

TROLLBRIDGE12X24[®]

(TROLLBRIDGE24+COMBINER100)

CHARGE 24 VOLT TROLLING BATTERIES FROM 12 VOLTS

SUMMARY

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The Trollbridge12X24[®] is a 12 volt Combiner100 and Trollbridge24 all in one package which allows you to charge your 24 volt trolling motor battery from the 12 volt alternator on your main engine, your trailer hookup or any single or multi-output 12 volt charger without any risk of running down your starting battery. It works automatically by putting two 12 volt batteries in series when you need to run the trolling motor and putting them in parallel for charging. It only charges the trolling batteries when the main engine is on.

FEATURES

Fully automatic, no switches or connectors to change
Starting battery will never discharge into trolling motor
Both batteries operate in parallel when not trolling
Automatically switches in series for 24 volt output
Batteries are only charged when the outboard is running
Eliminates the need for multiple output chargers
Can be conveniently located with the batteries
Rated for 12 volt alternators up to **100 amps**
Rated for 24 volt trolling motors up to **85 amps**
Use the Trollbridge2400 for up to **600 amps** load
Use the Trollbridge24 if you already have a Combiner
Use the Trollbridge24 on TWO battery systems
Green LED indicates 24 volt output active
Amber LED indicates charging is in progress
Nearly UNLIMITED warranty *
Waterproof - will operate submerged in salt water
Ignition rated for explosive atmospheres
No voltage drop so batteries reach full charge
No voltage drop so motor gets full power
No wasted power, no heat sink or cooling required
No modification to alternator or 12 volt wiring
Simple 6 wire basic installation
Comes with all cables for basic hookup
Draws no current when off
No diodes to burn out if accidentally shorted
Withstands ambient temperature to over 175 F (80 C)
for engine compartment mounting

DANGER: During installation voltages may be present on unattached cables. Make sure these do not short out to boat ground, battery positive, or to each other.

WARNING

Fuses are not normally used on the trolling battery cables however if you do BOTH must be fused.

HOW IT WORKS

The Trollbridge12X24[®] connects two 12 volt batteries to your starting battery to make 24 volts. The 2 trolling batteries are in parallel at 12 volts when not trolling.

When the starting battery reaches 13 volts or more the amber LED comes on and the trolling batteries receive charge.

The first trolling battery can also be used as a house battery for other 12 volt loads..

The second "trolling" or "booster" battery is used only for the trolling motor and **cannot be connected to anything else**.

INSTALLATION

We recommend 6 gauge wire for the motor cables and for extending the supplied cables. Flash cables before connecting to check for sparks which indicate a wiring error.

Since the connections made in the battery circuits can carry hundreds of amps, it is imperative that you have low resistance connections. This means having clean metal to metal contact, the right size ring terminals, properly crimped terminals, and secure mechanical fastenings.

- IMPORTANT** Remove any existing jumper from trolling battery **1positive** to battery **2negative**. Sometimes this jumper connection is inside the trolling motor plug.
- Any existing battery charger cables can be left as-is.
- Connect starting battery negative to the first trolling battery negative with a black cable. 10 gauge is OK but if the run is over 10 feet use 8 or 6 gauge.
- Connect the **BLACK** Trollbridge12X24[®] ground wire to the negative of the first trolling battery. Lengthen if needed.
- The **RED** cable is connect to the positive terminal of the first trolling battery which can also be used as a house battery. **SHORTENING THIS CABLE WILL VOID THE WARRANTY***. Extending is OK .
If you want a safety breaker in this circuit it should be rated at 100 amps maximum. See **WARNING** - - the **PURPLE** cable must be fused also. .
- Connect the **GREEN** cable to the second trolling battery negative terminal. **No other connections should be made to this negative battery terminal. SHORTENING THIS CABLE WILL VOID THE WARRANTY***. Extending with 8 or 6 gauge wire is OK.
- Connect the **PURPLE** (sometimes WHITE) cable to the second trolling battery positive terminal. The trolling motor does **NOT** connect to this terminal. **No other connections should be made to this positive battery terminal. SHORTENING THIS CABLE WILL VOID THE WARRANTY***. Extending with 8 or 6 gauge wire is OK. If you want a safety breaker in this circuit it should be rated at 100 amps maximum. See **WARNING** - - the **RED** cable must be fused also. .
- The **YELLOW** wire connects to the starting battery positive terminal. **SHORTENING THIS CABLE WILL VOID THE WARRANTY***. Lengthening with 10 gauge is OK but if the run is over 10 feet use 8 gauge.

