

LI-ION BATTERY UPFIT KIT



P/N 2881852

APPLICATION

E2, E4, E6, and eL XD

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

Full installation of this kit also requires the following additional parts (sold separately):

- 12V Battery, PN 4014770
- Li-Ion Control Module, PN 4016692

Full installation of this kit also requires one of the following additional parts (sold separately):

12.4 kW

- Brammo Battery, 15v/4.1 kW, PN 4017364
- Brammo Battery, 30v/8.3 kW, PN 4017365

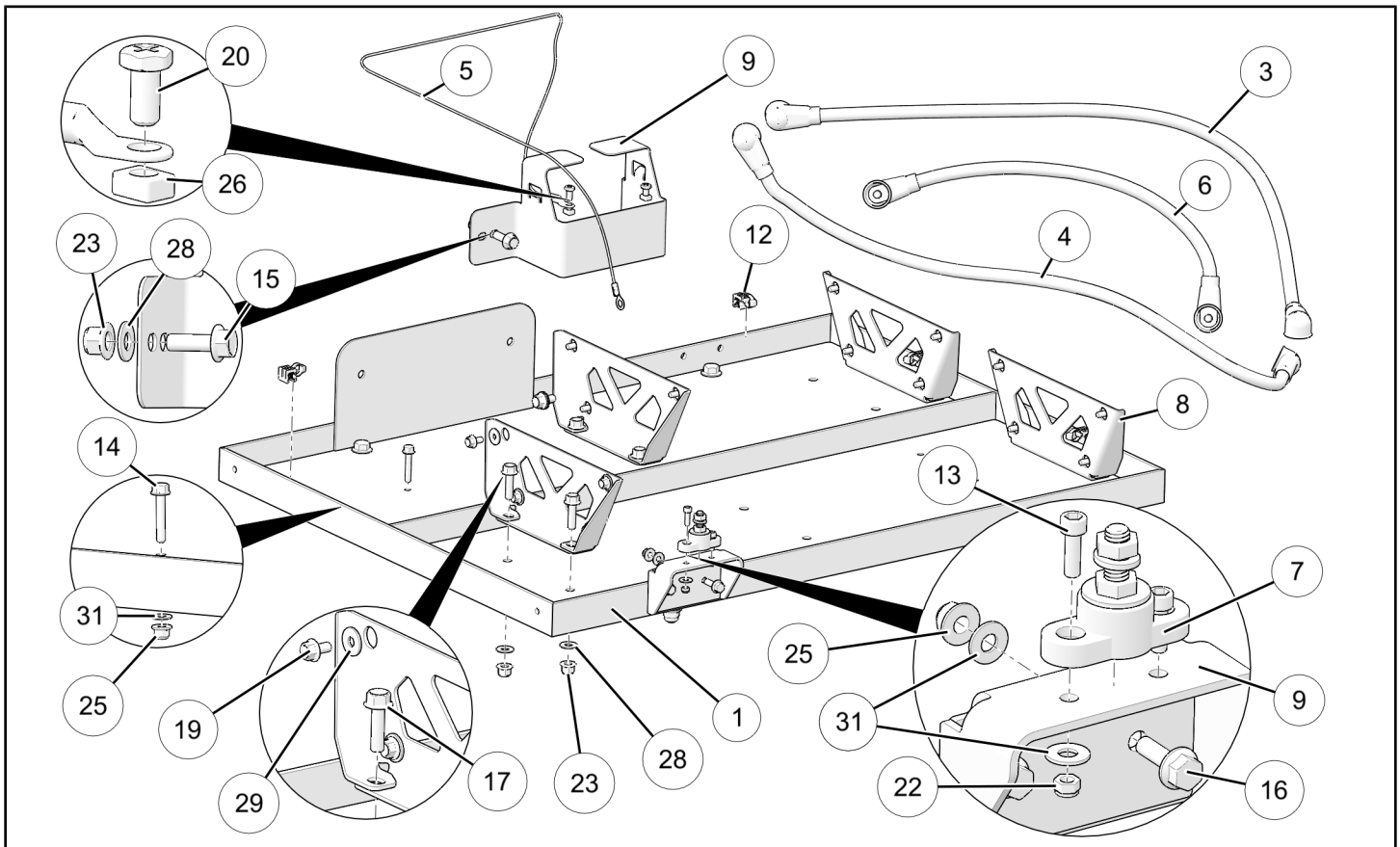
8.9 kW

- Brammo Battery, 44v/8.9 Kw, PN 4017366

Full installation of this kit also requires one of the following additional parts (sold separately):

- Li-Ion Harness e2/eL XD, PN 2413350
- Li-Ion Harness e4, PN 2413374
- Li-Ion Harness e6, PN 2413375

This Kit includes:



REF	QTY	PART DESCRIPTION	PART NUMBER
1	1	Weld Battery Tray, Li-ion	1022302
2	-	(Unused)	-
3	1	Li-ion Battery Cable, Positive, Short	4015890
4	1	Li-ion Battery Cable, Positive, Long	4015891
5	1	Li-ion Battery Cable, Negative, 12V	4015893
6	1	Li-ion Battery Cable, Interconnect	4015894
7	1	Positive Terminal	4016008
8	4	Battery Bracket, Support	5261281
9	1	Battery Bracket, Hold	5261942
10	17	Panduit Strap, 11"	7080492
11	1	Mount Bracket Terminal	5261943
12	4	Edge Clip, with Side Strap	7081876
13	2	Screw, Socket Head, M5 X 0.8 X 16	7516610
14	2	Screw, Hex Flange Head, M6 X 1.0 X 35	7516827
15	2	Screw, Hex Flange Head, M8 X 1.25 X 25	7518514
16	2	Screw, Hex Flange Head, M6 X 1.0 X 20	7518613
17	8	Screw, Hex Flange Head, M8 X 1.25 X 30	7518884

