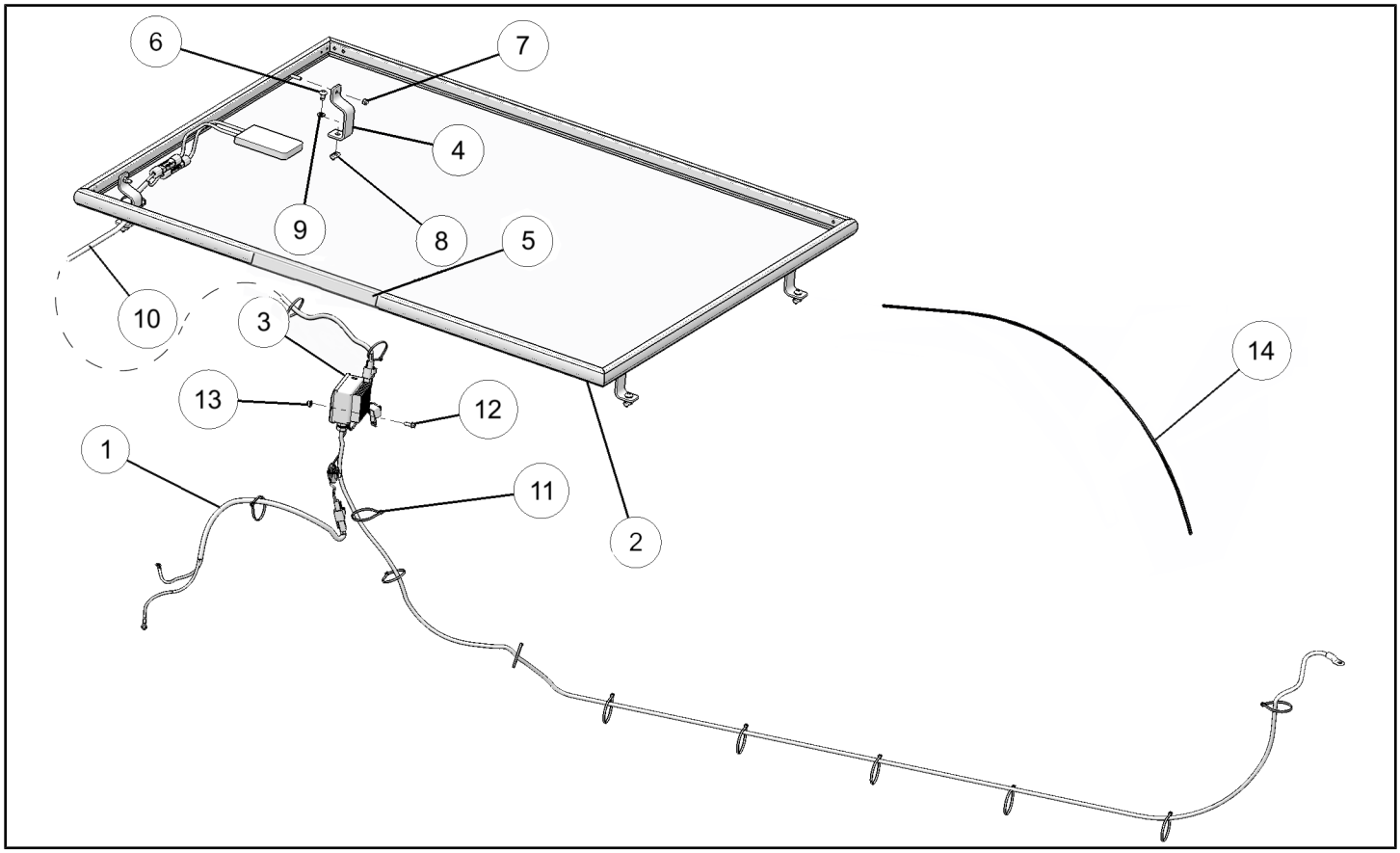
2016 GEM e4

BEFORE YOU BEGIN

Read these instructions and check to be sure all parts and tools are accounted for. Please retain these installation instructions for future reference and parts ordering information.

