

Uninterruptible Power Supply (UPS)

Activity		Type Of Service				
		A	B	C	D	E
Last Issue Date: 31/10/2019						
1	Undertake a system status check.	Y		Y	Y	
2	Check the air filters.			Y	Y	
3	Check the connection temperatures with a thermal camera (over ~50kVA).				Y	
4	WITH POWER OFF: a) Check all connections and terminations are tight; b) Check all components for stress or heat damage; c) Check battery voltage; d) Clean and vacuum UPS equipment enclosures; and e) Check DC Busbar for cracks, corrosion and that insulation is intact.				Y	
5	WITH POWER ON: a) Check electronic grounds with respect to MAIN EARTH BAR; b) Check LCD/MIMIC for correct operation; c) Check operation of audible alarm and cancel pushbutton; d) Check Emergency Stop function; e) Check alarm events; and f) Check safety systems.				Y	
6	WITH SYSTEM ON LOAD: a) Check operation of fans and flaps, (where applicable); b) Check DC bus ripple voltage; c) Check battery under-voltage coil supply level; d) Test battery boost, (if applicable); e) Check inverter operation; f) Check output waveform quality, harmonic distortion; g) Check operation and condition of circuit breakers; h) Check stopping and starting procedures; and i) Check automatic by-pass switch.				Y	
7	OPERATIONAL CHECKS: a) Check calibration of LCD panel; b) Check rectifier regulation; c) Check output transient response during step load changes; d) Observe output waveform during mains failure; e) Check battery current limit; f) Check ambient temperature while UPS is operating; and g) Check real time clock.				Y	
8	ALARM TESTS - Check all alarms, including: a) battery voltage level; b) DC over-voltage shutdown levels; c) fan failure; d) ambient over-temperature; e) temperature of converters and power components; f) equipment over-temperature;				Y	

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Government of South Australia  
Department of Planning,  
Transport and Infrastructure

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	g) voltage alarm fast and slow detectors, (if applicable); h) battery earth leakage; i) remote alarm operation & peripheral equipment (incl. USER alarms); & j) alarm events.					
9	AREA OF BATTERIES - Check the area for: a) clear ventilation openings; b) satisfactory operation of mechanical ventilation, (if applicable); c) safety signage in place and in satisfactory condition; and d) general cleanliness.			Y	Y	
10	BATTERIES - Check the condition including: a) cracks or distortions in the containers or covers; and b) corrosion at the terminals or connections.			Y	Y	
11	BATTERIES - Clean all cells, battery compartments and cabinets.			Y	Y	
12	BATTERIES - Carry out a resistance test of each cell.			Y	Y	
13	BATTERIES - Measure and record the float voltage of each cell.			Y	Y	
14	BATTERIES - Check: a) terminals and connections are tight, clean and corrosion free; (*apply approved preservative coating to terminal posts & assemblies) b) bolted connections are torqued to manufacturers' recommended torque; c) inter cell and terminal connection resistance; and d) integrity of battery stand or enclosure.				Y	
15	BATTERIES - Carry out a performance test. NOTES: a) For information refer to AS 2676.6. b) The performance test shall test the ability of the batteries to operate of the duty cycle required of it by UPS and load to which it is connected. c) This test should generally be carried out with an external load bank connected to the UPS.				Y	
16	REPLACEMENT OF THE BATTERIES: a) Replace the batteries at 70% (default) of the design life timeframe as nominated by the manufacturer. Refer to Special Comments for detail; & b) Write the installation date on the batteries and the calculated date for replacement.					Y
17	Provide a written report on the tests and findings.				Y	
18	Record the results in the log book.	Y		Y	Y	Y

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## Special Comments and Technical Data

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A SERVICE WEEKLY (DEFAULT - MAY VARY DEPENDING ON USE & TO BE DONE BY SITE).

C SERVICE 3 MONTHLY

D SERVICE ANNUALLY

E SERVICE REPLACEMENT OF THE BATTERIES - SEE BELOW.

SERVICING ACTIVITIES AND FREQUENCIES MAY VARY DEPENDING ON MANUFACTURER'S RECOMMENDATIONS AND SITE CONDITIONS.

PRIOR TO THE ANNUAL SERVICE (AND FOR ANY OTHER SHUTDOWN OF THE POWER SUPPLY) OBTAIN APPROVAL FROM THE SITE REPRESENTATIVE AND ENSURE ANY OPERATIONAL DISRUPTION IS MINIMISED.

SERVICING, TESTING AND COMPONENTS E.G. BATTERIES ARE TO COMPLY WITH RELEVANT AUSTRALIAN STANDARDS, INCLUDING:

AS62040: UNINTERRUPTIBLE POWER. SYSTEMS (UPS).

AS4029: STATIONARY BATTERIES.

AS2676: GUIDE TO THE INSTALLATION, MAINTENANCE TESTING & REPLACEMENT OF SECONDARY BATTERIES IN BUILDINGS.

AS3011: ELECTRICAL INSTALLATIONS - SECONDARY BATTERIES INSTALLED IN BDGS.

AS3000: WIRING RULES.

RECOMMENDED REPLACEMENT TIMEFRAME FOR THE BATTERIES IS 70%, (DEFAULT) OF THE DESIGN LIFE NOMINATED BY THE MANUFACTURER. FOR EXAMPLE:

- DESIGN LIFE OF 10 YEARS = REPLACE AT 7 YEARS

- DESIGN LIFE OF 5 YEARS = REPLACE AT 3-3.5 YEARS

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3 of 4

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