
2013 OWNER'S MANUAL
ZERO FX™
ZERO XU™
ZERO MX™
ZERO
MOTORCYCLES

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First Responder Information

An Important Message To You From Zero Motorcycles

Congratulations and thank you for purchasing the 2013 Zero FX/MX/XU electric motorcycle; we welcome you to the community of Zero Motorcycles riders. This manual is designed to provide you with a better understanding of the operation, inspection, and basic maintenance requirements of this motorcycle.

Zero continually seeks advancements in product design and quality. Therefore, this manual contains the most current product information available at the time of printing. Because of this, your motorcycle may differ from the information supplied in this owner's manual. No legal claims can be made on the basis of data in this manual. When it comes time to sell your Zero, please remember to hand over this manual; it is, by law, an important part of the vehicle. If you have any questions concerning the operation or maintenance of your motorcycle, please contact Zero at support@zeromotorcycles.com.

For 24 hour updates and additional information about your motorcycle, visit the owners resources section of the Zero Motorcycles website:

http://www.zeromotorcycles.com/owner-resources/

About This Manual

This manual covers the following motorcycles:

- Zero MX Dirt
  - Belt Drive and (optional) Chain Drive
  - Off Road Tires
  - Stand-alone Charger
- Zero FX Street Legal
  - Belt Drive and (optional) Chain Drive
  - Dual Sport Tires
  - Regenerative Braking
  - Integrated Charger
  - Lights
- Zero XU Street Legal
  - Belt Drive
  - Street Tires
  - Integrated Charger
  - Lights
  - Regenerative Braking

Locating and referencing information

A good place to locate information about the motorcycle is in the index in the back of the manual. The terms "right" or "left" refer to the rider's right or left when sitting on the motorcycle.

Useful Information For Safe Riding

This manual contains the word CAUTION to indicate something that could hurt you or others. It also contains the word WARNING to indicate things that could damage your motorcycle.

CAUTION: Please read this manual carefully and completely before operating this motorcycle. Do not attempt to operate this motorcycle until you have attained adequate knowledge of its controls and operating features, and until you have been trained in safe and proper riding techniques. Regular inspections and proper maintenance, along with good riding skills, will help you to safely enjoy the capabilities and the reliability of this motorcycle. Disregarding the aforementioned, however, may render the warranty invalid.

This symbol is located in various locations on the motorcycle to inform you that exposure to high voltage can cause shock, burns and even death.

The high voltage components on the motorcycle should be serviced by technicians with special training.

High voltage cable or wiring has an orange covering. Do not probe, tamper with, cut, or modify high voltage cable or wiring.

Plug in Your Z-Force Power Pack™

WARNING! Proper care of the motorcycle's power pack is essential! When not in use, the power pack should be left on the charger even if fully charged. Failure to do so could damage the power pack and therefore void your power pack warranty. See *page 4-5* for other important information about the power pack.

Owner Information

Record information pertaining to your motorcycle here. When contacting your dealer, you may need to provide this information.

Dealer Information	Motorcycle Information
Name _____	VIN (FX/XU) _____
Address _____	PIN (MX) _____
_____	Model _____
_____	_____
Telephone No. _____	Power Pack Serial Number _____
E-mail _____	_____
Date of Purchase _____	Key Code _____

Power Pack Serial Number

The Power Pack serial number is located on the upper right rear of the power pack.

Motor Serial Number

The motor serial number is stamped on the motor housing.

Key Code Number

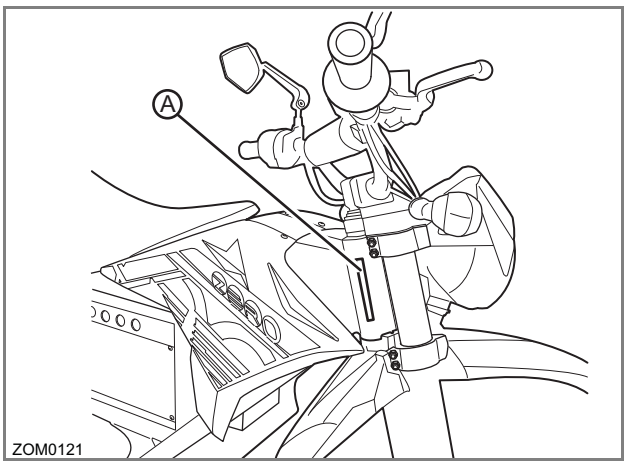
The key code is a 5 digit number used to create duplicate keys. This number is located on a tag that accompanies the original keys.

Vehicle Identification Number (VIN)

A Vehicle Identification Number (VIN) is found on the FX/XU Street Legal.

Note: A Production Identification Number (PIN) is found on the MX Dirt bike.

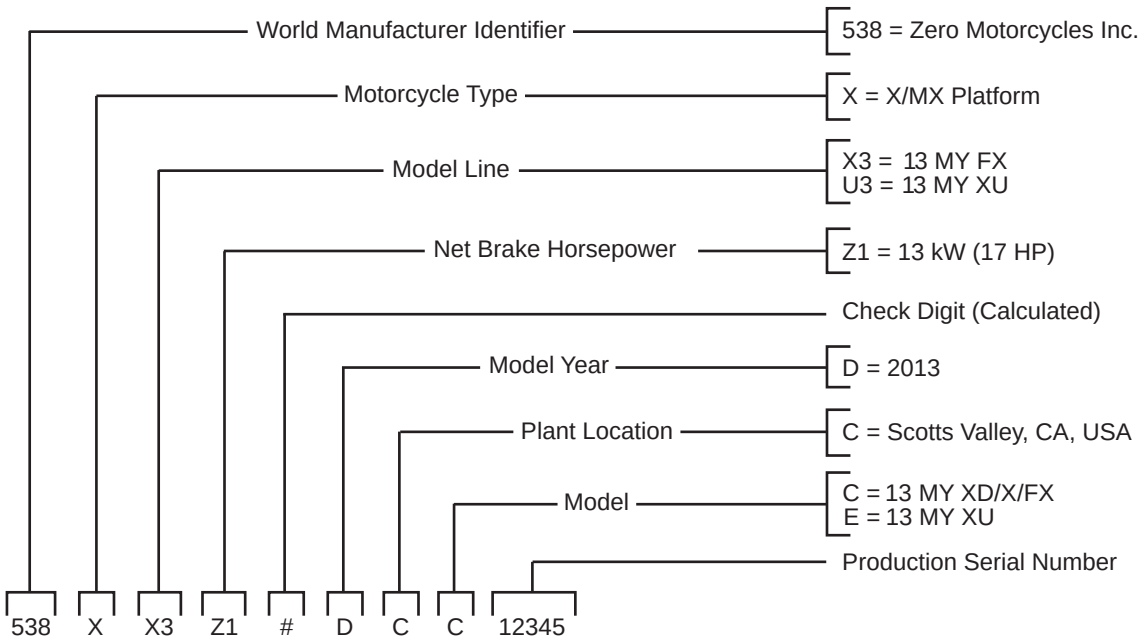
The VIN is a 17-digit number stamped on the head tube of the frame (A). Do not alter or remove this as it is the legal identifier for your motorcycle.



See the location of all important labels on *page 2-3*.

VIN Break Down

The following breakdown of the VIN will help you understand the significance of each digit or character in case you need to reference it when contacting Zero or ordering parts.



Technical Specifications

Zero FX

The Zero FX specifications below apply to both the ZF2.8 and ZF5.7 models (unless otherwise specified).

MOTOR	
Type	Z-Force 75-5 passively air-cooled, high-efficiency, radial flux, permanent magnet, brushless motor
Controller	High efficiency, 420 amp, 3-phase brushless controller with re-generative deceleration
Estimated Top Speed (max)	85 mph (137 km/h)
Estimated Top Speed (sustained)	70 mph (113 km/h)
POWER SYSTEM	
Type	Z-Force™ Li-Ion Intelligent Modular
Maximum Capacity	• ZF2.8: 2.8 kWh • ZF5.7: 5.7 kWh
Nominal Capacity	• ZF2.8: 2.5 kWh • ZF5.7: 5 kWh
Charge Time (standard)	• ZF2.8: 4.1 hours(100% charged)/3.7 hours (95% charged) • ZF5.7: 7.8 (100% charged)/7.4 (95% charged)
Supplemental Charger Quick Charge Time (accessory)	• ZF2.8 1.9 hours (100% charged)/1.4 hours (95% charged) • ZF5.7 3.3 hours (100% charged)/2.8 hours (95% charged)
CHAdeMo Recharge Time (0 to 95%)	1.0 hour
CHAdeMo Recharge Time (0 to 100%)	1.5 hours
Input	Standard 120 V AC or 240 V AC
Charger Type	1.3 kW Integrated
Estimated Power Pack Life to 80% (city)	• ZF2.8: 78,000 mi (126,000 km) • ZF5.7: 156,000 mi (252,000 km)
RANGE	
City (EPA UDDS)	• ZF2.8 35 mi (56 km) • ZF5.7 70 miles (113 km)
Highway, 55 mph (88 km/h)	• ZF2.8 22 miles (35 km) • ZF5.7 44 miles (72 km)
>Combined (City + 55 mph)	• ZF2.8 27 mi (43 km) • ZF5.7 54 mi (87 km)
Highway, 70 mph (112 km/h)	• ZF2.8 15 miles (24 km) • ZF5.7 31 miles (50 km)
>Combined (City + 70 mph)	• ZF2.8 21 miles (34 km) • ZF5.7 43 miles (69 km)

DRIVETRAIN	
Transmission	Clutchless Direct Drive
Final Drive	132T/25T, Poly Chain® GT® Carbon™ (belt)
CHASSIS/SUSPENSION/BRAKES	
Front Suspension Travel	3.2 in/240 mm
Rear Suspension Travel	8.9 in/227 mm
Front Brakes	221 mm OD rotor, 4.5mm thick Nissin 2 piston floating caliper, 27mm OD piston 12.7 mm bore Fr Master Cylinder
Rear Brakes	221 mm OD rotor, 4.5mm thick Nissin single piston floating caliper, 25.4mm OD piston 12.7 mm bore Fr Master Cylinder
Front Tire	3.00-21 in (90/90-21)
Rear Tire	4.10-18 in (110/90-18)
Front Wheel	1.60x21 in
Rear Wheels	2.15x18 in
Front Suspension	38mm OD steel stanchions, 48mm OD outer tube clamping diameter. Inverted forks with adjusted compression and rebound damping
Rear Suspension	Piggyback reservoir shock with adjustable spring preload, compression and rebound

DIMENSIONS	
Wheel Base	56.6 in (1,438 mm)
Seat Height	35.4 in (899 mm)
Rake	26.1 degrees
Trail	4.4 in (112 mm)
WEIGHT	
Frame	17 lbs (7.7 kg)
Curb Weight	• ZF2.8 233 lbs (106 kg) • ZF5.7 275 lbs (125 kg)
Carrying Capacity	• ZF2.8 347 lbs (157 kg) • ZF5.7 305 lbs (138 kg)
ECONOMY	
Typical Cost to Recharge	• ZF 2.8: $ 0.3/€ 0.43 • ZF 5.7: $ 0.6/€ 0.85
Equivalent Fuel Economy (city)	• 470 MPGe(0.50 L/100 km)
Equivalent Fuel Economy (highway)	• ZF 2.8: 207 MPGe (1.14 L/100 km) • ZF 5.7: 212 MPGe (1.11 L/100 km)

Zero XU

MOTOR	
Type	Z-Force 75-5 passively air-cooled, high-efficiency, radial flux, permanent magnet, brushless motor
Controller	High efficiency, 250 amp, 3-phase brushless controller with re-generative deceleration
Estimated Top Speed (max)	77 mph (124 km/h)
Estimated Top Speed (sustained)	65 mph (105 km/h)
POWER SYSTEM	
Type	Z-Force™ Patented Li-Ion Intelligent Modular
Maximum Capacity	• ZF2.8: 2.8 kWh • ZF5.7: 5.7 kWh
Nominal Capacity	• ZF2.8: 2.5 kWh • ZF5.7: 5 kWh
Charge Time (standard)	• ZF2.8: 4.1 hours (100% charged) / 3.7 hours (95% charged) • ZF5.7: 7.8 (100% charged) / 7.4 hours (95% charged)
Supplemental Charger Quick Charge Time (accessory)	• ZF2.8 1.9 hours (100% charged) /1.4 hours (95% charged) • ZF5.7 3.3 hours (100% charged) /2.8 hours (95% charged)
CHAdeMo Recharge Time (0 to 95%)	1.0 hour
CHAdeMo Recharge Time (0 to 100%)	1.5 hours
Input	Standard 120 V AC or 240 V AC
Charger Type	650 W integrated
Estimated Power Pack Life to 80% (city)	• ZF2.8: 85,000 miles (137,000 km) • ZF5.7: 170,000 miles (274,000 km)
RANGE	
City (EPA UDDS)	• ZF2.8 38 miles (61 km) • ZF5.7 76 miles (122 km)
Highway, 55 mph (88 km/h)	• ZF2.8 24 miles (39 km) • ZF5.7 48 miles (77 km)
>Combined (City + 55 mph)	• ZF2.8 29 miles (47 km) • ZF5.7 59 miles (95 km)
Highway, 70 mph (112 km/h)	• ZF2.8 17 miles (27 km) • ZF5.7 35 miles (56 km)
>Combined (City + 70 mph)	• ZF2.8 24 miles (39 km) • ZF5.7 48 miles (77 km)
DRIVETRAIN	
Transmission	Clutchless Direct Drive
Final Drive	132T/25T, Poly Chain® GT® Carbon™ (belt)

CHASSIS/SUSPENSION/BRAKES	
Front Suspension Travel	2.0 in (51 mm)
Rear Suspension Travel	5.78 in (147 mm)
Front Brakes	221 mm OD rotor, 4.5 mm thick 2 piston floating caliper, 27 mm OD pistons 12.7 mm bore Fr Master Cylinder
Rear Brakes	221 OD rotor, 4.5 mm thick Single piston floating caliper, 25.4 mm OD piston 12.7 mm bore Rr Master Cylinder
Front Tire	MJ90-19 in (90/90-19)
Rear Tires	110/90-16 in
Front Wheel	1.85x19 in
Rear Wheel	2.15x16 in
Front Suspension	38 mm OD aluminum stanchions, 48 mm OD outer tube clamping diameter. Inverted forks with adjustable compression and rebound damping
Rear Suspension	Piggy-back reservoir shock with adjustable spring preload and rebound damping
DIMENSIONS	
Wheel Base	55.1 in (1,400 mm)
Seat Height	31.1 in (790 mm)
Rake	25 degrees
Trail	3.4 in (87 mm)

WEIGHT	
Frame	17 lbs (7.7 kg)
Curb Weight	• ZF2.8 255 lbs (102 kg) • ZF5.7 267 lbs (121 kg)
Carrying Capacity	• ZF2.8 355 lbs (161 kg) • ZF5.7 313 lbs (142 kg)
ECONOMY	
Typical Cost to Recharge	• ZF 2.8: $ 0.3/€ 0.43/ • ZF 5.7: $ 0.6/€ 0.85/
Equivalent Fuel Economy (city)	512 MPGe/ 0.46 Liters per 100 km
Equivalent Fuel Economy (highway)	• ZF2.8: 230 MPGe/1.02 L/100 km • ZF5.7: 235 MPGe /1.0 L/100km

Zero MX

MOTOR	
MX Track	• ZF2.8: 20-60 minutes • ZF5.7: 35-120 minutes
Trail	• ZF2.8: 30-70 minutes • ZF5.7: 50-140 minutes
Type	Z-Force™ 75-7 passively air-cooled, high-efficiency, radial flux, permanent magnet, brushless motor.
Controller	High efficiency, 420 amp, 3-phase brushless controller with re-generative deceleration
Estimated Top Speed (max)	85 mph (137 km/h)
Estimated Top Speed (sustained)	70 mph (113 km/h)
POWER SYSTEM	
Estimated pack life to 80% (MX track)	ZF2.8: 1,500 hours ZF5.7: 2,910 hours
Type	Z-Force™ Patented Li-Ion Intelligent Modular
Maximum Capacity	• ZF2.8: 2.8 kWh • ZF5.7: 5.7 kWh
Nominal Capacity	• ZF2.8: 2.5 kWh • ZF5.7: 5 kWh
Charge Time (standard)	• MX ZF2.8: 2.7 hours (100% charged)/2.2 hours (95% charged) • MX ZF5.7: 4.9 hours (100% charged)/4.4 hours (95% charged)
Supplemental Charger Quick Charge Time (accessory)	• ZF2.8 1.6 hours (100% charged)/1.1 hours (95% charged) • ZF5.7 2.7 hours (100% charged)/2.2 hours (95% charged)
CHAdeMo Recharge Time (0 to 95%)	1.0 hour
CHAdeMo Recharge Time (0 to 100%)	1.5 hours
Input	Standard 120 V AC or 240 V AC
Charger Type	1.0 kW Integrated
DRIVETRAIN	
Transmission	Clutchless Direct Drive
Final Drive	65T/12T,520 chain
CHASSIS/SUSPENSION/BRAKES	
Front Suspension Travel	3.22 in (82 mm)
Rear Suspension Travel	8.94 in (227 mm)
Front Brakes	221 mm OD rotor, 4.5 mm thick 2 piston floating caliper, 27 mm OD pistons 12.7 mm bore Fr Master Cylinder
Rear Brakes	221 mm OD rotor, 4.5 mm thick Single piston floating caliper, 25. 4 OD piston 12.7 mm bore Rr Master Cylinder

Front Tire	80/100-21 in
Rear Tire	110/100-18 in
Front Wheel	1.60x21 in
Rear Wheel	2.15x18 in
Front Suspension	38 mm inverted slider forks with adjustable compression and rebound damping
Rear Suspension	Remote reservoir shock with adjustable spring preload, compression and rebound damping
DIMENSIONS	
Wheel Base	55.9 in (1,420 mm)
Seat Height	35.9 in (912 mm)
Rake	26.2 degrees
Trail	4.4 in (111 mm)
WEIGHT	
Frame	17 lbs (7.7 kg)
Curb Weight	• ZF2.8 223 lbs (101 kg) • ZF5.7 265 lbs (120 kg)
Carrying Capacity	• ZF2.8 357 lbs (162 kg) • ZF5.7 315 lbs (143 kg)
ECONOMY	
Typical Cost to Recharge	• ZF 2.8: $ 0.3/€ 0.43 • ZF 5.7: $ 0.6/€ 0.45

Vehicle Range

The range of an electric vehicle is defined as the distance the vehicle will travel on a single full charge of the power pack. Just like EPA mileage estimates on an automobile, “your mileage may vary.” Your range results are a direct reflection of your riding habits. The more conservative you ride the better range you can expect from your Zero Motorcycle.

Some of the factors which affect range include speed, acceleration, number of starts and stops, ambient air temperature as well as changes in elevation. The combination of these factors, as you travel from one point to another, defines your trip profile. In addition, tire pressure and payload are important considerations.

We suggest that you ride conservatively when you first get your Zero Motorcycle, and get to know your motorcycle and your commute. Once you become familiar with the range versus performance of your motorcycle, then you can adjust your riding characteristics if you so desire. This applies mainly to riders with trip profiles which are at the edge of the performance envelope. Those individuals with relatively short commutes can expect to ride quite aggressively and reach their destination with energy to spare.

Reported motorcycle range values are measured using two different types of industry standard test procedures:

1. “City (EPA UDDS)”: This test procedure uses a duty cycle known as the “Universal Dynamometer Driving Schedule (UDDS)”, which was developed by the U.S. Environmental Protection Agency (EPA) in order to simulate city-type riding.
2. “Highway”: This test procedure uses two separate constant speeds of 55 mph and 70 mph to simulate highway riding.

Both of these test procedures are run on a single charge, in order to report the associated measured range values.

Range values labeled “Combined” are based on a calculation that assumes a duty cycle comprised of 50% City / 50% Highway.

See technical specification charts beginning on *page 1-6* through *page 1-10* for these ranges.

Public Charging Stations

There are more public charging stations coming online every day and there may be some in your area. You can charge from a public charging station with either the optional J1772 Zero Motorcycle accessory or a CHAdeMO Zero Motorcycle accessory. These stations are often available at a variety of locations including shopping centers, city parking lots, airports, hotels, government offices, and other businesses. We recommend that you search the internet for locations in your area. For example, search for “charging stations.”

CHAdeMO Charger

Your Zero Motorcycle can utilize a quick charging CHAdeMO charger system. A CHAdeMO charger can charge your motorcycle in about one hour. For additional information contact your Zero Motorcycle dealer.

