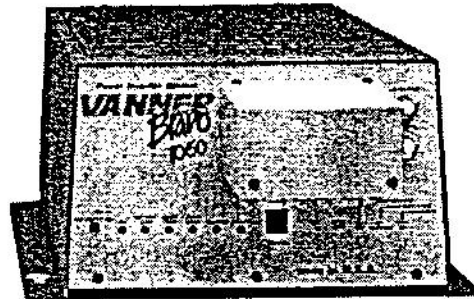


OWNERS MANUAL

BRAVO 1050
Inverter/Battery Charger



QBC10-12/230-50H, QBC10-24/240-50H
QBC10-24/230-50H, QBC10-24/240-50H

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INTRODUCTION

Thank you for purchasing a Vanner *Bravo* Power Inverter/Battery Charger. We are confident that you will be very pleased with its performance. Vanner Inverter/Battery Chargers are designed and manufactured by skilled professionals using the highest standards in workmanship. With minimum maintenance and care, you can be assured of many years of trouble-free service.

GENERAL DESCRIPTION

These units have 3 wires (black for hot, white for neutral, and green for GND) used to connect the AC input of inverter/charger to AC input power with wire nuts and 3 similar wires with wire nuts to connect the AC output of inverter/charger to its AC load center.

Bravo is a high performance combination inverter and battery charger. The inverter is connected to a battery through proper fusing and can also be connected to AC input power. Loads connected to *Bravo* will be powered from the battery when AC input power is not available. When AC input power is restored (after a brief delay to insure that full power is available) the load is switched back to AC input power and the battery charger activates automatically to recharge the battery.

Inverter: The *Bravo* QBC10 converts the power of a battery to 1050 watts of 230 or 240 VAC modified sine wave power to operate lights, tools and appliances. *Bravo* is simply connected to the positive and negative posts of a battery system with appropriate fusing, and when turned on produces 230 or 240 VAC power. The inverter also has an energy saving feature called *Load Demand*. While in *Load Demand* mode, the inverter output is pulsed. This significantly reduces the current draw from the battery until a demand is made on its output. Continuous output of 230 or 240 VAC resumes when a load greater than 5 watts is applied.

Battery Charger: The *Bravo* battery charger is superior to standard chargers. *Bravo* incorporates a unique three stage charger design which allows it to correctly charge batteries automatically. While in the BULK stage, *Bravo* charges continuously at full output of 55 (27.5) amps* until the battery cells have charged to 14.2/14.1 (28.4/28.2) VDC (flooded/gel). Then the charger goes into the ABSORPTION stage, maintaining 14.2/14.1 (28.4/28.2) VDC until the battery is fully charged. *Bravo* then automatically switches to the FLOAT stage. The FLOAT stage maintains the battery at a correct voltage of 13.2/13.6 (26.4/27.2) VDC. The three stage design keeps batteries in top condition and reduces battery failure.

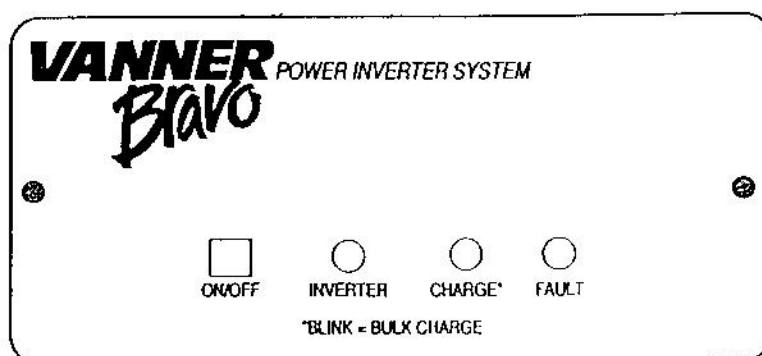
* A front panel mounted Battery Charger High/Low dipswitch is provided to limit the output from 55 (27.5) amps to 27.5 (13.7) amps.