KIT CONTENTS

This Kit includes:



REF	QTY	PART DESCRIPTION	PART NUMBER
1	1	Solar Harness	2413186
2	1	Framed Solar Assembly	2635958
3	1	Solar Charger - 220W	4015482
4	4	Solar Mount Bracket	5261057
5	1	Warning Decal	7181565
6	4	Screw - M8 X 1.25 X 15	7520391
7	4	Hexagonal Nut - 0.25 - 20	7547637
8	4	Roll-In Nut - M8 X 1.25	7547806

REF	QTY	PART DESCRIPTION	PART NUMBER
9	4	Washer - 8.4 X 16.0 X1.6	7556305
10	1	Solar Panel Harness, 220W	2413671
11	13	Panduit Strap	7080138
12	2	Screw - M6 X 1.0 X 16	7518637
13	2	Nut - M6 X 1.0	7547339
14	1	T-Slot, Extrusion Cover	5522130–1610
	1	Instructions	9926536

TOOLS REQUIRED

- Safety Glasses
- Torx® Set
- Metric Wrench Set
- Metric Socket Set
- Standard Socket Set and Ratchet

IMPORTANT

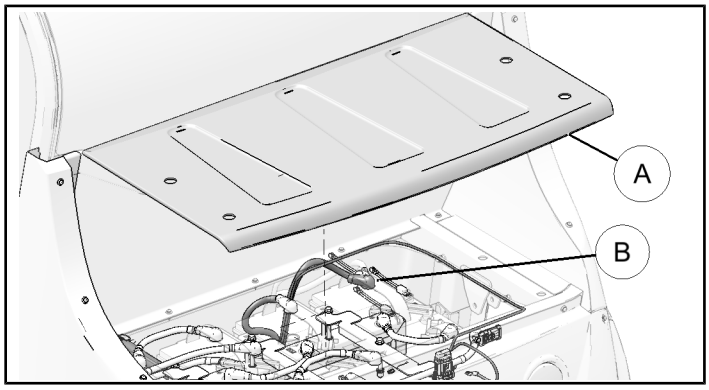
Your 220W SOLAR KIT is exclusively designed for your vehicle. Please read the installation instructions thoroughly before beginning. Installation is easier if the vehicle is clean and free of debris. For your safety, and to ensure a satisfactory installation, perform all installation steps correctly in the sequence shown.

ASSEMBLY TIME

Approximately 50 minutes

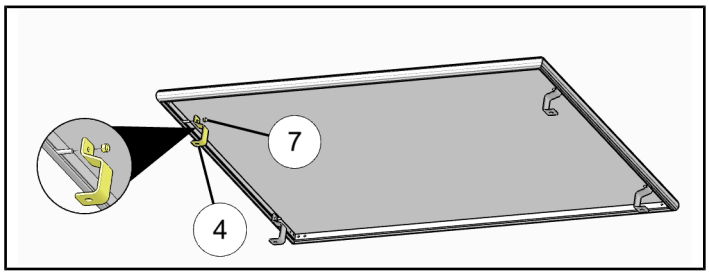
INSTALLATION INSTRUCTIONS

1. Place vehicle in “PARK”. Turn key to “OFF” position and remove from vehicle.
2. Remove rear deck (A) of the vehicle. Disconnect negative cable (B) from front right battery.