Maximizing Your Range

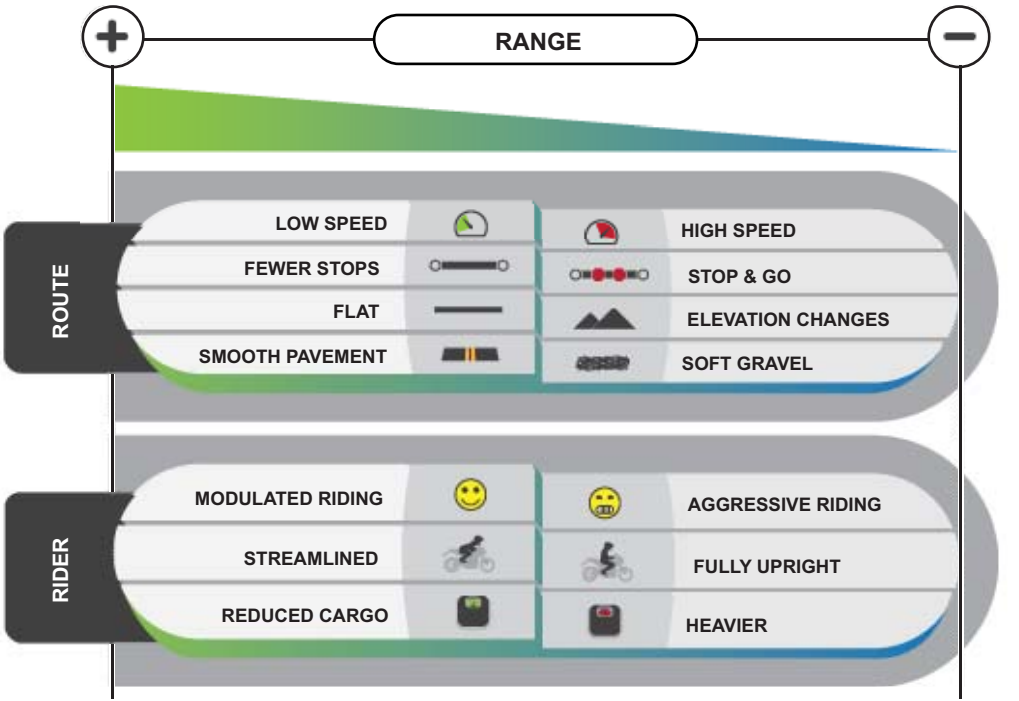
Range varies in electric motorcycles similarly to how it varies in gas motorcycles. However, the big difference between electric and gas is that energy consumption is averaged over a shorter distance on an electric motorcycle. Electric motorcycles are designed for convenient daily recharges versus less frequent and less convenient trips to the gas station. As a result, the same electric motorcycle often yields different ranges from one full recharge to the next.

How to Predict the Range

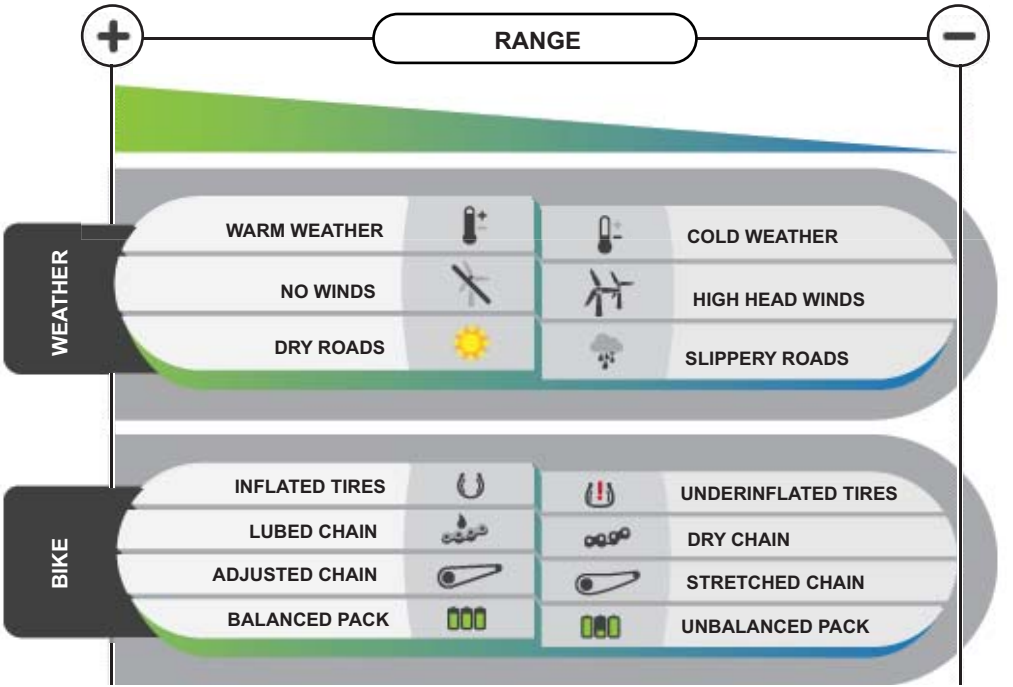
To generally predict how an electric motorcycle’s range will be affected, you can use the four factors:

- route
- rider
- weather
- motorcycle

By considering each of these factors, you can use specifications such as ‘city range’ as standards to estimate what the motorcycle’s real world range will be under the your particular usage case.


RANGE
ROUTE
LOW SPEED
FEWER STOPS
FLAT
SMOOTH PAVEMENT
HIGH SPEED
STOP & GO
ELEVATION CHANGES
SOFT GRAVEL
RIDER
MODULATED RIDING
STREAMLINED
REDUCED CARGO
AGGRESSIVE RIDING
FULLY UPRIGHT
HEAVIER

ZOM0156


RANGE
WEATHER
WARM WEATHER
COLD WEATHER
NO WINDS
HIGH HEAD WINDS
DRY ROADS
SLIPPERY ROADS
BIKE
INFLATED TIRES
UNDERINFLATED TIRES
LUBED CHAIN
DRY CHAIN
ADJUSTED CHAIN
STRETCHED CHAIN
BALANCED PACK
UNBALANCED PACK

ZOM0157

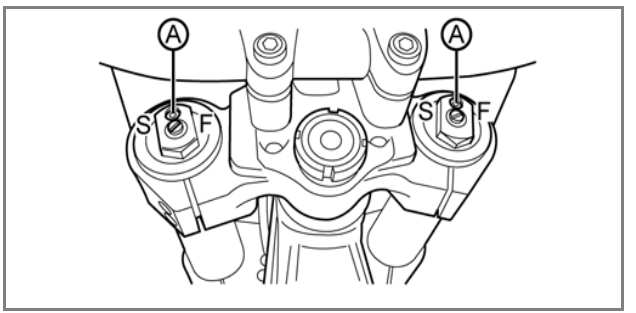
Emissions Information

The Zero electric motorcycle is a true freeway capable zero emissions vehicle under California Air Resources Board (CARB), U.S. Federal (EPA), and European Union standards. It uses no gasoline or other liquid fuel. It has no tailpipe and therefore no tailpipe emissions. It also has no exhaust or evaporative emissions. Because the Zero Motorcycle runs solely on electricity, it is the only kind of vehicle which actually gets cleaner in terms of air pollution each year, as the electricity grid gets cleaner and more renewable. Zero Emissions Vehicles (ZEV's) offer greater efficiency, and can help solve the serious air pollution, global warming, and energy security problems facing the country and the world.

WARNING! Please use only Zero approved parts and accessories for your Zero Motorcycle. Parts and accessories for your Zero Motorcycle have been checked and tested for safety and suitability. Zero is unable to accept any liability whatsoever for parts and accessories which have not been approved.

Transporting

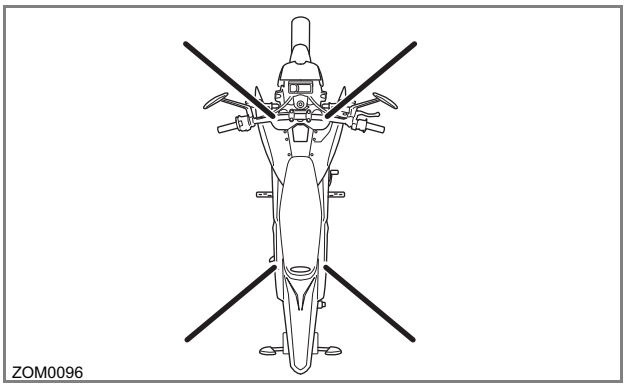
When the front fork is compressed, the built up pressure must be released to help prevent fork seal leaks. There is a 3 mm Allen “bleed” screw located just in front of the rebound adjuster on each fork leg. This “bleed” screw (A) is used to release the built up pressure. Loosen the screw slowly, but do not remove. Once all the air is out, tighten the bleed screw.



The fork must be fully extended (most likely on a stand or balanced on the kickstand with the front tire in the air) then the air can be bled and capped. Ensure that the screw is tightened before riding.

It is recommended that the motorcycle be tied-down using ratchet straps. Place the ratchet straps around a frame contact point. Soft straps must be used to prevent scratches or other damage.

Use two ratchet straps in the front and two in the rear. The tie down straps should be at a 45° angle from the motorcycle. Follow the manufacturer’s instructions for the ratchet straps you are using.



Notes

General Safety Precautions

- This is a performance motorcycle and should be treated with extreme caution.
- Proper safety gear, including a regionally approved helmet, riding boots, gloves, and protective clothing should be worn while riding to reduce the risk of potential injury. We highly recommend the use of full height riding boots since the vast majority of motorcycle injuries are leg and foot injuries. It is not recommended to ride without the correct protective clothing; this applies to even short journeys, and to every season of the year.
- Read all additional warnings and product instructions in this owner's manual, as well as safety labels, before operating your electric motorcycle.
- Never permit a guest to ride your electric motorcycle without proper instruction.
- Never use alcohol or mind-altering drugs before operating your electric motorcycle.
- Persons unwilling or unable to take responsibility for their actions should not use this motorcycle. You assume all responsibility while operating your motorcycle. The seller will assume no liability for misuse or operator negligence.
- Prior to each use the rider must check everything in the "every ride" column of the maintenance schedule on *page 5-2*, and the charge level of the power pack as indicated on the instrument panel charge indicator.
- Your safety depends in part on the good mechanical condition of the motorcycle. Be sure to follow the maintenance schedule and adjustment requirements contained in this manual. Be sure you understand the importance of checking all items thoroughly before riding.
- Modifications to the motorcycle may render the vehicle unsafe and may cause severe personal injury. Zero Motorcycles cannot be held liable for non-approved modifications.
- Be very careful when loading or adding accessories to your motorcycle. Large, bulky, or heavy items may adversely affect the handling and performance of your motorcycle.

Important Operating Information

Several operating considerations are listed below:

- Always turn the key switch and motor stop switch to the OFF position when not actively riding. It is very easy to forget that the motorcycle is powered up because it is silent. An accident can occur if the motorcycle is left powered up while getting on or off the motorcycle.
- Turn the motor stop switch OFF when backing up or pushing the motorcycle while dismounted.
- Use the rear brake when you are stopped on an incline. **Do not hold the motorcycle using partial throttle or damage to the motor may occur**.
- The power pack should be plugged in when storing the motorcycle for extended periods of time.
- Keep your Zero connected to the charger when your motorcycle is sitting in storage or if it will be sitting unused for more than 30 days.

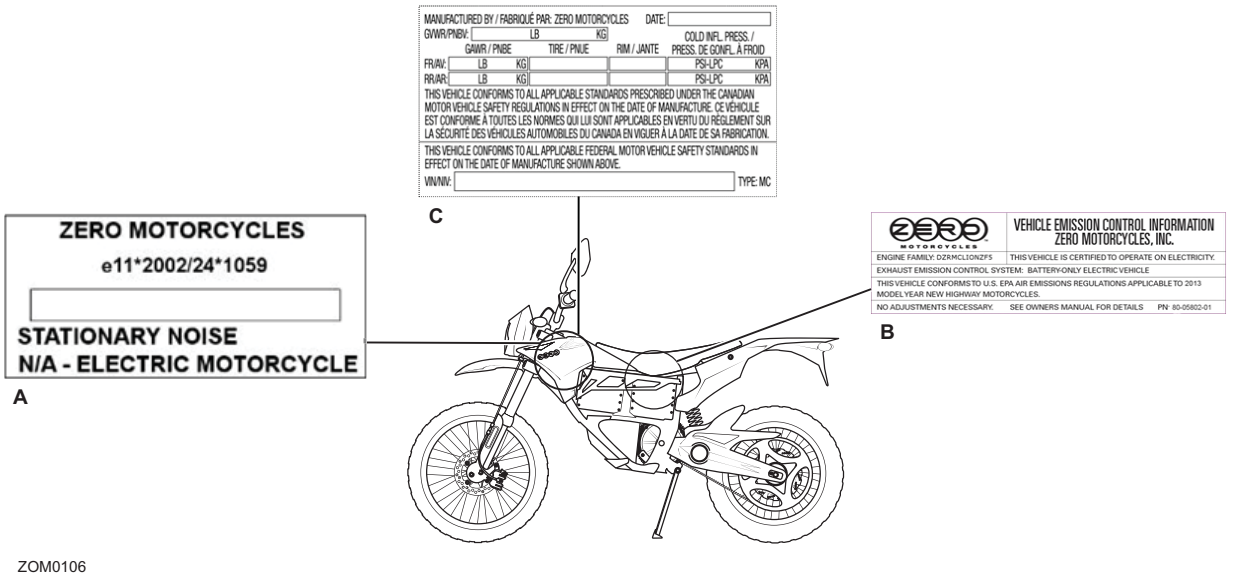
  The power pack must be charged within 24 hours if fully discharged, and must be charged within 90 days if stored fully charged. Zero recommends you plug in your power pack after 30 days even if it is fully charged. Please leave your power pack plugged in whenever possible.

WARNING! Charge the Zero power pack with the Zero charger.

- The power pack does not require, or tolerate, deep discharging. To get the most power pack life, recharge each power pack immediately after each ride. Leaving a power pack in a discharged state will cause damage.
- Failure to follow power pack storage and charging instructions as described in this Zero Motorcycles Owner's Manual may void the warranty of your Zero Motorcycle. These guidelines have been rigorously tested to ensure maximum power pack efficiency and service.

Location of Important Labels

The vehicle could contain the following (example) information for both North American and European models:

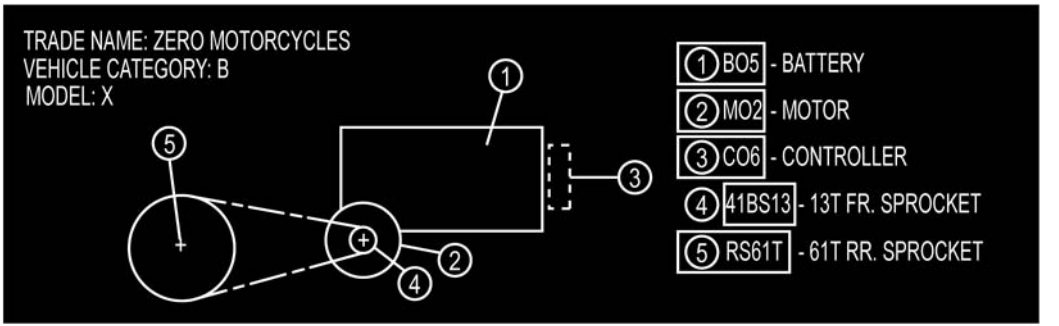


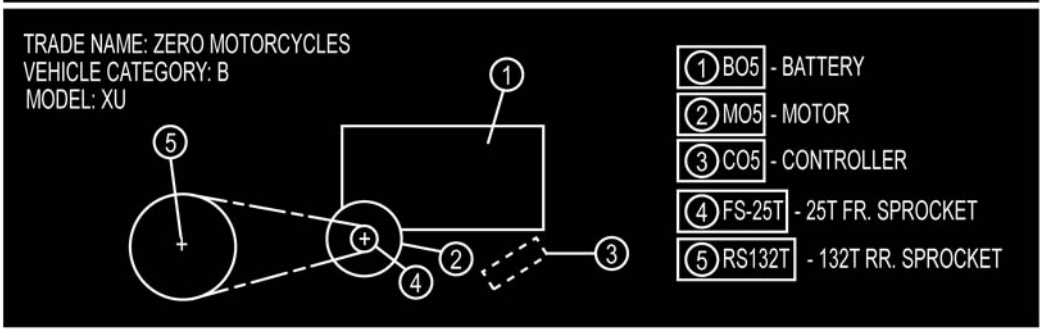
ZOM0106

A. VIN label (European Union) - certification label
B. VECI (Vehicle Emission Control Information) label
C. VIN label (North America) - certification label shown

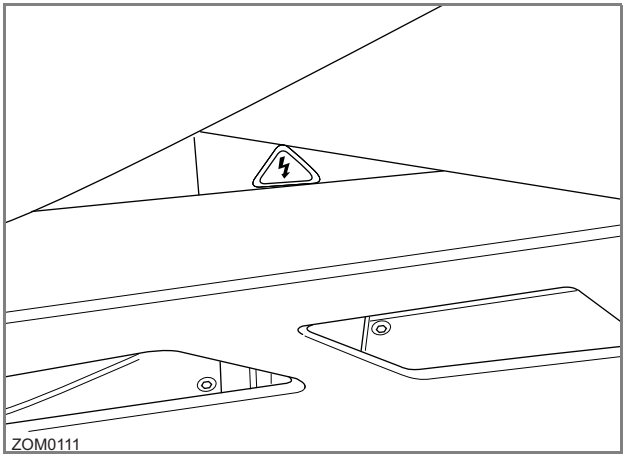
Anti-Tamper Control Label (Europe only)

The Anti-Tamper control label (shown below) is located on the left-side of the frame.

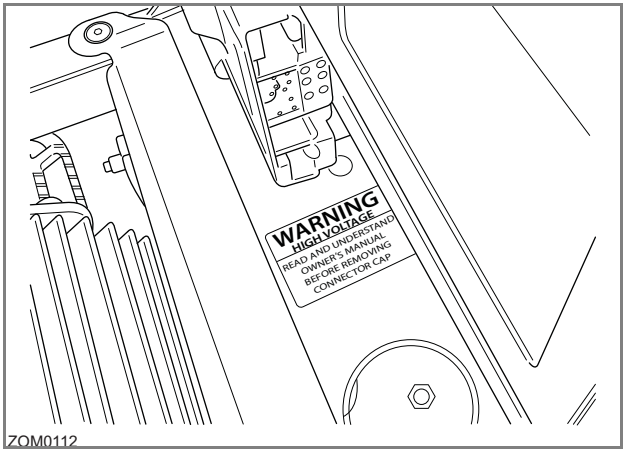




High Voltage Warning Labels



Located near the battery (XU/FX only)



Located on frame for single battery (XU/FU only)

Notes

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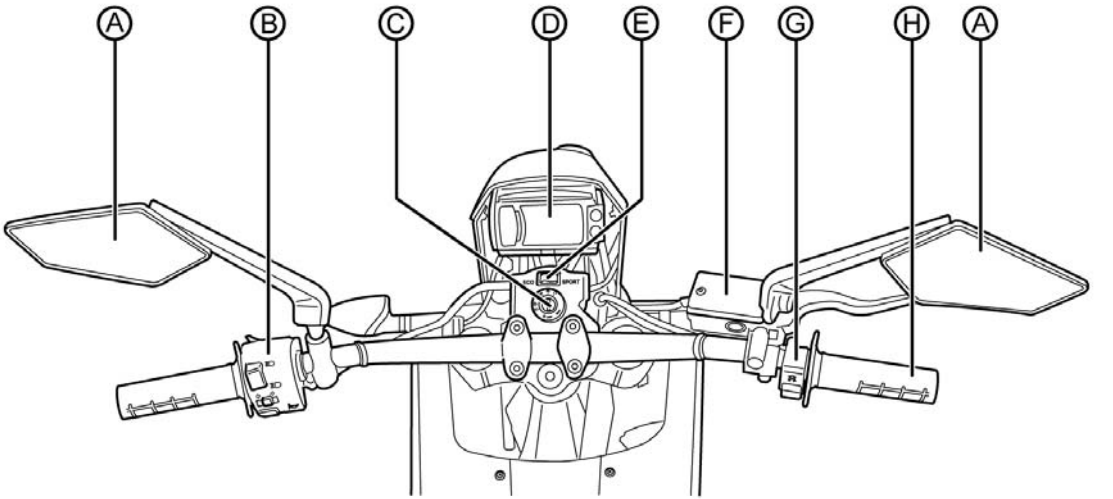
Motorcycle Controls (FX/MX*/XU Street Legal)



A. **Mirrors**

This motorcycle is equipped with convex mirrors. A convex mirror has a curved surface. Convex mirrors offer a greater field of view than a similar flat mirror. However, the greater field of view makes objects seem further away than they really are. Care must be used when judging the distance of objects seen in these mirrors.

B. Left Handlebar Control

For description and operation see *page 3-12*.

C. Key Switch/Steering Lock

For description and operation see *page 4-4*.

D. Instrument Panel

For description and operation see *page 3-10*.

E. Performance Level Switch

For description and operation see *page 3-15*.

F. Front Brake/Brake Fluid Reservoir

For description and operation see *page 5-10*.

