

56 VOLT LITHIUM ION (ELECTRIC MOWERS)

Affected Models: All Lithium Ion Mini-Riders, Lawn Tractors and Zero Turn Mowers

Date: October 24, 2022

Subject: Guarding Against Electrostatic Discharge Damage

NOTE: These materials are prepared for use by trained technicians who are experienced in the service and repair of equipment of the kind described in this publication, and are not intended for use by untrained or inexperienced individuals. Such individuals should seek the assistance of an authorized service technician or dealer.

NOTE: Always wear eye protection while servicing equipment. Wear hearing protection when appropriate. Always work in a well ventilated area and follow all safety precautions when dealing with combustible materials.

NOTE: Left (LH) and Right (RH) sides are determined from the operator's position and facing in the forward direction.

Purpose:

Electrostatic Damage (ESD will be used through the remainder of this Brief) is a cause for failure and malfunctions in today's sophisticated electrical components. Proper education combined with simple work-related procedures and precautions can guard many of the effects of ESD. This Brief will give a short overview of ESD, some caution symbols to make ourselves aware, components within the Lithium Ion platform, and lastly measures and tools to protect our customers' prized purchases.

ESD IS:		ESD IS NOT:	
POWERFUL TO DAMAGE LITTLE BY LITTLE.	Many little "hits" of static cause wear on sensitive components	REPAIRABLE.	Once a VCM or PDM board has failed, these components must be replaced.
INCREASED BY DRY AIR	Much more static builds and remains on persons in dry indoor places.	TRACEABLE.	One cannot know how many "hits" a component has suffered before it finally fails.
VISIBLE AT	5,000 volts	TRACEABLE A.	10% of failures occur immediately.
AUDIBLE AT:	4,500 volts	TRACEABLE B.	90% of failures degrade performance over time. Intermittent failures due to temperature or vibration can begin occurring.
EFFECTS FELT AT:	3,500 volts		

Industry Common labels. Sensitive components. Common tools.

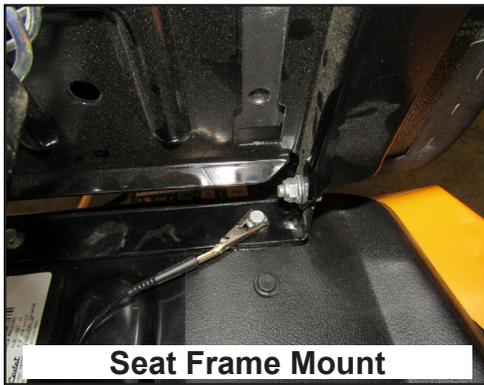
Make oneself aware of these labels and indicators when servicing sensitive components within the Lithium Ion powered platforms.



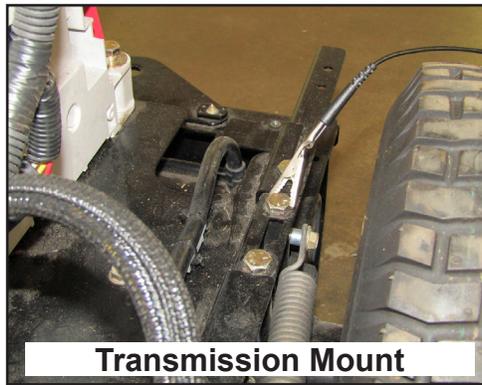
A common necessary tool is an Anti-Static Wrist Band. This will remove static build up from the Technician and send it to the frame of the vehicle being serviced. We recommend purchasing and using an Anti-Static Wrist Band when handling sensitive components. Anti-Static Mats are optional. Sensitive components consist of the VCM, SPDM, Controllers (Deck and Drive), Batteries (Harness connection) and PDM.

Please see Figures on Page 2 for recommended ground points for an alligator clip which connects to the Wrist Band:

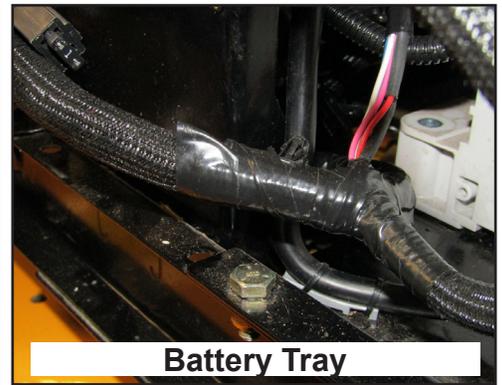
**Recommended Ground Points:
Mini Rider Figures 1-3.**



Seat Frame Mount

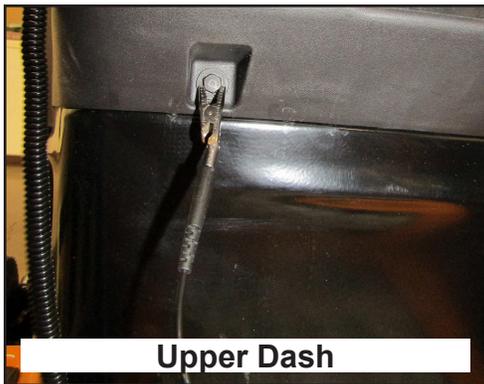


Transmission Mount



Battery Tray

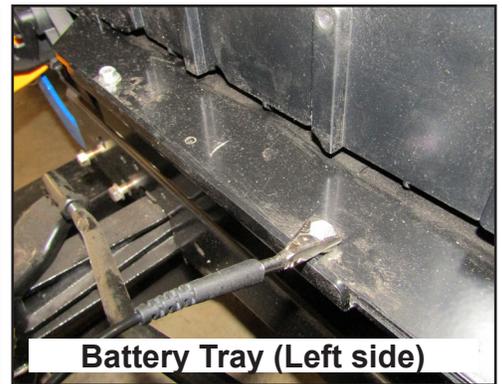
Lawn Tractor Figures 4-6.



Upper Dash



Battery Tray

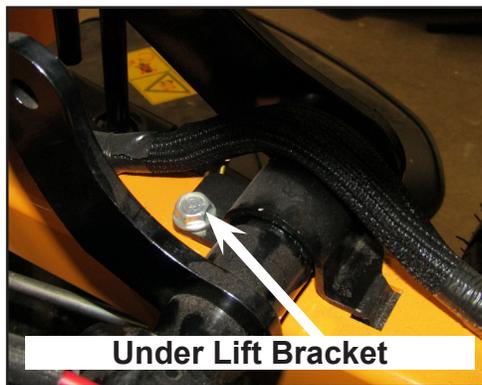


Battery Tray (Left side)

Zero Turn Figures 7-9.



Near Lap Bar (Right side)



Under Lift Bracket



Mega Controller Mount

ESD wrap up:

- Can be devastating to sensitive electronics. IE: connectors, pins, and any mentioned on Page 1.
- Proper precautions must be taken when handling certain components within this platform.
- Electrostatic charge builds by materials rubbing together. A simple example is shirts inside jackets or shoes on carpets.
- Touch a cabinet, feel the shock. Touch a sensitive device and immediate damage may occur.
- Damage may occur over time with multiple smaller shocks.
- High Humidity has less chance for ESD.
- Low humidity and warm shop air make for a perfect electrostatic environment.
- Main function of the wrist strap is to slowly discharge the static from oneself.
- Second equally important function of wrist strap is to take the charge away to a known ground as the charge may be developed while working.

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