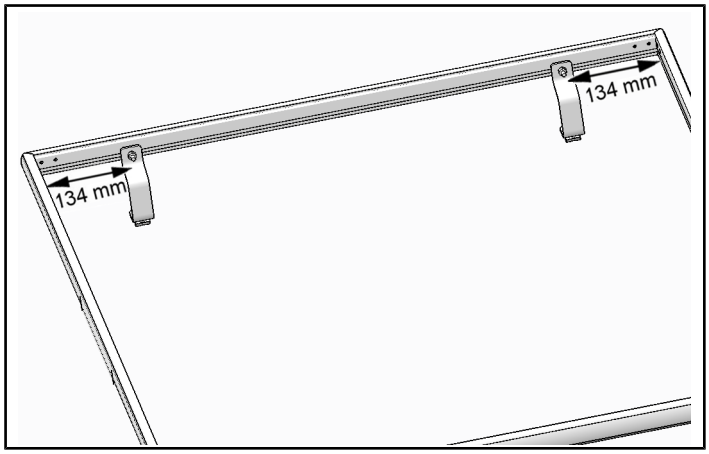


3. Install mounting brackets ④ onto the solar panel extrusion. Torque nuts ⑦ to following specification.

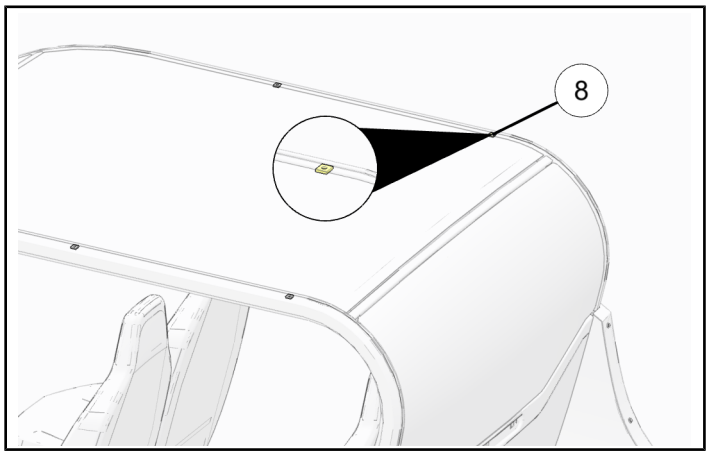
TORQUE
8 ft. lbs. (11 Nm)



Keep distance 134 mm between bracket and inside of extrusion for all four brackets as shown.



4. Drop the roll-in nuts ⑧ into the top of the OPS slots (two per side).

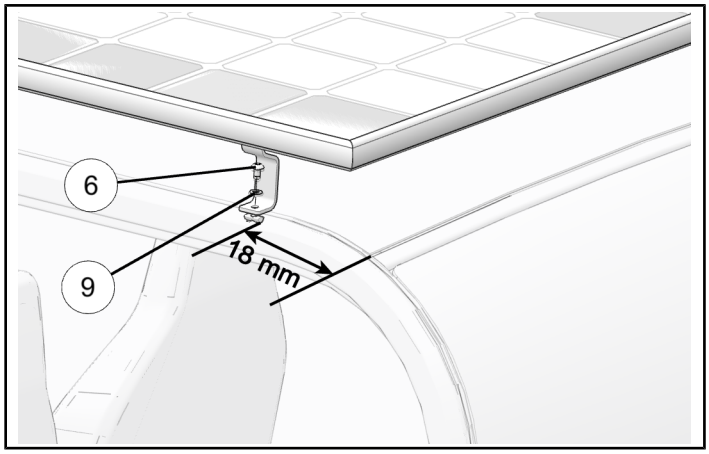


5. Mount solar panel on the vehicle using bolts ⑥ and washers ⑨. Torque bolts to following specification.

TORQUE
17 ft. lbs. (23 Nm)

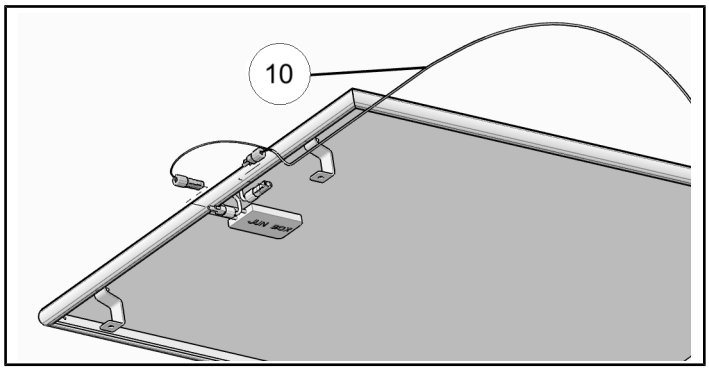
NOTE
220 Watt panel junction box to be toward right side of vehicle.