G. Motor Stop Switch

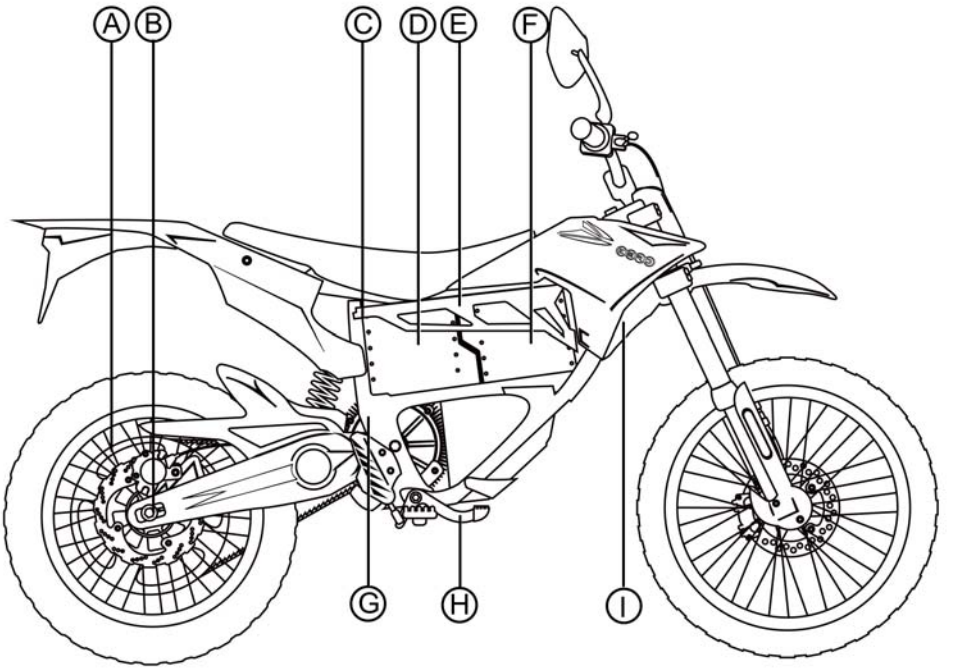
For description and operation see *page 3-12*.

H. Throttle Control

For description and operation see *page 3-12*.

* The Zero MX motorcycle does not have a headlight or turn signals.

Side View (MX Dirt)



A. **Drive Belt**

For description and operation see *page 5-14*.

B. Drive Belt Tension Adjuster

For description and operation see *page 5-14*.

C. Power Pack Rail Knob

For description and operation see *page 5-9*.

D. Power Pack

For description and operation see *page 5-9*

E. Power Pack Rail

For description and operation see *“Power Pack”, on page 5-9*.

F. Fuse Center

For description and operation see *page 5-24*.

G. Rear Brake Fluid Reservoir

For description and operation see *page 5-10*.

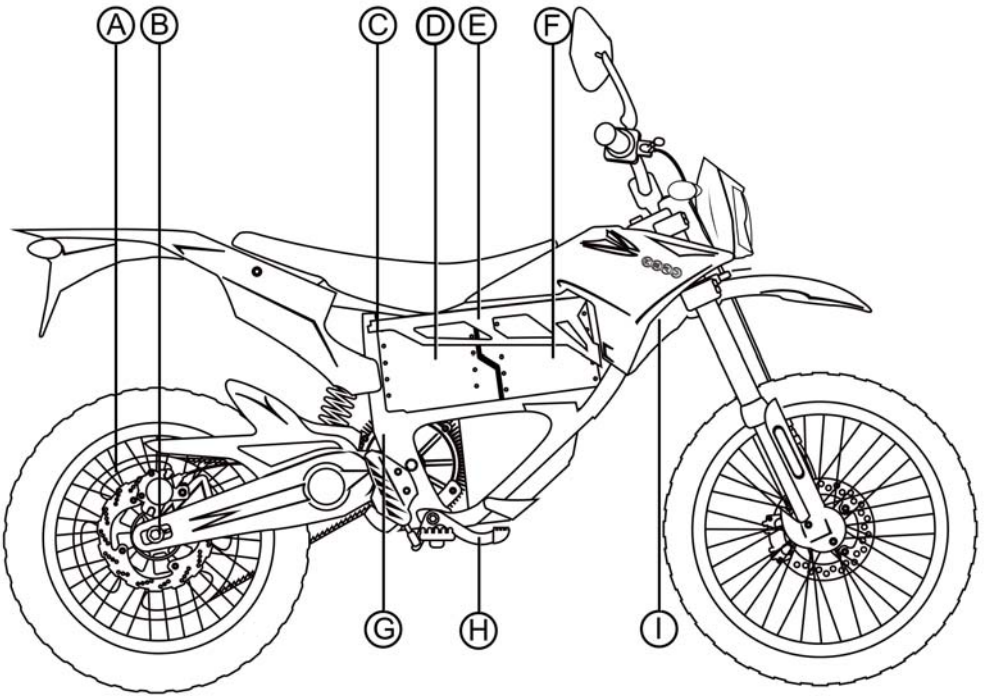
H. Rear Brake Pedal

The rear brake pedal controls the rear brake when the pedal is pressed. When braking, the throttle should be in the closed position.

I. Power Pack Charge

For description and operation see *page 5-9*.

Side View (FX Street Legal)



A. **Drive Belt**

For description and operation see *page 5-14*.

B. Drive Belt Tension Adjuster

For description and operation see *page 5-16*.

C. Power Pack Rail Knob

For description and operation see *page 5-9*.

D. Power Pack

For a description see *page 5-9*.

E. Power Pack Rail

For a description see *page 4-7*.

F. Fuse Center

For a description see *page 5-24*.

G. Rear Brake Fluid Reservoir

For a description see *page 5-10*.

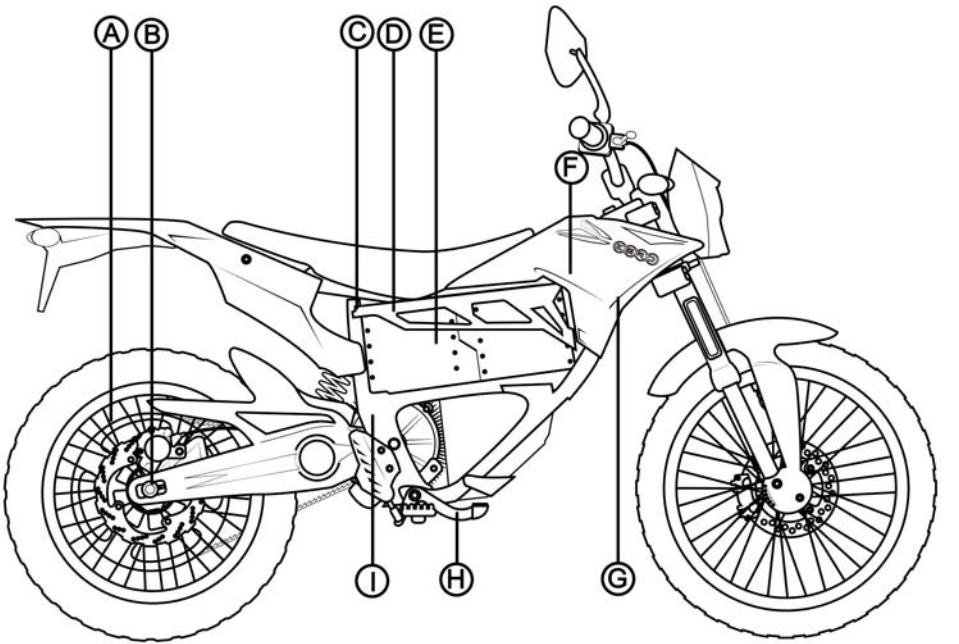
H. Rear Brake Pedal

The rear brake pedal controls the rear brake when the pedal is pressed. When braking, the throttle should be in the closed position.

I. Power Pack Charge

For a description see *page 4-8*.

Side View (XU Street Legal)



A. **Drive Belt**

For a description see *page 5-14*.

B. Drive Belt Tension Adjuster

For a description and operation see *page 5-14*.

C. Power Pack Rail Knob

For a description see *page 5-9*.

D. Power Pack Rail

For a description see *page 4-7*.

E. Power Pack

For description and operation see *page 5-24*.

F. Fuse Center

For a description see *page 5-24*.

G. Power Pack Charge

For description and operation see *page 4-10*.

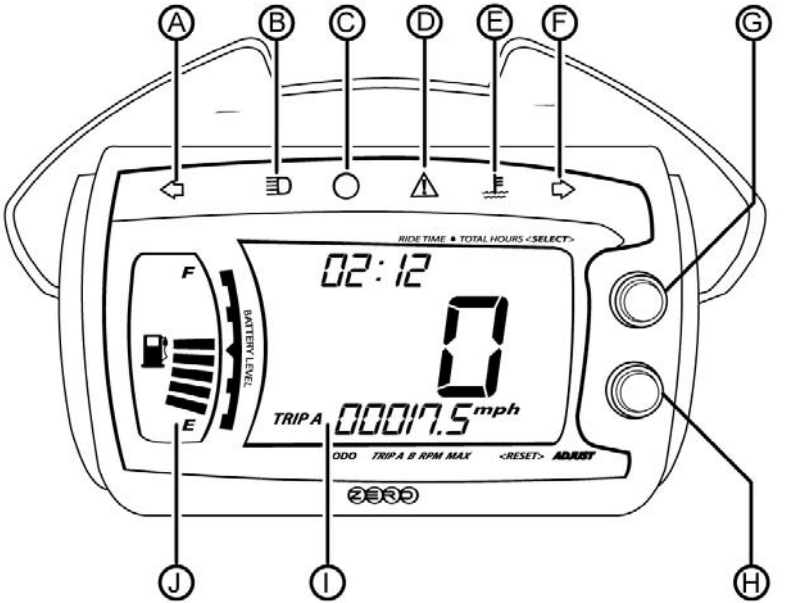
H. Rear Brake Pedal

The rear brake pedal controls the rear brake when the pedal is pressed. When braking, the throttle should be in the closed position.

I. Rear Brake Fluid Reservoir

For description and operation see *page 5-10*.

Instrument Panel (FX/MX/XU Street Legal)



A. **Turn Signal**

An arrow on the instrument panel will flash green in the same direction as selected by the turn signal switch. This will remain on until the turn signal request has been canceled.

B. High Beam Indicator

When the headlight high beam is on, this indicator will illuminate blue, and will remain on until the high beam is turned off.

C. Main Power Indicator

The main power indicator (green) is ON any time the key is in the ON position. If the main power indicator is flashing, the system has detected a fault. For troubleshooting, see section *page 6-1*.

D. System Warning Indicator

This indicator blinks when a system error is detected. See the table on *page 6-3*.

E. Temperature Lamp

This flashes in the event that you exceed the motorcycle's performance capabilities. The temperature warning lamp indicates the temperature of the motor and power pack is too high. See *page 4-14* for more information.

F. Turn Signals

An arrow on the instrument panel will flash green in the same direction as selected by the turn signal switch. This will remain on until the turn signal request has been canceled.

G. Select Button

By pressing the select button you can toggle between Ride Time and Total Hours displayed.

H. Adjust Button

By pressing the adjust button you can toggle between the trip odometer setting A, Trip odometer setting B, RPM, and Max. Holding it down clears the trip odometer resetting it back to zero.

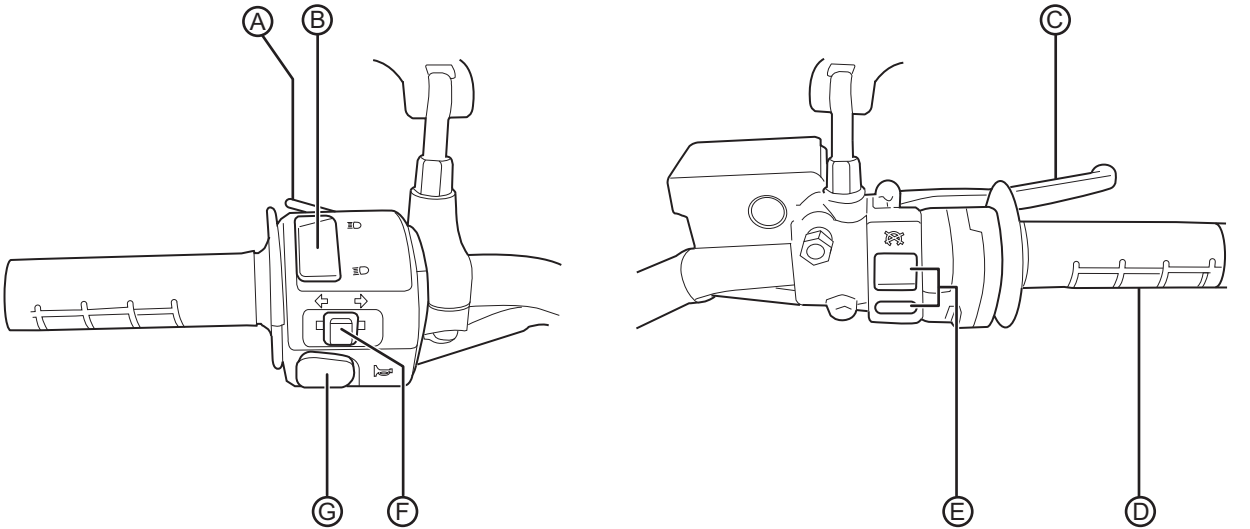
I. Display Area

The backlit display displays the following: Ride Time, Total Hours, Odometer, Trip Odometer, RPM, and Motorcycle Speed.

J. Charge Indicator

This indicator displays the amount of energy remaining in the power pack, similar to the fuel gauge on a gasoline powered vehicle.

Handlebar Controls (FX/MX/XU Street Legal)



A. **Flash-to-pass**

When the headlight is in the low beam position, push the flash-to-pass switch and the high beam will illuminate and will stay illuminated until the switch is released. When released, this switch will default back to the low beam position. The high beam indicator will also illuminate.

B. Headlight High/Low Beam Switch

When the switch is pushed, the headlight will change from low beam to high beam. It will stay in the selected position until it is switched back. When in high beam position, the high beam indicator on the instrument panel will illuminate.

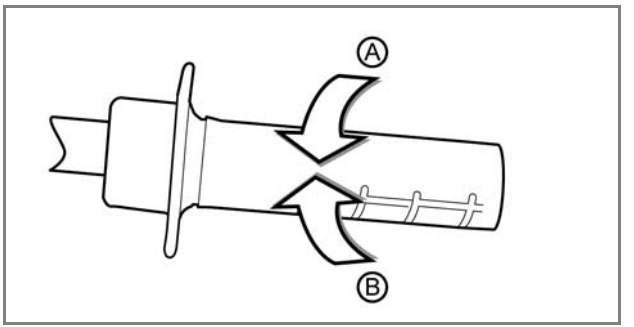
C. Front Brake Lever

The front brake lever controls the front brake when the lever is squeezed. When braking, the throttle should be in the closed position. The brake light will also illuminate.

D. Throttle Control

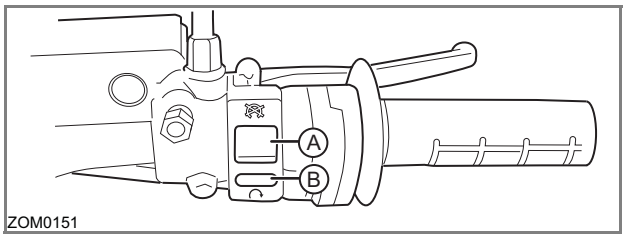
Twist the throttle in a counter-clockwise rotation (A) to energize the motor and start the motorcycle in a forward direction. Release the throttle and it will snap back to the closed position (B), de-energizing the motor.

When the motorcycle is moving and the throttle control is in the fully closed position it will activate the regenerative braking feature. Regenerative braking takes some of the energy from the moving motorcycle and turns it back into electrical energy. This energy is then stored back into the power pack, contributing to increased energy efficiency. A slight drag is felt when the regenerative braking is activated, if you want to coast without the regenerative braking hold the throttle just off of the fully closed position.



E. **Motor Stop Switch**

When the switch (A) is pressed, it will stop power to the motor controller. The motor controller will remain in this state until the ON (B) button is pressed. The switch does not turn off all electrical circuits, just the operation of the motor.

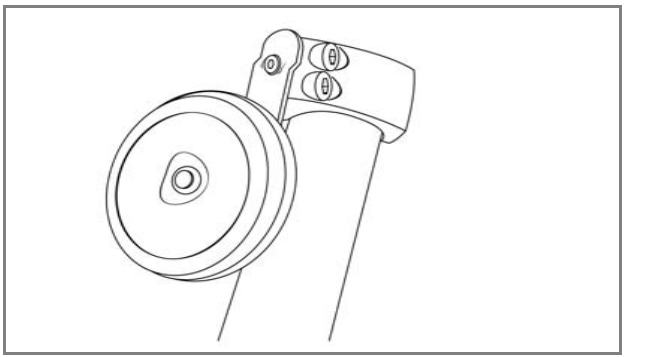


F. Turn Signal Switch

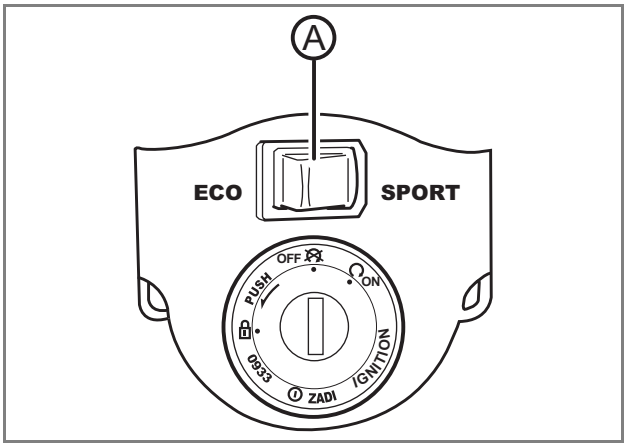
When the turn signal switch is pushed in the left or right position, the corresponding front and rear turn signals flash. When the turn signal switch is ON, the corresponding turn signal indicator on the instrument panel illuminates. Always signal your turns and other maneuvers as required by law. Unlike an automobile, the turn signals must always be canceled manually on the motorcycle. Push in on the switch and it will return to the center or OFF position.

G. **Horn Button**

When the key is in the ON position, the horn will sound when the button is pressed. Electric vehicles run quietly; the horn can be used to warn pedestrians or other motorists of your presence. The horn is mounted on the front forks.



Performance Level Switch (FX/MX/XU Street Legal)



The performance level switch (A) is a two position switch that toggles between **ECO** and **SPORT** modes. You can switch between performance modes while riding but the change will not be executed until the throttle is returned to the closed position.

The **ECO** position reduces the acceleration and top speed of the motorcycle. It is an ideal position to use for times when you want softer acceleration. This position is also good for newer riders and for extending range.

The **SPORT** position causes the motorcycle to accelerate at a significantly faster rate. This position is recommended for advanced riders.

Those who take advantage of the **ECO** position are likely to see a slight increase in range and experience greater regenerative braking.

Smartphone Application

You can download a smartphone application that lets you perform the following tasks related to troubleshooting your motorcycle:

- Make minor adjustments
- Collect and email logs to Zero support staff
- Examine the precise State of Charge (SOC) of your motorcycle
- Examine real time power usage

The Smartphone application is available for free at both the Apple iTunes store and Google Play store. iTunes® is a registered trademark of Apple. Google Play® store is a registered trademark Google.

Notes

First Time Set-Up

If your motorcycle was direct-shipped you will need to perform the following:

1. Remove the motorcycle from its shipping crate. See Unpacking Your Zero Motorcycle on *page 4-2*.
2. You must charge the power pack before riding the motorcycle. Your Zero Motorcycle is shipped fully charged from the factory. If necessary, see *"Charging the Power Pack", on page 4-10*.
3. Identify and inspect wheels for spoke tension and/ or damage.
4. Check the tire pressure and adjust to proper specifications. See *"Tire Inflation", on page 5-13*.
5. Inspect the hydraulic brake system. Follow the hydraulic line from the reservoirs to the calipers and verify that there are no leaks or damage to the brake lines. Verify that the brakes function properly.
6. Make sure the motorcycle key switch is OFF, then twist the throttle to make sure its rotation is smooth, and it returns correctly.
7. Inspect bolts and make sure they are tight. See Bolt Torque Table on *page 5-5*. Double check the fork, wheel, and brake bolts.
8. Insert the key in the key switch and turn the key to the ON position. The gauge will perform a self test sweep. The charge indicator should read fully charged.

Unpacking Your Zero Motorcycle

Although unpacking your Zero Motorcycle can be done by a single person, it is recommended to have a second person to help lift and remove your motorcycle from the crate base.

Outer Box Cover

- Cut and remove the two outer box retention straps.
- Unscrew stabilizer bar bolts, one on each side of outer box.
- Open box top and remove inner cardboard end reinforcement sleeves.
- Unscrew stabilizer bar from handlebar end and remove (FX/MX only).
- Unscrew lower crate cover retaining screws and washers.
- Lift or cut outer box away from motorcycle.

Inner Assembly

- Carefully remove plastic cover from motorcycle.
- Locate small parts box below motorcycle and put to the side. (This box contains important documentation, owner's manual, keys, etc.).
- Remove the power pack rail.
- Remove the power pack.
- Remove the tie down straps from crate base (MX only).
- Carefully lift rear portion of the motorcycle over the swingarm standoff and off crate base.
- Carefully lift front wheel out of crate base.
- Deploy kickstand, lean motorcycle and inspect in accordance with delivery inspection sheet.

