



Motive Energy Systems
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TUBION 2 YEAR FREE + 2 YEAR PRO-RATED WARRANTY

LIMITED WARRANTY: Motive Energy Systems warrants to the Original User, subject to the Conditions and Limitations described below, that a Tubion Motive Power Battery, when used in an appropriate industrial electric vehicle motive power application (a “Covered Battery”), will be free from defects in materials or workmanship for the following Limited Warranty Period from the date of shipment of Two (2) years. MOTIVE ENERGY SYSTEMS will cover freight expenses for the first year, Original User thereafter. If a Covered Battery fails to perform due to defects in materials or workmanship during the Limited Warranty Period, Motive Energy Systems will, at its option, repair or replace the battery at Motive Energy Systems’ expense (parts and labor). The repaired or replaced battery will be covered under this Limited Warranty for the remainder of the Limited Warranty Period on the original Covered Battery.

WARRANTY ADJUSTMENT AGREEMENT: MOTIVE ENERGY SYSTEMS further warrants to the Original User and additional Two (2) year, subject to the Conditions and Limitations described below, that a Covered Battery will furnish not less than 80% of its published rated capacity in ampere hours at the 6-hour rate to an average final voltage of 1.7 volts per cell, when tested under MOTIVE ENERGY SYSTEMS’s supervision for the following Warranty Adjustment Period after the Limited Warranty Period. If a Covered Battery fails to perform as warranted during the Warranty Adjustment Period, MOTIVE ENERGY SYSTEMS will accept return of the battery and credit the Original User a pro-rated amount against the purchase of a replacement MOTIVE ENERGY SYSTEMS Tubion battery of equal or greater capacity. If the battery is repaired, the Original User will be responsible for all expenses (parts and labor). The pro-rated credit is determined by multiplying the net purchase price of the original battery by a fraction, the denominator being the number of months in the combined Warranty and Warranty Adjustment Periods and the numerator being the number of whole months remaining in the Warranty Adjustment Period.

PURCHASER’S CONDITIONS

This warranty is null and void if upon inspection it is determined that the defective battery has been modified, reworked, tampered with, repaired in any way and/or not properly maintained. Purchaser has been provided instruction for proper battery care and maintenance (see reverse). This warranty is not applicable in cases where the battery is over-cycled, improperly charged, abused, physically damaged and/or exposed to extreme environmental conditions.

The following conditions must be met for this warranty to be valid:

1. The battery is properly charged and maintained (watered) as per the provided care and maintenance procedure.
2. The battery can only be charged once per day, and not spot or opportunity charged.
3. No more than One (1) cycle per day; with one full day minimum of rest
4. Any defect must be reported to Motive Energy Systems within five days from the time it is first discovered.
5. The charging equipment used with the battery meets the minimal requirements
6. Maximum discharge of the battery is limited to no more than 80% of the battery’s rated capacity
7. The battery is not exposed to excessive cold, excessive heat, casualty, misuse, abuse, or other damage or deterioration. The average electrolyte temperature of the battery shall not exceed 110°F (43°C) nor drop below 60°F (15°C)

This warranty is in lieu of all other warranties, expressed or implied. The purchaser and/or user of the battery shall indemnify and hold Motive Energy Systems harmless from any claims or liabilities arising out of the use, maintenance, transportation and/or installation of any battery warranted herein. In no event shall Motive Energy Systems be held liable for special, indirect, punitive or consequential damages. Any liability is limited to the purchase price of the battery less reasonable freight costs.



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Industrial Battery Operation & Maintenance Guide

RECEIVING YOUR BATTERY

Inspect the battery carefully for damage or loss of electrolyte. Report any shipping damage to the carrier promptly. Check the electrolyte levels to assure it is above the separator protector. Reference "ADD WATER" section if needed. Keep vent plugs in place.

PLACING IN SERVICE

The battery compartment should be level and clear of foreign matter. The battery should be blocked to provide 1/8 inch clearance. Do not wedge the battery tightly in place.

CAUTION: Check to make sure connector polarity of truck and battery are the same. Positive (plus)-to-positive (plus) and negative (minus)- to-negative (minus). Damage to the truck and battery can result if not properly connected.

OPERATION AND MAINTENANCE

Over-discharge will shorten battery life and affect the vehicle. It is recommended that the battery not be discharged more than 80 percent or sp. gravity below 1.140. Recharge the battery when discharged. Never allow the battery to remain in the discharged condition.

CHARGING

Recharging should be on a charger matched to the battery voltage and capacity for recharge in the time available. Use of an unapproved charger can ruin your battery and will void the warranty.

For proper charging, observe and record.

1. Hydrometer readings at the end of charge are at full charge value of **1.280 (+/-) 0.010**
2. Temperature at the end of charge is no more than 25°F higher than the start of charge and not higher than 115°F.
3. Normal water consumption should average 1/8 inch per day or per cycle of discharge and charge.
4. Do not disconnect battery from charger while the charger is operating.
5. Keep all flames and sparks away from the battery

EQUALIZE CHARGE

In average motive power service, a periodic extended charge of about **three hours** is recommended. This is required weekly. The battery can be kept in a balanced state of charge between all cells without harmful overcharge.

ADD WATER

Under normal operating conditions, check the water level weekly until a regular pattern is established. Add water to keep the level above the separator protector.

It is best to fill at end of recharge. Adding water at other times could result in over filling the battery and therefore loss of acid.

CLEANLINESS

Keep the top of the battery clean and dry. Cleaning frequency is determined by the environment and care used in watering the cells. Many locations require washing only a couple of times per year, while sometimes every other week is desirable.

WARNING: Wash hands after handling. Ventilate spaces where used or charged. Not recommended for inverted use.

WARNING: Do NOT use any type of oil, organic solvent, alcohol, detergent, strong acids, strong alkalis, petroleum-based solvent, or ammonia solution to clean the jars or covers. These materials may cause permanent damage to the battery jar and cover and will void the warranty.

WARNING: Avoid short circuits. Do not use non-insulated tools. Do not place or drop metal objects on top of the battery. Before servicing, remove rings, wrist watches and articles of clothing with metal parts that might come into contact with the battery terminals. Metal parts of the battery are always live. Do not place tools or other objects on the battery.