Rear bracket to be 118 mm from rear roof cross brace as shown.

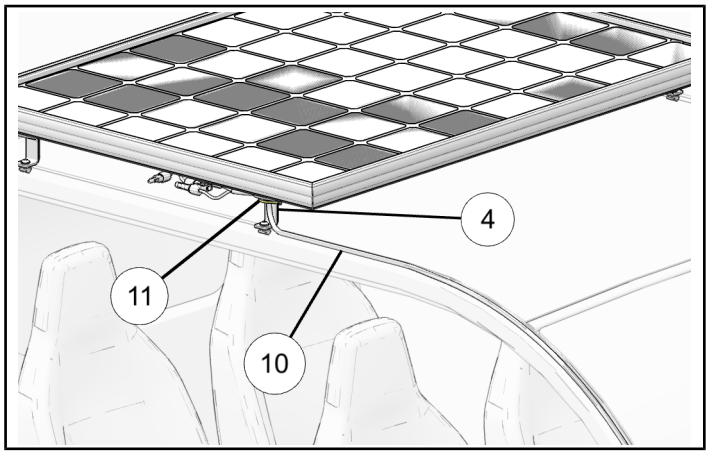


6. Cover solar panels with cardboard packaging from the kit.

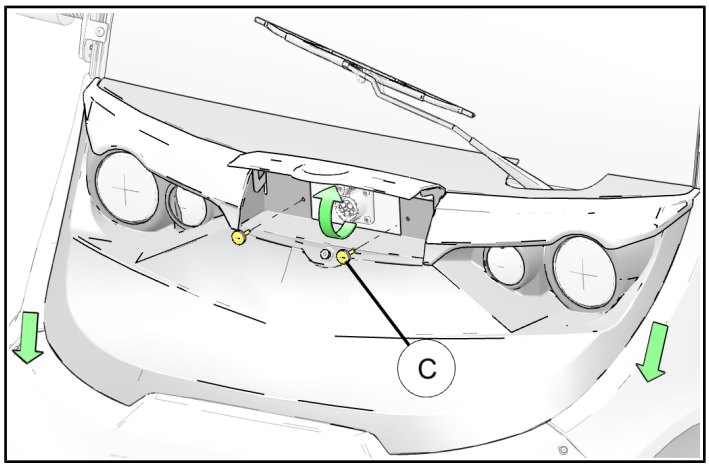
7. Connect the solar panel harness ⑩ to the solar panel connectors.



