



TBC SERIES

Operating and Service Instructions

DC DISTRIBUTION PANEL



HINDLEPOWER

JA5041-04

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RELATED DOCUMENTS / DRAWINGS

- **TBC DC Distribution Panel** Outline Drawing - NEMA-1 Enclosure JE5069-0x
- **TBC DC Distribution Panel** Internal Component Layout Drawing (coming soon) JE5070-00
- **TBC DC Distribution Panel** Schematic JE5071-00
- **TBC DC Distribution Panel** Connection Diagram (coming soon) JE5072-00

IMPORTANT SAFETY INSTRUCTIONS

- 1) Before using the **TBC DC Distribution Panel**, read all instructions and cautionary markings on:
A) battery charger, B) battery, C) equipment connected to charger and battery
- 2) This manual contains important safety and operating instructions, and therefore should be filed for easy access.
- 3) Do not touch any uninsulated parts of the distribution panel, especially the input and output connections, as there is the possibility of electric shock.
- 4) During normal operation, batteries may produce explosive gas. NEVER smoke, use an open flame, or create arcs in the vicinity of the battery, battery charger or distribution panel.
- 5) Connect or disconnect the battery leads only when the breakers are off to prevent arcing or burning.
- 6) Before servicing the distribution panel, de-energize dc output from the connected-charger and open all battery circuit breakers and/or disconnect batteries.
- 7) Do not operate the distribution panel if it has been damaged in any way. Refer to qualified service personnel only.
- 8) Do not disassemble the distribution panel. Only qualified service personnel should attempt repairs. Incorrect reassembly may result in battery explosion, electrical shock, or fire.
- 9) Do not install the distribution panel outdoors, or in wet or damp locations unless specifically ordered for that environment.
- 10) Remove all jewelry, watches, rings, etc. before proceeding with installation.
- 11) Check your dc input current resources before choosing and installing dc input cables.

**READ AND FOLLOW
ALL SAFETY INSTRUCTIONS**

TBC DC DISTRIBUTION PANEL

SECTION II - SPECIFICATIONS

1. DC DISTRIBUTION PANEL SAFETY NOTICE

CAUTION! THERE ARE DANGEROUS VOLTAGES WITHIN THE **TBC DC DISTRIBUTION PANEL**. READ THE "IMPORTANT SAFETY INSTRUCTIONS" ON PAGE 1 OF THIS MANUAL. ONLY QUALIFIED PERSONNEL SHOULD ATTEMPT TO SERVICE THIS EQUIPMENT. REFER TO YOUR BATTERY CHARGER MANUAL FOR FURTHER INSTRUCTIONS.

2. BATTERY SAFETY NOTICE

BATTERIES CONTAIN DANGEROUS CHEMICALS AND PRODUCE HYDROGEN GAS DURING CHARGING. THIS EQUIPMENT SHOULD BE CONNECTED AND DISCONNECTED WITH CARE. ALWAYS OPEN THE BATTERY BREAKER (**CB3x**) BEFORE CONNECTING OR DISCONNECTING THE BATTERIES SO THAT NO SPARK OR ARC WILL OCCUR AT THE BATTERY TERMINALS. REFER TO YOUR BATTERY MANUAL FOR FURTHER INSTRUCTIONS.

3. APPLICATION

The **Transit Battery Charging (TBC) DC Distribution Panel** is a power distribution assembly, to be connected to any battery charger providing 12 Vdc output rated up to 200 Adc. The distribution panel's dc output can be used on up to four (4) lead-acid, nickel-cadmium, or nickel-iron cells, as long as the desired voltages are within the range of the connected charger. All batteries are not alike, so check with the battery manufacturer's charging procedures and practices. Pay attention to what the batteries are doing during the charging process. Some battery types may produce more gas (hydrogen and oxygen) than others, and need to be monitored for loss of water. Never leave the charger unattended for long periods of time.

