

BATTERIES



Trojan batteries are considered the Cadillac of the battery world. They have the standard glass mats and high quality separators found in other high quality batteries. However they have a patented Multi Rib Separator that outperforms the competition. Do not settle for the "or equivalent" listed in some catalogs.

NOTES ON BATTERY MAINTENANCE

Just about the only maintenance required in a solar electric system is to the battery bank. Proper care of your bank will eliminate 99% of all system problems. You will get a one page Battery Care Sheet from us with just about anything you purchase. You will receive our **Battery Book for Your PV Home** with the purchase of a battery bank. In any case, not using more power than you produce is the first secret to battery bank care! People often ask "How many modules do I need to charge my batteries?". The question should be "How many modules do I need to keep up with my energy use?". The definition of a properly sized system is keeping your batteries fully charged all (or at least most of) the time. You'll need a hydrometer and a digital voltmeter to monitor your system. Another very important maintenance procedure is to equalize (overcharge) your wet lead-acid bank periodically - about 4 times a year would be good. (Note that Gel or AGM batteries should NOT be equalized or charged beyond their recommended "full charge" voltage

Trojan T-105

6 volts 225 amp-hrs 62 lbs
720-105 Trojan T105 \$159
(L) 10 3/8 in. (W) 7 1/8 in. (H) 10 7/8 in.



The Trojan T105 battery is a top quality battery with glass mats and patented Multi-Rib separators. The Multi-Rib separator provides superior electrolyte distribution, less negative plate expansion, less water usage, reduced positive plate shedding and less maintenance. They also utilize a proprietary paste formula, known as Alpha Plus, which is another key ingredient to long life. Trojan T-105's are simply the best battery of this type and size. In fact, based on the new Battery Council International testing procedures, Trojan's T-105 was 225 cycles better than the next leading brand.

The T-105 model has a strong, lightweight case, made of polypropylene. It weighs about 62 pounds. It is easier to use as a building block than the 130 pound L-16 battery. One person can carry the T-105 battery.

Don't buy 12 volt marine batteries for your system unless it will have only one battery. Two 6V batteries wired in series make one large 12V battery that is bigger and better than two of the 12V marine batteries.

All of our kits feature Trojan T-105 batteries, and always have for the last twenty years. Many of the systems we sold ten years ago are still operating on the original T-105 battery bank. In terms of watts stored over time per dollar, nothing even approaches the Trojan T-105 for value.

*Please note:
Sales tax will be added
to all T105 and L16
orders delivered to the
New England states.
(Except NH)*

Trojan RE SERIES Batteries

Trojan T105-RE

6 volts 225 amp-hrs 67 lbs
720-106 Trojan T105-RE \$179
(L) 10 5/8 in. (W) 7 1/8 in. (H) 11 3/4 in.

Trojan L16RE-B

6 volts 370 amp-hrs 118 lbs
720-016 Trojan L16RE-B \$359
(L) 11 5/8 in. (W) 7 in. (H) 17 11/16 in.

The Trojan RE Series batteries are tougher deep cycle batteries especially designed for the alternative energy market. If you insist on a more robust, longer life battery for your bank, the Trojan RE Series are an excellent choice.

They have been redesigned and optimized for use in a renewable energy systems. The Dura-Grid™ technology provides a 10-year design life and excellent charge efficiency. The Maxguard™ XL advanced design separator is 30% thicker and stronger, resists stratification, extends life and lowers overall maintenance time. The Alpha Plus™ paste formulation promotes longer life and optimum performance. Both batteries feature an "L" type terminal for easier battery bank connections.

Both batteries feature a two year replacement warranty. (This does NOT cover abuse of the batteries. Trojan has an RE-Series warranty sheet posted on their website.) The T105-RE has an added pro-rated 36 month warranty for a total of a 5-year warranty. The L16-RE has a pro-rated added 60 month warranty for a total 7-year warranty.



T105-RE
Top View



T105-RE
Side View

MK DEKA Gel Battery

12 volts 88 amp-hrs 63 lbs

720-088 8G27-DEKA \$259
(L) 12.83 in (W) 6.56 in (H) 9.30 in

The 8G27 is a valve regulated, gelled-electrolyte, lead acid battery designed specifically for deep cycle applications. This makes an excellent battery for alternative energy use. It also requires almost no maintenance and since it does not gas, the battery bank needs no venting. The 8G27 also has the ability to operate effectively in broad temperature extremes making it a good battery for use in cold locations. Each battery is fitted with "Flag" type terminals that have clearance holes for 1/4" bolts.

