

THE MEGA BEAST

3-WIRE, 120-VOLT, SERVICE CONDUCTOR TESTER

PART# HJA-900-D

80 AMP ARTIFICIAL
UNBALANCED LOAD

INDICATES PROBLEMS ON
SECONDARY SERVICE

DETECTS OPEN NEUTRALS,
QUICKLY, ACCURATELY



THE BEST IN THE BUSINESS...JUST GOT BETTER

FOR MORE THAN 45 YEARS, IN OVER 500 ELECTRIC UTILITIES,
THE ORIGINAL SUPER BEAST HAS SAVED TIME AND MONEY IN DETERMINING THE
CONDITION OF SECONDARY SERVICE. THE MEGA BEAST NOW BRINGS 4 TIMES THE LOAD!
WITHIN SECONDS, A TROUBLESHOOTER CAN IDENTIFY IF THE CONDUCTOR IS OPEN, RESISTIVE,
OR FUNCTIONING PROPERLY, EVEN WHEN TEMPORARY OR INTERMITTENT FAULTS MAY BE
MASKING A DETERIORATING CONDUCTOR.



SAFETY | SERVICE | SAVINGS



INDUSTRY LEADERS IN
ELECTRICAL TESTING & PRODUCTS
FOR UTILITIES & COMMUNICATIONS



20460 SW AVERY COURT, TUALATIN, OR 97062
PHONE (503) 692-4600 • FAX (503) 692-4661

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IT'S THIS EASY...

1 REMOVE THE KWH METER.
SAFETY NOTE: ALWAYS WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT WHEN WORKING ON OR AROUND ENERGIZED EQUIPMENT

2 INSPECT THE METER BASE FOR LOOSE CONNECTIONS OR OTHER VISUAL PROBLEMS. WHERE POSSIBLE, ISOLATE NEUTRAL. CONNECT THE WHITE CLIP TO NEUTRAL. CONNECT VOLTAGE CLIPS FROM THE MEGA BEAST TO THE METER SOCKET CONNECTIONS. (BLACK=LEFT, RED=RIGHT)

3 ROTATE THE SWITCH TO THE LEFT, READ METERS. YOU WILL SEE ONE OF THE BELOW SETS OF READINGS.

4 ROTATE THE SWITCH TO THE RIGHT, READ METERS. YOU WILL SEE ONE OF THE FOLLOWING SETS OF READINGS:

NOTE: A VOLTAGE DROP OF 5-7 VOLTS MAY INDICATE A PROBLEM FOR MOST UTILITIES DETERMINE YOUR STANDARDS BEFORE BEGINNING YOUR TESTING.



LEFT METER READS 120V, SO LEFT CONDUCTOR IS OK.

ONLY LEFT METER DROPS, SO LEFT CONDUCTOR IS PARTIALLY OPEN. IF LEFT METER DROPS TO ZERO, 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.



RIGHT METER READS 120V, SO RIGHT CONDUCTOR IS OK.

ONLY RIGHT METER DROPS, SO RIGHT CONDUCTOR IS PARTIALLY OPEN. IF RIGHT METER DROPS TO ZERO, RIGHT CONDUCTOR IS FULLY OPEN.

RIGHT METER DROPS, LEFT METER INCREASES, SO NEUTRAL IS OPEN. THIS PICTURE SHOWS 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.

VOLTMETER TEST JACKS

The banana jacks on the front panel are used as test points to measure A.C. voltage with a digital voltmeter or analog meter. The white test point (neutral) is common to both the red and black test points on the Mega Beast; connect it to the common of the digital voltmeter.

To measure the voltage across the right meter, simply touch the other lead of the digital voltmeter to the "Right Conductor" test point on the Mega Beast.

Repeat the process with the "Left Conductor" to measure voltage across the left meter.

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.