Recycling

Your Zero Motorcycles shipping crate and packaging materials were designed to be completely recycled. Please cut down and recycle all cardboard, plastic, and metal materials in appropriate receptacles.

The tie down straps that accompanied your motorcycle can be reused as regular tie down straps.

General Operation

This section describes several items you should examine before operation.

Pre-Ride Inspection

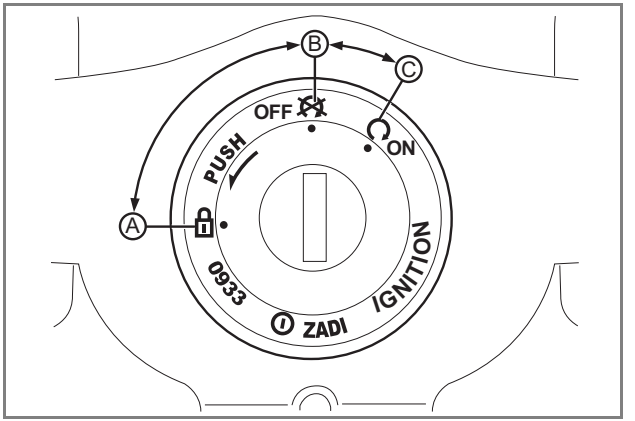
Before operating the Zero Motorcycle, check the following to make sure the motorcycle is secure and intact:

- **Power Pack**. Make sure the instrument panel charge indicator is indicating a charged power pack. If the charge indicator reads below: MX Dirt - 3 bars (½ charge), or FX/XU Street Legal - 5 bars (½ charge), we suggest you recharge before use. Always keep the charger cord with the motorcycle.
- **Drive Belt (all models).** Check the belt tension and condition. Adjust if necessary. The drive belt must be cleaned at the intervals specified in the maintenance schedule; otherwise it will quickly wear out, especially when riding in dusty or wet areas. See *"Drive Belt", on page 5-14*.
- **Drive Chain (optional on FX).** Check the tension and condition. Adjust and lubricate if necessary. The drive chain must be cleaned and lubricated at the intervals specified in the maintenance schedule; otherwise it will quickly wear out, especially when riding in dusty or wet areas. See *"Drive Chain (Optional)", on page 5-16*.
- **Brakes.** Squeeze the brake lever and press the brake pedal individually while pushing the motorcycle to see if it rolls. You should be able to lock-up the wheels completely by applying the brakes.
- **Throttle.** With the key switch in the OFF position, apply the throttle and release to verify that the throttle is smooth and returns correctly.
- **Tires.** Check both tires for condition and tread depth. Check cold tire pressure frequently. Check for damage and alignment. Maintain correct tire pressure as specified on *page 5-13*. Replace the tires when the tread height is 0.08 inches (2 mm) or less.

CAUTION: Under-inflation is the most common cause of tire failure and may result in severe tire cracking, tread separation, "blowout," or unexpected loss of motorcycle control causing personal injury and possible death.

- **Electrical System. (FX/XU Street Legal)** Check for correct function of the headlight, turn signals, and the brake/tail lights.

Key Switch/Steering Lock Positions



This is a three-position switch that is located on the fork in front of the handlebar. The switch positions are as follows:

A. Steering Lock
B. OFF
C. ON

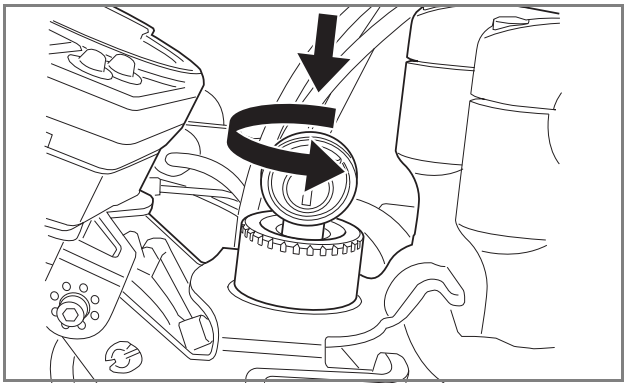
The key should be removed from the motorcycle when parked to prevent theft. The key can be removed in either the OFF or steering lock position.

Steering Lock

Using the steering lock when parked will prevent unauthorized use and help prevent theft.

To operate the steering lock:

1. Turn the handlebar all the way to the left.
2. Push the key down from the OFF position and turn the key counter-clockwise while still pushing it in.



3. Remove the key.

To unlock the steering lock:

1. Install the key and turn clockwise.
2. Remove the key.

OFF Position

This position is used to turn the motorcycle OFF, disabling the electrical system.

ON Position

This position is used for operating the motorcycle. In this position the following will occur:

- Lights turn ON (FX/XU - street legal)
- Cooling Fan turns on briefly (MX Dirt)
- Instrument Panel display turns ON (FX/XU - street legal)

Power Pack

The 2013 Zero FX/XU/MU leverage a completely new battery cell chemistry and configuration. Not only does the ZF5.7 power pack enable you to go beyond 70 miles (113 km), it is also designed to last the life of the motorcycle. The integrated onboard charger minimizes charge time and can work in parallel with Zero's quick charge accessories to cut charge times by as much as 70%.

The MX is capable of going 120 minutes on the track or 140 minutes on the trail. The FX/XU/MX charging systems can work in parallel with Zero's quick charge accessories to cut charge times by 50%.

The battery requires no special break-in period. The charging time is the same if connected to 110 V AC or 220 V AC.

The charger output will be the same. The normal recharging time of the power pack to 100% is usually less than 3 hours in mild ambient temperatures. Out of the normal temperature range charging and run-time times will vary. The power pack should not be used outside of the range of 23°F to 140°F (-5°C to 60°C); the Battery Management System (BMS) turns off the power controller outside of this range.

It is required that you leave the motorcycle on the charger if you expect it to sit in storage or unused for over 30 days. The power pack must be charged within 24 hours if fully discharged, and charged within 90 days if stored fully charged. Zero recommends you plug in your Zero motorcycle after 90 days, even if fully charged. Please leave your Zero motorcycle plugged in whenever possible.

The power pack should maintain up to 80% of its capacity for approximately:

- 1,870 hours MX (ZF2.8) - Trail *
- 3,560hours MX (ZF5.7) - Trail *
- 1,500 hours MX (ZF2.8) - Track **
- 2,910 hours MX (ZF5.7) - Track **
- 85,000 miles (137,000 km) XU (ZF2.8)
- 170,000 miles (274,000 km) XU (ZF5.7)

* Track range represent the riding time that most riders can expect to achieve while riding on tracks. The track rating is a more aggressive pace when compared to trail riding.

** When the motorcycle is ridden with average aggressiveness on average trails/tracks.

WARNING! Opening of the power pack is for trained Zero Motorcycles technicians. Please be aware that incorrect handling of a Zero power pack can be dangerous. DO NOT OPEN!

Battery Management System (BMS)

Every power pack contains a Battery Management System (BMS) which monitors the condition of the cells, and optimizes the charging process to provide the highest-performance, longest-range, and longest life for the power pack.

The BMS safeguards the power pack by means of safety interlocks. These interlocks turn off or control certain operations that could damage the power pack. See *"Safety Interlocks", on page 6-10* for more information.

The BMS also monitors the power pack for a host of predefined conditions, and then takes actions according to those conditions. See *"Battery Management System", on page 6-2* and *"Cold and Hot Weather Considerations", on page 6-8* for further information.

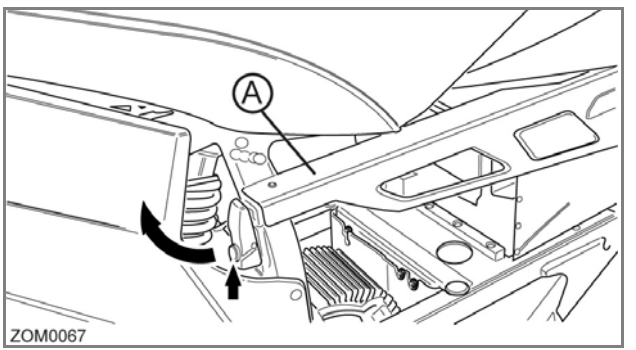
Remember, the BMS is sealed inside the power pack. As a rider, you do not need to think much about the BMS - it just silently does its job as you charge, ride, and store your motorcycle.

Power Pack Swapping

The motorcycles feature a quick change power pack. This allows the rider to charge one power pack while using another. Do not operate the motorcycle without the power rail or rail fastener in place. To change the power pack, perform the following:

To remove the power pack:

1. Remove the key from the key switch and safely support the motorcycle.
2. Grasp the bottom of the key lock (arrow) and pull upward to unlock the power pack rail.

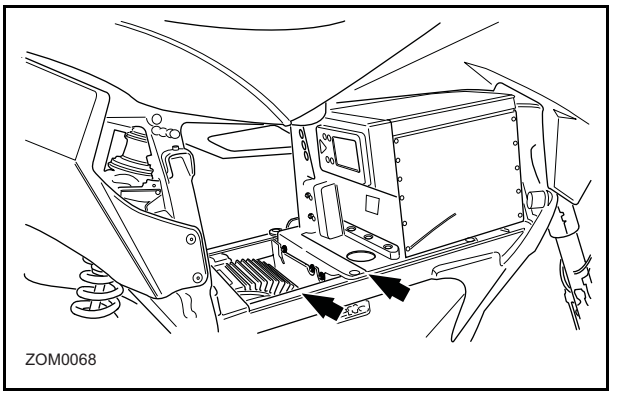


3. Pull the power pack rail (A) away from the motorcycle.
4. Using a firm grip, slide the power pack out of the frame. DO NOT lift the power pack by the plastic connector housing.

NOTE: The power pack weighs 53lbs (24 kg).

To Install the power pack:

1. Slide the power pack into the frame.



2. Re-attach the power pack rail.
3. Push the key lock downward to secure the rail.
4. (Optional) Use the key to lock the rail.

Add On Electrical Equipment

WARNING! Do not add anything electrical to your motorcycle unless approved by your dealer. Some electrical components can damage your motorcycle. Some add-on electrical equipment can keep other components from working as they should or can dramatically reduce the range and/or life expectancy of the power pack.

Power Pack Charger

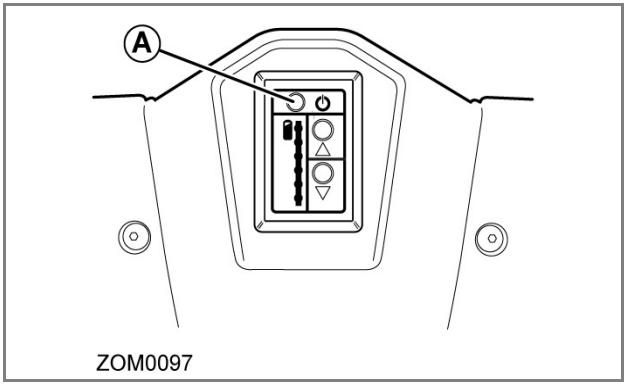
Keep your power pack connected to the charger when your motorcycle is sitting in storage or if it will be sitting unused for more than 30 days. The power pack must be charged within 24 hours if fully discharged, and charged within 90 days if stored fully charged. Zero recommends you plug in your Zero Motorcycle after 30 days, even if fully charged. Please leave your Zero Motorcycle plugged in whenever possible.

WARNING! Charge the Zero power pack with the Zero charger. The charger is located under the power pack.

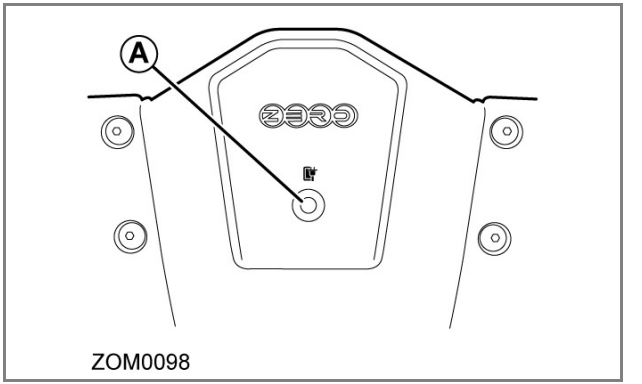
When charging the motorcycle's power pack, the charger can be left ON, even after the power pack is fully charged. There are two possible cases that can occur:

- When connected to the charger, the power pack will receive a full charge. Once fully charged, the charger will check the status of the power pack once every 72 hours to ensure that it maintains a full charge. When fully charged, a green light will illuminate on the charger. Should the charger not read that the power pack is full, it will continue to attempt to fully charge the power pack. In this event the green light may not illuminate; however, the power pack may be fully charged. To ensure that the power pack is charged, check the charge indicator on the instrument panel prior to riding.
- If the power pack terminates the charge before the charger reaches the state previously mentioned, then the charger will continue to cycle and will top off the power pack until the power pack is removed from the charger, or the charger reaches the complete state previously noted.

The on-board charger LED indicators (A) are visible on the upper panel. The LED flashes while charging and is continuously lit when fully charged. LED examples for the FX/UX and the MX models are provided. For information on Quick Charging LEDs see *page 4-13*.



MX Charging LED.



FX and XU Charging LED

Charging the Power Pack

WARNING! Charge the Zero power pack with the Zero charger.

It is possible for lithium ion cells to overheat and fail.

Note: It is recommended to charge in a location that is away from combustible materials and in a well ventilated area. If charging your Zero Motorcycle outdoors, avoid charging in the rain.

The maximum power pack internal charging temperature is 131°F (55°C). If the power pack's internal temperature is over 131°F (55°C), it will not accept a charge until it is moved to a cooler location. Also, if the power pack has just been run hard, it may internally be above 131°F (55°C) even if the ambient temperature is lower.

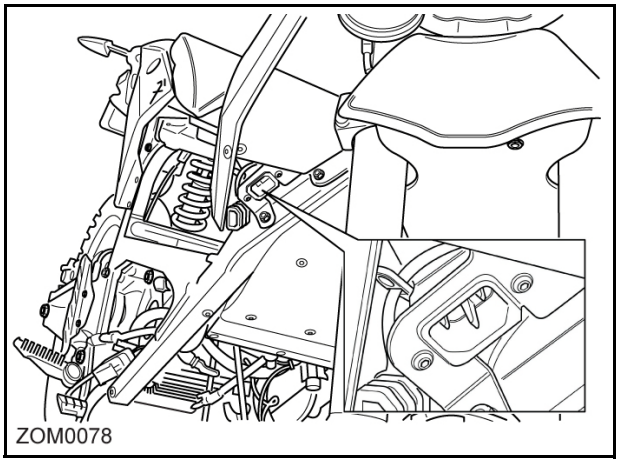
If you experience a power pack that will not take a charge, you should ensure the internal temperature is below 131°F (55°C). If the power pack was recently run and it will not take a charge, the power pack should cool and begin taking a charge in around 30 minutes or less.

The maximum charging temperature cutoff is a power pack longevity feature. Charging at higher temperatures can shorten the life of the power pack.

Note: Frequent top off charging is good for the power pack's life span, so do not hesitate to charge frequently.

To charge using the standard charger (FX/XU only):

1. Ensure that the key switch is in the OFF position.
2. Plug the supplied power cord into the onboard charger connector (see inset). Always keep the power cord with the motorcycle.



3. Always connect the charger to a GROUNDED outlet. When using an extension cord, avoid excessive voltage drops by using a grounded, 3-wire, 12-AWG cord no longer than 25 ft (7.6 m). The charger can be used on 120 V AC or 240 V AC current. The voltage does not

change the amount of time that the motorcycle takes to charge.

Note: AVOID connecting the Zero charger and another device to a single 120 V AC 15A/20A circuit, as it may become overloaded. Zero chargers draw as much as 10 amps from the 120 V AC circuit when charging.

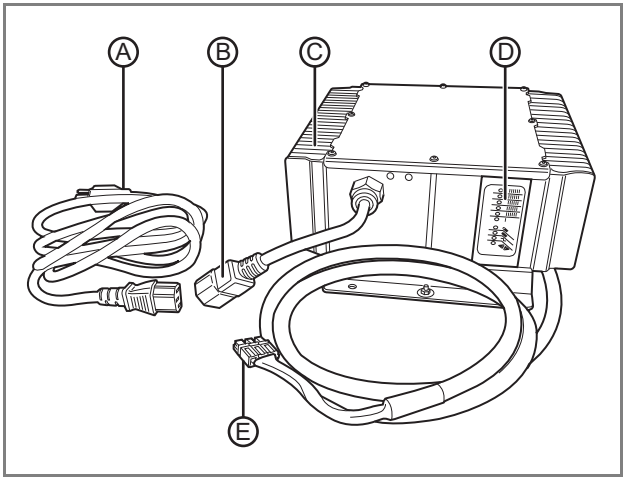
4. Charging a fully discharged power pack to 100% takes about:
   - FX/XU ZF2.8: 4.1 Hours
   - FX/XU ZF5.7: 7.8 Hours
   - MX ZF2.8: 2.7 Hours
   - MX ZF5.7: 4.9 Hours

Quick Charging (Off-board Accessory Charger)

The “scalable” quick charging feature allows up to three supplemental accessory chargers (in addition to the existing integrated charger) to be connected to the motorcycle. Use of supplemental accessory chargers can reduce the charging time by up to 70%.

Note: The time for charging the motorcycle using quick charging will vary with the number of chargers used.

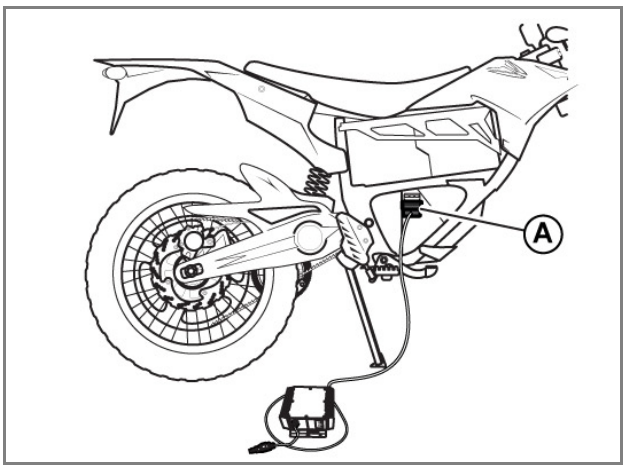
The auxiliary/standalone charging connector is located on the right-side of the motorcycle below the battery pack. For more information on how to connect additional chargers, refer to the quick charger’s owner’s manual.



A. AC Power Cord
B. AC Power Cord Connection
C. Power Pack Charger
D. Charger LED Indicators
E. Connector (to motorcycle)

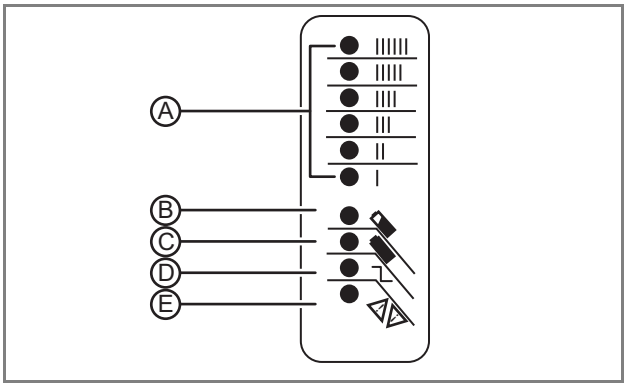
To charge using the Quick Charger:

1. Ensure that the key switch is in the OFF position.
2. Locate the auxiliary charging connector and remove the protective cover.
3. Connect the power pack charger to the power pack connector (A).



4. Always connect the charger to a GROUNDED outlet. When using an extension cord, avoid excessive voltage drops by using a grounded, 3-wire, 12-AWG cord no longer than 25 ft (7.6 m). The charger can be used on 120 V AC or 240 V AC current. The voltage does not change the amount of time that the motorcycle takes to charge.
5. Connect the integrated charger. See Charging the Power Pack Single Charger (integrated) on *"Charging the Power Pack", on page 4-10*.
6. When the power pack is fully charged, disconnect the chargers and reinstall the protective cover.

Quick Charger LED Indicators



A. **Ammeter**

The Ammeter LED is an amber indicator that indicates the amount of current output and should gradually ramp down from “IIIIII” to “I”.

B. **80% Charge**

The 80% Charge LED is an amber indicator. If it is on solid, the bulk charge phase is complete, 80% charged. Charger is now in absorption phase. If the indicator is flashing, there are two issues that can cause this to occur:

- The charger and BMS are balancing.
- The BMS is cutting off the charge because one or more cells have reached maximum voltage.

C. **100% Charge**

The 100% Charge LED is a green indicator. If it is on solid, the charging is complete and the off-board accessory charger will enter maintenance mode. If it is flashing, the absorption phase is complete and the charger is in finish phase.

D. **AC ON**

The AC ON LED is an amber indicator. It it is on solid, the AC power is good. If it is flashing, the AC voltage is low. Check for proper voltage, and if an extension cord is being used, verify that it is of the correct length. Maximum length is 25 ft. (7.6 m) 12 AWG.

