OPERATING MANUAL

for

AC LOAD BANK

type

HAC415-500

with iHHC Hand Held Controller

issue 1

Serial No. M36659

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INTRODUCTION

The load bank HAC415-500 is designed for testing 415 volt, three phase, 50 Hz UPS or generators on a 4 wire, star, connection, plus earth.
The unit comprises of pre-set, force cooled, high powered resistor channels which allows manual adjustment of the load current via a hand held controller.
Safety features include internal fuse protection, fan motor overload protection, auxiliary circuit protection and auto shutoff in the event of a mains interruption.
The load bank is force cooled by a three phase powered fan which is internally connected to the 3 phase load circuit, which represents a permanent load while the unit is in use.
The case is designed for outdoor use.

SAFETY CONSIDERATIONS

1. The load bank is designed for indoor or outdoor use.
2. The unit should only be operated by a competent person who is completely familiar with the operation and specification of the load bank.
3. The equipment is designed for AC operation only and therefore must 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. Care should be taken as the exhaust air outlet will be hot.
8. Cables must be positioned away from the air exhaust
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 5 – 10 minutes on no load to remove the residual heat from the load bank case.
12. Lifting of the load bank should only be carried out by a fork lift truck.
13. The operator of the fork lift truck should determine the centre of gravity of the unit before lifting.

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 panel mounted control switches are in the OFF position.
E. Connect the hand held controller to the load bank
F. Ensure the power cables are correctly connected to the power source observing correct phase rotation.
G. Ensure the neutral and earth are 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 UPS or generator.
4. Switch on the green panel mounted rocker switch.
5. Ensure the fan rotates in the correct direction with exhaust air being expelled from the exhaust grill. If the fan rotates in the wrong direction the following procedures should be carried out to change the phase rotation:
    a) disconnect and isolated the power source.
    b) change over any two phase connections
    c) continue the operating procedure from 1 above
6. Select the appropriate load using the hand held controller as follows;
    1. the hand held controller digits should be flashing. This indicates that it is in setting mode.
    2. press the X1, X10 and X100 as appropriate to the required KW load setting.
    3. When the load is at the required value press the green ACCEPT push button
    4. The display will now remain steady (running mode) and will indicate the requested KW load not the actual load.
    5. During running mode the load can be adjusted by pressing the black push buttons which increases and decreases the load in small steps for each button press. This operates in real time.
    6. The load can be changed by pressing the X1, X10 or X100 push buttons. This action returns the hand held controller to setting mode.
    7. When the new load setting has been entered by using the X1, X10 and X100 push button, the change in load is implemented by pressing the green ACCEPT push button.

8. The yellow REVERT push button can be used during setting mode, to return the hand held controller to running mode, if required, without changing the load.
9. The load can be disconnected from the generator in two ways
    a) SLOW STOP – orange push button
        this feature removes the total load in sequence, in approximately a 5 second period.
    b) QUICK STOP – red push button
        this feature removes the total load instantaneously

7. Do not exceed the maximum rating of the load bank.
8. At the end of the test the load bank should be run off load for between 5 and 10 minutes to cool the resistor elements.
9. Isolate the UPS or generator power source
10. DO NOT remove the power circuit with the load circuit energised.

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

SPECIFICATION

Type ref	HAC415-500	
Max operating voltage	415V three phase 50 / 60 Hz	
Max current rating	723A per phase	
Max power rating	530 KW three phase	
Connection	star 4 wire, balanced load	
Resistor tolerance	+/-5%	
Operating ambient temperature	0 to +35 degC	
Storage ambient temperature	-10 to +45 degC	
Trailer size including load bank	length	2240mm
	width	1000mm
	height	1220mm
Total Weight	650Kgs	

TYPICAL PERFORMANCE TABLE

HAC415-500 Approximate available current & power		
Channel	**Approx amps @ 415V 3ph**	**Approx watts @ 415V 3ph**
Fan	13A	9000W
1	1A	1000W
2	1A	1000W
3	4A	3000W
4	4A	3000W
5	12A	9000W
6	25A	18000W
7	50A	36000W
8	50A	36000W
9	50A	36000W
10	75A	54000W
11a	75A	108000W
11b	75A	
12a	75A	108000W
12b	75A	
13a	75A	108000W
13b	75A	
Total	705A	530000W

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 on the load bank;

1) Check the inlet and outlet grills are free from obstruction.
2) Check the controls and connection points are undamaged.
3) Check connection cables are undamaged.
4) Check the fan rotates freely without obstruction.

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.

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 all sources of power before removing any covers.
Testing the load bank with the covers removed should not be carried out as it presents a risk of injury or death by electric shock.
Repair or replacement should be carried out by the manufacturer.