3- PHASE APPLICATION

The Mega Beast can be used effectively on 120/208 volt 3-phase Wye systems using a Portable Meter Base Adapter as follows:

1. DURING THE INITIAL SET-UP OF THE BEAST TO THE METER BASE ADAPTER (MBA), FEED THE WHITE CLIP FROM THE BEAST THROUGH THE ENTRY HOLE IN THE BOTTOM OF THE MBA, AND MAKE GOOD CONNECTION TO THE NEUTRAL CONNECTOR.
2. FROM THE MBA, CONNECT THE WHITE LEAD TO THE NEUTRAL OF THE SERVICE.
3. FROM THE MBA, CONNECT THE BLACK LEAD (LEFT SIDE) TO LINE 1 OF THE SERVICE.
4. FROM THE MBA, CONNECT THE RED LEAD (RIGHT SIDE) TO LINE 2 OF THE SERVICE.
5. THEN FOR TESTING OF A 120/208 VOLT 3-PHASE WYE SYSTEM, REMOVE THE RED LEAD (RIGHT SIDE) FROM LINE 2, AND CONNECT RED LEAD TO LINE 3. (SEE NOTE BELOW).
6. TAKE READING AGAIN AND INTERPRET THE RESULTS THE SAME AS ON A SINGLE PHASE SERVICE.

NOTE: Never connect leads to any leg of conductor measuring over 120 volts.

HOW THE MEGA BEAST WORKS...

"GOOD" SERVICE CONDUCTORS

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

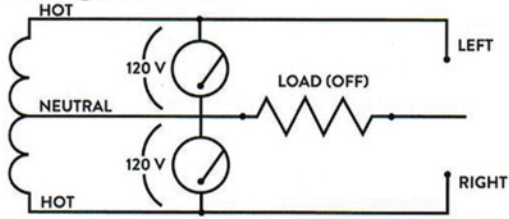


FIG. A - GOOD CONDUCTORS CONNECTED TO MEGA BEAST

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

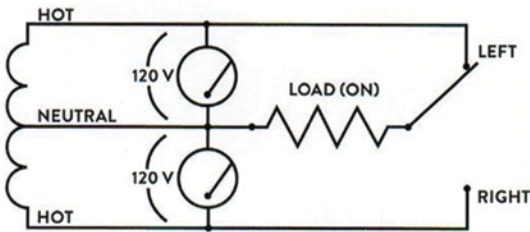


FIG. B - GOOD CONDUCTORS WITH LOAD ON LEFT

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 condition) 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 | 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.

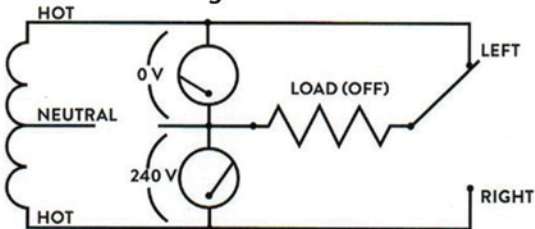


FIG. C - OPEN NEUTRAL CONNECTED TO MEGA BEAST

When the load 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.

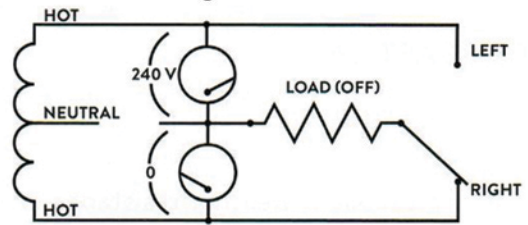


FIG. D - OPEN NEUTRAL ON RIGHT

THE MEGA BEAST OPERATES AS BELOW WITH AN OPEN SERVICE NEUTRAL.

| SWITCH POSITION | LOAD | 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. 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 o.k. See figure E below.

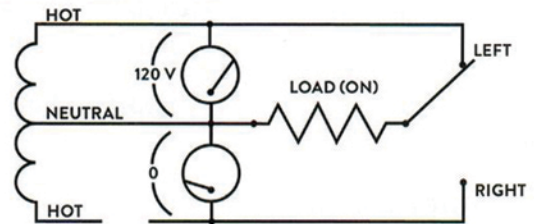


FIG. E - HOT CONDUCTOR CONNECTED TO LOAD

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.

