Maintenance and Service

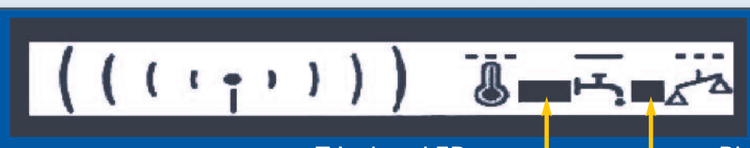
Hawker Water Less® (PzM/PzMB) / Hawker Water Less® 20

HAWKER®

Battery disconnect
Disconnect the electrical connection between the battery and the vehicle by separating the plugs.

Remove the battery cover
Leave vent plugs closed.

Wi-IQ*



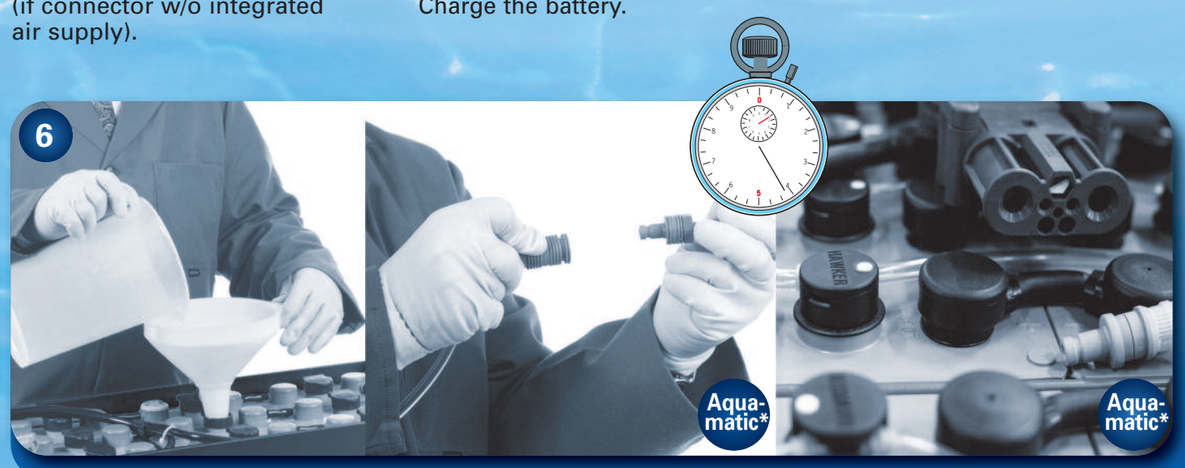
Tricolour LED	Blue LED
Green blinking - hardware OK Blue rapid blinking - wireless identification Red blinking - temperature warning > 55° C	Rapid blinking - wireless identification Slow blinking - voltage balance warning OFF - Flashing - electrolyte level is OK Light is constantly on - electrolyte level is low - Add water!

Level indicator	Action
Grey housing: (2 - 3)... PzMB:	
Green LED is lit continuously	Electrolyte level is OK
Green LED is off	Add water
Blue housing: (2 - 10)... PzM and (4 - 11)...PzMB:	
Green LED flashing	Electrolyte level is OK
Green/orange LED flashing	Warning status
Red LED flashing	Add water

Level indicator
Check level sensor

Connect the charger plug
If applicable, connect (EC) electrolyte circulation system (if connector w/o integrated air supply).

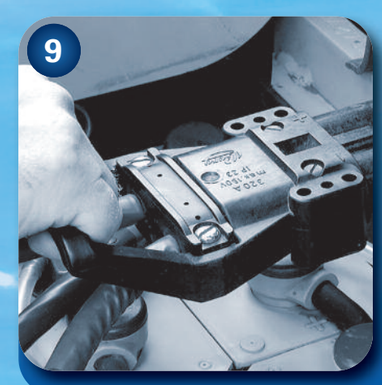
Switch on the charger
Check if the charger has been switched on. Charge the battery.



Add water
Add water if necessary. See item 3 and table for water level indication. Water topping up should be carried out 20 min before the end of charge or immediately after charging.

Switch off the charger
Switch off the charger or check if the charger has been switched off. Disconnect the charger. Disconnect EC, if connected. Check final values if applicable.

Equalizing charge
Carry out weekly equalizing charge.



Visually inspect for damage
Visually inspect all the battery components for mechanical damage (particularly charging plug and cables).

Measure cell voltages

Measure electrolyte specific gravities and temperature
If over 45°C, leave to cool down.

Measure insulation value
Must be at least 50 Ω per V of nominal voltage.

Clean the battery
Clean the battery and extract liquid from inside the container!

Exchange aeromatic filter
Check air pump function.

Request Service department
If significant changes from earlier measurements or differences between the cells are found, request further testing and maintenance by the Service department.

* Charging factor
[1] With 80% DOD, 5 days/week and mean the battery temperatures of 30°C
[2] Cycle number can be reduced in three shift operation at high temperatures
[3] Electrolyte circulation

Topping up intervals

Interval	with the charger/ Charging factor
2 weeks	
in three-shift operation[2]	50 Hz, Cf* 1.2
4 weeks	
in one-shift operation[1]	50 Hz, Cf* 1.2
5 weeks	
in three-shift operation[2]	HF, Cf* 1.10
8 weeks	
in one-shift operation[1]	HF, Cf* 1.10
in three-shift operation[2]	HF+EC[3], Cf* 1.07
12 weeks	
in three-shift operation[2]	50 Hz, HF, Wi-iQ, Cf* 1.04
13 weeks	
in one-shift operation[1]	HF+EC[3], Cf* 1.07
20 weeks	
in one-shift operation[1]	50 Hz, HF, Wi-iQ, Cf* 1.04

		Daily	Weekly	Monthly	Quarterly	Annually
1	Battery disconnect	X				
2	Remove the battery cover	X				
3	Level indicator	X				
4	Connect the charger plug	X				
5	Switch on the charger	X				
6	Add water if necessary	X	X	X	X	
7	Switch off the charger	X				
8	Equalizing charge		X			
9	Visually inspect for damage		X			
10	Measure cell voltages			X		
11	Measure electrolyte specific gravities and temperature			X		
12	Measure insulation value					X
13	Clean the battery					X
14	Exchange aeromatic filter					X
15	Call service department if necessary	X				

*LED - level indicator, option *Wi-IQ - monitoring device, option *Aquamatic, option *EC - electrolyte circulation, option

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Less is More Less watering – More customer benefits