8. Use Panduit strap ⑪ to fasten solar panel harness ⑩ to front bracket ④ on RH side.

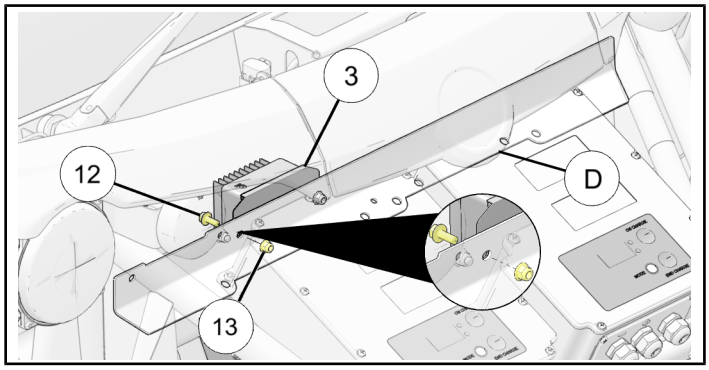


9. Remove the thumb screws (C) from hood under the charge port and pull the hood forward and away from the vehicle.

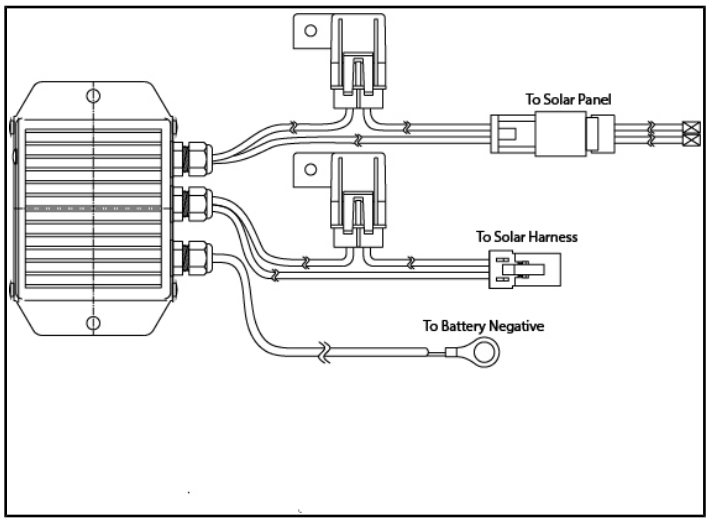


10. Mount solar charger ③ to chassis frame (D) using bolts ⑫ and nuts ⑬. Torque nuts to following specification.

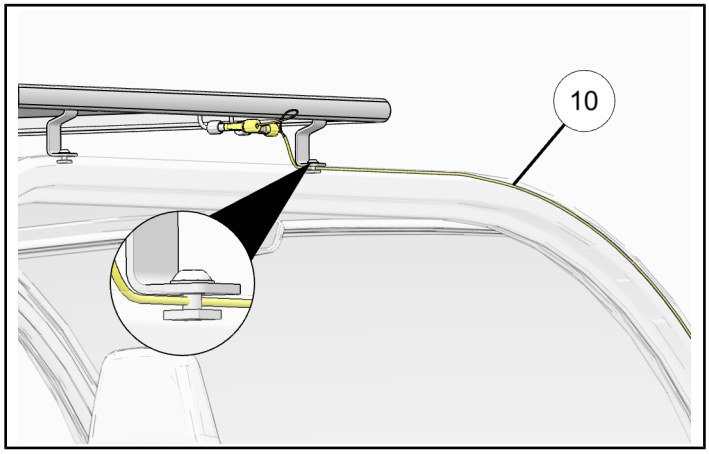
TORQUE
8 ft. lbs. (11 Nm)



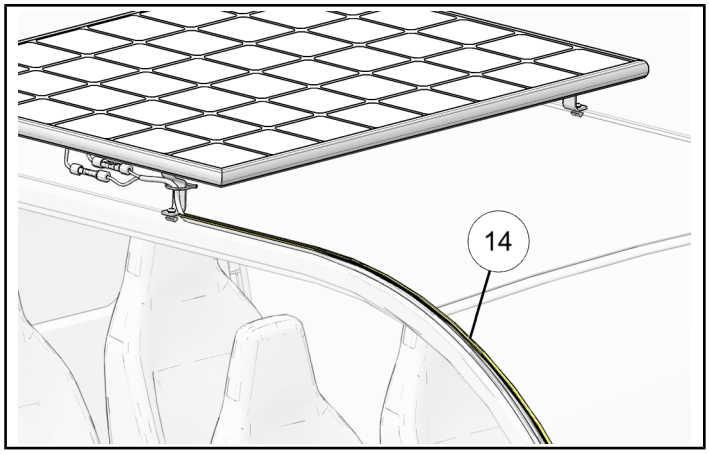
11. See the electrical connections of the solar charger for reference.