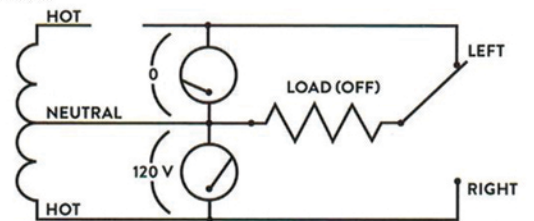


FIG. F - OPEN HOT CONDUCTOR CONNECTED TO LOAD
WHEN CONNECTED TO OPEN HOT CONDUCTOR, THE MEGA BEAST SHOWS:

| SWITCH POSITION | LOAD | LEFT METER | RIGHT METER |
|-----------------------------------|------|------------|-------------|
| FULLY OPEN RIGHT CONDUCTOR | | | |
| CENTER | OFF | 120 VOLTS | 0 VOLTS |
| LEFT | ON | 120 VOLTS | 0 VOLTS |
| RIGHT | OFF | 120 VOLTS | 0 VOLTS |
| FULLY OPEN LEFT CONDUCTOR | | | |
| CENTER | OFF | 0 VOLTS | 120 VOLTS |
| LEFT | OFF | 0 VOLTS | 120 VOLTS |
| RIGHT | ON | 0 VOLTS | 120 VOLTS |

*NOTE: VOLTAGE READINGS UNDER MEGA BEAST LOAD VARY DEPENDING ON PROBLEM ON SERVICE.

THE MEGA BEAST COMBO

WITH METER BASE ADAPTER &
ALLIGATOR CLIP ADAPTER

COMBO INCLUDES METER BASE ADAPTER &
CABLE WITH ALLIGATOR CLIP ADAPTERS

*ADDS 3 FEET TO YOUR MEGA BEAST LEAD USING 100A CLIP CONNECTION

*ALLOWS FOR CONVENIENT AND VERSATILE FUNCTIONALITY

*ADDS PLUG-IN ADAPTER TO MEGA BEAST

PART# HJA-900-D-COMBO



MEGA BEAST SPECIFICATIONS:

LOAD ELEMENTS

| | | | |
|-----------------------|--|-----------------------|----------------------|
| QUANTITY/UL RATING: | 8 EACH, UL RATED 1600 WATTS AT 125 VAC | | |
| 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 |

*THE MEGA BEAST IS NOT DESIGNED, BUILT, OR INTENDED FOR CONTINUOUS LOAD.

SHORT CIRCUIT & 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.

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.

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.
UNGROUNDING: FRONT PANEL IS NOT CONNECTED TO GROUND WIRE.
VOLTMETERS: 2 EACH, 84-264 VAC DIGITAL METERS.

ENCLOSURE

CASE: HEAVY DUTY "SUITCASE" MADE FROM BLACK STRUCTURAL RESIN.
AIR INLETS: 3, EACH 3" HOLES ON FRONT AND BACK PANEL WITH FINGER GUARD SCREENS ATTACHED.
AIR OUTLETS: 8, EACH 2" HOLES, 4 ON EACH SIDE PANEL, FOR LOAD ELEMENT AIR OUTLET.
SIZE: 18.5" L x 15.25" W x 6.875" D
WEIGHT: APPROX. 23 LBS., SHIPPING 25 LBS.

WARRANTY

ONE YEAR PARTS AND LABOR UNDER NORMAL USE. NOT RESPONSIBLE FOR MISUSE.

ABOUT THE COMPANY

HJ ARNETT INDUSTRIES, L.L.C., IS AN OREGON COMPANY WHICH MANUFACTURES AND DISTRIBUTES PRODUCTS FOR THE ELECTRIC, TELECOMMUNICATION, AND COMMERCIAL/INDUSTRIAL INDUSTRIES.

FOR OVER 45 YEARS, THE COMPANY HAS WORKED CLOSELY WITH ITS CUSTOMERS TO DEVELOP PRACTICAL PRODUCTS GEARED TO SOLVING EVERYDAY PROBLEMS FOR UTILITIES AND INDUSTRY.

THE COMPANY'S LINE OF INSTRUMENTS HAS GROWN OUT OF DIRECT DISCUSSION WITH AND RESPONSE TO LINEMEN AND ENGINEERS. WE WELCOME YOUR INQUIRIES AND COMMENTS.

CHECK OUT THE COMPLETE LINE OF SERVICE
CONDUCTOR TEST INSTRUMENTS

THE SUPER BEAST-P

20 AMP, PULSING SERVICE CONDUCTOR TESTER

THE MINI BEAST

8 AMP, 2-WIRE SERVICE CONDUCTOR TESTER

THE PINPOINTER

UNDERGROUND SECONDARY FAULT LOCATOR

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