



# OPERATING MANUAL

for

TYPE HAC415-40

issue 1

Serial number M36171

On Hire from Hillstone Products Ltd.

**CONTENTS**

<b>INTRODUCTION.....</b>	<b>2</b>
<b>SAFETY CONSIDERATIONS.....</b>	<b>2</b>
<b>CONNECTION PROCEDURE .....</b>	<b>3</b>
<b>OPERATING INSTRUCTIONS .....</b>	<b>3</b>
<b>SPECIFICATION.....</b>	<b>4</b>
<b>TYPICAL PERFORMANCE TABLE .....</b>	<b>4</b>
<b>MAINTENANCE PROCEDURES.....</b>	<b>5</b>
<b>FAULT FINDING PROCEDURES.....</b>	<b>5</b>

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## INTRODUCTION

The load bank HAC415-40 is designed for testing 415 volt, three phase, 50 or 60 Hz UPS or generators up to 55A per phase. The unit can also be used to perform single phase testing at 240V AC up to 55 amps.

The load bank is controlled using a remote control box which is connected via a 12 metre cable.

The unit comprises of pre-set, force cooled, high powered resistor channels which allows manual adjustment of the load current.

Safety features include internal fuse protection, emergency stop on the load bank and the control box and auto shutoff in the event of a mains interruption.

The load bank is force cooled by a mains 240V powered fan which is powered from the test voltage source.

The case is designed for outdoor use and protected to IP44.

The unit is supplied with carrying handles and swivel castors for easy movement.

A 15 metre load cable set is provided for connection between the test power source and the load bank.

## SAFETY CONSIDERATIONS

1. Although the load bank is designed for indoor or outdoor use we recommend the equipment is not operated in driving rain or snow.
2. The control box is intended for indoor use.
3. The unit should only be operated by competent electrical engineers who are completely familiar with the operation and specification of the load bank.
4. Heavy duty lifting handles are provided on each side of the load bank and provides assistance when wheeling the load bank.
5. The equipment is designed for AC operation only and therefore should not be used on DC loads such as batteries.
6. Operators must ensure that interconnecting cables are correctly rated to carry the required load current and adequately insulated to prevent the possibility of electric shock when operating at high voltages.
7. When in use the load bank should be cordoned off using safety barriers.
8. The load bank should only be operated in an area with adequate ventilation.
9. Do not insert or remove the power cable plug with the load circuit energised.
10. Care should be taken as to the exhaust air outlet that may be hot.
11. During operation the load bank should not be covered or positioned to restrict air flow
12. Caution Metal surfaces will be hot during operation
13. At the end of any test the fans should be kept running for 5 minutes to remove the residual heat from the load bank case.

## CONNECTION PROCEDURE

- A. Ensure the power source to be tested is compatible with the load bank operating voltage.
- B. Ensure the power source is de-energised.
- C. Do not attempt to operate the load bank above the maximum operating voltage.
- D. Check all control switches, on the remote control box, are in the OFF position.
- E. Ensure the power cables are correctly insulated to prevent any possibility of electric shock.
- F. Connect the power cable to the UPS or generator under test, ensuring the correct phase connections.
- G. Ensure the earth is connected correctly.
- H. Insert the power cables into the socket on the load bank.
- I. DO NOT insert the power cable plug with the load circuit energised.

## OPERATING INSTRUCTIONS

Operators should read the **SAFETY CONSIDERATIONS** and **CONNECTION PROCEDURE** before carrying out the following operating instructions

1. Ensure all switches on the remote control box are in the OFF position.
2. Energise the power source from the UPS or generator.
3. The green "mains ON" lamp should illuminate on the remote control box.
4. Press the black START push button on the remote control box.
5. The red "Load & Fan ON" lamp should illuminate.
6. The load bank fan should rotate.
7. Select the appropriate load using the remote control box switches.
8. Do not exceed the maximum rating of the load bank.
9. At the end of the test, switch OFF all the load switches on the remote control box.
10. Leave the fans running ( off load ) for five minutes to cool the resistor elements.
11. At the end of the cooling period press the red stop button.
12. Ensure the red lamp has extinguished and fan has stopped.
13. Isolate the UPS or Generator power source.
14. Disconnect the load bank power cable.
15. DO NOT remove the power cable socket with the load circuit energised.

**SPECIFICATION**

Type ref	HLB415-40
Max operating voltage	415V three phase 50 / 60 Hz 240v single phase 50 / 60 Hz
Max current rating	55A per phase
Max power rating	39 KW three phase 13 KW single phase
Resistor tolerance	+/-5%
Internal auxiliary supply	240V single phase 50 / 60 Hz
Internal load fuse	63A ( European type NH size 00 )
Internal control fuse	2 amp
Internal fan fuse	5 amp
Case size	length 1000mm width 600mm height 600mm
weight	60 kgs

Notes : As the fan and contactor controls are powered from the red phase, the three phases are unbalance at lower loads

**TYPICAL PERFORMANCE TABLE**

<b>HLB415-40</b> Approximate available current & power at different test voltages				
<b>Channel</b>	<b>Amps @ 415V 3ph</b>	<b>Watts @ 415V 3 ph</b>	<b>Amps @ 240V 1ph</b>	<b>Watts @ 240V 1ph</b>
<b>1</b>	0.9A	651W	1.2A	288W
<b>2</b>	1.3A	966W	1.6A	384W
<b>3</b>	2.5A	1780W	2.8A	672W
<b>4</b>	6.5A	4700W	7A	1680W
<b>5</b>	6.5A	4755W	7A	1680W
<b>6</b>	13A	9163W	13A	3120W
<b>7</b>	25A	17577W	25A	6000W
<b>Total</b>	55A	39592W	55A	13200W

## MAINTENANCE PROCEDURES

The load bank should not require any special maintenance, however as with any electrical equipment periodic checks should be carried out to ensure the equipment is in a safe and satisfactory condition.

The following periodic checks are recommended;

- 1) Check the inlet and outlet grills are free from obstruction.
- 2) Check the controls and terminal are undamaged.
- 3) Check the fan rotates freely without obstruction.
- 4) Check internal wiring for loose connections or damage.

## FAULT FINDING PROCEDURES

The following fault finding procedure is intended to identify simple operational errors and has been categorised into two possible problem areas as follows;

### FAN COOLING NOT OPERATIONAL

- Check the power source is available.
- Check the interconnecting cable connections.
- Check the mains switch is in the correct ON position.
- Check the fan motor operates.
- Check the mains fuse.
- Check for air blockage.
- Check fan blades are secure to motor shaft.

### LOAD BANK DOES NOT PROVIDE SUFFICIENT LOAD CURRENT

- Check the power source is at the required voltage.
- Check the required current channels have been selected.
- Compare the current values with the specification table.
- Identify individual current channels for reduced output.
- Check the internal fuses are OK

Any faults not corrected by carrying out the above procedures may require the internal wiring or components of the load bank to be inspected for damage.

**Note: Isolate the load bank from any power source before removing any covers.**

**Testing the load bank with the covers removed is not recommended as high voltages can be present on power resistors or terminals.**

**Repair or replacement should be carried out by the manufacturer.**