

# *The Mega Beast*

Service Conductor Tester

- ▲ New 80 Amp artificial unbalanced load!
- ▲ Indicates problems on secondary service
- ▲ Detects open neutrals quickly, accurately



## Unleash the Mega Beast on Service Complaints

Easy as the original *Beast of Burden*, more powerful than the *Super Beast!* Now in 20 Amp increments, you can apply an 80 Amp load to detect the most elusive problems on secondary service. *The Mega Beast* provides fused and circuit breaker safety, too.



*H.J. Arnett Industries, L.L.C. - Innovative Instruments for Utilities & Industry*

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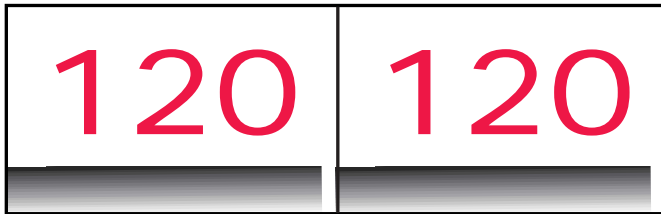
7500 S.W. Tech Center Dr. #130 Portland, OR 97223 Phone (503) 684-9844 Fax (503) 684-8360

# It's this easy...

Since the original *Beast of Burden* was produced over 30 years ago, we have incorporated features from customer suggestions to produce *The Super Beast* and *The Mega Beast* - while retaining accuracy and ease of use. The same basic, simple steps apply in operating all models of the Beast units.

- 1** Remove the KWH meter.  
Safety note: always wear protective safety glasses or face shield and rubber protective insulating gloves when working around meter.
- 2** Inspect the meter base for loose connections or other visual problems. Connect the green clip to neutral. Connect red and black clips to hot legs.
- 3** Start with one 20 amp load switch turned on, then increase load as needed.

- 4** Turn the switch to the left, read meters. You will see *one* of the following sets of readings:



Left meter reads 120V, so left conductor is OK.

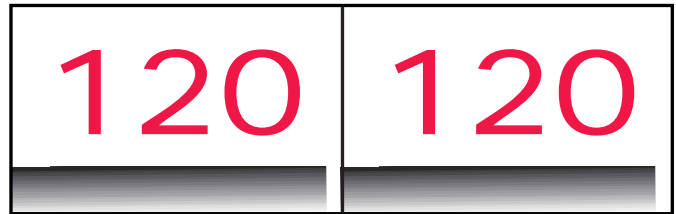


Only left meter drops, so left conductor is partially open. If left meter goes blank, left conductor is fully open.

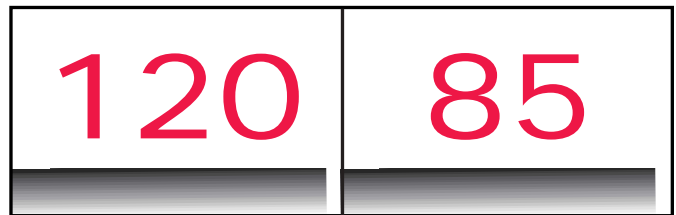


Left meter drops, right meter increases, so neutral is open. This picture shows a partial open. If left conductor goes blank and the right meter reads 240 Volts on the digital meter, then the neutral is completely open.

- 5** Turn the switch to the right, read meters. You will see *one* of the following sets of readings:



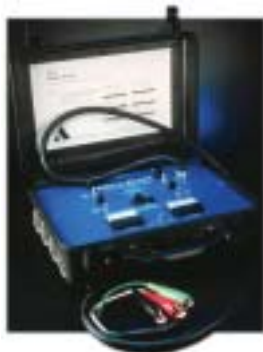
Right meter reads 120V, so right conductor is OK.



Only right meter drops, so right conductor is partially open. If right meter goes blank, right conductor is fully open.



Right meter drops, left meter increases, so neutral is open. This picture show a partial open. If right conductor goes blank and the left meter reads 240 Volts on the digital meter, then the neutral is completely open.



## Mega Beast Features

*The Mega Beast* is rugged, fully portable, and self-contained. Built-in safety features include short circuit and fire protection.

*The Mega Beast* can be used to load transformers for diagnostic testing and for loading CT meters for installation testing and meter accuracy.

