FLOODED BATTERY QUICK START USER’S GUIDE
BATTERY INSTALLATION & MAINTENANCE

BATTERY INSTALLATION & INSTALLATION EQUIPMENT NEEDED

GOGGLES
PROTECTIVE CLOTHING
DISTILLED OR TREATED WATER

SAFETY

Always wear protective clothing, gloves and goggles.
Do not smoke near batteries.
Keep sparks, flames and metal objects away from batteries.
Use insulated tools when making battery connections.
Electrolyte is a solution of acid and water, so avoid skin contact. If acid contacts skin or eyes, flush with water immediately and contact a medical professional.
Ensure the cable connections to the terminals are properly tightened.
Do not lay objects on top of battery.
Always charge and handle batteries in a well-ventilated area.
Never add acid to a battery.

BATTERY ORIENTATION

Flooded batteries must be placed and installed upright at all times (Fluid will spill if the battery is placed on its side or at an angle).

TERMINAL PROTECTION

Keep terminals clean and dry to avoid corrosion. Terminal protector spray is recommended.

TORQUE VALUES

Tighten all cable connections to the specified values*, ensuring proper contact with the terminals. Over-tightening can result in terminal breakage and loose connections, which may result in meltdown or fire.


EQUIPMENT NEEDED

Cable Lug
Nut*
Washer
Terminal
Bolt

†Hardware not supplied by Trojan

BATTERY CONNECTION†

If using washers to connect the wire connections, ensure the connection is in direct contact with the lead surface of the terminal.
Ensure the washer is placed on top of the wire connection (between the connection and the nut).

Do not place the washer between the terminal and the connection as this creates high resistance and can cause terminal meltdown.

LEARN MORE AT www.trojanbattery.com
Your Local Trojan Battery Representative.

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CHARGING FORWARD

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PREVENTATIVE MAINTENANCE
FOLLOW THESE TIPS TO ENSURE THE LIFE OF YOUR TROJAN FLOODED BATTERY

INSPECTION
- Inspect battery at regular intervals. The tops of the batteries and terminal connections should be clean, dry, and free of dirt or corrosion. Fluid on top of a flooded battery may indicate over-watering or overcharging.

WATERING
- Fully charge the batteries prior to adding water. Only add water to discharged or partially charged batteries before charging if the plates are exposed. In this case, add just enough water to cover the plates and then charge the batteries. Once fully charged continue with the watering procedure.
- If electrolyte level is above the plates it is not necessary to add water.
- If electrolyte is needed, add distilled or deionized water to a level 1/8” (3mm) below the vent well (plastic shield inside the vent hole).
- After adding water, secure vent caps back on batteries.
- For fast, safe and mess-free watering, use Trojan Battery’s watering systems to fill batteries in 30 – 60 seconds.
- Do not allow the cleaning solution to get inside the battery.
- In high temperatures (greater than 90°F or 32°C) monitor the specific gravity or voltage every 2-4 weeks as batteries will self-discharge faster.

EQUALIZING (flooded batteries only)
- Trojan recommends equalizing flooded batteries (NEVER AGM or Gel batteries) every 30 days or when batteries have low specific gravity, below 1.235 or wide ranging specific gravity, > 0.030 points between cells, after fully charging. Please consult Trojan Battery’s complete User’s Guide and battery charger’s user manual for detailed instructions on equalization.

STORAGE
- Fully charge batteries before placing in storage.
- Store in a cool, dry location, protected from the elements.
- Batteries self-discharge during storage. Monitor the specific gravity or voltage every 4-6 weeks.
- In high temperatures (greater than 90°F or 32°C) monitor the specific gravity or voltage every 2-4 weeks as batteries will self-discharge faster.
- Overt batteries should be given a boost charge when they are at or less than 70% State of Charge (SOC).
- After storage, recharge before use.

CHARGING
- Proper charging will maximize battery performance.
- Both under and over-charging can reduce the life of the battery.
- Do not discharge your battery more than 80% to prevent over-discharging and damaging the battery’s internal components.
- Avoid charging at temperatures above 122°F (50°C).

TECHNICAL SUPPORT
CALL TROJAN BATTERY TECHNICAL SUPPORT: United States and Canada: 800-423-6569, dial ext. 3045 International: +1-562-236-3045
ON THE WEB: https://www.trojanbattery.com/tech-support/

CHARGER SETTINGS

FLOODED/WET BATTERIES - NORMAL CHARGING PARAMETERS @ 25°C (77°F)

<table>
<thead>
<tr>
<th>TROJAN BATTERY LINE</th>
<th>MAXIMUM CHARGE CURRENT (% OF C20)</th>
<th>MAXIMUM ABSORPTION TIME (HOURS)</th>
<th>MINIMUM VOLTAGE (% OF C20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance Flooded</td>
<td>13%</td>
<td>4</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

