



OPERATING MANUAL

for

TYPE HP260-50

ISSUE 3

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INTRODUCTION

The load bank HP260-50 is designed for battery discharge testing .See usage tables on page 4 & 5 for further data.

The mains input socket and switch, test selector switches and load control switches are contained on the top panel.

The load bank is force cooled by 240V mains supply.

The unit comprises of pre-set, high powered resistor channels of various ratings, with each individual channel selectable via two rotary binary switches Fine and Course, plus 6 toggle switches for lower current selection.

The unit comes complete with carrying handles and swivel castors for easy movement.

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. Heavy duty lifting handles are provided on each side of the load bank and provides assistance when wheeling the load bank.
3. 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.
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 connecting the load bank to a battery, both cable connections should be made at the load bank terminal's first. Connection to the battery terminals should always be last.
6. When in use the load bank should be cordon off using safety barriers.
7. The load bank should only be operated in an area with adequate ventilation.
8. Care should be taken as to the exhaust air outlet that may be hot.
9. The resistor elements used within the load bank are mica insulated and can make a cracking noise during heating and cooling.
10. Do not smoke in the proximity of batteries.
11. Operators working with batteries should not wear rings, jewellery or metal watch straps.
12. Only insulated tools should be used when working on battery connections.
13. Refer to UPS or the battery manufacturers operating instructions for additional safety precautions.
14. Ensure all personnel are familiar with the location of the nearest safety kit and eye wash facility.
15. During operation the load bank should not be covered or positioned to restrict air flow
16. Caution Metal surfaces will be hot during operation

CONNECTION PROCEDURE

- A. Ensure the 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 battery is isolated before connecting to the load bank.
- D. Check all load bank switches are in the off position.
- E. Ensure the interconnecting cable is adequately rated and correctly insulated to prevent any possibility of electric shock.
- F. Connect the mains lead (provided) into the top panel mounted socket.
- G. Connect the cables to the load bank as per the circuit diagram.
- H. Always connect the interconnecting cable at the load bank terminals before connecting to the battery.
- I. Ensure the interconnecting 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. (toggle switches “up”)
2. Turn on the mains switch to operate the fan.
3. Switch on the required current channels to obtain the correct discharge current.
Refer to usage tables (page 4 & 5) for full details of current load channels.
4. Do not exceed the maximum rating of the load bank.
5. The load bank can be used to perform a constant current battery discharge test by manual selection of the load channels during the test.
6. **All current channels must be switched off at the end of a test.**
7. At the end of a test the mains supply switch should be left on for a few minutes until the resistors have cooled.
8. Ensure the battery is isolated before removing the interconnecting cables from the load bank.
9. Always disconnect the cables at the battery terminal's first.

SPECIFICATION

Nominal voltage	240V DC
Maximum power rating	50 kW
Maximum operating voltage	260V DC
Maximum load	200A
Minimum load	1A
Auxiliary fuse rating	6.3 amps (panel mounted)
Size	850mm long x 450mm wide x 610mm high
Weight	65kgs (load bank only) 10 kgs (cable set)
Insulation Check	Mains live to earth >600mΩ Mains Neutral >600mΩ Earth to 240V output >600mΩ Earth to 0V output >600mΩ

HP260-50 usage tables (240 volt nominal batteries)

Channel Ref.	Channel resistance	amps at 260V	amps at 240V	amps at 220V	amps at 199V
1	238 ohms	1.0A	1.0A	0.9A	0.8A
2	164 ohms	1.5A	1.4A	1.3A	1.2A
3	140 ohms	1.8A	1.7A	1.5A	1.4A
4	91ohms	2.8A	2.6A	2.4A	2.1A
5	45 ohms	5.7A	5.2A	4.8A	4.3A
6	19 ohms	13A	12A	11A	10A
Fine 1	19 ohms	13A	12A	11A	10A
Fine 2	10 ohms	24A	22A	20A	18A
Fine 3	6.3 ohms	41A	37A	34A	31A
Course 1	4.7 ohms	55A	51A	46A	42A
Course 2	3.3 ohms	77A	71A	65A	59A
Course 3	1.9 ohms	133A	123A	112A	102A
	TOTAL	200A	185A	170A	153A

