



OPERATING & MAINTENANCE MANUAL

for

LOAD BANK

Type

HBN110-150

Serial No. M36402

ISSUE 2

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INTRODUCTION

Description

The Hillstone **HBN110-150** load bank is designed to provide a manually controlled resistive load, for constant current discharge testing of a 110V nominal Ni-cad or lead acid batteries and also 110V AC UPS testing.

The unit incorporating light weight, naturally cooled resistor elements and includes shrouded voltmeter and current sockets for direct measurement of the battery voltage and discharge current via external multi-meters.

The load bank incorporates panel mounted circuit breaker switch selection of each load channel.

As the unit is naturally cooled an auxiliary supply is not required.

A DC power cable is supplied with the equipment.

SAFETY CONSIDERATIONS

1. The equipment is designed for use in a clean, dry, indoor environment and should only be operated by competent electrical engineers who are completely familiar with the operation and specification of the load bank.
2. 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.
3. When in use the load bank should be cordoned off using safety barriers.
4. The load bank must not be covered during operation.
5. The load bank should only be operated in an area with adequate ventilation.
6. During operation the top air exhaust outlet grill and outer case may be hot.
7. Operators working with electricity should not wear rings, jewellery or metal watch straps.
8. As with any electrical equipment the load bank should not be used in close proximity to recently charged batteries where a build up of explosive gases may have occurred.
9. Only insulated tools should be used when working on battery connections.
10. Refer to the battery manufacturers operating instructions for additional safety precautions.
11. Ensure all personnel are familiar with the location of the nearest safety kit and eye wash facility.
12. During operation the load bank should not be covered or positioned to restrict air flow.

CONNECTION PROCEDURE

- A. Ensure the power source or battery to be tested is compatible with the load bank operating voltage.
- B. Do not attempt to operate the load bank above the maximum operating voltage.
- C. Check the power source or battery is isolated before connecting to the load bank.
- D. Check all switches are switch off (UP).
- E. Connect a digital multimeter (DC volts range) to the voltage sockets.
- F. Connect a digital multimeter (DC mV range) to the shunt sockets.
- G. Insert the DC battery cable socket into the front of the load bank.
- H. Connect the DC output cable to the battery terminals, ensuring correct polarity.
- I. Check the DC output cable connections are secure.

OPERATING INSTRUCTIONS

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

1. Ensure all switches are in the OFF position (UP).
2. Switch ON (DOWN) the appropriate load current channels to the required load current.
3. During battery discharge testing, as the battery voltage falls, the load current can be maintained at a constant current by manual selection of the switches.
4. At the end of the test switch OFF (UP) all load switches.
5. Allow the resistors to cool before removing the load bank.
6. The battery may be disconnected while the resistor elements are cooling.

Specification

Type ref.	HBN110-150	
Nominal voltage	110 volts DC or AC	
Max voltage	115 volts DC or AC	
Max current	150A at 115V	
Max power dissipated	17250W	
Max current at 99V (see note 1)	131A	
Switched steps (see note 3)	1 x 1A, 1 x 2A, 1 x 4A, 1 x 9A, 1 x 18A, 3 x 36A	
Max number of Ni-cad cells	86	
Max number of lead acid cells	54	
Test voltage sockets	4 mm shrouded (DC volts direct reading)	
Test shunt sockets	4 mm shrouded (DC amps 1mV = 2 amp)	
Protection	panel mount circuit breakers	
DC power cable set	2.5 metres of twin cable via industrial plug and socket	
Case size	Length	720 mm
	Width	500 mm
	Height	525 mm (+ 50mm handles)
Weight (approx.)	32Kgs	
Finish	Light grey RAL 9002 textured finish	
Environmental protection rating	IP20	
Movement	Carrying handles	
Operating temperature range	0 – 40 deg C	
Storage temperature range	0 – 80 deg C	

Specification Notes

- 1) Discharges can be achieved below 99 volts with proportionally reduced output current
- 2) Units are designed for indoor use only in a clean, dry and well ventilated environment.
- 3) Approx current rating at 110 volt
- 4) External digital multi-meters are not supplied with the load bank.
- 5) Information is intended to be correct at the time of publication, however, Hillstone Products Ltd bears no responsibility for the accuracy of any information given.
- 6) We reserve the right to make detail changes to specification, components, dimensions or weights at the time of design or manufacture without prior notice.
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Performance table

The load bank can be used at lower battery voltages in line with the following table ;
Approx values

VOLTAGE	AVAILABLE AMPS
115V	150A
110V	143A
99V	129A
88V	115A
60V	78A
48V	62A
43V	56A
36V	47A
30V	39A
27V	35A
24V	31A
21V	27A
12V	16A

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, battery socket and battery cables are undamaged.
- 3) Check all interconnection cables are undamaged

FAULT FINDING PROCEDURES

The following fault finding procedure is intended to identify simple operational errors as follows;

INSUFFICIENT LOAD FAULT

Check the battery is at the required voltage.

Check the expected discharge current against the performance tables.

Check the operation of the controls.

Note:

Any identified faults should be reported to the manufacturer

Removing the covers is not recommended.

If any covers are removed to inspect internal components, the load bank must be isolated from the battery

Testing the load bank with the covers removed is not recommended.

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