E. **Fault**

The Fault LED is a red indicator which indicates there is a charger error. If it is flashing, reset the charger and see *“Troubleshooting”, on page 6-1*.

Operating Your Motorcycle

This section describes how to safely operate your motorcycle.

Starting

1. Turn the key switch to the ON position.
2. Verify that the charge indicator reads fully charged.
3. Press the motor stop switch to the ON position.
4. With the kickstand up, twist the throttle toward you (counter-clockwise) to increase speed. When the throttle is twisted away from you (clockwise), the speed will decrease.

Braking

On the right handlebar is the hand operated brake lever. The brake lever controls the front brake when the lever is squeezed. On the right lower side, next to the foot peg, is the foot operated brake pedal. This pedal controls the rear brake. When braking, the throttle should be in the closed position.

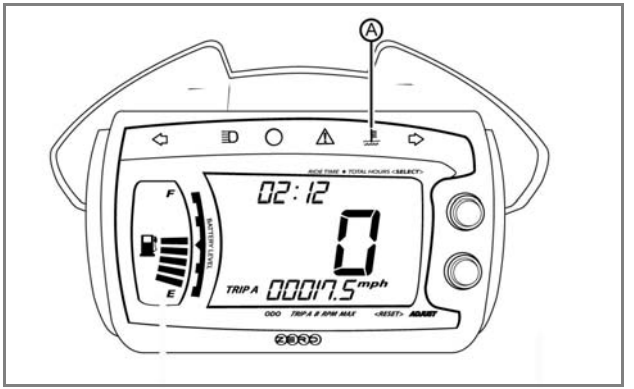
CAUTION: If you apply the front or rear brake hard enough, it is possible to lock the wheels. This could cause you to lose control of the motorcycle. We suggest progressive use of the brakes to bring the Zero Motorcycle to a complete stop without locking the wheels. Your Zero Motorcycle is a light weight performance product and therefore practice is recommended to safely perfect emergency stops.

Stopping

1. With the throttle in the closed position press the motor stop switch to the OFF position. This switch can also be used in an emergency to shut the motor off.
2. Turn the key switch to the OFF position and remove the key. To prevent theft, the key should be removed anytime the motorcycle is left unattended.
3. Be sure to charge the power pack after each ride. See *“Charging the Power Pack”, on page 4-10*.

Temperature Indicator

Zero Motorcycles has developed the most advanced passively air-cooled electric powertrain for your Zero motorcycle, delivering an unsurpassed level of simplicity, power/energy density, low weight and ease of maintenance. However, this passively air-cooled powertrain cannot be operated indefinitely at high power / high rpm without reaching its thermal limitations. Hence, your Zero motorcycle has a sophisticated thermal management strategy to ensure the long term performance and durability of its powertrain.



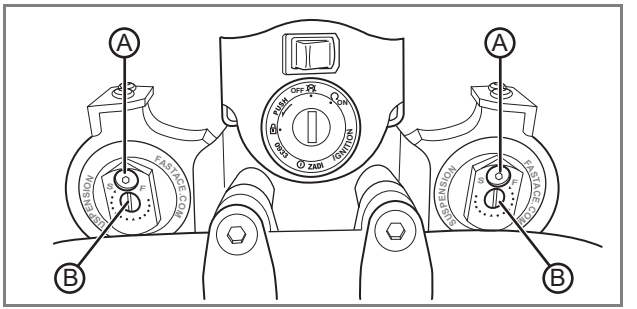
The red temperature indicator light (A) on your Zero motorcycle's instrument cluster has two informational stages.

- Stage 1, is presented by flashing this indicator and advises you that the bike is about to enter its thermal strategy. To avoid encountering an enforced power reduction, you can choose to slow down a bit until the indicator stops flashing.
- Stage 2, if temperature continues to build, the indicator light will go solid, letting you know that the thermal strategy is now being applied and that your motorcycle's power will be reduced accordingly. If you encounter the strategy while trying to maintain a high vehicle speed, the effect of the strategy will be that your motorcycle will be gradually slowed down to the point that the top speed of the bike is "sustainable", from a thermal standpoint. If you encounter the strategy due to a different sustained high power event, such as continued powering through a low traction surface, power will simply be reduced to ensure the continued safe operation of your powertrain.

Please note that the lighting of this temperature indicator does not indicate that there's anything malfunctioning with your Zero motorcycle; it is simply letting you know that the thermal strategy is working. If you do not moderate your speed/power, the bike's system will reduce your speed/power until your Zero can maintain its maximum allowable thermal state; but no harm whatsoever will result from this, since this is exactly how the strategy is meant to function.

Front Suspension Adjustment

A shock has two main actions: compression when the shock gets loaded, and rebound when the shock returns back to full length. Compression damping is the adjustment that determines how fast or slow the fork compresses. Rebound damping is the adjustment that determines how fast or slow the fork rebounds.



Bleed Screw

The 3 mm Allen M5 screw (A) at the top of the fork leg is the “bleed” screw. The bleed screw serves two purposes:

1. Transporting your motorcycle. See *“Transporting”, on page 1-17*.
2. Bleeding the fork: Bleed the fork regularly, let any excess air out after each ride.

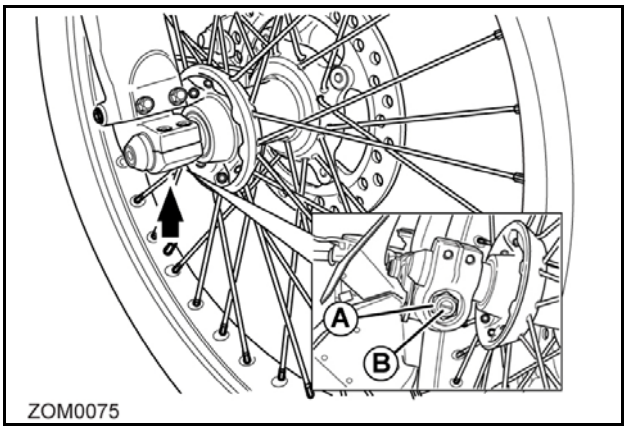
Rebound Damping

The rebound damping is adjusted by turning the slotted adjuster screw (B) on the top of both fork legs. Next to it will be the writing S-F, meaning Slow and Fast. The adjuster has several stages of adjustment. This determines how quickly the fork returns to its extended position after being compressed.

- Turning the rebound adjuster screw clockwise will slow the rebound speed down making it better for larger, rolling terrain or bumps.
- Turning the rebound adjuster screw counter-clockwise will increase the rebound speed making it better for smaller, rougher bumps. Adjust each fork leg evenly.

Compression Damping

The compression damping is adjusted by turning a screw on the bottom of each fork leg. There is a rubber dust cover protecting the jam nut (A) securing the screw (B).



The adjuster has 12 stages of adjustment. Turn the adjuster clockwise for slower compression. To speed up compression, turn the adjuster counter-clockwise. Start with a middle setting and fine tune the compression from there.

Proper compression will allow the tire to track the ground over consecutive bumps. Compression that is set too slow will pack-up (feel harsh over consecutive bumps) while compression that is set too fast will cause the fork to bottom out harshly.

If the fork is bottoming out, turn the adjuster one click at a time until the bottom-out stops. Adjust each fork leg evenly. Replace the rubber dust cover after the adjustment.

Factory Supplied Front Suspension Settings

The following information will allow you to adjust the front suspension back to the factory settings the motorcycle was originally supplied with.

FX / MX Models

ADJUSTMENT	SETTING
Front Fork Compression	5 clicks out from fully closed
Front Fork Rebound	10 clicks out from fully closed

XU Models

ADJUSTMENT	SETTING
Front Fork Compression	5 clicks out from fully closed
Front Fork Rebound	10 clicks out from fully closed

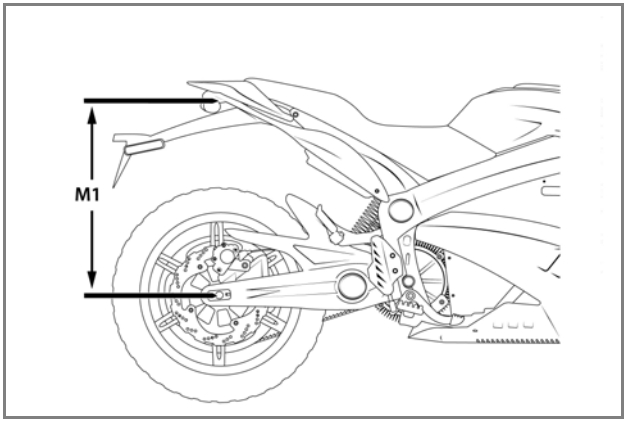
Rear Shock Adjustment

Spring Adjustment

Obtaining the correct rear spring preload is critical for proper handling. The spring preload must be set to match the weight of the rider. The spring is preloaded for an 180 lb (82 kg) rider. This puts the rear tire 1/3 of the way through its vertical travel. Heavier riders require stiffer spring rates. A good approximation of your rear spring requirements can be found by measuring the rear suspension's sag. This measurement will quickly determine if your rear spring is approximately correct for your weight. This adjustment is a recommended guideline; personal riding preference may vary from the specifications given.

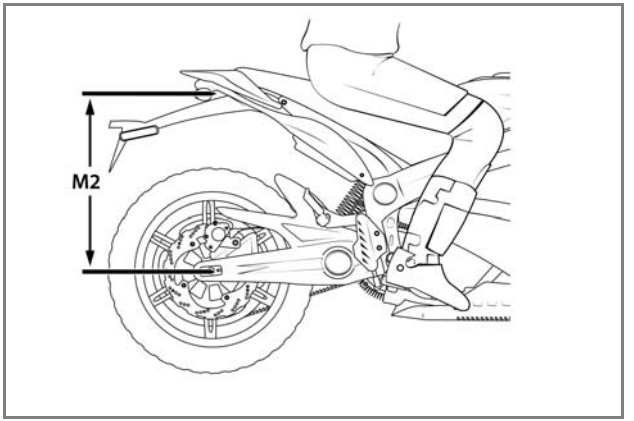
To Check the Sag Value:

1. Support your motorcycle on a stand with the rear wheel off the ground.
2. Measure vertically from the rear axle to the rear fender. Mark this spot as it will be used for other measurements.
3. Record this measurement, this will be measurement **M1**.



4. Remove the motorcycle from the stand.
5. Wearing your normal riding apparel, sit on the motorcycle.
6. Have an assistant hold the motorcycle up, your feet should be on both pegs.
7. Bounce the suspension a couple of times.
8. Have a second assistant take a measurement using the same locations as in step 2.

9. Record this measurement, this will be measurement **M2**.



10. Subtract the second measurement (**M2**) from the first measurement (**M1**).

Example:

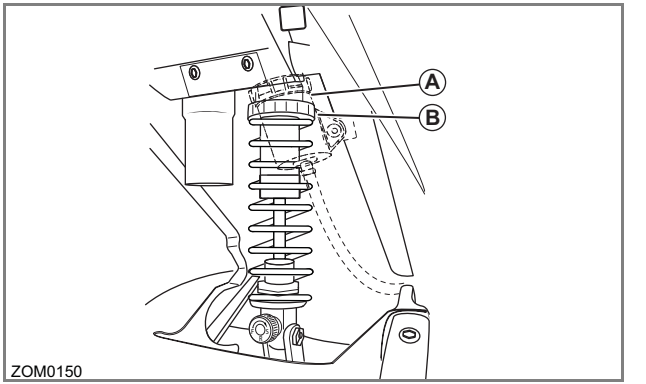
MEASUREMENT	OPERATOR	VALUE
M1		23.62 in (600 mm)
M2	-	21.65 in (550 mm)
Sag	=	1.97 in (50 mm)

The total sag is 1.97 in (50 mm). Refer to the chart below for the correct sag. If the sag is not correct, the spring pre-load should be adjusted. See *“Spring Pre-load Adjustment”, on page 4-20*.

MODEL	SAG
FX - Street Legal	2.3 in to 2.9 in (69-76 mm)
MX - Dirt	2.3 in to 2.9 in (69-76 mm)
XU - Street Legal	1.5 in to 1.9 in (38-49 mm)

Spring Pre-load Adjustment

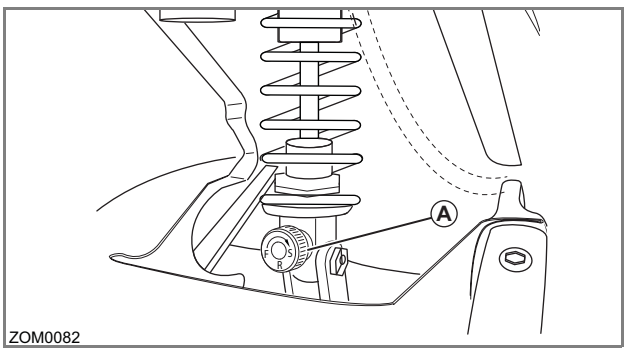
1. Clean any dirt or debris from the threads of the shock near the lock ring (A).
2. Using a lock ring wrench loosen the lock nut (A).
3. For measurements less than the specified value, decrease the pre-load on the spring by turning the spring nut (B) counter-clockwise on the shock. If more than the specified value, increase the pre-load on the spring by turning the spring nut (B) clockwise on the shock.



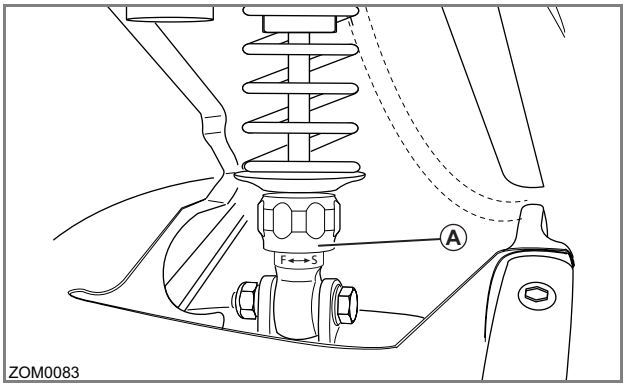
Rebound Adjustment

The rebound adjuster knob (A) is at the bottom of the shock. The FX and MX models have 13 clicks of rebound adjustment (the XU has 8). The FX and MX motorcycles have a knob at the base of the shock. However, the XU has a distinct red knob (A). Printed on the knob is S-F, meaning Slow and Fast. The rebound adjuster knob controls how slow or fast the shock returns to its extended position after being compressed.

- Turning the knob clockwise, or S direction, is good for big impacts.
- Turning the knob counter-clockwise, or F direction, is good for smaller and more frequent impacts.



XU models



FX and MX models

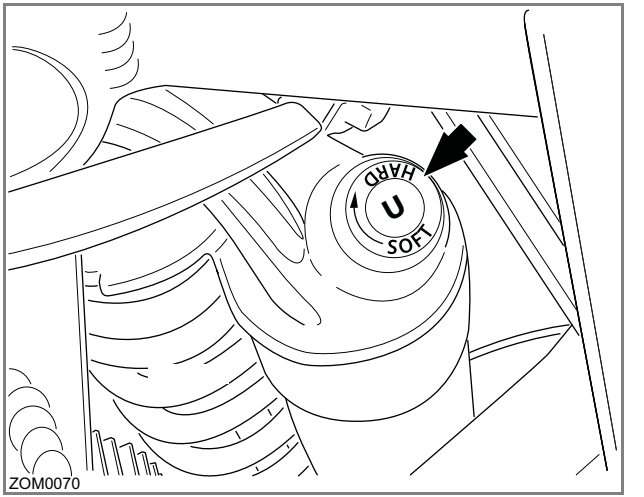
Compression Adjustment

The compression adjustment knob is at the top of the shock. The FX and MX models have 19 clicks of compression adjustment (XU model has none). The knob has “+” (slower compression) and “-” (faster compression).

- Turn the adjuster clockwise for slower compression.
- To speed up compression, turn the adjuster counter-clockwise.

Start with the stock clicker settings and fine tune the compression from there. Proper compression will allow the tire to track the ground over consecutive bumps. Compression that is set too slow will pack-up (feel harsh over consecutive bumps) while compression that is set too fast will cause the shock to bottom out harshly. If the shock is bottoming out, turn the adjuster one click at a time until the bottom out stops.

Note: Adjusters should never be forced completely “Fast” or “Slow”; always leave one click of adjustment in either direction.



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Factory Supplied Rear Suspension Settings

The following information will allow you to adjust the rear suspension back to the factory settings the motorcycle was originally supplied with.

FX / MX Models

ADJUSTMENT	SETTING
Rear Shock Compression	14 clicks out from fully closed
Rear Shock Rebound	12 clicks out from fully closed
Rear Shock Spring Preload	170mm

XU Models

ADJUSTMENT	SETTING
Rear Shock Rebound	4 clicks out from fully closed
Rear Shock Spring Preload	175mm

Notes

Owner’s Responsibilities

Listed below are the responsibilities afforded to the owner:

- This owner’s manual should be considered a permanent part of this motorcycle and should remain with it even if the motorcycle is subsequently sold.
- Perform routine care and maintenance of your electric motorcycle as detailed in this owner’s manual.
- Use only Zero approved parts and Zero Motorcycle accessories.
- The operator is responsible for learning and obeying all country, federal, state, and local laws governing the operations of an electric motorcycle.
- Always wear a regionally approved helmet, goggles, appropriate boots, and all other appropriate safety equipment when operating an electric motorcycle.

Parts/Maintenance Items

The proper replacement parts, fluids, and lubricants to use are listed in the table below.

PART	NUMBER
Headlight Bulb	H4 (55/60 watt)
Turn Signal Light Bulb (amber)	RY10W (10 watt)
Brake/Tail Lights Bulb	1157 (5 watt)
Front Running Light Bulb	W3W (3 watt)
Brake Fluid	DOT 4

Maintenance Schedule

The scheduled maintenance must be performed in accordance with this chart to keep the Zero FX/MX/XU motorcycle in top running condition. The initial maintenance is vitally important and must not be neglected. Where time and mileage are listed, follow the interval that occurs first.

#	ITEM	ROUTINE	EVERY RIDE	INITIAL	INITIAL	ODOMETER MILEAGE READING			
				600 mi (1K km) or 1 month	4K mi (7K km) or 6 months	8K mi (13K km) or 12 months	12K mi (19K km) or 18 months	16K mi (25K km) or 24 months	20K mi (31K km) or 30 months
1	Front Brake	Check operation, and for fluid leakage. Replace brake pads if necessary.	√	√	√	√	√	√	√
2	Rear Brake	Check operation, and for fluid leakage. Replace brake pads if necessary.	√	√	√	√	√	√	√
3	Wheels	Check run-out, and for damage. Replace if necessary.			√	√	√	√	√
4	Tires	- Check tread depth, and for damage. Replace if necessary. - Check air pressure. See page 5-9. Correct if necessary.	√		√	√	√	√	√
5	Wheel Bearings	Check bearings for smooth operation. Replace if necessary.		√	√	√	√	√	√

#	ITEM	ROUTINE	EVERY RIDE	INITIAL	INITIAL	ODOMETER MILEAGE READING			
				600 mi (1K km) or 1 month	4K mi (7K km) or 6 months	8K mi (13K km) or 12 months	12K mi (19K km) or 18 months	16K mi (25K km) or 24 months	20K mi (31K km) or 30 months
6	Drive Chain	- Check chain slack /alignment and condition. - Adjust and lubricate chain with chain lubricant thoroughly. - Replace worn chain.	√	Every 600 mi (1,000 km) and after washing the motorcycle or riding in the rain.					
7	Drive Belt	- Check belt slack and condition. - Replace a worn/damaged belt. - Check for cracking and/or replace the belt every 25K mi (40K km)	√						
8	Steering Bearings	- Check all chassis fittings and fasteners. - Correct if necessary.		√	√	√	√	Repack	√
9	Chassis Fasteners	- Check all chassis			√	√	√	√	√
10	Front Brake Lever Pivot Shaft	- Apply silicon grease lightly. - Check operation and for oil leakage. - Service/rebuild if necessary.		√	√	√	√	√	√
11	Front Fork	- Check operation and for oil leakage. - Service/rebuild if necessary.	√		√	√	√	√	√
12	Rear Shock Absorber Assembly	- Check operation and for oil leakage. Replace if necessary	√		√	√	√	√	√

#	ITEM	ROUTINE	EVERY RIDE	INITIAL	INITIAL	ODOMETER MILEAGE READING			
				600 mi (1K km) or 1 month	4K mi (7K km) or 6 months	8K mi (13K km) or 12 months	12K mi (19K km) or 18 months	16K mi (25K km) or 24 months	20K mi (31K km) or 30 months
13	Throttle Grip	- Check operation and free play.	√		√	√	√	√	√
14	Kickstand Pivots	- Check operation. - Apply silicon grease lightly.			√	√	√	√	√
15	Kickstand Switch	Check operation and replace if necessary.		√	√	√	√	√	√

Note: From 24,000 mi (37,000 km) or 36 months, repeat the maintenance intervals starting from 8,000 mi (13,000 km) or 12 months.