REF	QTY	PART DESCRIPTION	PART NUMBER
18	4	Screw, Hex Flange head, M8 X 1.25 X 20	7520454
19	4	Screw, Hex Flange Head, M10 X 1.25 X 30	7519059
20	16	Screw, Phillips Hex Head, M6 X 1.0 X 12	7519145
21	2	Screw, Hex Head, M6 X 1 X 12	7520056
22	2	Nut, Nylon Locking, M5 X .8	7546601
23	10	Nut, Flange, Nylon Locking, M8 X 1.25	7547332
24	4	Nut, Flange, Nylon Locking, M10 X 1.25	7547333
25	4	Nut, Flange, Nylon Locking, M6 X 1.0, Nyloc	7547339
26	2	Battery Nut, M6 X 1, LPS	7547732
27	4	Washer - 3/8, Spring Lock	7552603
28	14	Washer - .344 X .750 X .062	7555954
29	16	Washer - 6.4 X 18.0 X 1.6	7556064
30	4	Washer - 3/8	7556153
31	6	Washer - .250 X .563 X .047	7558203
	1	Instructions	9926969

TOOLS REQUIRED

- Safety Glasses
- Pliers, Side Cutting
- Screwdriver, Slotted
- Socket Set, Hex Bit, Metric
- Socket Set, Metric
- Socket Set, SAE
- Socket Set, Deep Well, SAE
- Torque Wrench
- Wrench Set, Metric
- Wrench Set, Ratcheting, SAE

IMPORTANT

Your Li-Ion Battery Upfit 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.

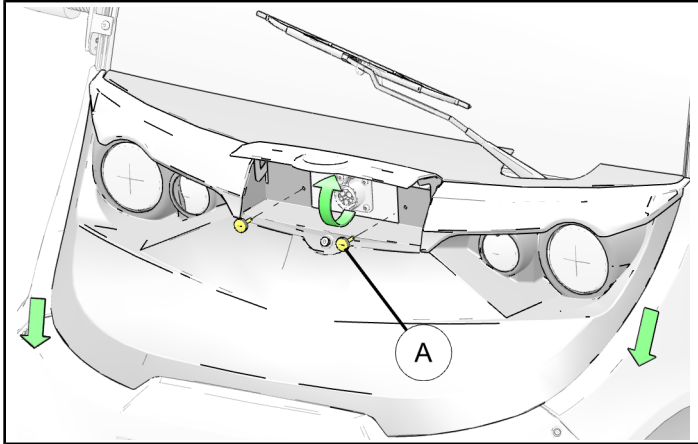
ASSEMBLY TIME

Approximately 75 minutes

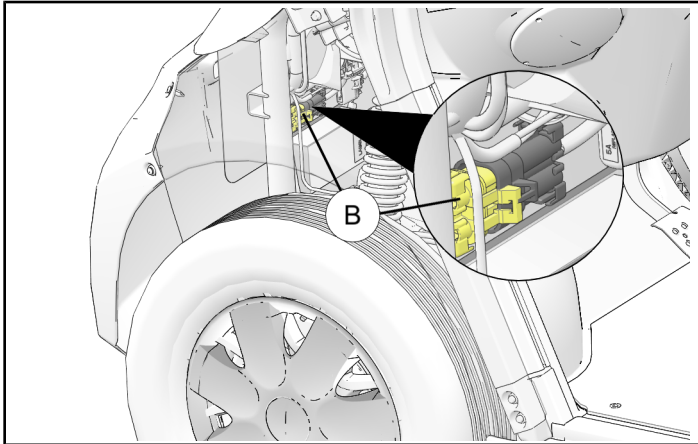
INSTALLATION INSTRUCTIONS

VEHICLE PREPARATION

1. Place gear selector in "N". Apply parking brake. Turn key to "OFF" position and remove from vehicle.
2. Flip open charge port door and remove two thumb screws (A). Pull hood in direction of arrow (parallel to ground) and remove from vehicle.



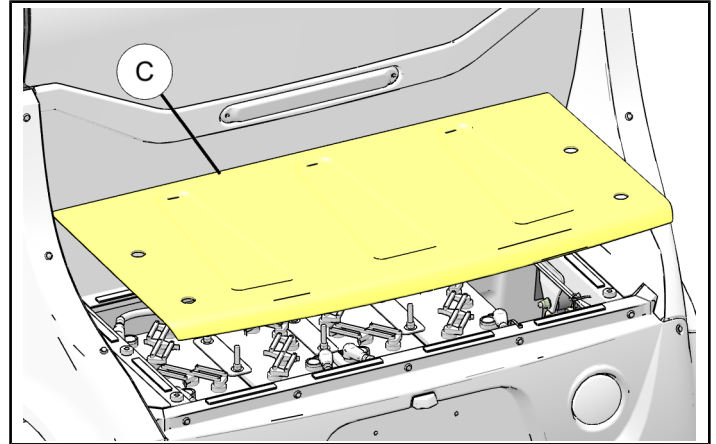
3. Disconnect front vehicle main connector (B).



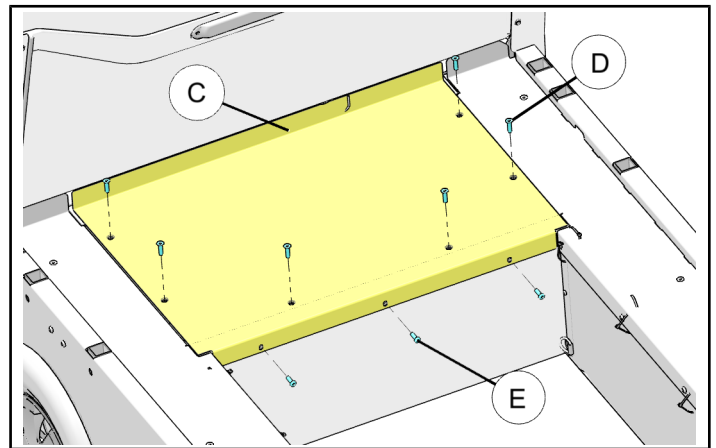
4. Battery access cover removal.
 - a. For e2, e4, and e6®: Remove rear battery access cover (C).

