SUPER BEAST VOLTAGE READINGS

CAUTION: Always wear approved PPE while operating the Super Beast

*Note: *The Super Beast is designated for 120V only! Voltage levels may vary by service location. Acceptable voltage drop limits must be set by each utility (many utilities use a 5-7 volt drop as indication of a problem. Accurate readings may require line-side neutral isolation.*

EXAMPLE

Unit connected to meter base with live service voltage (no load)

Left Meter: [124]
Right Meter: [125]

GOOD CONDUCTORS

Test: *Flip switch left*
Left Meter: *<5% drop* **[121]**
Right Meter: *No change or ±1V* **[126]**
Result: *Good Left Conductor*

Test: *Flip switch right*
Left Meter: *No change or ±1V* **[125]**
Right Meter: *<5% drop* **[122]**
Result: *Good Right Conductor*

PARTIALLY OPEN CONDUCTORS

Test: *Flip switch left*
Left Meter: *Voltage drop ≥ 5–7%* **[81]**
Right Meter: *No change or ±1V* **[126]**
Result: *Partially open left conductor*

Test: *Flip switch right*
Left Meter: *No change or ±1V* **[124]**
Right Meter: *Voltage drop ≥ 5–7%* **[111]**
Result: *Partially open right conductor*

OPEN CONDUCTORS

Test: *Flip switch left*
Left Meter: *Blank reading*
Right Meter: *±3V of prior readings* **[125]**
Result: *Open left conductor*

Test: *Flip switch right*
Left Meter: *±3V of prior readings* **[121]**
Right Meter: *Blank reading*
Result: *Open right conductor*

PARTIALLY OPEN NEUTRALS

Test: *Flip switch left*
Left Meter: *Drops significantly, -10V* **[81]**
Right Meter: *Rises significantly, +10V* **[148]**
Result: *Partially open left neutral*

Test: *Flip switch right*
Left Meter: *Rises significantly, +10V* **[148]**
Right Meter: *Drops significantly, -10V* **[83]**
Result: *Partially open right neutral*

FULLY OPEN NEUTRALS

Test: *Flip switch left*
Left Meter: *Blank reading*
Right Meter: *Rises significantly, +50V* **[214]**
Result: *Fully open neutral*

Test: *Flip switch right*
Left Meter: *Rises significantly, +50V* **[213]**
Right Meter: *Blank reading*
Result: *Fully open neutral*

503-692-4600
www.hjarnett.com
information@hjarnett.com
20460 SW Avery Ct
Tualatin, OR 97062

MEGA BEAST VOLTAGE READINGS

CAUTION: Always wear approved PPE while operating the Mega Beast

The Mega Beast (MB) allows troubleshooters to apply up to an **80A** *load using (4)* **20A** *switches. Higher loads make troubleshooting easier.*

Applying Load: *Turn knob either to the left (left conductor) or to the right (right conductor)*

Pro Tip: *There may be more than one service problem. After checking the crimps and connection points, retest with the Mega Beast*

Unit connected to meter base with live service voltage (no load)

WHY MORE AMPS?

Good secondary service shown on the MB meter under varying loads. Knob turned left to test the left conductor only.
**If there is a service problem (ex. loose transformer connection) it will be more apparent with more load*

TEST: 20A, 1 Switch	121	L-TP	N-TP	R-TP	123
TEST: 40A, 2 Switches	118	L-TP	N-TP	R-TP	123

TEST: 60A, 3 Switches	115	L-TP	N-TP	R-TP	124
TEST: 80A, 4 Switches	113	L-TP	N-TP	R-TP	125

PARTIALLY OPEN CONDUCTORS

A partial connection causes the readings to appear normal with no load; however, when a load is applied (e.g., the customer turns on a hairdryer), the voltage readings are affected inversely. Inspect the neutral connection and retest the service using the MB.

TEST: 20A, 1 Switch	081	L-TP	N-TP	R-TP	123
TEST: 40A, 2 Switches	060	L-TP	N-TP	R-TP	123

TEST: 60A, 3 Switches	048	L-TP	N-TP	R-TP	123
TEST: 80A, 4 Switches	040	L-TP	N-TP	R-TP	123

OPEN CONDUCTORS

Below, open conductors appear as a blank reading on the MB meter with no load applied.
A blank left or right meter identifies the open conductor. Check connection points (crimps) and retest under load.

Left Meter: *Blank reading*
Right Meter: *Normal voltage reading*
Result: *Open left conductor*

	L-TP	N-TP	R-TP 123

PARTIALLY OPEN NEUTRALS

Below, one meter drops significantly while the other rises by the same amount. This indicates a partial connection that appears normal with no load, but causes inverse voltage changes when a load is applied (for example, when a hairdryer is turned on). Check the neutral connection and retest the service using the MB.

TEST: 20A, 1 Switch	082	L-TP	N-TP	R-TP	147
TEST: 40A, 2 Switches	061	L-TP	N-TP	R-TP	161

TEST: 60A, 3 Switches	049	L-TP	N-TP	R-TP	171
TEST: 80A, 4 Switches	041	L-TP	N-TP	R-TP	177

FULLY OPEN NEUTRALS

Below, when connected to a service with a fully open neutral, the MB shows a voltage drop on both meters with no load. When a load is applied, one meter goes blank while the other increases by about 50 volts.

Test: *Turn knob left*
Left Meter: *Blank reading*
Right Meter: *Rises significantly, +50V*
Result: *Fully Open Neutral*

	L-TP	N-TP	R-TP 214

Test: *Turn knob right*
Left Meter: *Rises significantly, +50V*
Right Meter: *Blank reading*
Result: *Fully Open Neutral*

214	L-TP	N-TP	R-TP

No load applied
Voltage drops on both meters
Result: *Fully Open Neutral*

108	L-TP	N-TP	R-TP 106

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