



OPERATING MANUAL

for

AC LOAD BANK

type

HAC415-500

issue 1

CONTENTS

INTRODUCTION.....	3
SAFETY CONSIDERATIONS.....	3
CONNECTION PROCEDURE.....	3
OPERATING INSTRUCTIONS.....	4
MAINTENANCE PROCEDURES.....	4
FAULT FINDING PROCEDURES.....	5

The information contained in this document is considered correct at the time of printing and given in good faith. Hillstone Products bears no responsibility for the accuracy of the data given or any responsibility resulting from the use of the equipment.

HILLSTONE PRODUCTS

Unit 2,
Portland Industrial Estate,
Portland Street, Bury,
Lancashire. England BL9 6EY.
Tel: +44(0)161 763 3100
Fax: +44(0)161 763 3158
Email: info@hillstone.co.uk
Web : www.hillstone.co.uk

INTRODUCTION

The load bank HAC415-500 is designed to provide a load of 500KW on the generator. This is based on the combination of the supplied two load modules

Control is provided via panel rocker mounted switches.

Cable connection from each load module is made to the generator. Cable connection is made from internal termination bus bars via a panel mounted gland plate. The gland plate needs to be drilled to allow fitting of suitable cable glands. Selection of correct cable type and sizing should be performed by a qualified engineer.

Safety features include internal fuse protection, fan motor overload protection, and auto shutoff in the event of a mains interruption.

The load bank is force cooled by a three phase mains powered fan which is internally connected to the 3 phase load circuit.

The case is designed for outdoor use.

The unit lifted from underneath using a fork lift truck or by suitable strapping under the load bank lifting frame for lifting by crane.

SAFETY CONSIDERATIONS

1. The load bank is designed for outdoor operation.
2. The unit should only be operated by competent electrical engineers who are completely familiar with the operation and specification of the load bank.
3. The equipment is designed for AC operation only and therefore SHOULD NOT be used on DC loads such as batteries.
4. 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.
5. When in use the load bank should be cordoned off using safety barriers.
6. The load bank should only be operated in an area with adequate ventilation.
7. We do not recommend the load bank be situated in direct sun light.
8. Care should be taken as to the exhaust air outlet will be hot.
9. During operation the load bank should not be covered or positioned to restrict air flow
10. Caution – some metal surfaces will be hot during operation
11. At the end of any test the fans should be kept running for at least 5 minutes on no load to remove the residual heat from the load bank case.

CONNECTION PROCEDURE

- A. Ensure the generator is compatible with the load bank operating voltage.
- B. Ensure the generator is isolated .
- C. Do not attempt to operate the load bank above the maximum operating voltage.
- D. Remove the load bank side panel on each module and make the internal connections via the gland plate. The connections can be made to the terminals labelled L1, L2, L3, N and EARTH. The control circuit connections can be made to the supplied terminal block.
- E. Ensure the power cables are correctly connected and insulated to prevent any possibility of electric shock.
- F. Replace the side panel of the load bank and fasten securely.
- G. Connect the power cables from each load module to the generator, ensuring the correct phase connections.
- H. Ensure the earth is connected correctly.

OPERATING INSTRUCTIONS

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

1. Ensure all panels are in place on the load bank.
2. Ensure all panel mounted switches are in the OFF position.
3. Energise the power source from the generator.
4. The load bank fan should rotate via switching the green ON / OFF switch.
5. CHECK THE FAN MOTOR ROTATES IN THE CORRECT DIRECTION
6. If the fan rotates incorrectly the phase connections must be changed as follows ;
 - a) Isolate the power source from the Generator.
 - b) ENSURE THE CABLE AND TERMINATION POINTS DO NOT HAVE LIVE VOLTAGES PRESENT.
 - c) Isolate the Cable from both the load bank and the Generator.
 - d) Change any two line connections. This will align the phases in the required sequence.
 - e) Re-connect the cable to the termination points and continue the operating procedure from 1 above.
7. Do not exceed the maximum rating of the load bank.
8. Leave the fans running (off load) for five minutes to cool the resistor elements, when the load bank is powered down from the generator.

The red EMERGENCY STOP button can be used as an Emergency Disconnect at any time to disconnect all load circuits and the fan supply.

SPECIFICATION

Type ref	HAC415-500
Max operating voltage	415V three phase 50 Hz
Max current rating	481A per phase
Max power rating	700 KW three phase
Resistor tolerance	+/-5%
Individual case size	
length	2150mm
width	1270mm
height	1110mm
weight	700 kgs each approx

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 lose 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 fan motor operates.
- 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.

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.