

## Model BRS-2T-24 Voltage Regulator Operating Instructions

### INTRODUCTION

The Balmar BRS-2T-24 voltage regulator is designed to be used in conjunction with 24-volt, positive excitation (P-type) EXTERNALLY REGULATED alternators. The BRS-2T-24 voltage regulator provides an adjustable potentiometer that allows control of the regulator's maximum voltage limit. Adjustment ranges from 26.5V to 29.5V. Factory voltage setting is 27.5V.

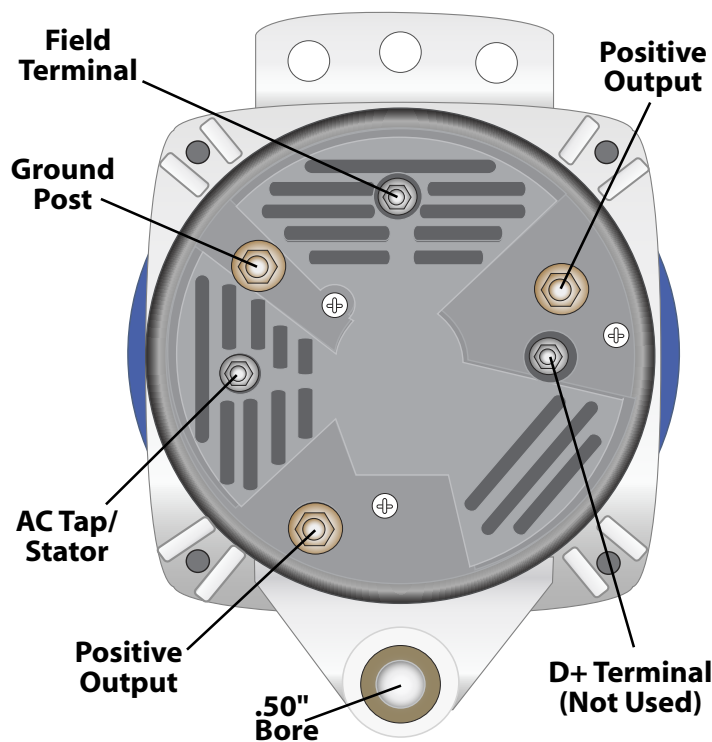
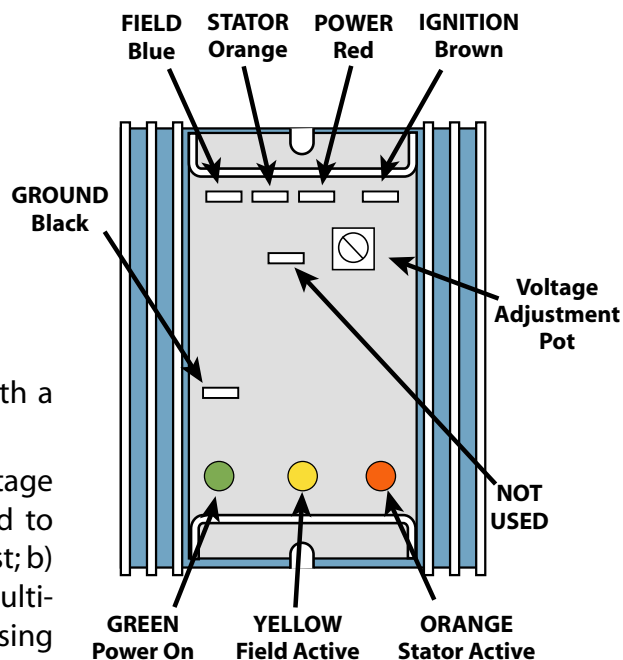
### INSTALLATION

When installing, the Balmar BRS-2T-24 should be mounted on a flat surface in an area that provides ample room and airflow for cooling. The regulator's footprint is 4.5 inches long by 2.9 inches wide. Mounting tabs are provided at each end of the regulator's heat sink. The BRS-2T-24-H is provided with a 54" long sheathed wiring assembly. Wiring is pre-installed on the regulator prior to shipping.