SPECIFICATIONS:

INVERTER Model #	QBC10-12/230-50H	QBC10-12/240-50H	QBC10-24/230-50H	QBC10-24/240-50H
Output at 230 or 240 VAC-Continuous	1050			
Surge Capacity at 230 or 240 VAC (3 secs)	2100			
Input Voltage, VDC	12 VDC Nominal,		24 VDC Nominal	
(Deep Cycle Battery Recommended)	10.5 VDC Minimum		21 VDC Minimum	
	16.0 VDC Maximum		32 VDC Maximum	
Output Voltage	230 VAC ± 5%	240 VAC ± 5%	230 VAC ± 5%	240 VAC ± 5%
No Load Current Draw (Battery)	1 Amp (full voltage), Approximately 0.125 Amps (load demand)			
No Load Current Draw (Battery)	0.020 Amps (Power Off)		0.025 Amps (Power Off)	
Frequency	50 Hertz ± 0.1%			
Output Waveform	Modified Sine Wave			
BATTERY CHARGER (if equipped)				
Charging Capacity, AMPS	55 Amps High, 27.5 Amps Low		27.5 Amps High, 13.7 Amps Low	
Input voltage, VAC	23 VAC ± 10%	240 VAC ± 10%	230 VAC ± 10%	240 VAC ± 10%
Input Current, IAC	4			
Bulk Voltage, VDC	14.2 (flooded) 14.1 (Gel)		28.4 (flooded) 28.2 (Gel)	
Float Voltage, VDC	13.2 (flooded) 13.6 (Gel)		26.4 (flooded) 27.2 (Gel)	
Bypass				
Output Current, hardwired (H suffix)	30 Amps			
Ambient Temperature	-40 to +105oF, -40 to +40oC			
Cooling Air	Fan-cooled, 30 cfm			
Chassis	Aluminium			
Dimensions Hardwire	11.57" W x 5.94"H x 13.04" D			
Weight	22 lbs			

OPTIONS

Remote panel provides On/Off control and status monitoring. Remote has 3 LEDs to indicate present status. The red LED lights when a fault occurs, the yellow when charging is in progress, and the green when the inverter is on or in Load Demand.

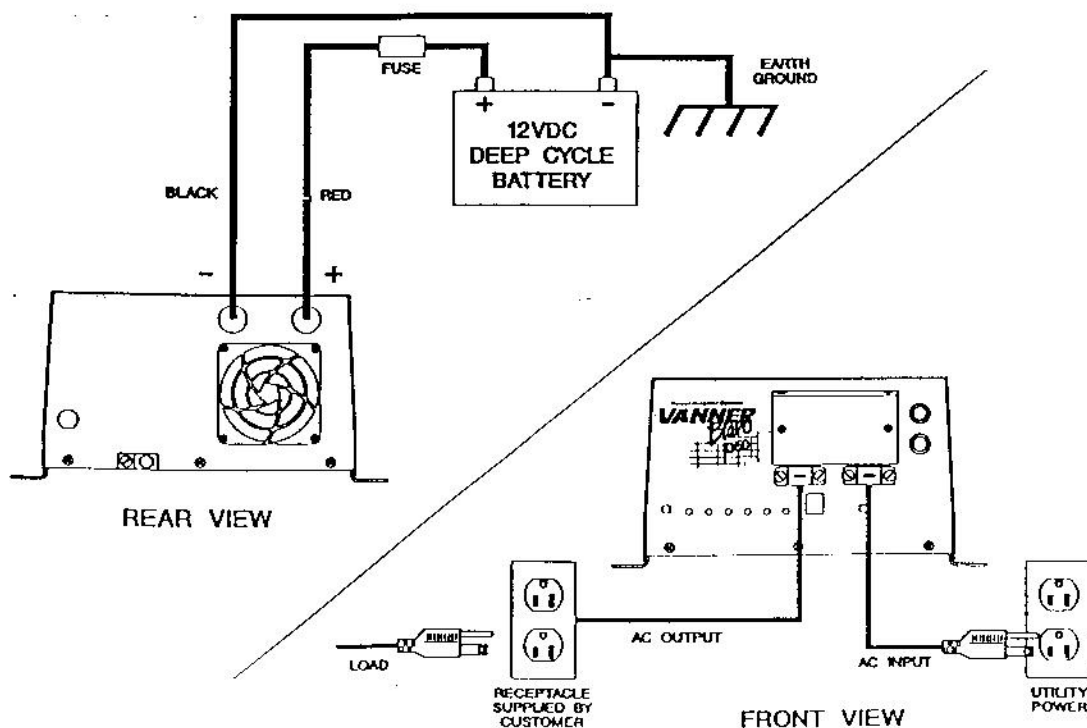


INSTALLATION: HARDWIRED UNITS

CAUTION!- Battery input cables must be connected to the battery with proper polarity as instructed or damage to the inverter may occur.