NOTE

Battery access cover is attached with Velcro to the rear aluminum frame.

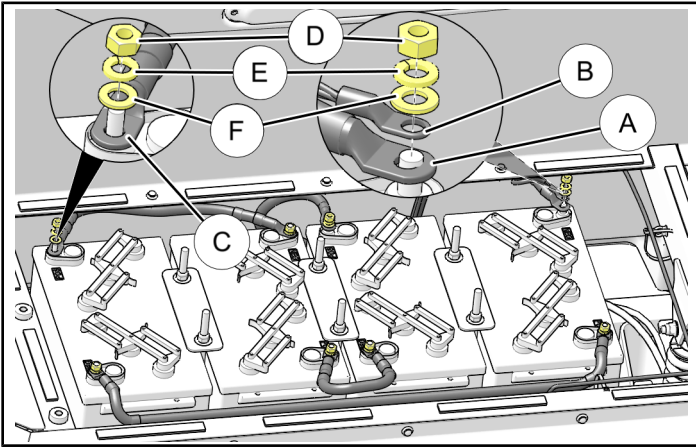
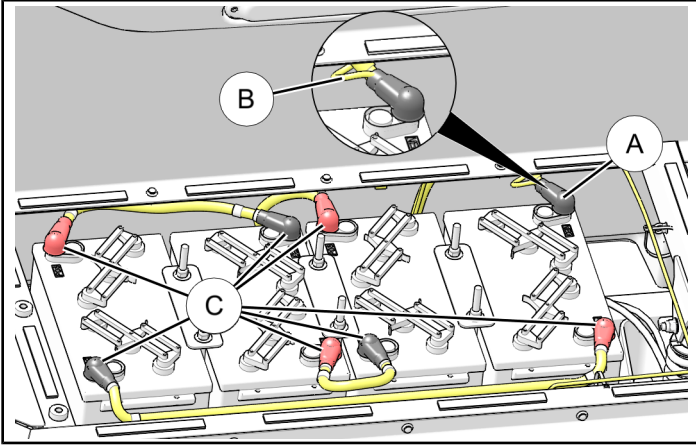


- b. For eL XD: Remove six hex head screws (D) and three screws (E) to remove rear battery access cover (C).

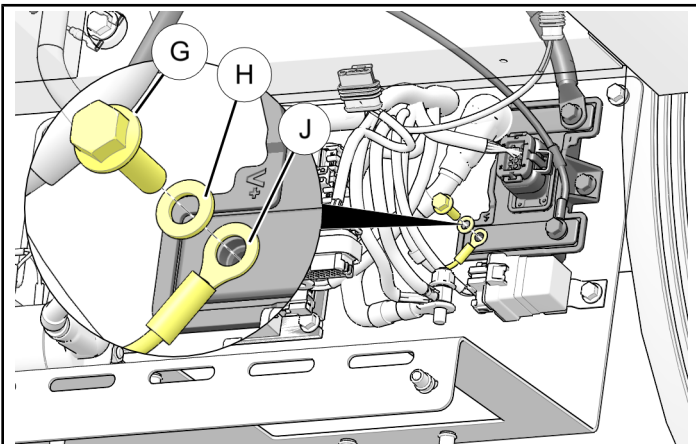


DISCONNECT AND REMOVE STOCK BATTERY

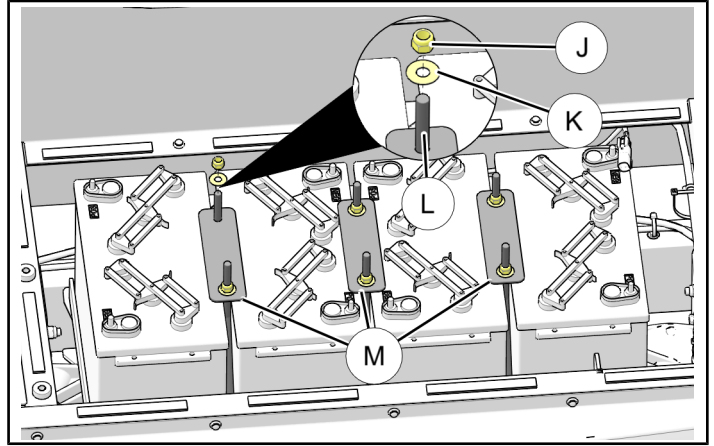
1. Disconnect all battery cables starting with main ground cable **A** and battery temperature sensor **B** on front-most post on far right battery, followed by main harness connections **C** by removing nuts **D** and washers **E**/**F**.



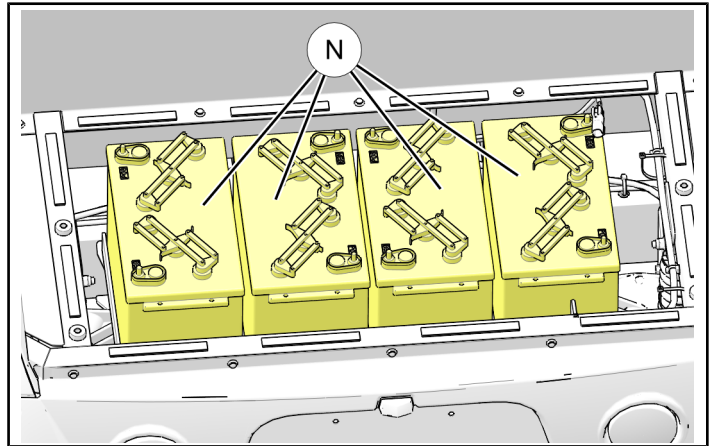
2. Remove and retain screw **G** and washer **H**. Disconnect +12V connector **J** from Battery Management Controller. Wrap cable end with electrical tape and tape or cable tie to main battery cable.



3. Remove nuts **J** and washers **K** from long tie down bolts **L**. Remove battery hold down brackets **M** and long tie down bolts **L**.