### CONNECTING REGULATOR TO A 24-VOLT ALTERNATOR

The BRS-2T-24 voltage regulator with wiring harness is installed with a 24-volt alternator as follows:

1. **RED Power Wire** - The regulator's power wire must always see voltage at the battery being charged. The RED wire can be connected to one of the following locations; a) alternator's positive output post; b) directly to battery's positive post; c) to the common side of a multi-position battery switch (if used), d) in the case of applications using diode-based battery isolator to distribute charging output, the RED power wire must be connected on the battery side of the isolator. The power wire **MUST** be fused at 10A.
2. **BROWN Ignition Wire** - The ignition wire must provide voltage to the regulator whenever the engine is running. Voltage can be supplied directly from the ignition switch, or through an oil pressure switch.
3. **ORANGE Stator Wire** - The stator wire provides an AC pulse to the regulator from the alternator's AC Tap as shown at right. Connect the ORANGE wire to the terminal indicated as "AC Tap / Stator".
4. **BLUE Field Wire** provides excitation current to the alternator and must be connected to the "Field Terminal" as indicated on the alternator diagram.
5. **BLACK Ground Wire** provides the regulator with a connection to system ground, and must be connected for proper operation. The BLACK wire should be connected to the alternator's "Ground Post" indicated in the diagram at right.



Terminal connections on Balmar 98-24-220-BL-IG are shown. Terminal locations may vary on other 24-volt alternators. See alternator manual

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### ADJUSTING CHARGING VOLTAGE

The BRS-2T-24 can be adjusted to provide single stage voltage control ranging from 26.5V TO 29.5V). The voltage adjustment pot, as shown in the illustration, provides adjustability. To increase or decrease charging voltage:

1. With the batteries fully charged, start the engine and allow the charging voltage to rise to its preset limit.
2. When the charging voltage reaches its target, use the voltage adjustment pot to increase or decrease maximum charging voltage to its desired level. Turn the pot clockwise to increase maximum charging voltage. Turn counterclockwise to reduce maximum voltage.

### TROUBLESHOOTING REGULATOR

**NO OUTPUT** - Regulator must have battery voltage at RED and BROWN wires to operate properly. Check voltage at those wires to ensure voltage is present when engine is running. RED wire includes a 10-amp fuse inline. Check fuse.

**VOLTAGE TOO HIGH** - Regulator must sense battery voltage accurately to ensure proper voltage control. Check for differences in voltage at the batteries and on the RED wire at the regulator. If voltage shown is lower at the regulator. Check for and correct voltage drop in wiring.

### WARRANTY

BALMAR warrants to the original consumer/purchaser the product is free from any defects in material or workmanship for a period of one year from the date of purchase. If any such defect is discovered within the warranty period, BALMAR will replace the regulator free of charge, subject to verification of the defect or malfunction upon delivery or shipping prepaid to BALMAR.

This warranty DOES NOT apply to defects or physical damage resulting from abuse, neglect, accident, improper repair, alteration, modification, or unreasonable use of the products resulting in breakdown, cracked or broken cases nor are parts damaged by fire, water, freezing, collision, theft, explosion, rust, corrosion or items damaged in shipment in route to BALMAR for repair. BALMAR assumes no responsibility for consequential damage or loss or expense arising from these products or any labor required for service or repair.

BALMAR WILL NOT repair or be held responsible for any product sent without proper identification, return address and Return Authorization (RA) number clearly marked on the package. You must include proof of date and place of purchase (photocopy of purchase invoice) or we cannot be responsible for repairs or replacement. In order to expedite warranty claims more efficiently, BALMAR asks that prior to returning a defective product for repair, you call BALMAR's Customer Service department for a warranty return authorization number.

If factory service is required, you can contact our BALMAR Customer Service Department Monday through Thursday, 7:30 AM to 5:30 PM, (PST) 1-360 435-6100 ext 2.

Material required for the repair or replacement for the defective part or product is to be supplied free of charge upon delivery of the defective regulator to BALMAR, 18930 59th Ave. NE, Arlington, WA 98223. Customer is responsible for all return transportation charges and any air or rush delivery expense. BALMAR reserves the right to determine whether to repair or replace defective components. Returned warranty or non-warranty items deemed non-repairable will be disposed of after 30 days, unless claimed by owner. Balmar is not liable for damage to or loss of returned items.

THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS. NO PERSON, AGENT, DEALER IS AUTHORIZED TO GIVE ANY WARRANTY.