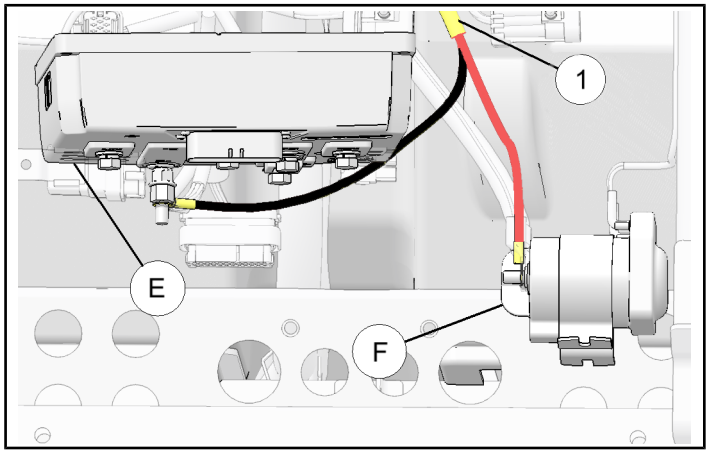
12. Route solar panel harness ⑩ into OPS T-slot channel.



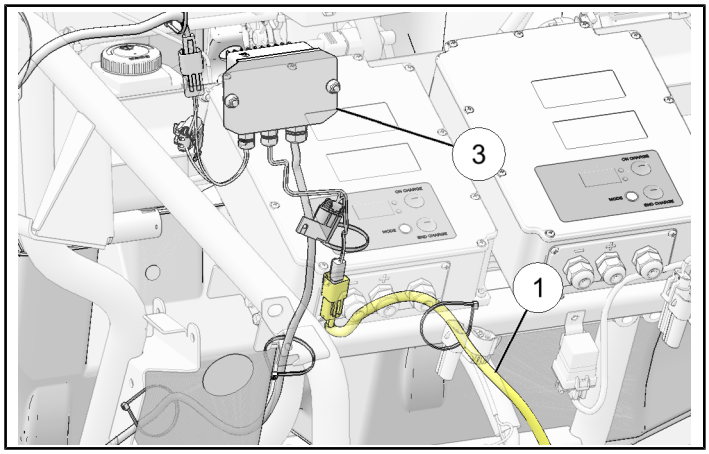
13. Cover solar panel harness with T–slot cover ⑭.



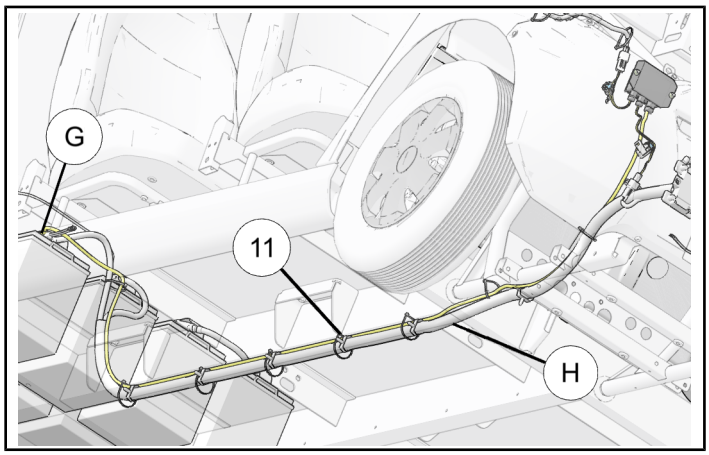
14. Connect solar harness ① to contactor assembly (PN 4012818) (F) with red wire and motor controller (PN 4015643) (E) with black wire.



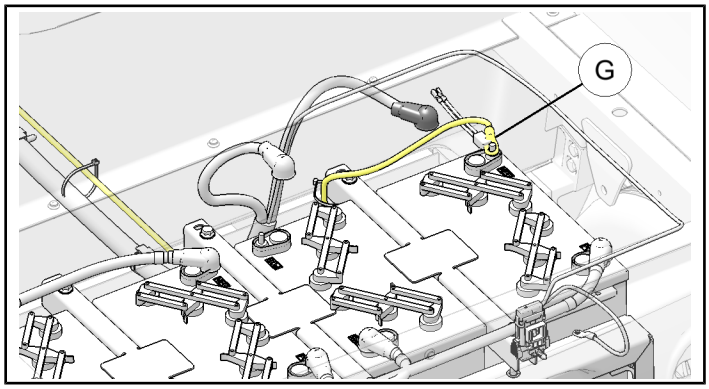
15. Connect solar harness ① to solar charger ③ use panduit straps to hold in place.



