



INSULATED WRENCH



BATTERY CHARGER



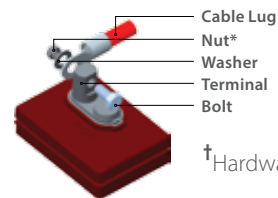
BAKING SODA
(Sodium Bicarbonate)



VENTILATION

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.



†Hardware not supplied by Trojan

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.

*Consult comprehensive User's Guide on www.trojanbattery.com/literature/#usersguide for detailed information.

TERMINAL PROTECTION

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

Trojan Battery Company

- Over 200 Years of combined engineering expertise
- Full range of advanced Deep-Cycle Flooded, AGM and Gel batteries
- Quality components for reliability and performance
- Industry-Leading Return on Investment and Low Cost of Ownership
- Outstanding technical and customer service
- Made in USA since 1925
- Trojan's battery testing procedures adhere to both BCI and IEC test standards
- Global - Sold in over 120 countries



Learn more at
www.trojanbattery.com

Your Local Trojan Battery Representative:

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FLOODED BATTERY

QUICK START USER'S GUIDE

Battery Installation & Maintenance



BATTERY INSTALLATION

MAINTENANCE and INSTALLATION EQUIPMENT NEEDED



GOGGLES



PROTECTIVE CLOTHING






GLOVES




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). 

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.

WARNING: Always wear protective clothing, gloves and goggles.

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.

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).

EQUALIZING (flooded batteries only)

- Trojan recommends equalizing flooded batteries (**NEVER AGM or Gel batteries**) only 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 your battery charger's user manual for detailed instructions on equalization.

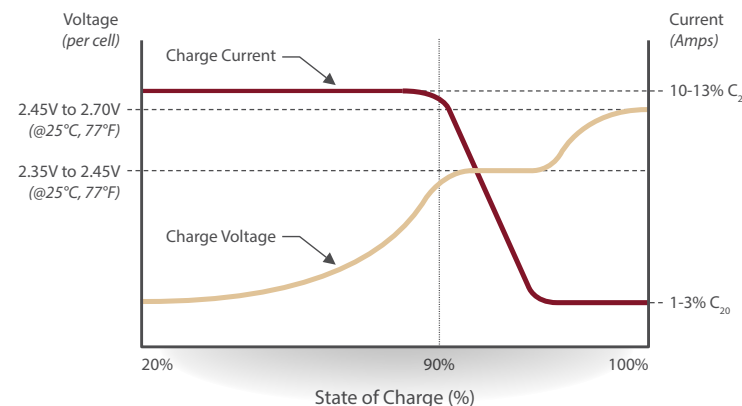
STORAGE

- 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.
- Stored batteries should be given a boost charge when they are at or less than 70% State of Charge (SOC).
- After storage, recharge before use.

Charge Voltage Settings

Deep-Cycle Flooded/Wet Batteries - Charger Voltage Settings (@25°C, 77°F)			
System Voltage	12 Volt	24 Volt	48 Volt
Bulk Charge (2.47 VPC)	14.8	29.6	59.3
Absorption Charge (2.35 – 2.45 VPC)	14.1 – 14.7	28.2 – 29.4	56.4 – 58.8
Finish Charge (2.70 VPC)	16.2	32.4	64.8
Equalize Charge (2.70 VPC)	16.2	32.4	64.8
Float Charge (if desired 2.25 VPC)	13.5	27	54

Recommended Deep-Cycle Flooded/Wet Charging Profile



TECHNICAL SUPPORT

Call Trojan Battery Technical Support:

United States and Canada: 800-423-6569 ext. 3045
International: +1-562-236-3045

On the web:

<http://www.trojanbattery.com/tech-support/>

Flooded/Wet State of Charge as a Measure of Specific Gravity and Open-Circuit Voltage

Percentage Charge	Specific Gravity	Cell	6 Volt	12 Volt	24 Volt	48 Volt
100	1.277	2.122	6.37	12.73	25.46	50.92
90	1.258	2.103	6.31	12.62	25.24	50.48
80	1.238	2.083	6.25	12.50	25.00	50.00
70	1.217	2.062	6.19	12.37	24.74	49.48
60	1.195	2.04	6.12	12.24	24.48	48.96
50	1.172	2.017	6.05	12.10	24.2	48.40
40	1.148	1.993	5.98	11.96	23.92	47.84
30	1.124	1.969	5.91	11.81	23.62	47.24
20	1.098	1.943	5.83	11.66	23.32	46.64
10	1.073	1.918	5.75	11.51	23.02	46.04

Battery Top
Keep Clean

Vent Caps
Remove to Water & Tighten Afterwards

Battery Terminal
Clean & Remove Corrosion