HP260-50 usage tables (110 volt nominal batteries)

Channel Ref.	Channel resistance	amps at 130V	amps at 120V	amps at 110V	amps at 99V	amps at 91V
1	238 ohms	0.5A	0.5A	0.4A	0.4A	0.3A
2	164 ohms	0.7A	0.7A	0.6A	0.6A	0.5A
3	140 ohms	0.9A	0.8A	0.7A	0.7A	0.6A
4	91 ohms	1.4A	1.3A	1.2A	1.0A	0.9A
5	45 ohms	2.8A	2.6A	2.4A	2.1A	1.9A
6	19 ohms	6.7A	6.2A	5.7A	5.1A	4.7A
Fine 1	19ohms	6.6A	6.1A	5.6A	5.0A	4.6A
Fine 2	10 ohms	12A	11A	10A	9.4A	8.6A
Fine 3	6.3 ohms	20A	18A	17A	15A	14A
Course 1	4.7 ohms	27A	25A	23A	21A	19A
Course 2	3.3 ohms	38A	35A	32A	29A	27A
Course 3	1.9 ohms	66A	61A	56A	50A	46A
	TOTAL	100A	92A	85A	76A	70A

HP260-50 usage tables (50 volt nominal batteries)

Channel Ref.	Channel resistance	amps at 60V	amps at 54V	amps at 50V	amps at 48V	amps at 43V
1	238 ohms	0.2A	0.2A	0.2A	0.2A	0.2A
2	164 ohms	0.3A	0.3A	0.3A	0.2A	0.2A
3	140 ohms	0.4A	0.3A	0.3A	0.3A	0.3A
4	91ohms	0.6A	0.5A	0.5A	0.5A	0.4A
5	45 ohms	1.3A	1.1A	1.1A	1.0A	0.9A
6	19 ohms	3.1A	2.8A	2.5A	2.4A	2.2A
Fine 1	19 ohms	3.0A	2.7A	2.5A	2.4A	2.1A
Fine 2	10 ohms	5.7A	5.1A	4.7A	4.5A	4.0A
Fine 3	6.3 ohms	9.4A	8.5A	7.9A	7.5A	6.7A
Course 1	4.7 ohms	12A	11A	10A	10A	9.1A
Course 2	3.3 ohms	17A	16A	14A	14A	12A
Course 3	1.9 ohms	30A	27A	25A	24A	22A
	TOTAL	46A	41A	38A	37A	33A

HP260-50 usage tables (24 volt nominal batteries)

Channel Ref.	Channel resistance	amps at 30V	amps at 27V	amps at 24V	amps at 21V	amps at 19V
1	238 ohms	0.1A	0.1A	0.1A	0.1A	0.1A
2	164 ohms	0.1A	0.1A	0.1A	0.1A	0.1A
3	140 ohms	0.2A	0.1A	0.1A	0.1A	0.1A
4	91 ohms	0.3A	0.2A	0.2A	0.2A	0.2A
5	45 ohms	0.6A	0.5A	0.5A	0.4A	0.4A
6	19 ohms	1.5A	1.4A	1.2A	1.0A	0.9A
Fine 1	19ohms	1.5A	1.3A	1.2A	1.0A	0.9A
Fine 2	10 ohms	2.8A	2.5A	2.2A	2.0A	1.8A
Fine 3	6.3 ohms	4.7A	4.2A	3.7A	3.3A	3.0A
Course 1	4.7 ohms	6.3A	5.7A	5.1A	4.4A	4.0A
Course 2	3.3 ohms	8.9A	8.0A	7.1A	6.2A	5.6A
Course 3	1.9 ohms	15A	13A	12A	10A	9.7A
	TOTAL	23A	20A	18A	16A	14A

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.

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.
Check the fuse contained underneath the load bank.
Check the cables are connected securely.
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.