Features:

- Completely maintenance free. Sealed construction eliminates periodic watering, corrosive acid fumes and spills.
- Electrolyte will not stratify, no equalization charge required. Allows faster recharge.
- Case and cover of high impact polypropylene with reinforced endwalls to reduce bulging.
- Self-sealing vent for safety and long life.
- Thermally welded polypropylene case-to-cover bond to ensure a leak-proof seal.
- Less than 2% per month stand loss means little deterioration during transport and storage.
- No transportation restrictions.
- UL recognized component.
- Can be used in any orientation. Upright, side or end mounting recommended.
- Float Charge Voltage: 13.8 to 14.1 VDC



Trojan AGM Battery

720-890 Trojan 27AGM Battery \$239
12V, 100 amp-hrs, 67 lbs
(L) 12.56 in (W) 6.81 in (H) 8.70 in

The Trojan AGM battery employs a valve regulated lead acid (VRLA), absorbed glass mat (AGM) design. This series is specifically designed for use in an alternative energy system where cycling is the norm. The batteries are sealed using pressure relief safety valves and hence do not need venting. For those who can afford their extra cost, the 27AGM series is an excellent battery for an alternative energy user or for home backup.

Features:

- Completely sealed valve regulated construction.
 - Immobilized electrolytic. Non-spillable.
 - Maintenance free design. Never requires watering.
 - Non removable pressure regulated, flame arresting safety valves, non-protruding.
 - AGM microporous spun glass separators.
 - Copolymer polypropylene case and cover.
- Wide range of operating temperatures from -40°F to 160°F.
- Low self discharge rate (approx. 1% per month).
 - UL recognized systems component.
 - No transportation restrictions.
 - Built in handles.



Battery Delivery

We ship batteries by common carrier. We get a volume discount from our shipper and pass the savings on to you. The freight must be prepaid and the batteries must be delivered to a business address. This could be where you work or c/o the town general store, garage, or a business where you have a friend who will accept delivery.

Throughout New England the freight charge is \$100 for 1 to 24 T105's. The charge rises to \$120 to \$130 for delivery to New York State depending on quantity.

Appropriate sales tax will be charged on batteries shipped to RI, CT, ME and VT.

Our distributor packs them on a pallet and shrink wraps them for protection during shipping. You remove them individually off the truck if the business site doesn't have a fork lift. Call us for advice.

**See Page 53 for
Pictures of Battery
Boxes**

BATTERY ACCESSORIES

Battery Anticorrosion Rings

- 721-001 For T-105 \$.40
 721-002 For L-16 \$.40

These are a must on any battery bank. You will need one per battery post [two per battery]. The ring for an L-16 is larger to fit over the larger post. These rings go over the post before the cable is bolted on. They lay on top of the battery case around the stud and chemically protect the studs from corrosion. They are not a washer that is attached by the cable lug and nut.



Battery Cables

These cables are made with small strand flexible battery cable. Each end has a copper lug crimped on with a gas-less connection. The crimped portion is then covered with heat-shrink tubing with a glued bond to protect against corrosion.



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|---------|----------------------------|---------|
| 311-003 | 12" 2ga. Battery Cable | \$9.00 |
| 311-004 | 18" 2 ga. Battery Cable | \$10.00 |
| 311-005 | 24" 2 ga. Battery Cable | \$12.00 |
| 311-006 | 12" 2/0 ga. Battery Cable | \$12.00 |
| 311-008 | 18" 2/0 ga. Battery Cable | \$15.00 |
| 311-007 | 24" 2/0 ga. Battery Cable | \$18.00 |
| 311-009 | 12" 4/0 ga. Battery cable | \$19.00 |
| 311-010 | 18" 4/0 ga. Battery cables | \$23.00 |
| 311-011 | 24" 4/0 ga. Battery cables | \$28.00 |

Custom Cables

2, 2/0, or 4/0 gauge. Any length.
 Similar pricing as above.

Lead Battery Lug

- 328-003 Universal Post \$3.70

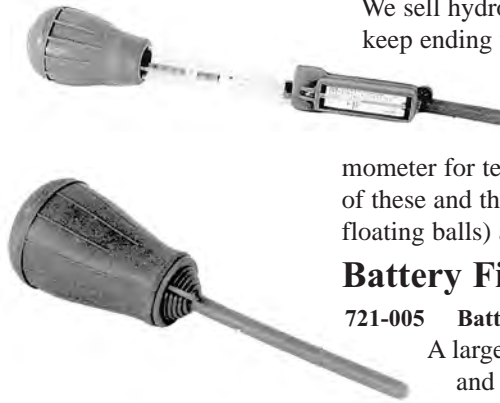
Use these to make secure connections to your batteries if you don't have battery leads with crimped or soldered ring terminals or if your batteries don't have threaded studs. They work on both Pos and Neg posts.



