

Electric Pallet Jack Battery Watering and Charging Protocol

1.0 Maintenance Objective & Frequency

The objective of this procedure is to ensure the lead-acid battery of an electric pallet jack is properly watered and charged to maintain electrolyte levels, prevent sulfation, and extend battery service life. This PM is performed weekly or after every 5 charge cycles, whichever comes first, and immediately after charging if watering is required.

2.0 Lockout/Tagout (LOTO) & Safety

- **Electrical Isolation:** Disconnect the pallet jack battery connector from the charger and the pallet jack controller. Place a lock on the charger disconnect switch if hardwired.
- **Battery Safety:** Ensure the battery is fully charged before watering to avoid acid splash. Wear acid-resistant gloves, safety goggles, and a rubber apron.
- **Ventilation:** Perform all work in a well-ventilated area to prevent hydrogen gas accumulation. No smoking or open flames within 10 feet.

3.0 Required Tools, Parts & Lubricants

- Distilled water (only, never tap water or acid)
- Battery watering gun or squeeze bottle with flexible spout
- Hydrometer for specific gravity check
- Digital multimeter (DC voltage, 0-20V range)
- Clean lint-free rags
- Baking soda solution (1 lb baking soda per 1 gallon water) for neutralization
- Personal protective equipment: acid-resistant gloves, safety goggles, rubber apron

4.0 Step-by-Step Maintenance Procedure

1. Ensure the pallet jack is parked on a level surface, key off, and battery connector is disconnected from both the charger and the jack controller.
2. Put on all required PPE: acid-resistant gloves, safety goggles, and rubber apron.
3. Remove the battery compartment cover or access panel. Inspect the battery case for cracks, bulges, or leaks. If damage is found, tag the battery out of service and replace it.
4. Using a digital multimeter, measure the open-circuit voltage across the battery terminals. Record the voltage. A fully charged 12V battery should read 12.6V or higher; a 24V system should read 25.2V or higher.
5. Check the electrolyte level in each cell. The fluid should cover the plates by 1/8 to 1/4 inch (3-6 mm). Do not overfill.
6. Using the battery watering gun or squeeze bottle, add distilled water to each cell that is low. Fill only to the level indicator or just above the plates. Do not overfill, as electrolyte will expand during charging.

7. Wipe any spilled water or electrolyte from the battery top with a clean rag. Use baking soda solution to neutralize any acid spills.
8. Reinstall the battery compartment cover securely.
9. Connect the battery to the charger. Set the charger to the correct voltage and amperage per the battery manufacturer's specifications (typically 10% of amp-hour rating). Start the charge cycle.
10. Monitor the charging process. The charger should automatically shut off when the battery reaches full charge. Do not interrupt the charge cycle prematurely.
11. After charging is complete, disconnect the charger. Allow the battery to rest for 30 minutes to stabilize.
12. Using a hydrometer, check the specific gravity of each cell. Record the readings. All cells should be within 0.030 points of each other. If a cell is significantly lower, the battery may be failing and should be flagged for replacement.

5.0 Verification & Return to Service

1. Reconnect the battery to the pallet jack controller. Ensure the connector is fully seated and locked.
2. Turn the key to the ON position. Verify the battery gauge shows a full charge (green or full bars).
3. Perform a test drive: move the pallet jack forward and backward at low speed for 10 feet. Verify smooth acceleration and no warning lights.
4. Check for any unusual odors, heat, or leaks from the battery compartment during the test.
5. Sign off on the PM work order in ServiceGrid, noting the voltage, specific gravity readings, and any observations.

Regulatory Disclaimer: This document is a generic maintenance template provided for educational and informational purposes only. It does not constitute professional engineering or reliability advice. The end-user assumes all liability for validating all step sequences, torque specs, and LOTO protocols against specific machinery OEM manuals before deployment to a live production floor.