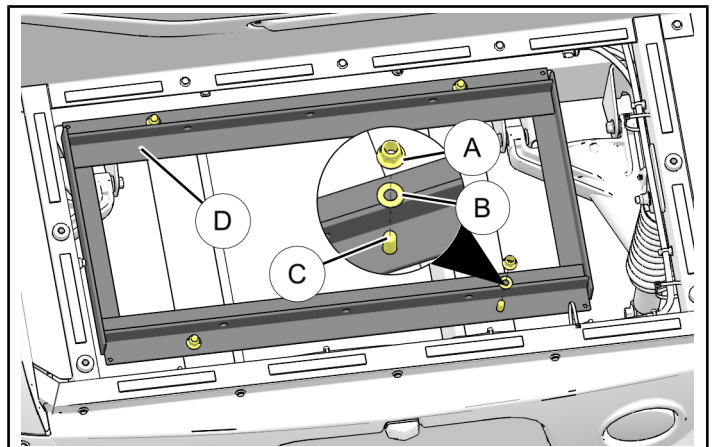


4. Remove old flooded batteries **N** or maintenance free batteries from battery tray.



REPLACE BATTERY TRAY

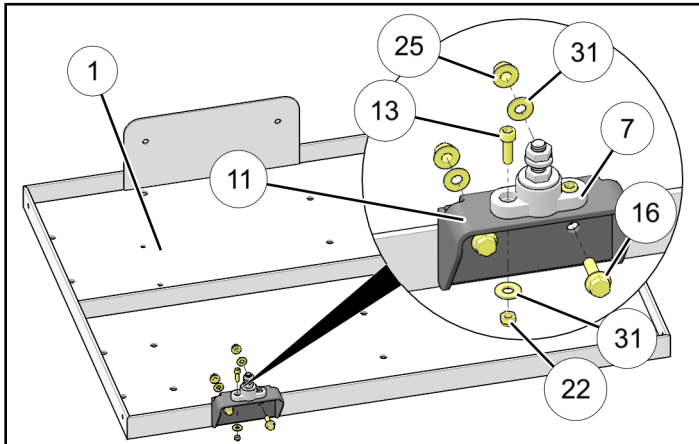
1. Remove nuts **A** and washers **B** from screws **C** holding battery tray **D** in place and remove battery tray from vehicle.



2. Install terminal mounting bracket ⑪ to lithium ion battery tray ① with screws ⑯, washers ⑳, and nuts ㉑. Install terminal ⑦ to bracket ⑪ with screws ⑰, washers ㉑, and nuts ㉒. Torque fastener to specification.

TORQUE

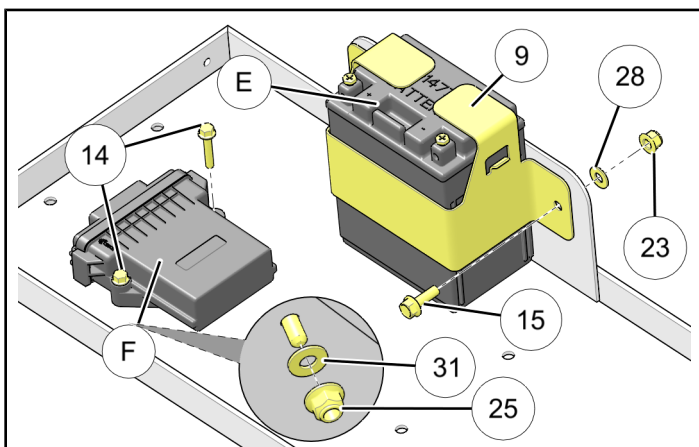
M6 Screw ⑯: 96 in. lbs. (11 Nm)
M5 Screw ⑰: 24 in. lbs. (3 Nm)



3. Install 12V battery ⑤ (Sold Separately, PN 4014770) and hold down bracket ⑨ with screws ⑮, washers ㉘, and nuts ㉙. Install Lithium ion module ⑥ (Sold Separately, PN 4016692) with two screws ⑭, two washers ㉑ and two nuts ㉑. Torque fasteners to specification.

TORQUE

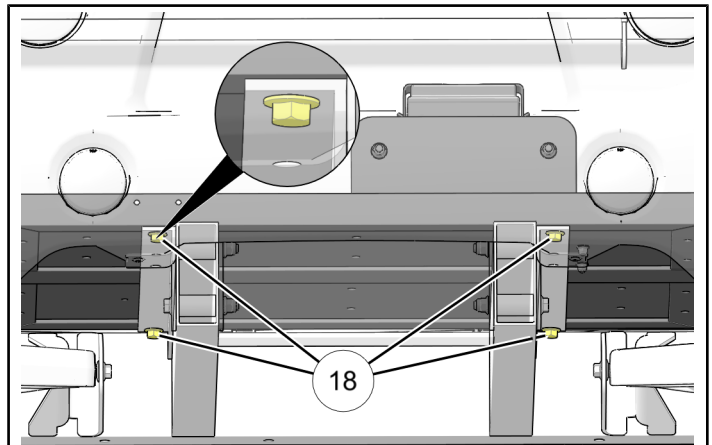
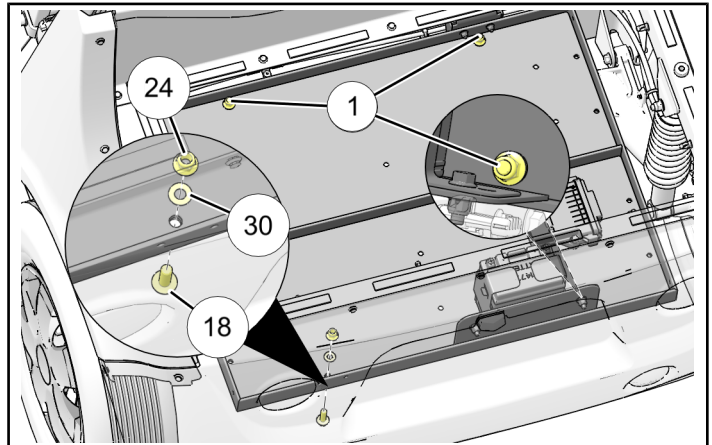
Battery Bracket Screw ⑮: 18 ft. lbs. (24 Nm)
Li-Ion Module Screw ⑭: 24 in. lbs. (3 Nm)



4. Install new lithium-ion battery tray ① with four screws ⑱, washers ㉓, and nuts ㉔. Torque fasteners ㉔ to specification.