1. The unit should be OFF before installation begins. Make sure the ON-OFF/RE-SET Inverter Switch is in the OFF-RESET position (Button NOT pushed in).
2. Select a location for the unit that is: a) close to the battery (within 6 ft. using #2 gauge wire), b) protected from the weather, and c) well ventilated.
3. Route the Negative and Positive DC Input cables from the inverter/charger to the battery. If required, protect cables where they come into contact with hard and sharp edges.
4. Install an inline fuse (Bussman ANN 125—for 12 volt application or ANN 80—for 24 volt application) in the (RED) Positive DC Input Cable between the battery and inverter (within 18" of battery).
5. Connect the (BLACK) Negative DC Input Cable to the Battery negative (-) terminal. Connect the (RED) Positive DC Input Cable to Battery positive (+) terminal.
6. Select the proper battery type (GEL or flooded lead acid), load demand option, and charge rate using recessed switches on front panel.
7. Connect AC Input of field wiring compartment to AC source using properly sized wire and wire nuts (10AWG recommended).
8. Wire AC Output to appropriate branch circuits.
9. Verify all connections are tight and secure for maximum performance. Installation is now complete.

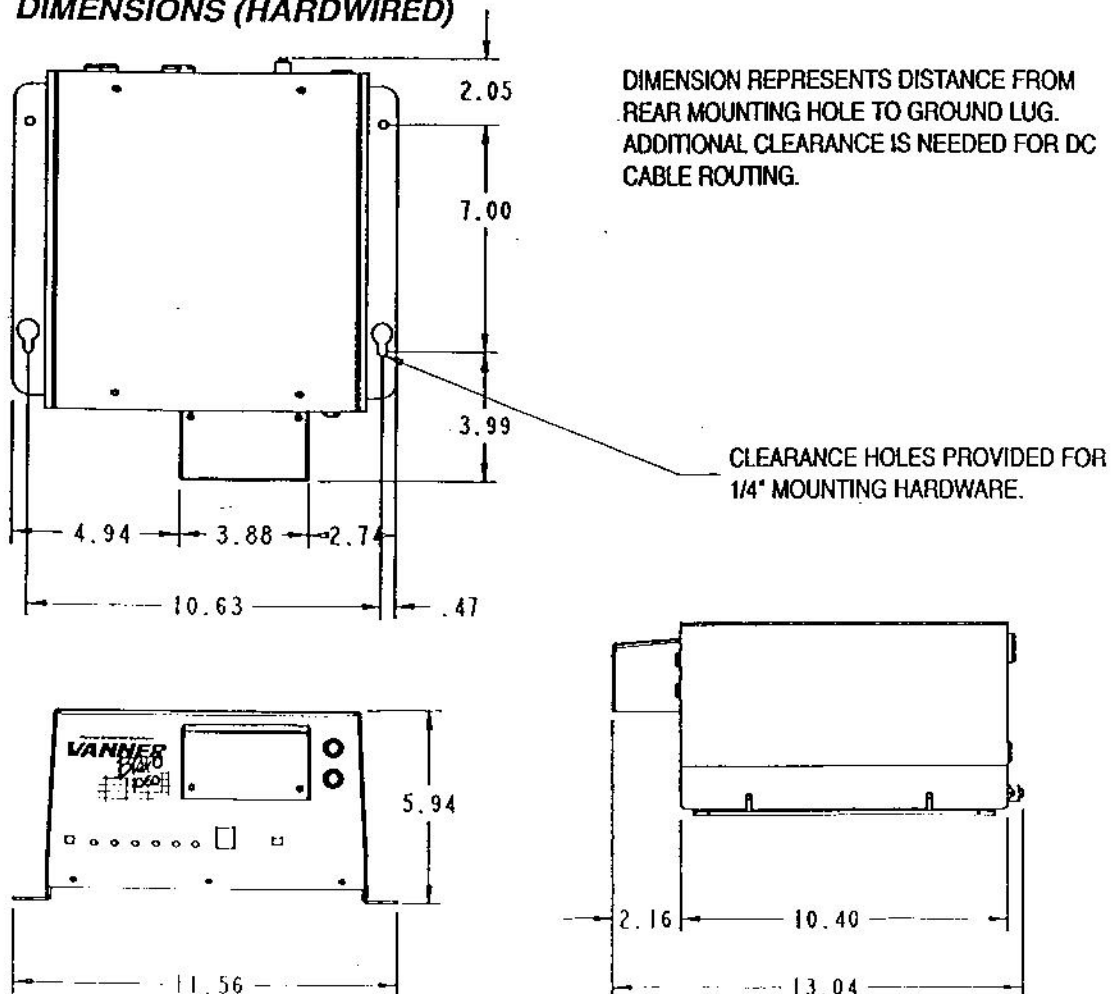
HARDWIRED UNIT SHOWN



OPERATION:

1. With installation complete, apply AC input power to the unit. The charger will activate automatically, and either the CHARGE or READY Lamp will light depending on battery status. The unit is now charging the battery.
2. Apply an AC load with utility power present and the AC load is run directly off utility power. The ON-OFF/RESET Inverter Switch has no effect on the unit's AC output when utility power is present. The ON-OFF/RESET Inverter Switch only controls the inverter section of the unit.
3. Push in the ON-OFF/RESET Inverter Switch to the ON position. If utility power is present the ON Lamp will "FLASH." The "FLASH" indicates the inverter is standing by.
4. If utility power is removed or lost and the ON-OFF/RESET Inverter Switch is in the ON position, the unit will automatically switch to inverter and operate the AC load using battery power. The READY and CHARGE lamps will be off and the ON Lamp will light fully.
5. If utility power is restored, the inverter will (after 5 second delay) switch to battery charging and run the AC load direct. The ON Lamp will "FLASH" indicating inverter is in standby and either the CHARGE or READY Lamp will light depending on battery status.
6. With ON-OFF/RESET Button in the ON position, a double flash of the ON Light indicates that load demand is turned on and the load is less than 5 watts.

DIMENSIONS (HARDWIRED)



FRONT PANEL

ON-OFF/RESET Inverter Switch

Push button in to turn inverter ON, push again to release and turn inverter OFF. This switch also acts as an Inverter RESET, turning the inverter OFF and then back ON will reset inverter.

HARDWIRE BOX

Supplied with #10 gauge pigtails for hook-up during installation.

AC CIRCUIT BREAKER

Push button circuit breakers protects both the AC output and AC Input.

LOAD DEMAND

With load demand on, the inverter conserves battery energy and operates only when a load greater than 5 watts is applied.

ON Lamp

Indicates inverter is ON - A flashing lamp means utility power is present and inverter is in standby, a solid lamp means inverter is fully on and operating. Double flash indicates Load Demand feature is on and the load is less than 5 watts.

BATTERY LOW Lamp

When the battery voltage remains below 10.5 (21.0) VDC for more than 5 seconds, the inverter shuts off and the BATTERY LOW Lamp glows. This condition results from overdischarge of the battery. The battery must be recharged before the inverter can be restarted. To restart, turn inverter OFF and turn back ON. The inverter will start and the BATTERY LOW Lamp will turn off.

CHARGE LAMP

Indicates battery charger is in operation and in the CHARGE mode. Battery is being charged continuously until a bulk voltage of 14.2/14.1 (28.4/28.2) VDC (flooded/gel) is reached. The charger maintains 14.2/14.1 (28.4/28.2) VDC for 1 hour until battery is fully charged. The charger then switches to READY (or float) mode:

BATTERY TYPE

Charger properly charges both gel and flooded batteries. Set dip switch to select battery type. Improper selection may boil batteries.

CHARGER

In the HIGH position charge output is 55 (27.5) amps (maximum output). In the LOW position the output is 27.5 (13.7) amps.

REMOTE Receptacle

Remote contains one ON/OFF switch to enable/disable the inverter and 3 LEDs to indicate ON/OFF, charging, and fault conditions.

OVERTEMP Lamp

When the internal temperature of the inverter reaches an unacceptable level, the inverter shuts off and this lamp turns on. The inverter must be allowed to cool before it will automatically restart. Make sure fan intake and ventilation holes are not blocked.