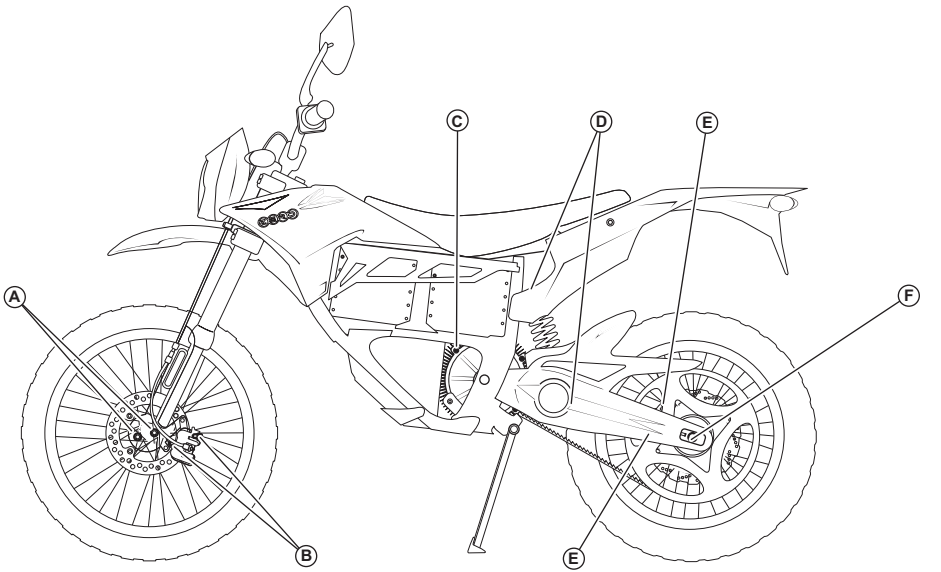
Component Fasteners

Periodically check and tighten the following fasteners on your motorcycle.

Torque Table

LOCATION	ITEM	TORQUE	NOTES
A	Front axle end bolts	19 lb ft (26 Nm)	Use LOCTITE® 242® (or equivalent)
B	Front caliper mount bolts	12 lb ft (20 Nm)	Use LOCTITE® 242® (or equivalent)
C	Main pivot bolt/nut (swingarm)	55 lb ft (75 Nm)	Use LOCTITE® 242® (or equivalent)
D	Shock mount bolts (upper/lower)	52 lb ft (70.5 Nm)/ 38 lb ft (51.5 Nm)	-
E	Rear caliper mount bolts	15 lb ft (20 Nm)	Use LOCTITE® 242® (or equivalent)
F	Rear axle end bolt	19 lb ft (26 Nm)	Use LOCTITE® 242® (or equivalent)
G	Rear axle pinch bolts	19 lb ft (26 Nm)	Use LOCTITE® 242® (or equivalent)
H	Motor mount bolts (rear)	19 lb ft (24 Nm)	-
I	Motor mount bolts (front)	22 lb ft (30 Nm)	-
J	Triple tree pinch bolts	11 lb ft (15 Nm)	-
K	Front axle pinch bolts	13 lb ft (18 Nm)	-
L	Handlebar clamp mount bolts	19 lb ft (26 Nm)	-

Left Side Of Motorcycle



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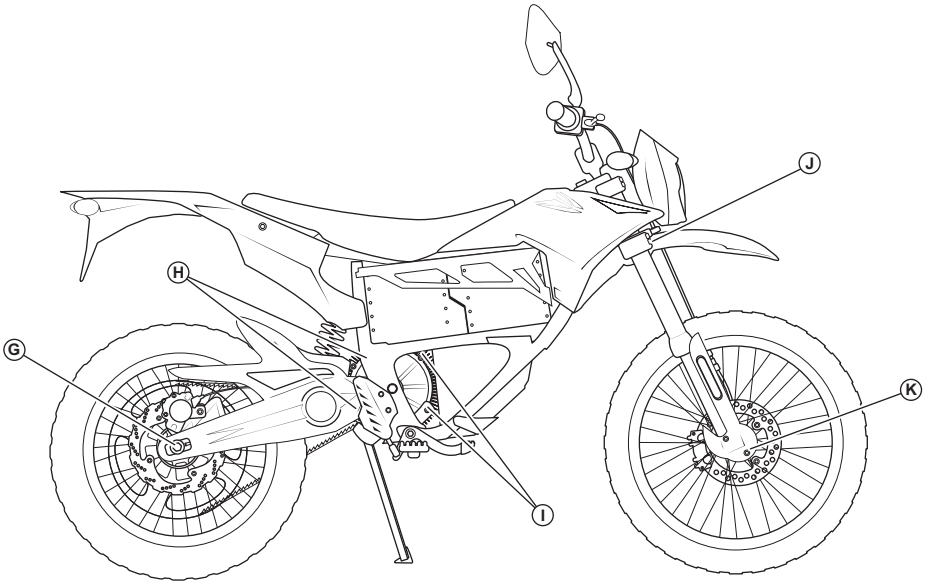
Refer to Torque table on page 5-5.

Right Side Of Motorcycle



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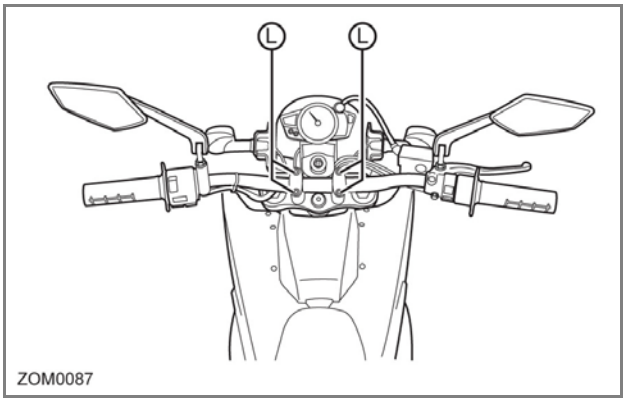
Refer to Torque table on page 5-5.

Handlebars



Refer to Torque table on page 5-5.

Power Pack

WARNING: You must leave your motorcycle connected to the charger if you expect it to sit in storage or unused for over 30 days.

The power pack must be charged within 24 hours if fully discharged, and charged within 90 days if stored fully charged.

Please leave your Zero Motorcycle plugged in whenever possible.

1. The power pack is a lithium ion power system. While it does require charging, it does not require maintenance.
2. The power pack should be kept away from excessive heat. The lithium ion cells should not get above 160°F (71°C). Do not store in a hot trailer or leave the power pack in direct sunlight.
3. Only an authorized service agent is qualified to have access to and troubleshoot the power pack.
4. Dispose of the power pack according to your state and local laws. It is encouraged that the power pack be recycled rather than disposed of in landfills.

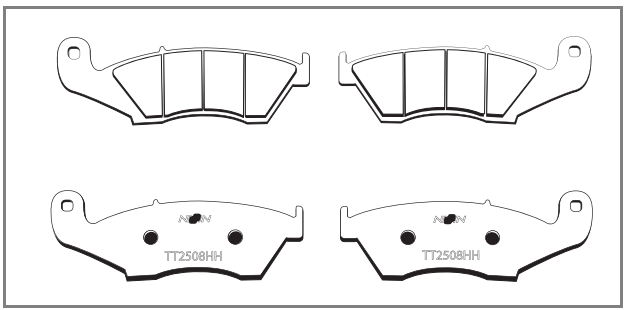
   Please contact Zero at support@zeromotorcycles.com or locate a recycling center in your area.

Brakes

This section describes how to inspect the brake fluid level for both the front and rear brakes. Your motorcycle uses Nissin brake pads for stopping power. Both front and rear pad examples are shown below.

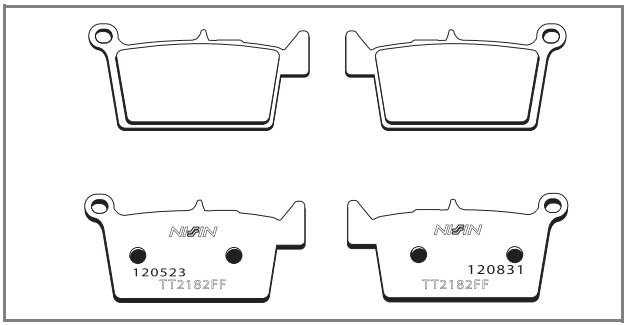
Front Brake Pads

An example of the front brake pads is shown below.



Rear Brake Pads

An example of the rear brake pads is shown below.



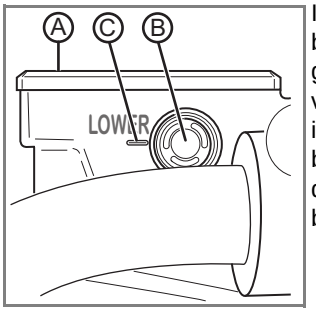
Brake Fluid Level Inspection

WARNING! Do not spill brake fluid on painted surfaces; the finish could be damaged. Spilling brake fluid on the ABS body plastics will cause them to crack. Clean off any brake fluid spills immediately.

Always place a shop towel under the master cylinder reservoir prior to removing cover/cap.

Low fluid levels may indicate worn brake pads or a leak in the hydraulic system. Inspect the brake pads for wear and/or the hydraulic system for leaks. Use only new DOT 4 brake fluid from a sealed container.

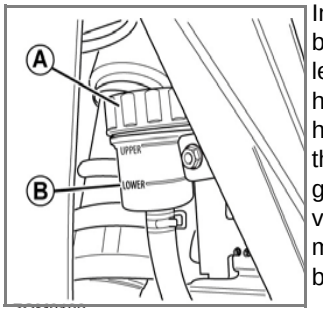
Front Brake



Inspect the level of the front brake fluid through the sight glass (B). If the fluid level is visibly below the low level indicator (C), brake fluid must be added. Clean any dirt or debris from the cover (A) before opening the reservoir.

1. Remove the two Phillips screws securing the cover onto the reservoir.
2. Add new DOT 4 brake fluid.
3. Inspect the cover seal, ensuring that it is free of any wear or damage and that it is positioned correctly.
4. Install the cover and tighten the Phillips screws.

Rear Brake

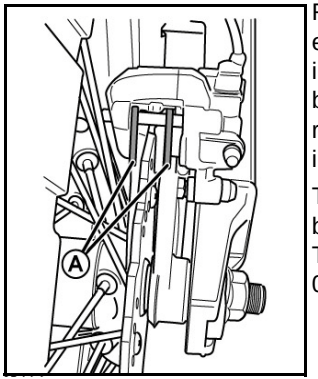


Inspect the level of the rear brake fluid by inspecting the level through the reservoir housing. The reservoir housing is located inboard on the frame behind the heel guard. If the fluid level is visibly below the low minimum “MIN” indicator (B), brake fluid must be added.

Clean any dirt or debris from the cap and reservoir opening (A) before opening the reservoir. Unscrew the cap and add new DOT 4 brake fluid. Inspect the cap seal ensuring that it is free of any wear or damage then reinstall the cap.

Brake Pad Inspection

The brake pads must be inspected when specified in the maintenance schedule. See Maintenance Schedule information on *page 5-2*. Visually inspect the brakes by looking at the remaining brake pad material through the sides of the brake caliper.



Replace the brake pads if either pad's thickness is 0.05 in (1.35 mm) or less. If the brake pads (A) are worn, replace both brake pads immediately.

The brake rotor should also be checked for thickness. The minimum thickness is 0.15 in (3.85 mm).

Suspension

Front

- For maintenance, see Maintenance Schedule on *page 5-2*.
- To adjust the fork, see Suspension Adjustment on *page 4-16*.

Rear

CAUTION: The shock absorber assembly contains highly pressurized gas.

- Do not attempt to tamper with or open the cylinder or shock.
- Do not subject the shock to high temperature or open flame.

Doing either of these can cause the cylinder or shock to explode causing personal injury or death.

For maintenance, see Maintenance Schedule on *page 5-2*.

To adjust the fork, see Suspension Adjustment on *page 4-16*.

Wheels And Tires

Inspect both wheels for the following:

- Bent, loose, or missing spokes
- Bent or cracked rims
- Impact marks on the rims

Inspect both tires for the following:

- Cuts, cracks, splits, or missing tread lugs in the tread or sidewall area
- Bumps or bulges within the tire body
- Uneven tire tread wear. Wear on one side of the tire tread or flat spots in the tire tread indicate a problem with the tire or motorcycle.
- Exposed tire thread or cords

If either of the wheels or tires are found to have any of the above conditions, replace the wheel and tire immediately.

Tire Inflation

CAUTION: Under-inflation is the most common cause of tire failure and may result in severe tire cracking, tread separation, “blowout,” or unexpected loss of motorcycle control causing personal injury and possible death.

Tire pressure should be checked and adjusted before each ride. Tire pressure is checked using an accurate gauge when the tires are cold. This means that the tires have not been ridden on for 3 hours. Always replace the valve stem cap when finished.

MODEL	FRONT	REAR
FX	199 kPa (29 PSI)	186 kPa (27 PSI)
MX	103 kPa (15 PSI)	103 kPa (15 PSI)
XU	207 kPa (30 PSI)	207 kPa (30 PSI)

Drive Belt

The drive belt provides low maintenance and quiet operation with minimal stretch. Keep dirt, grease, oil, and debris off the belt and sprockets.

The drive belt tension should be checked and adjusted at the intervals specified in the Maintenance Schedule. For maintenance, see Maintenance Schedule on *page 5-2*.

Clean the belt with mild soap and water when washing your motorcycle. Towel dry and inspect for the following:

- Cuts or unusual wear patterns.
- Damage to the center of the belt.
- Outside edge beveling. Some beveling is common but it indicates that sprockets are misaligned.
- Outside ribbed surface for signs of stone puncture.
- Inside (tooth portion) of belt for exposed tensile cords normally covered by nylon layer and polyethylene layer. This condition will result in belt failure and indicates worn sprocket teeth.
- Signs of puncture or cracking at the base of the belt teeth.

If any of the above conditions are found, the belt should be replaced.

Checking Drive Belt Tension

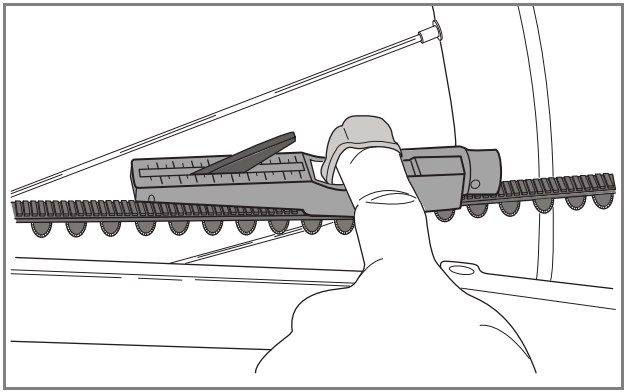
Proper belt tension is essential for optimum operation of the drive system.

Lack of belt tension can lead to “ratcheting”. The teeth of the belt will slide over the teeth of the rear sprocket. This causes an unpleasant sound; the ratcheting can also cause damage to the carbon tensile cords. If ratcheting has occurred you should replace the belt before the next time you ride.

Too much tension can increase the wear of your drive system and the system can drag.

The tension is checked by using a Tension Tester.

The Tension Tester has a plastic measurement arm, located in a slot. Along this slot there is a measuring scale. The point of intersection of the measurement arm and the measuring scale shows the tension of the belt. There is a button (clicking pad) on the upper side of the Tension Tester, where you can secure your finger with a rubber band holder. A spring is located underneath this clicking pad. If a certain pressure is applied to the spring, it makes a clicking sound.

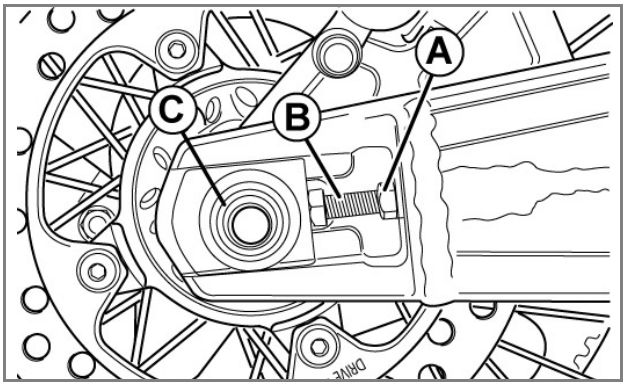


1. Remove the key from the key switch.
2. Press the Tension Tester steadily to the middle of the upper side of the belt. The “lip” will lead the tester on to the belt.
3. Slowly increase the pressure on the tester, until you hear a clicking sound. Do not increase the pressure after the tester has clicked.
4. Remove the tester carefully from the belt. Avoid rough movements of the tester, as this would change the results of the measurement. The measurement should be in the range of 44-66 lbs (20-30 kg).

Drive Belt Adjustment Procedure

Note: Please adjust both sides equally.

1. Remove key from the key switch.
2. Loosen the rear axle nut (C).
3. Loosen left and right (A) jam nuts (13mm) in order to make adjustments.
4. Turn adjustment bolt (B) to adjust belt tension.



5. Tighten left and right jam nuts (A) to secure the belt.
6. Tighten the axle nut.
7. Test ride the motorcycle.
8. Recheck the belt for proper adjustment after the test ride and readjust, if necessary.

Drive Chain (Optional)

Cleaning The Drive Chain

CAUTION: Wear safety glasses when cleaning the chain to prevent eye injuries.

CAUTION: Never place your hand or any other body part between the chain and sprockets. Work with the chain only in the middle between the two sprockets. Failure to do so could result in serious personal injury.

CAUTION: Do not allow any of the cleaner to get on the brake rotors or brake pads. If the brake rotors or brake pads are contaminated with cleaner, it will impair the motorcycle's ability to stop. This could result in serious personal injury.

CAUTION: Never have the motor spinning the wheel. Turn the wheel only by hand. Failure to do so could result in serious personal injury.

Follow the manufacturer's instructions for the chain cleaner you are using; below are the general guidelines.

1. Remove the key from the key switch.
2. Set the motorcycle on a stand or lift so the rear wheel is free to spin. While turning the wheel by HAND, spray the inside of your entire chain with a good coating of chain cleaner and let it sit for a few minutes.
3. Using a brush, fill the bristles with spray from the chain cleaner. Begin gently scrubbing the chain on the top of your swingarm using the brush.
4. Do this for the entire length of the chain. Now do the same thing for the inside/bottom of the chain.
5. Using the brush, clean both sides of the rear sprocket. Let this soak for 5 minutes.
6. Using a water hose, rinse the entire chain. Then, using a clean rag, wipe any residual moisture from the chain.

Lubricating The Drive Chain

CAUTION: Wear safety glasses when lubricating the chain to prevent eye injuries.

CAUTION: Never have the motor spinning the wheel. Turn the wheel only by hand. Failure to do so could result in serious personal injury.

CAUTION: Never place your hand between the chain and sprockets. Work with the chain only in the middle between the two sprockets. Failure to do so could result in serious personal injury.

CAUTION: Do not allow any of the lubricant to get on the brake rotors or brake pads. If the brake rotors or brake pads are contaminated with lubricant, it will impair the motorcycle's ability to stop. This could result in serious personal injury.

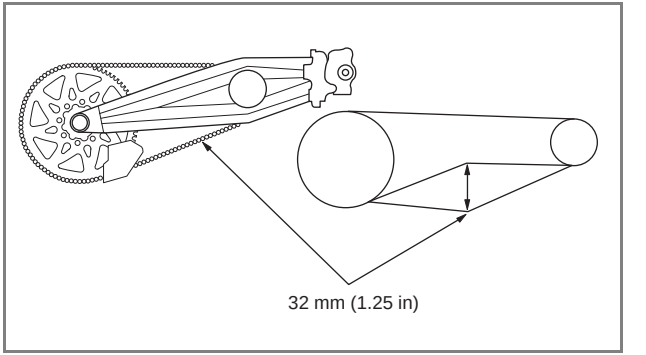
Follow the manufacturer's instructions for the chain lubricant you are using; below are the general guidelines. Do not allow any of the lubricant to get on the brake rotor.

To lubricate the drive chain:

1. Turn the wheel backwards slowly and spray the inside of the chain on the inside of the links.
2. Turn the wheel backwards slowly and spray the outside of the chain on the outside of the links.
3. Let the motorcycle stand for 30 minutes to allow the lubricant to penetrate the link rollers.

Checking The Drive Chain

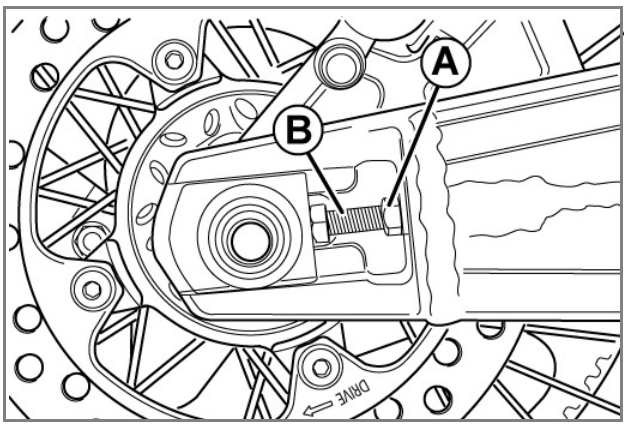
1. Remove the key from the key switch.
2. Using a ruler, grasp the chain halfway between the front and rear sprockets.
3. The chain should move 0.63 in (16 mm) in either direction, so 1.25 in (32 mm) of total free play.
4. If the chain's free play is not within specifications it will need to be adjusted (see the next page).