TORQUE

37 ft. lbs. (50 Nm)



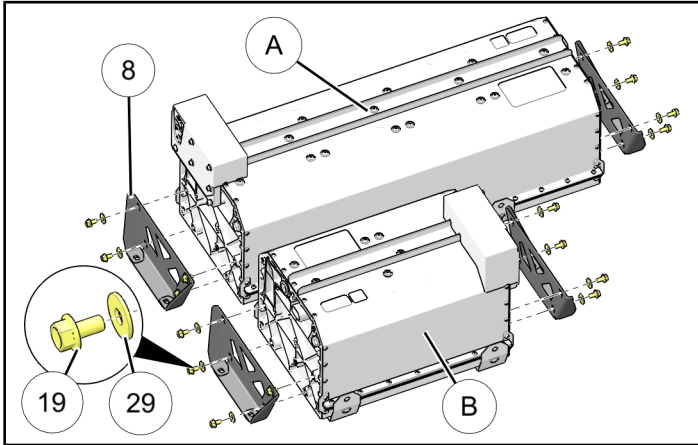
ASSEMBLE AND INSTALL LI-ION BATTERIES

1. Install battery brackets **8** to both ends of lithium ion batteries: **A** (Sold separately, PN 4017365), **B** (Sold separately, PN 4017364) for 12.4 kW battery pack, and **C** (Sold separately, PN 4017366) for 8.9 kW battery pack with screws **19**, washers **29** Torque fasteners to specification.

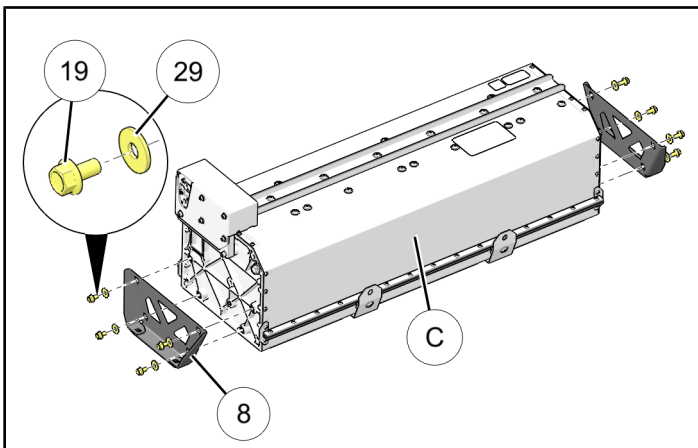
TORQUE

66 in. lbs (7.5 Nm)

12.4 kW **A** and **B**



8.9 kW **C**

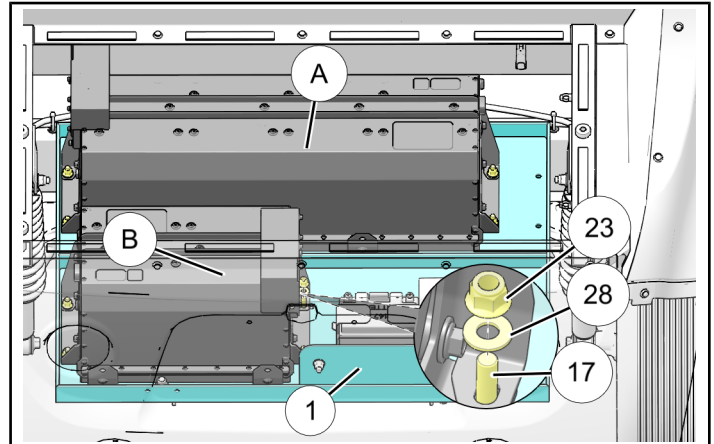


2. Install assembled batteries and brackets **8** onto battery tray **1** with screws **17**, washers **28**, and nuts **23**. Note different positions for 12.4 kW battery pack and 8.9 kW battery pack.

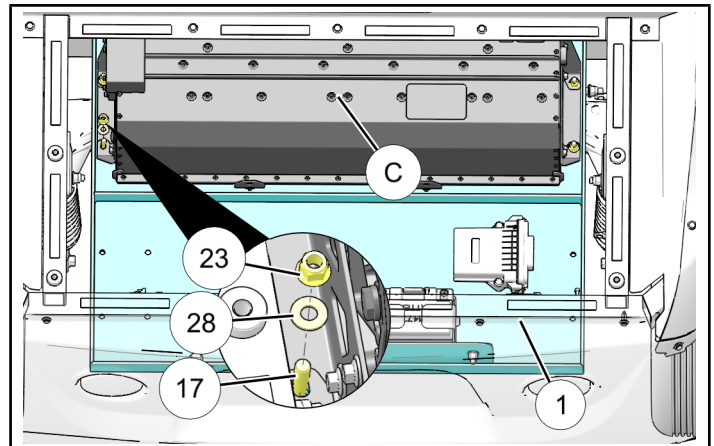
TORQUE

18 ft. lbs (24 Nm)

12.4 kW **A** and **B**



8.9 kW **C**



CONNECT BATTERY WIRING

NOTE

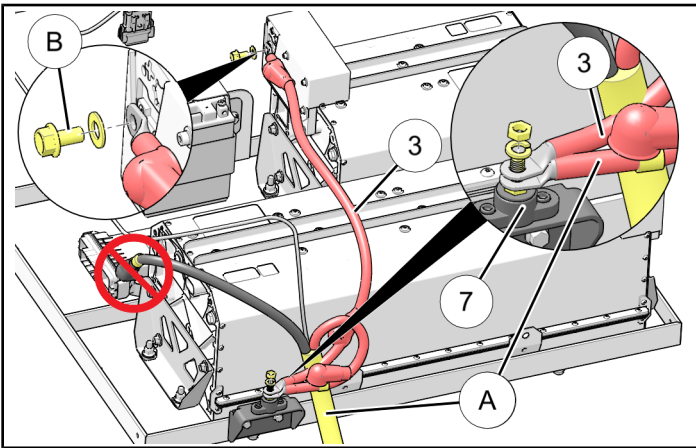
Vehicle not shown for clarity.