## 3-Phase Application

*The Mega Beast* can be used effectively on 120/208 volt 3-phase Wye systems as follows:

1. Connect clips to neutral, Line 1 and Line 2.
2. Take readings on Line 1 and Line 2.
3. Move one clip lead from either Line 1 or Line 2 to Line 3.
4. Take readings again.

Interpret results the same as for single phase operation (see meter drawings, above).

### Note:

The *Mega Beast* is *not* designed for use on 120/240 volt 3-phase Delta, because 208 volts are present between ground and "high phase" of a standard 3-phase Delta system.

# How the Mega Beast works...

## "Good" Service Conductors

When the "burden switch" is in the center position (load or "burden" OFF), each meter reads 120 volts, since they are tied across each 120 volt hot leg to neutral. See Figure A, below.

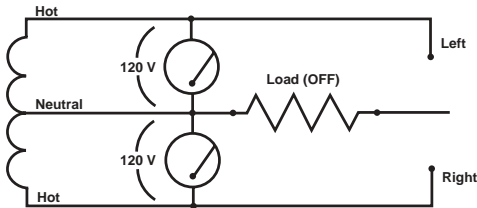


Fig. A - Good Conductors Connected to Mega Beast

When the burden switch is flipped to either the Left or Right position (load connected), good conductors respond as shown below, with 120 volts across the load and the meter. See Figure B, below.

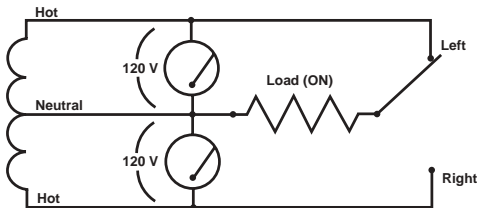


Fig. B - Good Conductors with Burden on Left

The meter should read 120 volts and the load should operate. The selected meter may drop (usually only a couple of volts for conductors in good shape) due to the load being put on the transformer. The other meter is across the other leg to neutral and should read 120 volts. The Mega Beast reads as below when connected to good service conductors.

Switch Position	Load (Burden)	Left Meter	Right Meter
Center	OFF	120 volts	120 volts
Left	ON	120 volts	120 volts
Right	ON	120 volts	120 volts

## Open Neutral

Since there are 240 volts across the meter socket terminals with an open neutral, one display will go blank and the other display will show 240 volts. See Figure C, below.

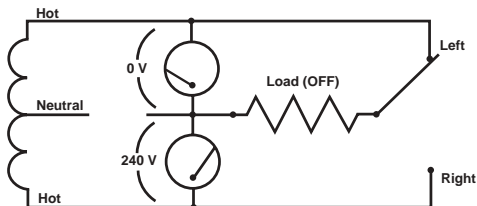


Fig. C - Open Neutral Connected to Mega Beast

When the burden switch is flipped to either side, the load current must flow through the opposite meter since the neutral is open. The high resistance of the meter will not let enough current flow through it to allow the load to operate. This means nearly all of the 240 VAC is dropped across the opposite meter, registers 240 VAC on the digital meter.

Since very little voltage is dropped across the load, the selected meter reads zero volts.

See Figure D, below.

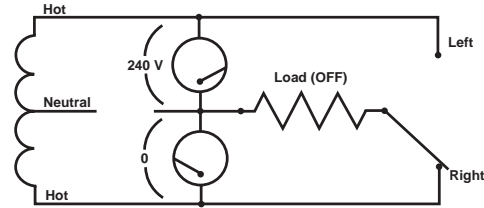


Fig. D - Open Neutral on Right

The Mega Beast operates as below with an open service neutral.

Switch Position	Load (Burden)	Left Meter	Right Meter
Center	OFF	120 volts	120 volts
Left	OFF	0 volts	240 volts
Right	OFF	240 volts	0 volts

## Open "Hot" Service Conductors

The last service problem occurs when one of the "hot" conductors is open, Figure E. Since one conductor lead is broken, no voltage will show across that meter. The other meter will have 120 volts across it and the load will operate, since the conductor lead and neutral feeding it are still ok.

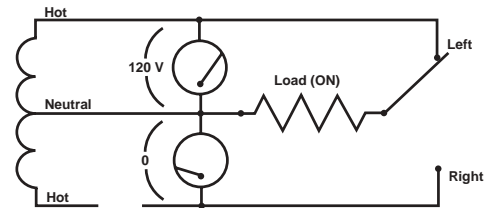


Fig. E - Hot Conductor Connected to Load

In Figure F, the conductor feeding the load and associated meter is broken, so the load and meter will not operate. However, the other meter is connected across a good conductor and neutral, so it will read 120 volts.