Hydrometer

- 721-004 Hydrometer \$12.95

We sell hydrometers because our customers keep ending up with cheap ones that are grossly inaccurate. These hydrometers have a glass float calibrated with number values and a small thermometer for temperature compensation. Buy one of these and throw the old one (with the four floating balls) away.



Battery Filler Bulb

- 721-005 Battery Filler Bulb \$3.50

A large rubber bulb and shaft for easy and accurate adding of distilled water to batteries.

Battery Filler Tank

- 721-007 Battery Filler \$13.00

We have come across a handy device for "automatically" filling batteries. Just put the filler spout into the battery filler neck and hold it there. The distilled water stops flowing at the correct level automatically. A perfect fill every time. The container holds a little more than 1/2 gallon of distilled water. Very easy to use.



Power Vent

- | | | |
|---------|-----------------|-------|
| 903-007 | 12 volt | \$79 |
| 903-008 | 24 volt | \$79 |
| 903-009 | 48 volt | \$104 |
| 903-010 | Replacement Fan | \$24 |
| | 12V or 24V | \$24 |

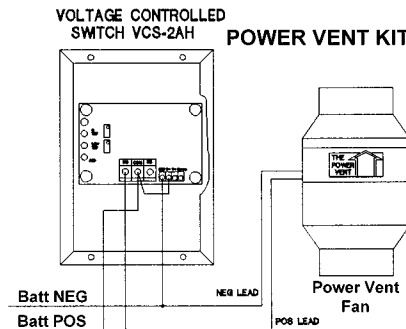
The Power Vent battery box ventilator is the ideal solution for venting your battery bank. It is fitted with a 12v, 24v or 48v fan using only 3 watts (6 watts for the 48v version as it has two fans). The 12 and 24v units use 2" PVC pipe sockets; the 48v version uses a 2" input with a 3" output. All versions have a back-draft damper and must be mounted vertically in an exhaust pipe. Those of you with inverters or charge controllers that have a programmable switch, can use that to switch the vent on and off. Otherwise, you can purchase the Power Vent as part of a battery venting kit using a VCS-2AH for the switch. See below.



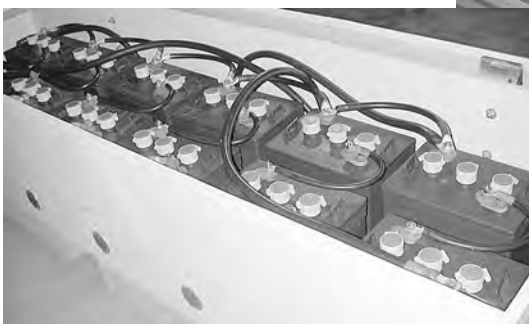
Battery Venting Kit

- | | | |
|---------|---------|-------|
| 722-012 | 12 volt | \$199 |
| 722-024 | 24 volt | \$199 |
| 722-048 | 48 volt | \$225 |

Some people will be able to use a thermosiphoning vent to satisfy the venting requirements for their battery area. For those who have a need for a more positive method, we have a battery venting kit that is composed of a voltage controller and the Power Vent listed above. When the battery bank reaches a voltage level where battery gassing starts, the fan is turned on. When the battery voltage drops below the gassing level, the fan is stopped. Thus the fan is only on when the batteries are gassing, and nearly fully charged. Two inch PVC is used for the vent pipe. We preset the connect and disconnect points for you.



BATTERY BOXES



I took these pictures of various battery box designs while on a trip to Maine a few years back. We spend so much time describing battery box designs, we thought it might help if we included a few examples in our catalog.

First, notice how all but one design have the batteries at waist height. (The one that doesn't is in a crawl space.) This allows you to easily perform maintenance tasks on the bank without killing your back!

Second, all boxes have a lid to keep kids and pets away from the battery bank.

Third, notice the air inlet holes towards the bottom of the box. The boxes shown here use soffit vent covers over the holes to keep unwanted critters out.

Finally, and possibly most important, most of these boxes use a power vent fan in a 2" PVC pipe for ventilation. The fan is switched on and off at battery gassing voltage by a voltage controlled relay in either your inverter, charge controller or a special stand-alone voltage controlled switch. (See our battery venting kit and battery venting fan on page 56.) A passive thermosiphoning vent system could also be used. This could be fashioned from 2" PVC pipe running up through the house and out the roof much like a plumbing vent. The power vent pipe has the advantage of exiting the wall next to the battery box, a much easier pipe run.