12.4 KW BATTERY CABLES AND LI-ION HARNESS

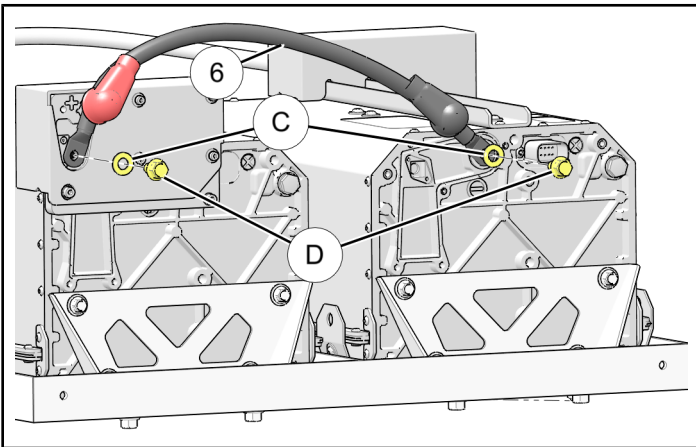
1. Install Positive Short battery cable ③ and positive cable from main harness ① to positive terminal mount ⑦. Install opposite end of Positive Short Cable ③ to post on small Li-Ion Battery ②. **DO NOT Torque battery post fasteners at this time.**

⚠ WARNING

DO NOT Connect Main Harness Negative Battery Cable At This Time, or serious injury or damage to components may occur.



2. Connect Battery Cable Interconnect ⑥ between battery posts using two battery post washers ③ and screws ④ as shown. **DO NOT torque battery connections at this time.**



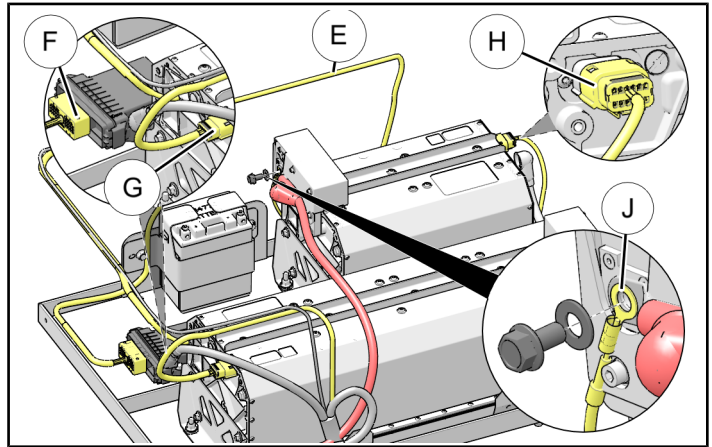
3. Install appropriate Li-Ion Harness ⑤ by plugging large connector ⑥ into Li-Ion Module. Now plug connector ⑥ into large battery, remove blank plug from connector ⑧ and plug into small battery. Connect small cable ① to positive battery terminal on small battery. Torque **ALL already connected** battery terminal connectors to specification.

⚠ WARNING

DO NOT Connect Main Harness Negative Battery Cable At This Time, or serious injury or damage to components may occur.

TORQUE

8 ft. lbs. (11 Nm)

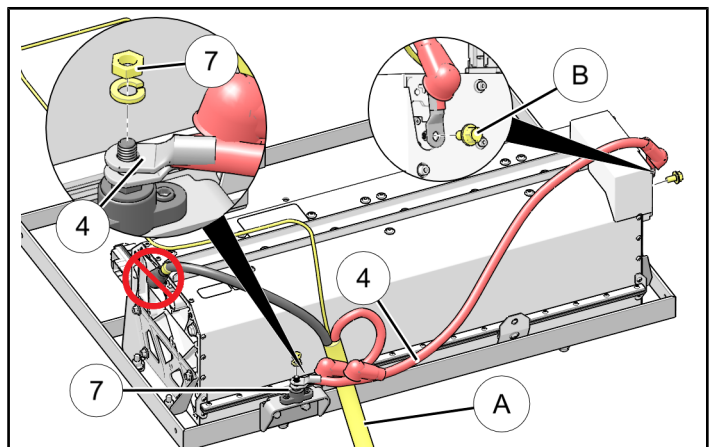


8.9 KW BATTERY CABLES

1. Install Positive Long Battery Cable ④ and main harness ① to positive terminal mount ⑦. Install opposite end of Positive Long Cable ④ to post on Li-Ion Battery ②. **DO NOT Torque battery post fasteners at this time.**

⚠ WARNING

DO NOT Connect Main Harness Negative Battery Cable At This Time, or serious injury or damage to components may occur.



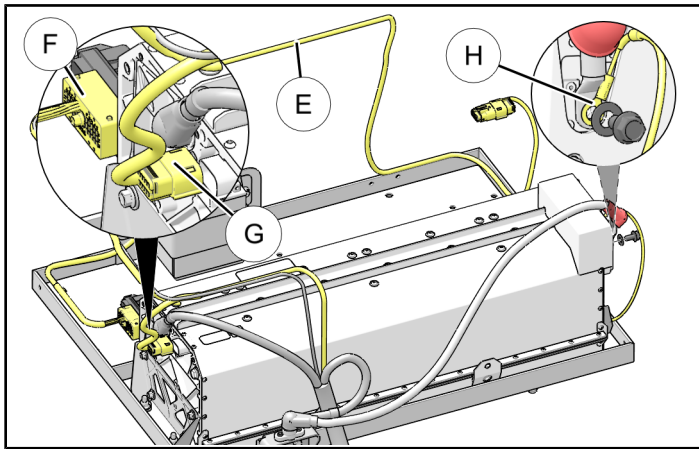
2. Install appropriate Li-Ion Harness (E) by plugging large connector (F) into Li-Ion Module and connector (G) into large battery. Connect small cable (H) to positive battery terminal on large battery. Torque **ALL already connected** battery terminal connectors to specification.