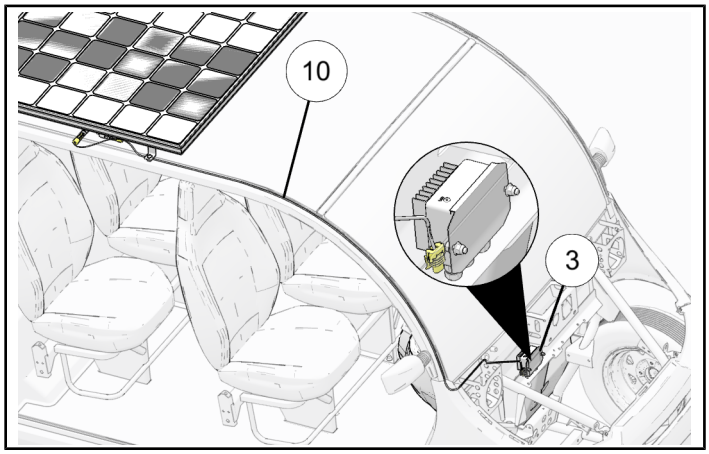
16. Route controller terminal ring (G) from solar charger along main vehicle harness (H) and fasten using Panduit strap ⑪.



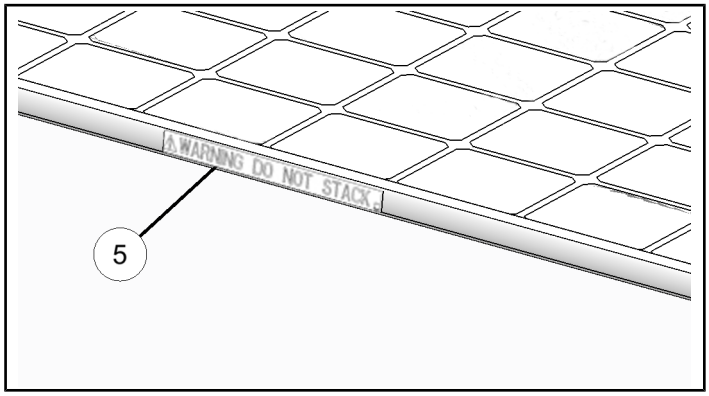
17. Reconnect battery connections disconnected in Step 2, connecting solar controller terminal ring (G) on top of the battery connection.



18. Connect solar panel harness ⑩ to solar charger ③.



19. Ensure rear extrusion is free of dust, dirt, and debris and install decal ⑤.



20. Remove cardboard. Check LED to confirm functional operation. (Ensure solar panel is in direct sunlight).
21. Reinstall hood and rear deck.

LED Information:

MODE	LED	LED INDICATOR	CONDITION
OFF		Blank	1) Disconnected from Batteries -or- 2) Input Low Voltage Shutdown
Bulk Charge		Blink Green 1 sec ON / 1 sec OFF	Maximum Charge Current 3ADC
Absorption Charge [2]		Blink Green 1 sec ON / 1 sec OFF	Maximum Charge Voltage $=84-((T_{BATTERY}-20)x0.14)$
Float Charge		Steady Green	Constant Float Voltage $=(V_{ABSORPTION}-1.8V)$
Input Over Voltage Auto Shutdown [3]		Steady Red	PV Voltage >36.5VDC
Output Over Voltage Auto Shutdown [3]		Blink Red 0.5 sec ON / 0.5 sec OFF for 5 sec	Battery Voltage $>(V_{ABSORPTION}+2V)$