4. FEATURES

- input voltage connections available for 12 Vdc and a maximum of 200 Adc
- color-coded dc output leads designed to charge up to four (4) 12V batteries
- output current displayed through 2% analog ammeters (M3A-D)
- dc output battery circuit breakers (CB3A-D)
- battery circuit breaker open indicator lights (DS02A-D)
- NEMA-1 wall-mountable enclosure

TBC DC DISTRIBUTION PANEL

SECTION III - INSTALLATION AND OPERATION

5. DESCRIPTION OF OPERATION

The **TBC DC Distribution Panel** consists of up to four (4) individual 12V battery-charging nodes, each rated at 100 Adc. Each node consists of a single-pole dc battery circuit breaker (CB3x), a dc ammeter (M3x) and a dc battery breaker open indicator lamp (DS02x). Color-coded battery connection cables are provided to connect up to four (4) separate batteries. The dc battery breaker open indicator lamp (DS02x) indicates the position of the dc battery circuit breaker (CB3x). When the lamp is on (lit red) the circuit breaker is open and the batteries can be connected or disconnected. NEVER disconnect or connect a battery to the leads when the corresponding lamp is off and the circuit breaker is on.

6. INSTALLATION

a. Location: Select a clean, dry location for the distribution panel. It should be wall-mounted over the battery-charging station. Refer to the supplied outline drawing (JE5069-0x) for mounting specifications. Choose a mounting height that will enable connection to the battery without putting stress on the charging leads. Allow 12 inches clearance in front of and below the distribution panel enclosure. This will permit the opening of the hinged front panel of the assembly for wiring and maintenance of the unit.

b. DC Input Wiring: With the battery charger ac and dc circuit breakers OFF, use 1/0 AWG. (or larger) cable to connect the dc output terminals of your battery charger to the distribution panel. **Do not undersize!** It is good practice to keep the dc leads as short as possible and to keep them together as a pair to obtain low inductance. Likewise, it is good practice to avoid sharp bends and to run both dc leads together if run in conduit. **Ensure correct polarity in the connections between the battery charger and the distribution panel!** Connect the positive (+) output connection of the charger to the positive (+) buss in the distribution panel. Likewise, connect the negative (-) output connection of the charger to the negative (-) buss in the distribution panel.

c. Indicator Light Wiring: TB4 of the distribution panel should be connected to an external 12 Vdc source, preferably inside the connected battery charger. This will enable the battery breaker open indicator lights (DS02A-D) to operate without power supplied from the dc output of the battery charger. Refer to Schematic (JE5071-00) for TB4 connection description.

1. **Automotive Battery Charger** (model number BB0356-XX): The distribution panel indicator lamps can be powered by a 12 Vdc source separate from the charger's standard dc output (TB2). With the battery charger ac and dc circuit breakers (CB1/CB2) in the OFF position, interconnect TB4 of the distribution panel to TB4 of the battery charger.

2. Other battery chargers **without** a 12 Vdc source: Make sure the connected battery charger ac and dc disconnect-switches are in the OFF position. Within the **TBC DC Distribution Panel**, connect a 1A inline fuse to TB4. This fuse will prevent unnecessary damage to the powered indicator lamps. Jump the other end of the fuse to the positive (+) buss bar.

3. If multiple distribution panels are combined in series, jumpers can now be added from TB4 to TB4, until all distribution panels are interconnected.

d. Connected Battery Charger: Connect all ac and dc power wiring on your battery charger per the manufacturer's installation instructions.

7. PLACING IN SERVICE

a. Battery: After all charger and dc wiring is complete, connect one (1) battery to one (1) pair of the red and black battery connectors.

BE CERTAIN THAT THE POSITIVE TERMINAL OF THE BATTERY IS CONNECTED TO THE RED CONNECTION OF THE DC DISTRIBUTION PANEL!!!

b. **TBC DC Distribution Panel:** Close the battery circuit breaker (CB3x) on the distribution panel.

c. Battery Charger: The connected-charger can now be energized. Close the ac circuit breaker on the battery charger. The battery circuit breaker open indicator light (DS02x) should **NOT** be lit.

d. Charge: dc current should flow from the connected-charger into the distribution panel, then into the connected battery. The dc ammeter (M3x) should indicate charging output current to the battery.

e. With the connected-charger operating at the desired output voltage, the system can be considered installed and ready for service. Batteries can now be added or removed by first turning off one of the four (4) battery circuit breakers (CB3A-D), then removing or adding in a battery.