⚠ WARNING

DO NOT Connect Main Harness Negative Battery Cable At This Time, or serious injury or damage to components may occur.

TORQUE

8 ft. lbs. (11 Nm)



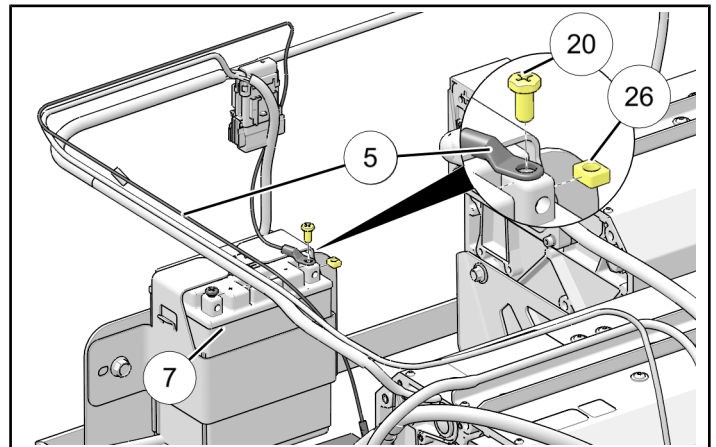
2. Insert battery nut (26) into negative battery post. Connect Negative 12V Battery Cable (5) to 12v battery negative post using supplied battery screw (20). Route cable around rear along main harness as shown to main negative post. Torque screw to specification.

⚠ WARNING

DO NOT Connect Main Harness Negative Battery Cable At This Time, or serious injury or damage to components may occur.

TORQUE

45 in. lbs. (5 Nm)

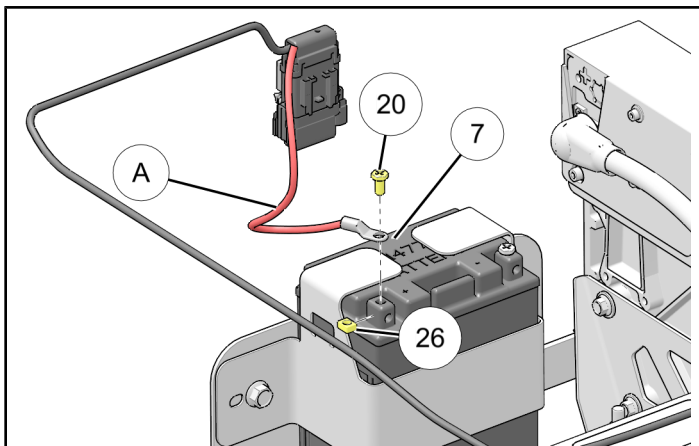


INSTALL 12V ACCESSORY BATTERY CABLES

1. Insert battery nut (26) into positive battery post. Connect positive cable (A) to 12v battery positive post using supplied battery screw (20). Torque screw to specification.

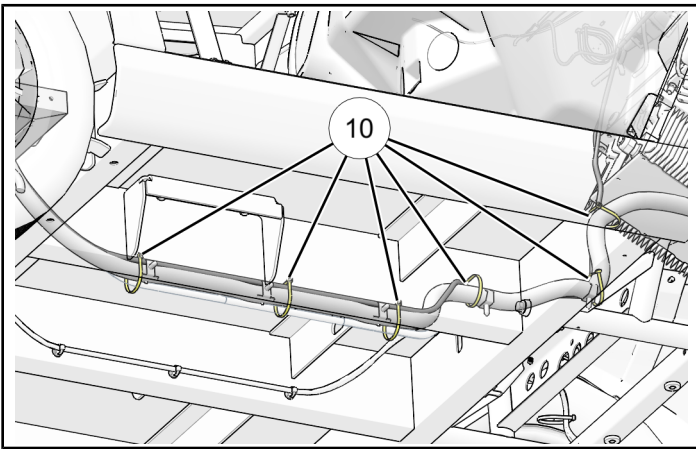
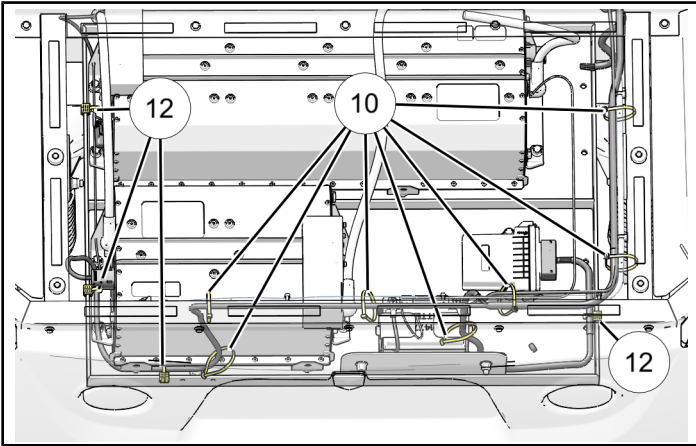
TORQUE

45 in. lbs. (5 Nm)



HARNES ROUTING

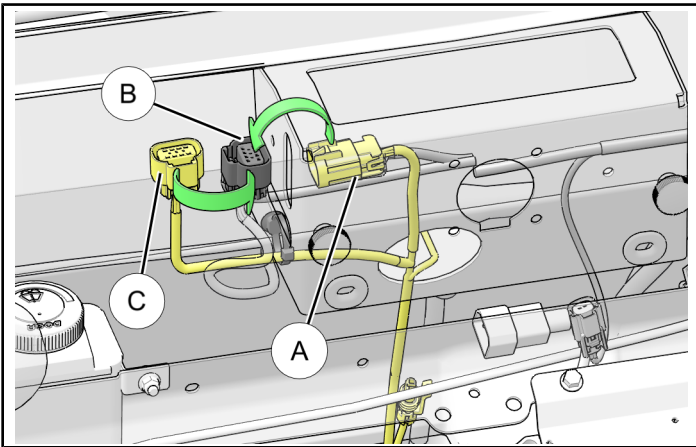
1. Route harnesses and attach to vehicle using cable ties ⑩ and edge clips ⑫ as shown.