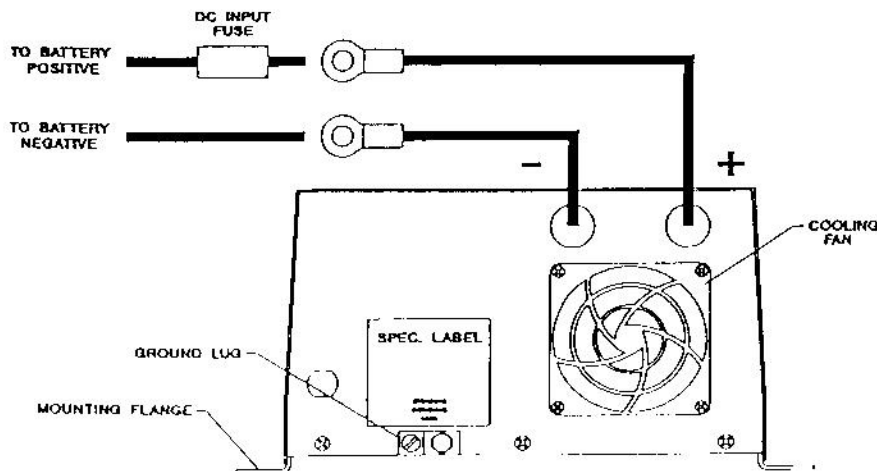
OVERLOAD Lamp

If a load on the inverter exceeds the rated capacity, the OVERLOAD Lamp lights. The external condition must be corrected and the power switch set to OFF momentarily and then back to ON to restart the inverter.

READY Lamp

Indicates battery charger is in operation and in the READY (or FLOAT) mode. Battery is being maintained at a float voltage of 13.2/13.6 (26.4/27.2) (flooded/gel).

BACK PANEL



REAR VIEW

TROUBLESHOOTING:

SYMPTOM	SOLUTION
ON Lamp does not light fully after pushing in the ON-OFF/RESET Inverter Switch.	<ul style="list-style-type: none"> - If utility power is present, lamp will only FLASH—It double flashes if in Load Demand and the load is less than 5 watts - If utility power off, check battery connections - If utility power off, check DC fuses
ON lamp lights fully but AC load will not run.	<ul style="list-style-type: none"> - Check and reset Circuit Breaker - Verify AC load and cord are in good condition
BATTERY LOW Lamp lights when AC load is applied.	<ul style="list-style-type: none"> - Check battery connections - If battery voltage is less than 21.0 VDC, recharge battery - Add an additional battery
OVERTEMP Lamp lights after unit has been running for a period of time.	<ul style="list-style-type: none"> - Remove objects that obstruct air flow to the Cooling Fan or from ventilation holes - Verify AC load is within unit's rated capacity
<p>OVERLOAD Lamp lights when AC load is applied.</p> <p>Battery charger will not turn on. No CHARGE or READY Lamp.</p>	<ul style="list-style-type: none"> - Verify AC load is within unit's rated capacity - Try smaller AC load - Verify AC Input Cord is plugged into utility power and power is present - Check and reset Circuit Breaker - Wait 5 seconds after utility power is restored
DC fuse blows when connecting DC Input Cables.	<ul style="list-style-type: none"> - Check for reverse polarity, RED cable to battery positive (+) and BLACK cable to battery negative (-)
<p>If further service assistance is required please contact your local Vanner Weldon Service Center. 1-800-AC-POWER</p>	

LIMITED WARRANTY

1. Vanner Weldon, Inc., referred to herein as Vanner, warrants that this product is free from defects in materials and workmanship for a period of one (1) year from its date of shipment from Vanner's factory.
2. This warranty does not cover defects caused by misuse, neglect, accident, reversed polarity, unauthorized repairs and/or replacements.
3. All warranties of merchantability and fitness for a particular purpose; written or oral, express or implied, shall extend only for a period of one (1) year. There are no other warranties which extend beyond those described on the face of this warranty.
4. Vanner does not undertake responsibility to any purchaser of its product for any undertaking, representation, or warranty made by any dealers or distributors selling its products beyond those herein expressed.
5. Vanner does not assume responsibility for incidental or consequential damages, including, but not limited to responsibility for loss of use of this product, loss of time, inconvenience, expense for telephone calls, shipping expense, loss or damage to property, or loss of revenue.
6. Vanner reserves the right to repair, replace, or allow credit for any material returned under this warranty. Any damage caused by the customer will be charged or deducted from the allowance.
7. All warranty work will be performed at Vanner's factory, or authorized repair facility. Products shall be delivered to Vanner's facility, freight prepaid. Products repaired under warranty, or replacement parts or products will be returned, F.O.B. Vanner factory.

VANNER POWER GROUP

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