Adjusting The Drive Chain

1. Remove the key from the key switch.
2. Loosen the 13 mm jam nut (A) on the chain tensioner.

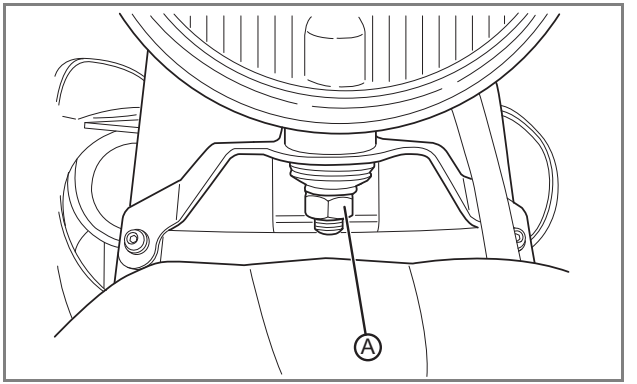
   Note: Chain tension will increase slightly when motor mount bolts are fully torqued.
3. Turn the adjuster bolt (B) a 1/4 turn at a time until the chain adjustment is within specification.
4. Tighten the 13 mm jam nut on the chain tensioner.
5. Test ride the motorcycle.
6. Recheck the chain for proper adjustment after the test ride and readjust if necessary.



Headlight Alignment

The headlight should be checked for correct alignment periodically. It must be aligned any time the suspension sag is adjusted because this will affect the headlight alignment. Before the headlight can be aligned, the suspension sag and tire pressure must be correctly adjusted. The headlight can be adjusted vertically. If the vertical adjustment is off, it will cause the beam to point too close to or too far ahead of the motorcycle. With the headlight on the low beam position, the motorcycle perpendicular to the ground, and the operator sitting on the motorcycle, verify the beam alignment. The motorcycle is shipped with the headlight at a 0.5-2.5% dip.

The adjustment screw (A) is located on the back upper right corner of the headlamp. To adjust the headlight, turn screw until the correct beam alignment is achieved.



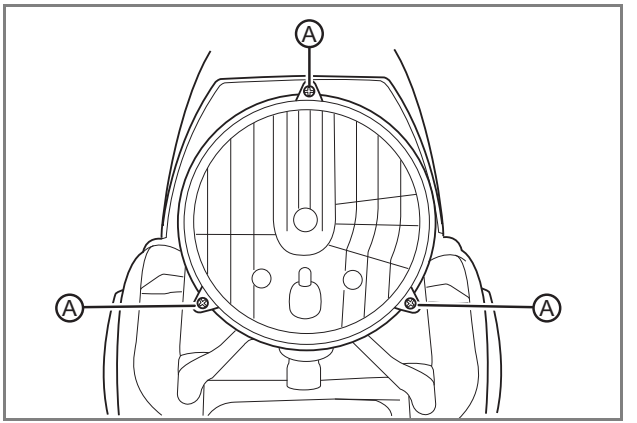
Headlight Bulb Replacement

CAUTION: Halogen bulbs contain gas under pressure. Handling a bulb improperly could cause it to shatter into flying glass fragments. To help avoid personal injury:

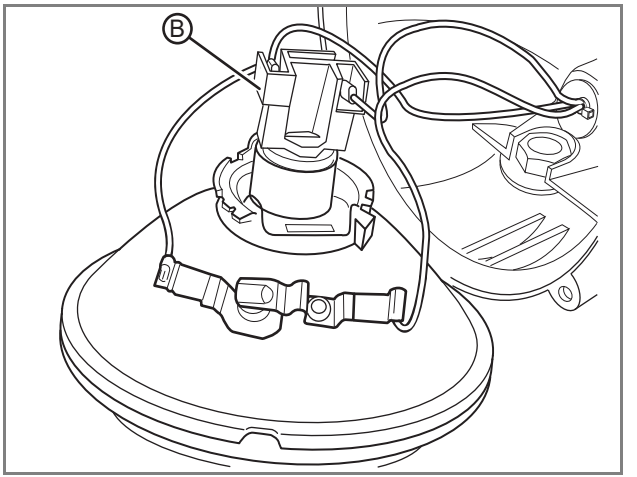
- Turn the key switch OFF and allow the bulb to cool before changing the bulb.
- Leave the key switch OFF until the bulb change is complete.
- Always wear eye protection when changing a halogen bulb.
- Avoid touching the glass.

To replace the bulb:

1. Remove the three screws (A) from the headlight trim ring.

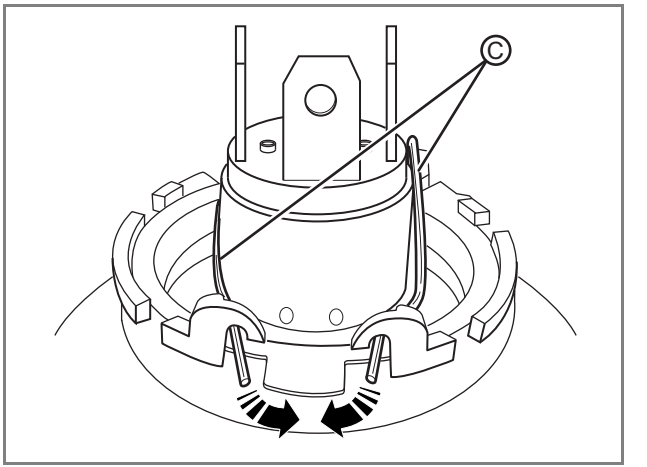


2. Disconnect the headlight bulb connector (B).



3. Unhook the headlight bulb spring clip (C) by pushing down and to the side.
4. Lift up on the spring clip and remove the headlight bulb.

WARNING! Do not touch the glass portion of the headlight bulb. Keep the headlight bulb free of contaminants. Oil from your fingers or contaminants will shorten the life of the bulb. Thoroughly clean any fingerprints or contaminants from the bulb using a clean cloth moistened with alcohol.

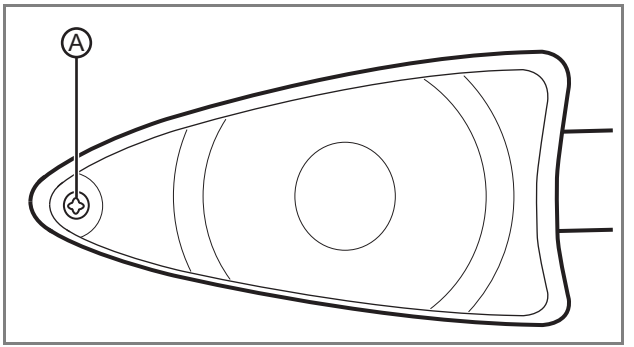


5. Install the headlight bulb into the lens.
6. Install the headlight spring clip.
7. Connect the headlight connector and install the headlight into the housing.
8. Install the headlight trim ring with gasket and install the trim ring screws.

Turn Signal Light Bulb Replacement

To replace the signal light bulb:

1. Remove the turn signal lens screw (A) and remove the lens.

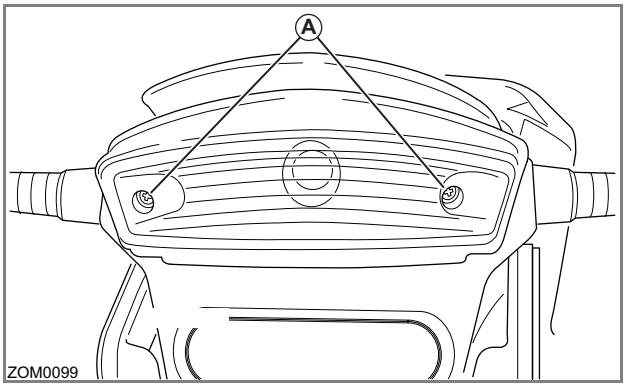


2. Push in on the bulb, turn the bulb counter-clockwise, and then pull the bulb out.
3. Insert the new bulb into the socket, push in and turn clockwise until it stops.
4. Install the lens and screw; tighten the screw. Do not over-tighten the screw.

Brake/Tail Light Bulb Replacement

To replace the brake/trail light bulb:

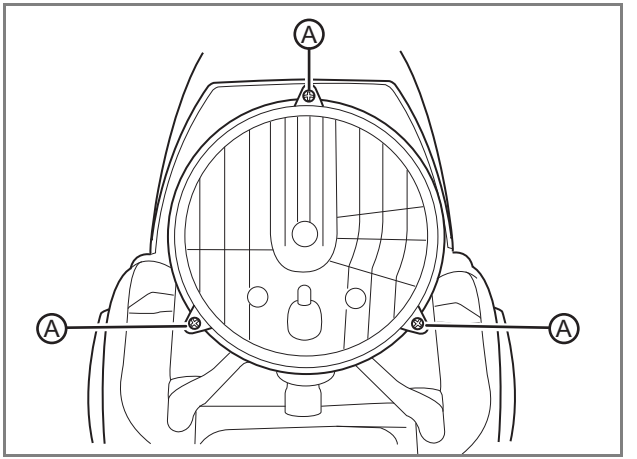
1. Remove the brake/tail light lens screws (A) and remove the lens.



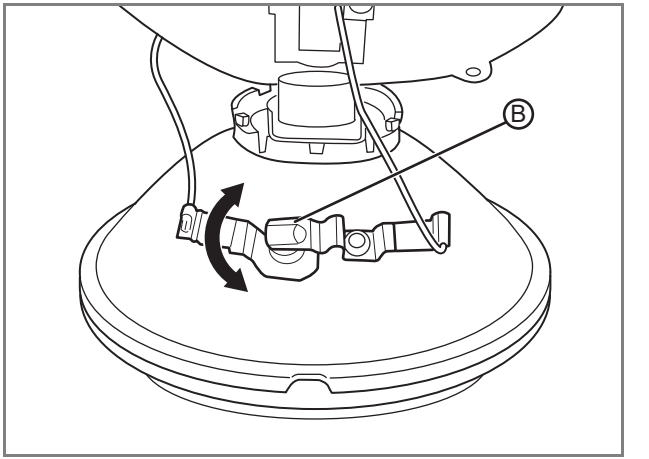
2. Push in on the bulb and turn the bulb counter-clockwise then pull the bulb out.
3. Insert the new bulb into the socket, push in and turn clockwise until it stops.
4. Install the brake/tail light lens and screws; tighten the screws. Do not over-tighten the screws.

Running Light Bulb Replacement

1. Remove the three screws (A) from the headlight trim ring.



2. Pivot the bulb contact (B) to either side of the bulb and remove the bulb.



3. Install the bulb and pivot the contact back onto the bulb.
4. Install the headlight into the housing, install trim ring with the gasket and install the trim ring screws.

Cleaning

WARNING! Improper cleaning can damage electrical components, cowlings, panels, and other plastic parts. Do not use high pressure water or steam cleaners; they can cause water intrusion of bearing, seals, and electrical components. Avoid spraying water of great force around the instrument panel, power pack, or controller.

To prolong the life of your motorcycle it should be washed periodically. Regular cleaning, is an important factor in maintaining the value of your motorcycle. It also ensures that safety relevant parts remain in full working order.

If tar, bugs, or other similar deposits have accumulated, wash them off as soon as possible.

CAUTION: After cleaning and before starting your journey, always test the brakes.

Washing

WARNING! Do not use any harsh chemical products on plastic parts. Be sure to avoid using cloths or sponges which have been in contact with strong abrasive cleaning products, solvent or thinner, fuel (gasoline), rust removers or inhibitors, brake fluid, antifreeze or electrolyte.

Note: We recommend the use of a garden hose to wash your motorcycle. High-pressure washers (like those at coin-operated car washes) can damage certain parts.

1. Gently wash your motorcycle with a sponge or a clean soft cloth, mild detergent, and plenty of water.
2. Use care when cleaning the plastic parts (dash, fenders, and side panels), which can scratch easier than the other parts of your motorcycle.
3. After washing, rinse your motorcycle thoroughly with plenty of clean water to remove any detergent residue.
4. Dry your motorcycle with a chamois or a soft, dry towel.
5. After cleaning, inspect for damage, wear or leaks.

After washing the motorcycle, allow all of the electrical components to dry prior to operation. If the motorcycle is ridden after being washed, apply both brakes several times in order to remove any moisture from the brake pads.

Wheels and tires

Avoid using strong acidic wheel cleaners, especially on spoked wheels. If such products are used on hard-to-remove dirt, do not leave the cleaner on the affected area any longer than instructed. Also thoroughly rinse the area off with water, immediately dry it, and then apply a corrosion protection spray.

Do not use products such as tire dressings on tires as this will deteriorate traction.

Parking and Long Term Storage

- It is recommended to always leave the power pack plugged in. The Zero charger is designed to maintain a balanced and complete charge at all times without wasting any electricity.
- Over extended periods of time the power pack is checked every 72 hours to ensure that the cells are balanced and that the power pack is full.
- To prolong the life of your power pack you should store your motorcycle in a cool area. Storing your motorcycle in a hot area will cause your power pack's life to be shortened.
- If, for some reason, your motorcycle was not plugged in for several days, you should always charge it up before riding.

For more information on the power pack and the electrical system see *"Battery Management System (BMS)", on page 4-6*.

WARNING! Opening of the power pack is for trained Zero Motorcycles technicians. Please be aware that incorrect handling of a Zero power pack can be dangerous. **DO NOT OPEN!**

Zero Motorcycles Accessories

Zero accessories are designed to complement and function with other systems on your motorcycle. Your dealer can accessorize the motorcycle using genuine Zero accessories.

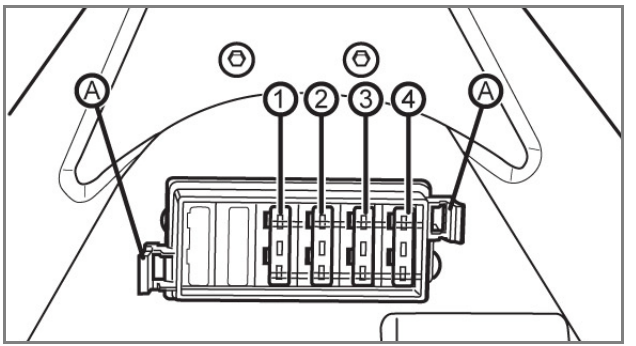
A full line of Parts, Accessories, and Apparel can be found on the Zero Motorcycles website.

Fuses

Whenever there is an excessive amount of current flowing through a circuit the fusible element will melt and create an open or incomplete circuit. Fuses are a one-time protection device and must be replaced each time the circuit is overloaded. Replace the fuse with one of equal current and voltage rating. If the fuse melts repeatedly, have the electrical system inspected by your dealer.

12 Volt Fuse Center

The 12 volt fuse center is located behind the front fork under the left trim panel.



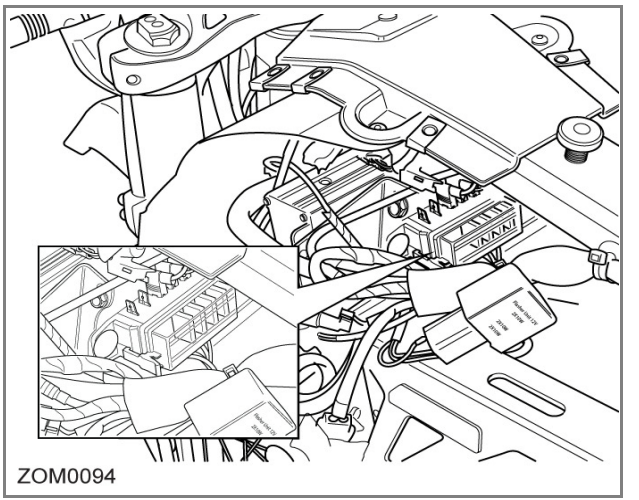
The fuse center has a protective cover that must first be removed to gain access to the fuses. To remove the cover, squeeze the tabs (A) together and lift off the cover.

The 12-volt fuse values are listed below:

FUSE	RATING	CIRCUITS CONTROLLED
1	10A	Headlight
2	10A	Accessory Port
3	10A	Flash Lights, Turn Signals, Horn, Brake/Tail Light
4	5A	Running Lights

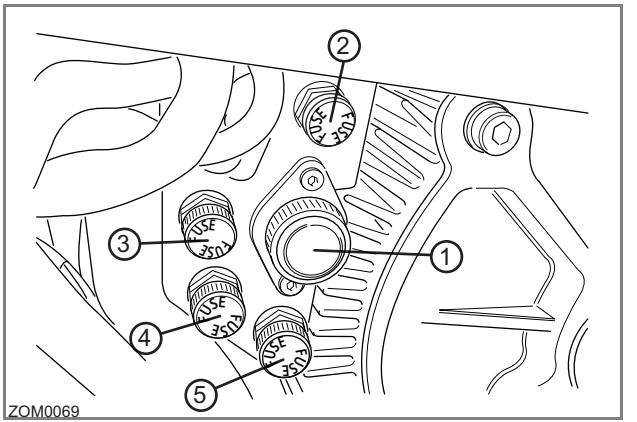
To access the 12 volt fuse center:

1. Remove the left trim panel by removing 3 hex bolts, 1 standard bolt, and (push-in) plastic rivet.
2. Turn the forks to full lock position.
3. Remove the cover from inside the cavity.
4. Replace the fuse(s).
5. Reinstall the cover.
6. Reinstall the trim panel.



High Voltage Fuse Center

The high voltage fuse center is located on the left side of the motorcycle (in a cluster of five fuses).



The high voltage fuse values are listed below:

FUSE	RATING	CIRCUITS CONTROLLED
1	ATM30A	Quick Charger
2	ABC10A	Charger
3	ABC4A	DC/DC Converter
4	ABC4A	Main Bike Board/Controller
5	ABC4A	Low_Pwr_B-

To replace a high voltage fuse:

- Unscrew the fuse cover.
- Replace the fuse.
- Reinstall the cover.

Follow the maintenance schedules on *page 5-2*. After a scheduled service or routine is performed, record the information on the chart below.

DATE	ITEM	SERVICE/ROUTINE DESCRIPTION

Notes

Electric Motorcycle Safety Precautions

Your Zero Motorcycle has high voltage components. The high voltage used by these components is dangerous and can cause personal injury, severe burns, electric shock and even fatal injury unless appropriate precautions are taken.

Always observe and obey the instructions on labels attached to components on the motorcycle - they are there for your safety.

Do not touch, attempt to remove or replace any high voltage parts, wiring (identified by the orange out sleeving) or connectors. If the motorcycle is involved in an accident do not touch any high voltage wiring connectors or the components connected to the wiring. If a fire occurs, extinguish it with a Class D power-type fire extinguisher.

CAUTION! Your motorcycle uses high voltage. System components can be hot to touch during and after starting and when the motorcycle is shut off. Be careful of both the high voltage and the high temperature.

CAUTION! The motorcycles high voltage system has no user serviceable parts. Disassembling, removing or replacing high voltage components, cables or connectors can cause severe burns or electric shock that may result in serious injury or death. High voltage cables are colored orange for easy identification.

Troubleshooting Your Motorcycle

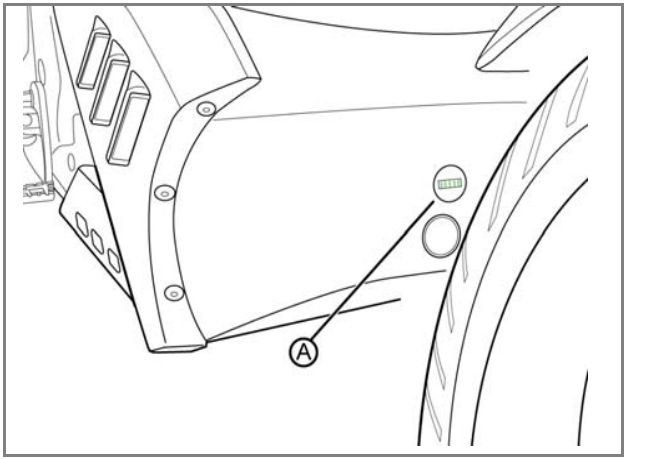
All Zero motorcycles are carefully inspected before they are delivered. Even after the motorcycles are inspected, some technical issues can occur. The following information offers a guide to help you to identify an issue, and if possible, repair it yourself. If you are unable to solve an issue with your Zero MX/FX/XU Motorcycle, take it to an authorized dealer at your convenience. If there is no dealer in your area call Zero Motorcycles Customer Service.

Battery Management System

The Battery Management System (BMS) is located inside the power pack and is fitted with a window (A) to provide visual notification about the status of the power pack.

There are four LED lamps that will flash: one red and three green lamps. The window is located on the front side of the power pack. Refer to the following pages to understand the meaning of the BMS flash code patterns.

Note: The other circular cover is for diagnostics only.



Understanding BMS Flash Code Patterns (Idle Mode)

In this mode the key is OFF and the power pack is not being charged (the BMS is only monitoring the battery).