9. The **BLUE** cable connects to the trolling motor positive input. This cable can be shortened if desired. **No other connections should be made to this cable.** Extend with 8 or 6 gauge wire where necessary. A circuit breaker in this circuit, current rated for your motor, is highly recommended.
10. The negative side of the trolling motor connects to the main negative terminal of the first trolling battery. (It does **not** connect to the negative terminal of the trolling battery that has the **GREEN** cable.) 6 gauge wire is recommended.
11. If you want to install an **optional remote** indicator that shows when you are in 24 volt mode use any 12 volt rated panel mount indicator and connect one wire on the common negative (**BLACK**) terminal and the positive to the second trolling battery negative terminal (with the green cable).
10. The terminal post is used on rare occasions with a starting button for trolling motors with electronics that won't start up on 12 volts. It is connected to +12 (red cable) through a push button. Pushing the button forces 24 volt mode which will then continue operating until the trolling motor is turned off.

OPERATING INSTRUCTIONS.

The Trollbridge12X24[®] automatically puts the batteries in series whenever you turn on the trolling motor. When not trolling, there is only 12 volts going to the motor to detect when it gets turned on. As soon as it is turned on, the voltage switches to 24 volts and the **GREEN LED** turns on.

When the trolling motor is off for about 30 seconds the batteries are put back in parallel. If the main engine is running and the starting battery is over 13 volts, the amber LED will turn on and both batteries will receive a charge.

Running both motors at the same time does no harm although only one battery will get charged but unequal charging on the batteries is not a problem since the batteries equalize every time the trolling motor is off.

12/24 volt motors will work OK. They will use both batteries in parallel for 12 volts and in series for 24 volt operation. Connect the 12 volt motor input to the same battery terminal as the **RED** wire from the Trollbridge12X24[®].

Although the Trollbridge12X24 draws no current when idle many trolling motors draw current even when turned off so the breaker in the **BLUE** cable should be turned off or the

motor unplugged when not in use.

TROUBLE SHOOTING

The amount of charging available is limited by the alternator output and how long it runs.

Repetitive cycling or a buzzing sound when applying a 24 volt load indicates that one of the batteries is not connected correctly.

If it fails to switch to 24 volts when you turn on your trolling motor **double check your wiring** but it may be because the trolling motor electronics won't operate while in the 12 volt mode. In this case, to use the Trollbridge12X24[®] you will need to install a **MANUAL CONTROL** push button switch that connects the small threaded stainless terminal to the +12 volt battery terminal that has the **RED** Trollbridge12X24[®] cable on it. Pressing the button forces 24 volts. It will stay in 24 volt mode until the trolling motor is off for 30 seconds. Light gauge wire is OK for the switch.

If it fails to switch to parallel (after a delay) when the trolling motor is turned off the motor controls may be drawing current even when OFF. You will need a switch in the **BLUE** cable such as a 50 amp breaker to prevent it discharging batteries and allow the Trollbridge12X24[®] to switch back to 12 volt charging mode.

SHORE POWER CHARGING

A **single output shore power charger** can be connected to the starting battery to charge all batteries. If you have a multi-output charger already installed there is no need to change the connections.

WARRANTY

*** WARRANTY VOID IF BATTERY LEADS ARE SHORTENED**

otherwise we offer an unlimited replacement warranty. These leads cannot be shortened because they provide a few milliohms of resistance that protects the Trollbridge12X24[®] from excessive current when batteries at different voltages are switched in parallel. There is no detrimental effect at normal operating currents.

Check at <http://www.yandina.com/AboutUs.htm> to get service information and the warranty return address.

TECHNICAL EMAIL QUERY tech@yandina.com

or call 877 355 2184 toll free
(843 524 2282 overseas direct).