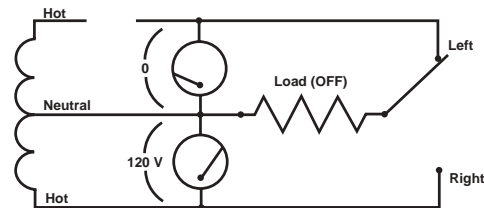


Fig. F - Open Hot Conductor Connected to Load

When connected to open "hot line" conductors the Mega Beast shows:

Switch Position	Load (Burden)	Left Meter	Right Meter
<b>Open Right Conductor</b>			
Center	OFF	120 Volts	0 Volts
Left	ON	120 Volts	0 Volts
Right	OFF	120 Volts	0 Volts
<b>Open Left Conductor</b>			
Center	OFF	0 volts	120 volts
Left	OFF	0 volts	120 volts
Right	ON	0 volts	120 volts

# Other Items from the "Beast" Family

## The Super Beast

The *Super Beast* comes in analog and digital, both carrying a 3,200 watt 20 amp load.  
*Catalog # HJA-469-S (Analog)*  
*HJA-469-D (Digital)*



### Super Beast Bag

Optional tote bag has thick padded sides and bottom to cushion and protect the Beast. Its rugged, water repellent, nylon-reinforced construction gives the bag excellent weather resistance and durability. Comes in our distinctive yellow.

*Catalog # HJA-469-501*

### Meter Base Adapter

Portable meter base adapter for use on non-standard meter bases and for 3-Phase applications. Has a 7' cord and spring clips to test from underground or overhead secondary junction points. To use: insert Super Beast into base, attach spring clips to the correct conductors, then systematically proceed down secondary feeder to isolate the voltage problem.

*Catalog # HJA-469-500*



## Save with the Super Combo...

The Super Combo is a complete Super Beast and accessories package at one low price. Includes one Super Beast, meter base adapter, and carrying case at lower cost than if each item is purchased separately.

### Catalog #

*HJA-469 SCO* Super Beast (analog)

*HJA-469-DSCO* Super Beast (digital)

*And check out the complete line of service conductor test instruments -available from Arnett!*

### The White Knight

Secondary power line tap and open faulted conductor locator.

### The Pinpointer

Underground secondary fault locator.

### The Average Beast

Field watt-hour meter accuracy verifier.

### The Flagship

Remote check meter monitoring.

## Specifications

### Load Elements

Quantity/UL rating	8 ea UL rated 1600 watts @ 125VAC		
Watts each, typical	1617 watts @ 132 VAC	1340 watts @ 120 VAC	1080 watts @ 108 VAC
Total watts, typical	12936 watts @ 132 VAC	10720 watts @ 120 VAC	8640 watts @ 108 VAC
Amps each, typical	12.25 amps @ 132 VAC	11.15 amps @ 120 VAC	10.00 amps @ 108 VAC

### Short Circuit and Fire Protection

Main line protection	100 amp, 240 VAC circuit breaker for Line 1 and Line 2
Load element fuse	4 each, 1 fuse for every 2 load elements, 25A/250V

### Control Panel

Line switch	ON-OFF-ON to select Line 1 input, no line input, or Line 2 input
Element switches	4 each, 1 switch for every 2 load elements, ON-OFF
Ungrounded Voltmeters	Front panel is <i>not</i> connected to green ground wire 2 each, 84 - 264 VAC digital meters

### Line Input

Line input cable	3-wire, 8GA, 600 VAC, 9 feet long. Enters on front panel
Line input clips	3 each, 75 amp clips with insulators

### Enclosure

Case	Heavy duty "suitcase" made from black structural resin
Air inlets	2 each 3" holes on back panel with finger guard screens attached
Air outlets	8 each 2" holes, 4 on each side panel, for load element air outlet
Size	18-1/2" L x 15-1/4" W x 6-7/8" D
Weight	Approx. 23 lbs., shipping 25 lbs.

### Warranty

One year parts and labor under normal use. Not responsible for misuse.

To order, or for more information, contact us today. Phone (503) 684-9844 Fax (503) 684-8360