8. NORMAL PERFORMANCE

If the **TBC DC Distribution Panel** or the connected-charger output should be accidentally short-circuited, one or more of the battery circuit breakers (CB3A-D) will trip and will have to be reset. Check all connections to fix possible faults. Make sure the polarity is correct for all connected batteries. Return the connected-charger to normal operation. Reset any tripped battery circuit breakers on the distribution panel.

9. MAINTENANCE

This distribution panel is designed to require a minimum of maintenance. There are no rotating parts and all components have a nominally indefinite life with no expected aging effect. It should be kept clean, dry and checked periodically to make sure all connections are tight. The interior of the distribution panel may be accessed for maintenance by removing the screws on the top of the enclosure and opening the cover forward and down. If necessary, dry air may be used to blow dust out of the interior. In the event of any irregular operation, examine, and tighten if necessary, all internal and external connections and check circuits for continuity (see schematic JE5071-00). If the difficulty cannot be remedied, contact the manufacturer.

10. TROUBLE-SHOOTING

SYMPTOM	PROCEDURE
No dc current or intermittent current.	Check all bolted connections and crimp connections.
No dc ammeter (M3A-D) reading.	Check voltage across shunt with a multimeter. The multimeter will indicate 0-50 mVdc in proportion to the current passing through the shunt.
Battery open indicator (DS02A-D) does not light.	Replace lamp.
Battery breaker (CB3A-D) will not remain on.	Inspect battery. Check polarity of the connected battery. A shorted battery can be checked with a voltmeter. The battery needs to be greater than 6 Vdc.
Battery breaker (CB3A-D) still will not remain on.	Breaker may be bad. Replace breaker.

11. MANUAL SPECIFICATIONS

DOCUMENT NUMBER

The text and graphics contained within this manual are controlled by the battery charger manufacturer's internal part number (**JA5024-00**). The revision level and dates of this manual's text and graphics are featured in the electronic filename listed below. These controls supercede all other available dates. The first and last pages of this manual are reserved for company-specific front and back cover artwork. Any revision levels, revision dates or document numbers featured on the first two and last two pages of this manual refer to the cover artwork only.

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ON-LINE AVAILABILITY

Electronic versions of this manual and/or the standard drawings for the TBC DC Distribution Panel are available online. Saved in Adobe Acrobat Portable Document Format (PDF), they are readily available for downloading and printing. Please contact your sales representative for document availability or see the manufacturer's web site listed on the back cover of this manual.

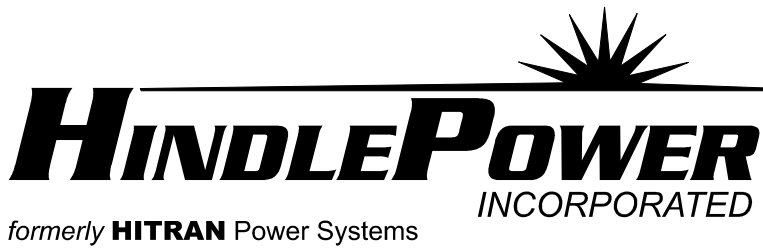
PARTS DATA PACKAGE

A job-specific customized Parts Data Package report for the TBC DC Distribution Panel is supplied with all shipped units, and should be referenced in conjunction with this manual. This report lists customer, model number, serial number, factory configuration number, embedded subassemblies, and all included parts featuring a circuit symbol. Also listed with this parts list are manufacturer's part number, circuit symbol, item description, quantity used and identification of recommended spares (if applicable).

STANDARD DRAWINGS

Standard drawings are available for the TBC DC Distribution Panel, which further detail the construction and operation of unit, and should be referenced in conjunction with this manual:

JE5069-0x TBC DC Distribution Panel NEMA-1 Enclosure Outline
JE5071-00 TBC DC Distribution Panel Schematic: EJ1309-##



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