DEEP-CYCLE FLOODED/WET BATTERIES - CHARGER VOLTAGE SETTINGS (@25°C, 77°F)

<table>
<thead>
<tr>
<th>SYSTEM VOLTAGE</th>
<th>12 VOLT</th>
<th>24 VOLT</th>
<th>48 VOLT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absorption Voltage (2.45 VPC)</td>
<td>14.7</td>
<td>29.4</td>
<td>58.8</td>
</tr>
<tr>
<td>Equalization Voltage (2.70 VPC)</td>
<td>16.2</td>
<td>32.4</td>
<td>64.8</td>
</tr>
<tr>
<td>Float Voltage (2.25 VPC)</td>
<td>13.5</td>
<td>27</td>
<td>54</td>
</tr>
<tr>
<td>Temperature Compensation (°F)</td>
<td>-12.8 mV x (T -77)</td>
<td>-33.6 mV x (T -77)</td>
<td>-67.2 mV x (T -77)</td>
</tr>
<tr>
<td>Temperature Compensation (°C)</td>
<td>-7.2 mV x (T -25)</td>
<td>-60.6 mV x (T -25)</td>
<td>-120.2 mV x (T -25)</td>
</tr>
</tbody>
</table>

RECOMMENDED TROJAN DEEP-CYCLE FLOODED/WET CHARGING PROFILE

<table>
<thead>
<tr>
<th>STATE OF CHARGE (%)</th>
<th>MAX. CHARGE CURRENT</th>
<th>MAX. ABSORPTION TIME</th>
<th>FINISH VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1% C20</td>
<td>75%</td>
<td>140%</td>
<td>100%</td>
</tr>
<tr>
<td>1-3% C20</td>
<td>90%</td>
<td>180%</td>
<td>100%</td>
</tr>
<tr>
<td>4-6% C20</td>
<td>100%</td>
<td>240%</td>
<td>100%</td>
</tr>
<tr>
<td>7-9% C20</td>
<td>110%</td>
<td>360%</td>
<td>100%</td>
</tr>
<tr>
<td>10-13% C20</td>
<td>120%</td>
<td>480%</td>
<td>100%</td>
</tr>
</tbody>
</table>

CHARGER VOLTAGE SETTINGS (@25°C, 77°F)

<table>
<thead>
<tr>
<th>CHARGE (%)</th>
<th>STATE OF CHARGE (SOC)</th>
<th>SPECIFIC GRAVITY</th>
<th>CELL</th>
<th>6 VOLT</th>
<th>8 VOLT</th>
<th>12 VOLT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>50</td>
<td>100%</td>
<td>100</td>
<td>1.277</td>
<td>2.122</td>
<td>6.37</td>
</tr>
<tr>
<td>10%</td>
<td>70</td>
<td>90</td>
<td>90</td>
<td>1.258</td>
<td>2.103</td>
<td>6.31</td>
</tr>
<tr>
<td>20%</td>
<td>90</td>
<td>80</td>
<td>80</td>
<td>1.238</td>
<td>2.083</td>
<td>6.25</td>
</tr>
<tr>
<td>40%</td>
<td>70</td>
<td>60</td>
<td>60</td>
<td>1.217</td>
<td>2.062</td>
<td>6.19</td>
</tr>
<tr>
<td>50%</td>
<td>60</td>
<td>50</td>
<td>50</td>
<td>1.195</td>
<td>2.04</td>
<td>6.12</td>
</tr>
<tr>
<td>60%</td>
<td>50</td>
<td>40</td>
<td>40</td>
<td>1.172</td>
<td>2.02</td>
<td>6.05</td>
</tr>
<tr>
<td>70%</td>
<td>40</td>
<td>30</td>
<td>30</td>
<td>1.148</td>
<td>1.993</td>
<td>5.98</td>
</tr>
<tr>
<td>80%</td>
<td>30</td>
<td>20</td>
<td>20</td>
<td>1.124</td>
<td>1.969</td>
<td>5.91</td>
</tr>
<tr>
<td>90%</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>1.098</td>
<td>1.943</td>
<td>5.83</td>
</tr>
<tr>
<td>100%</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>1.073</td>
<td>1.918</td>
<td>5.75</td>
</tr>
</tbody>
</table>

Battery Top Keep Clean
Vent Caps Remove to Water & Tighten Afterwards
Battery Terminal Clean & Remove Corrosion

CLEANING
- Inspect battery for cleanliness at regular intervals and keep terminals and connectors free of corrosion.
- Prior to cleaning check that all vent caps are secured properly on the battery.
- Clean the top of the battery, terminals and connections with a cloth or brush and a sodium bicarbonate solution (1 cup of baking soda to 1 gallon of water (150g/1L)).
- Do not allow the cleaning solution to get inside the battery.
- Rinse with water and dry with a clean cloth.
- Keep the area around batteries clean and dry.

WARNING: Always wear protective clothing, gloves and goggles.