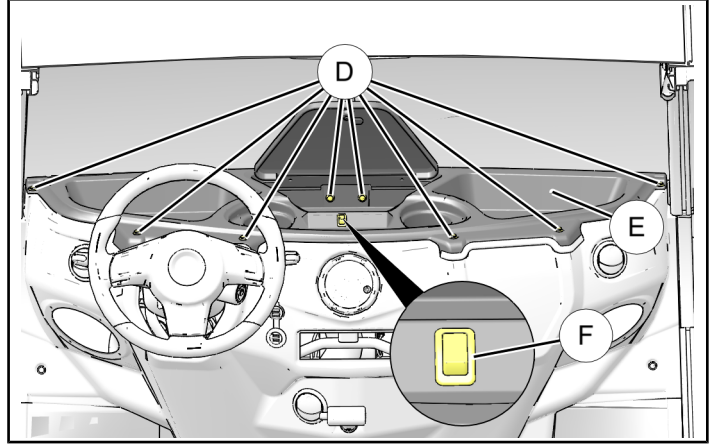
2. Plug lithium harness connector ① into diagnostic port connector ② and replace diagnostic port connector ② with other lithium harness connector ③.

NOTE

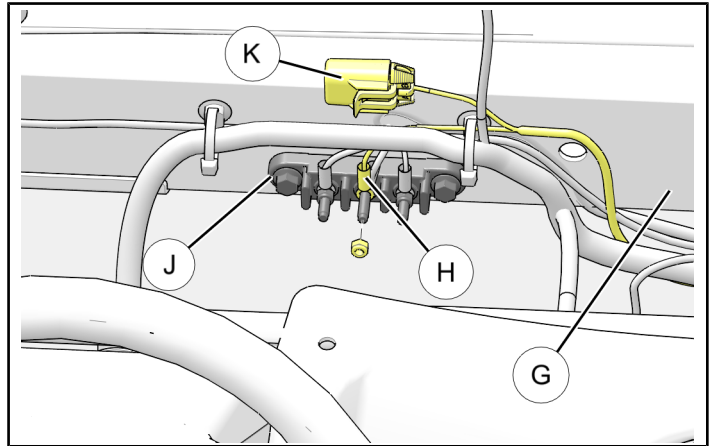
If vehicle is equipped with EPS or other CAN-Based accessories, see "ACCESSORIES - CAN-BASED" section of GEM Service Manual for more details on sequence of connections.



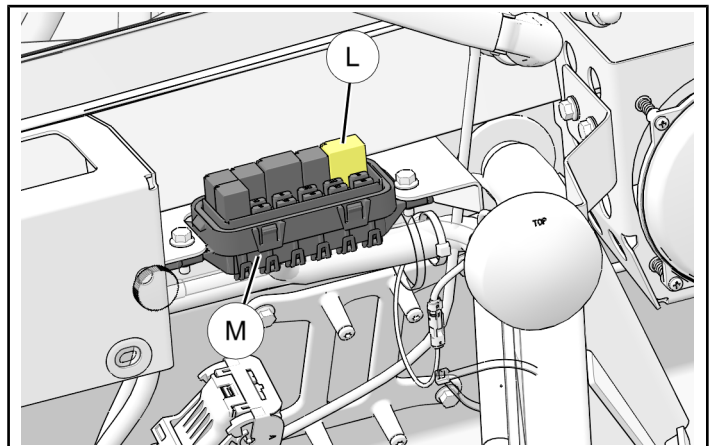
3. Remove eight push rivets ④ from upper dash panel ⑤. Slowly lift upper dash and disconnect switch ⑥.



4. Route rest of harness through front plastic splash guard ⑥. Install terminal harness ⑧ to accessory block ⑨. Install harness connector ⑩.



5. Install relay ① in fuse box ② as shown.



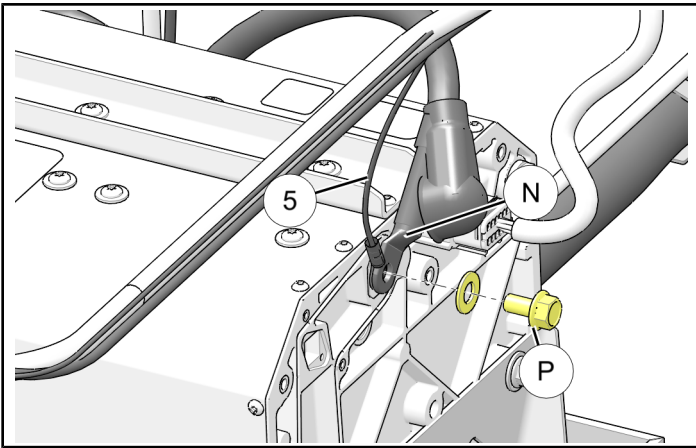
6. Reinstall upper dash panel ⑤ with retained push-pin rivets ④. Make sure to connect all switches ⑥.

7. Connect main harness (N) and 12v battery harness (5) Negative cables to negative battery post (P). Torque fastener to specification.

8. Reconnect main vehicle disconnect. Reinstall battery cover and reinstall hood with thumb screws.

TORQUE

8 ft. lbs. (11 Nm)



FEEDBACK FORM

A feedback form has been created for the installer to provide any comments, questions or concerns about the installation instructions. The form is viewable on mobile devices by scanning the QR code or by clicking [HERE](#) if viewing on a PC.

FEEDBACK FORM