1 RED	2 GREEN	3 GREEN	4 GREEN	ON	OFF	MEANING	SOLUTION
			√	50 ms	5 sec	Healthy	BMS OK
√				50 ms	60 sec	Pack Low	Charge power pack
√				50 ms	1 sec	Number of Cell Packs Not Set	Contact Zero or the Dealer
√				50 ms	1 sec	Self-Test Failed	Contact Zero or the Dealer
			√	50 ms	250 ms	Waiting for UART Input	Contact Zero or the Dealer

Understanding BMS Flash Code Patterns (Charge Mode)

This mode is with the charging cord plugged into the AC power, and the key in the OFF position. During the Charging process, first all lights will flash. Next, lights 1 through 4 will flash depending on the power pack's state of charge.

1 RED	2 GREEN	3 GREEN	4 GREEN	ON	OFF	MEANING	SOLUTION
√	√	√	√	1 sec	5 sec	Charge Complete	Unplug Charger
Charging							
√				250 ms		25%	Continue Charging
√	√			250 ms		50%	Continue Charging
√	√	√		250 ms		75%	Continue Charging
√	√	√	√	250 ms		100%	Continue Charging
Balancing							
		√		500 ms		Power Pack Unbalanced	Let the Power Pack Cool Down
	√		√	500 ms			
Temperature Disable							
√			√	100 ms	500 ms	Too Hot	Let the Power Pack Cool Down

Understanding BMS Flash Code Patterns (Run Mode)

In this mode, the key is in the ON position.

1 RED	2 GREEN	3 GREEN	4 GREEN	ON	OFF	MEANING	SOLUTION
√				5 sec	1 sec	25% of Power Remaining	Charge Soon
√	√			5 sec	1 sec	50% of Power Remaining	Charge Soon
√	√	√		5 sec	1 sec	75% of Power Remaining	Charge Soon
√	√	√	√	5 sec	1 sec	100% of Power Remaining	OK

Power Pack Empty

If the power pack is completely empty, an error-beep sounds and the BMS disables the throttle. You cannot ride the motorcycle until you recharge the power pack. If the Power Pack Empty error-beep still sounds after two hours of charging time, contact your dealer. Your power pack may need to be repaired or replaced.

Power Pack Full (High Power Pack-Voltage)

If the BMS detects that the power pack is already full, it disables any further charging to prevent damage to the power pack.

This is not an error-condition; it is the result of a successful charging cycle. There is no self-test flash code which reports this condition.

During an ordinary charging cycle, when the cells are balanced, the charger (not the BMS) senses that the power pack is full and terminates the charging cycle with a “green light.” The BMS does have a redundant back-up mechanism to prevent overcharging of the power pack. If the charger fails to terminate a charging-cycle when the power pack is full, the BMS will terminate charging itself to prevent damage.

Power Pack Too Hot

The power pack contains internal temperature sensors. If the BMS measures excessive internal temperatures, it flashes an error code and disables the throttle. You cannot ride the motorcycle until the power pack cools down. Place the motorcycle in a cool, well-ventilated location and wait a few minutes before riding again. If the Too Hot error code still flashes after the power pack has had time to cool down, contact your dealer. Your power pack may need to be repaired or replaced.

Power Pack Unbalanced

The power pack contains many individual cells. The BMS continuously monitors the cells and tries to keep them all “in balance” (at the same level-of-charge). If any of the cells are grossly out-of-balance, the BMS flashes a Power Pack Unbalanced error code and disables the throttle. You cannot ride the motorcycle until the problem is resolved.

The solution to the problem is to plug in the charger and allow the power pack to charge for 72 hours. This allows the BMS to re-balance the cells in the power pack. If the Power Pack Unbalanced error code still flashes after the power pack has spent more than 72 hours charging, contact your dealer. Your power pack may need to be repaired or replaced.

Other Error-Flash Patterns

If the BMS in your power pack produces an error code which is not described in Understanding BMS Flash Code Patterns, then the power pack has encountered a serious internal hardware problem and must be repaired or replaced by a dealer.

BMS Error Beep Pattern

It is possible to encounter the power ON self-test result error-beeps from a badly malfunctioning or damaged power pack. If so, the user should return the power pack to Zero for repair or replacement.

PATTERN		WHEN	MEANING
3 Long		Pwr-on M-cmd	Fail Power ON self-test Mfg. test

Cold and Hot Weather Considerations

Cold Weather Operation

Operation of the motorcycle in cold temperatures has no permanent impact on its battery pack/cells; however, the rider may see a reduction in range due to the effect cold temperature has on the amount of energy the pack/cells can release. The colder the weather, the greater the effect; so that, as compared to operation in 80°F (27°C) ambient, at 30°F (-1°C) ambient the rider could experience a temporary reduction in range of up to 30%.

In extreme cold weather the motorcycle may also experience a temporary reduction in power and, correspondingly, achieved top speed.

It is not recommended that the motorcycle be ridden while its battery temperature is below 23°F (-5°C). If it is, its battery needs to be put on the charger at a temperature above 32°F (0°C) as soon as the ride is concluded. It is worth noting that the Battery Management System (BMS) will not allow the battery to be discharged below -22°F (-30°C), which is the absolute lowest discharge temperature prescribed by the cell manufacturer.

Storage of the motorcycle for the winter in a non-heated garage is acceptable, as long as:

1. the coldest temperature in the garage does not fall below -31°F (-35°C)
2. the battery is left on the charger continuously
3. the battery is initially topped off at a temperature above 32°F(0°C)

Storage temperatures below -31°F (-35°C) may result in accelerated permanent decay of the battery performance, and hence it is not recommended. Above this temperature, working as a system with the BMS, the charger will ensure the battery survives winter storage with no permanent damage, even if the temperatures dip well below freezing for weeks at a time.

Note: To prevent battery damage, the BMS will prevent the charger from charging the battery at a temperature below 32°F (0°C). As long as the battery was initially topped off by the charger above 32°F (0°C) and remains on the charger through the winter at temperatures above -31°F (-35°C), the system will guard the battery from damage.

Hot Weather Operation

Operation of the motorcycle in hot temperatures should not result in any noticeable performance changes. However, the BMS will not allow motorcycle operation and its associated battery discharge above 140°F (60°C), as measured at the battery.

In hot temperatures greater than 110°F (43°C), the charger reduces its charge current to the battery, increasing charge time accordingly; the hotter the ambient temperature, the greater the effect. Above a battery temperature of 131°F (55°C), the BMS will no longer allow charging.

Note: Storing the motorcycle or its battery in direct sunlight in ambient temperatures above 105°F (41°C) may result in accelerated permanent decay of battery performance, and hence it is not recommended.

Safety Interlocks

If the BMS detects a serious internal fault, it can take either or both of two actions to prevent damage to the power pack:

- **Throttle Disable**. The BMS disables the throttle if the power pack is empty, or if the BMS detects certain serious internal problems. You cannot ride the motorcycle until the problem is resolved.
- **Charger Disable.** The BMS prevents charging if it detects certain serious internal problems - even if the power pack is connected to a charger and plugged in to AC power. The power pack cannot be charged until the problem is resolved.

Throttle Disable Interlock

The BMS communicates with the main motorcycle control module. The BMS can send a signal to the main motorcycle controller requesting that the throttle control on the motorcycle be disabled. When the throttle control is disabled, the motor will not deliver power to the rear wheel, and the motorcycle cannot be ridden.

If the throttle is disabled while riding, the motorcycle will cease to provide power, and the operator must pull over to a safe location.

All conditions which would cause the BMS to disable the throttle are also signaled by a flash code pattern at self-test. If you suspect that the BMS has disabled the throttle control on your motorcycle, turn the key switch OFF and back ON again to enter self-test mode. The flash code pattern from the BMS reports any of the error conditions which would cause the BMS to disable the throttle.

Each of these conditions, the associated self-test flash code pattern, and the suggested remedies are discussed in Understanding BMS Flash Code Patterns on *page 6-4*.

- Power Pack Empty
- Too Hot
- Power Pack Unbalanced

Charger-Disable Interlock

When the charger is attached and plugged in to AC power, the BMS communicates with the charger. The BMS can send a signal to the charger requesting that charging terminates immediately. When the charger is disabled, the indicator lights on the charger displays that charging has stopped.

There are two conditions that cause the BMS to disable charging:

1. Too hot

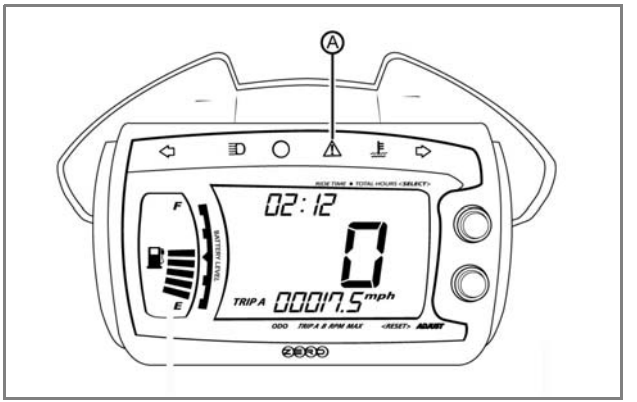
   The BMS detects an internal power pack temperature above 131°F (55°C).

2. Too cold

   The BMS detects an internal power pack temperature below 32°F(0°C).

System Warning Indicator

If a fault has been detected, count the number of times the red LED (A) flashes.



Refer to the table on the following pages for a possible cause and solution to the issue.

NUMBER OF RED FLASHES		CAUSE	SOLUTION
1		Motor Stop Switch Disabled or Kickstand Switch Disabled	Motor stop switch is in the OFF position. Press the motor stop switch ON button. Kickstand is down. Raise kickstand.
2		Indicator Always ON	Contact Zero or your dealer.
3		Self-Test Failed	Unplug charger.
4		Charger Connected	Throttle is ON or throttle/connection is bad. Verify throttle action and/or check connection.
5		High Throttle Disable	Could not pre-charge motor controller. Contact your dealer.
6		Low Power Pack Disable	Charge Power Pack Before Riding.
7		Contactor Error	Contact Zero or your dealer.
8		Controller Area Network (CAN) Error	Contact Zero or your dealer.
9		Battery Management System (BMS) Throttle Disable	Contact Zero or your dealer.
10		Throttle Out of Range	Bad throttle or connections. Verify throttle action and/or check connection.

NUMBER OF RED FLASHES		CAUSE	SOLUTION
11		Motor Temperature Sensor Out of Range	Bad motor temperature sensor or connections. Replace temperature sensor and/or check connections.
12		MBB Voltage Error	Contact Zero or your dealer.
13		Board Temperature Warning	Board may have overheated. Let the motorcycle cool down.
14		Current Sensor Error	Problem with current sensor or connection. Contact your dealer.
15		Board Temperature Sensor Out of Range	Problem sensing temperature of board. Contact your dealer.
16		High Current Disable	Turn the ignition OFF and ON. If problem persists contact Zero or your dealer.
17		Temperature Protection Error	Turn the ignition OFF and allow to cool off and then restart. If problem persists contact Zero or your dealer.
18		Throttle Output Error	Turn the ignition OFF and ON. If problem persists contact Zero or your dealer.
19		Kickstand Error	Bad kickstand switch or connection. Replace kickstand switch and/or check connection.
20		Miscellaneous Error	Contact Zero or your dealer.

General Troubleshooting

SYMPTOM	POTENTIAL CAUSE	POTENTIAL SOLUTION
Motorcycle does not turn on	Power Pack not charged. Key not properly engaged. Motor stop switch turned OFF. Fault code set.	Charge Power Pack. Recheck key in ignition, turn OFF/ON again. Press the motor stop Switch ON button. See Understanding BMS Flash Code Patterns (Charge Mode) on *page 6-4*.
Charger not working	A/C power missing Fault code set	Check A/C outlet for power, A/C source check fuse/voltage. See Understanding BMS Flash Code Patterns (Charge Mode) on *page 6-4*.
Handlebars wobbly (shimmy)	Incorrect tire pressure	Inflate to correct tire pressure. See *page 5-13* for additional information.
	Deformed front tire	Replace/balance front tire with the same tire supplied from the factory.
	Bald tire (excess wear)	Replace/balance tire with the same tire supplied from the factory.
	Loose headset bearings	Inspect the headset for wear or damage, replace any worn or damaged parts. Tighten the headset pre-load.

Notes

Zero Motorcycles Warranties

Zero Motorcycles Inc. expressly warrants all 2013 Zero manufactured FX and XU models from defects in material and workmanship to the original owner, under normal operating conditions and according to proper use, for 2 years (unlimited miles) from the “In Service Date,” which is the date your Zero Motorcycle dealer performed a Pre-Delivery Inspection (P.D.I) on the Zero. The MX model has a 1 year warranty.

These warranties are transferable and subject to a $50 processing fee and a new registration card to subsequent owners.

Standard Warranty

The standard warranty covers parts, standard shipping and labor for all major components, defined herein as including the motor, motor controller, power pack, frame, swingarm, fork, rear shock, brake assemblies, wheels, and electrical sub-assemblies.

This warranty covers Zero manufactured accessories installed at the time of purchase.

Standard Warranty Exclusions

This warranty does not apply to tire wear, chain or sprocket condition, brake pads or rotors, fork seals, grips, foot pegs, the seat, or any other parts subject to normal wear and tear. Wheels are excluded from this standard warranty on off-road bikes once they have been ridden.

This standard warranty excludes aftermarket accessory kits which may be subject to their own warranties.

This standard warranty excludes parts and components damaged by use or operation under abnormal circumstances or contrary to the requirements described in the owner’s manual, or damaged by improper use or accidents.

Racing or competitive use voids this warranty.

Modifications or alterations to major components of the manufacturer’s original product or its sub-components void all warranties. Zero Motorcycles Inc. assumes no liability for any misuse or improper operation of Zero Motorcycles.

Under this limited warranty and liability agreement, Zero Motorcycles Inc. shall have no obligation and the purchaser shall have no remedy against Zero Motorcycles Inc. and its officers and/or agents for any damages, including but not limited to incidental, consequential, special, punitive damages arising from direct or indirect

injury to person or property, or any other loss, whether or not occasioned by negligence or otherwise on the part of Zero Motorcycles Inc.

Disclaimers Applicable to Standard Warranty

The purchaser acknowledges that there is an inherent risk in the operation of Zero Motorcycles and all other Zero Motorcycles Inc. products, and herewith assumes liability for any injury arising from all operation of any Zero Motorcycles Inc. product. The original registered owner or subsequent registered transferee as documented on the Zero Motorcycle warranty registration form will indemnify and hold Zero Motorcycles Inc. harmless and take full responsibility for conveying all safety warnings, instructions and limited warranty if the unit is sold, loaned or otherwise transferred to other persons, and will indemnify Zero Motorcycles Inc. from any claims against it for the original owner's failure to do so.

Zero Motorcycles Inc. does not assume or authorize anyone to assume for them any other obligation. Some states, provinces, or countries do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Zero Motorcycles Inc. assumes no responsibility for incidental, consequential or other damages including but not limited to: expense of returning the Zero product to a certified service center, expense of delivering it back to the owner, mechanic's travel, time, communication charges, rental of a like product during the time the warranty service is being performed, travel, loss or damage to personal property, loss of revenue, loss of use of the product, loss of time, or inconvenience. Some states, provinces, or countries do not allow limitations so the above limitation may not apply to you.

Zero Motorcycles Inc. reserves the right to change or improve the design of any electric motorcycle product without assuming any obligation to modify any product previously manufactured.

These warranties give you specific legal rights, and you also have other rights, which vary from state to state, province to province, and country to country.

These warranties apply to all Zero products manufactured by Zero Motorcycles Inc.

Normal operating conditions ***require routine care and maintenance by the purchaser*** of the Zero Motorcycles Inc. electric motorcycle and power pack.

Proper Use

For the purposes of these warranties, ‘proper use’ means only the use of a motorcycle in the manner intended with proper safety equipment as described in the Owner’s Manual in accordance with local regulations. ‘Proper use’ also means charging the Power Pack after each use and storing it in a fully charged state, or recharging it every 30 days, or keeping it on the charger when in storage or out of regular use.

Purchaser’s Responsibilities

Read and understand the Owner’s Manual and all product warnings before operating your Zero Motorcycles Inc. electric motorcycle. Serious injury or death may result from improper operation or failure to observe warnings and safety instructions on any motorized motorcycle or vehicle.

Submit the warranty registration card for your Zero Motorcycle within the required time period as printed on the registration card.

Perform routine care and maintenance of your Zero

Motorcycles Inc. electric motorcycle and power pack as detailed in the Owner’s Manual.

The rider is responsible for learning and obeying all federal, state, province, country, and local laws governing the operations of an electric motorcycle.

Always wear a helmet, goggles, appropriate boots, and all other appropriate safety equipment when operating a motorcycle.

Warranty Procedures

Warranty services may be obtained by contacting your local Zero Motorcycle dealer; please see the locator on www.zeromotorcycles.com for the nearest location. In the event that a dealer is not in your state, province, or country, you can contact Zero Motorcycles Inc. directly at (888) 786-9376 or via e-mail at support@zeromotorcycles.com.

Service may also be available from a local Zero Motorcycles Certified Service Center; please see the locator on www.zeromotorcycles.com for the nearest location.

In any written or telephonic communication, please state the specific nature of and any circumstances leading to the problem.

North America and Canada:

Zero Motorcycles Inc.
380 El Pueblo Road
Scotts Valley, CA 95066
USA

Europe:

Zero Motorcycles BV
Fluorietweg 12D
Alkmaar, 1812 RR
NL

(U.S. and International Patents and Trademarks Pending)

Transfer Of Ownership And Warranty

When it comes time to sell your Zero Motorcycle, please visit the Zero Motorcycles website and access the Owner Resources section to fill out the on-line transfer of ownership and warranty form. This must be performed to allow Zero Motorcycles the ability to contact the new owner in the unlikely event of a safety related issue. Use the email address below or feel free to contact the Zero Motorcycles Customer Service department for assistance.

Zero Motorcycles Inc.
380 El Pueblo Road
Scotts Valley, CA 95066
USA

Phone: **+1 (888) 786-9376**

Monday-Friday 8am to 5pm (Pacific Time)

E-mail: support@zeromotorcycles.com

Customer Assistance

Please have the following available when contacting Zero Motorcycles Inc. as they are essential to effectively and efficiently answer your questions or resolve your concerns.

- Owner’s name and address
- Owner’s telephone number
- Vehicle identification number (VIN)
- Date of purchase
- Motor serial number (if visible)

An owner information chart is provided on page 1-3 to record this information.

Zero Motorcycles Inc. can be contacted as follows:

Zero Motorcycles Inc.
380 El Pueblo Road
Scotts Valley, CA 95066
USA

Phone: **+1 (888) 786-9376**

Monday-Friday 8am to 5pm (Pacific Time)

E-mail: support@zeromotorcycles.com (24 hours)

For 24 hour updates and additional information about your motorcycle, visit the Owners Resources section of the Zero Motorcycles website:
www.zeromotorcycles.com/owner-resources/

Reporting Safety Defects

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Zero Motorcycles Inc.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Zero Motorcycles Inc.

To contact NHTSA, you may call the Vehicle Safety Hotline toll-free at:

1-888-327-4236 (TTY: 1-800-424-9153); go to http://www.safercar.gov; or write to:

Administrator
National Highway Traffic Safety
1200 New Jersey Avenue SE
Washington, DC 20590

You can also obtain other information about motor vehicle safety from:

http://www.safercar.gov

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First Responder Information - High Voltage Components Locations

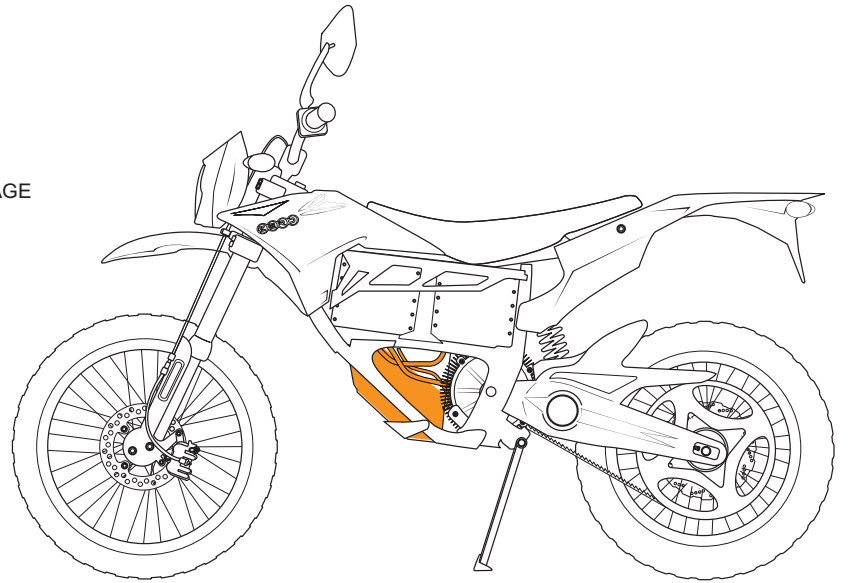
WARNING

DO NOT CUT COLORED ZONES

NEVER cut high voltage components or cabling. Cutting could result in serious injury or death.

High voltage cables and components may remain energized for up to 10 seconds after disabling.

HIGH-VOLTAGE



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