

Checking batteries



EN

PistenBully[®]



KÄSSBOHRER GELÄNDEFahrZEUG AG

Battery maintenance and long-term usage

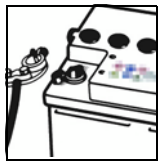
Rechargeable batteries have a limited storage capacity. Given the large number of electric consumers in the PistenBully, the generator can be considered as merely a **backup charger**. It is essential to ensure that the battery receives 100% charging to compensate for the energy drained from it. This necessitates the use of an external mains-powered battery charger. Controlled chargers **with float-charge capability** have proved suitable for this purpose.



The battery has to be float-charged in the summer months and when the PistenBully is out of use for a prolonged period of time.

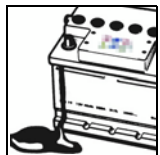
- Fully charged batteries have an open-circuit voltage between 12.6 and 12.8 V.
- If the voltage is below 12.5 V the battery has to be recharged without delay.

EXTERNAL EXAMINATION



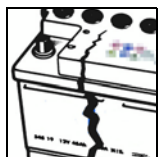
- A1 Poles scorched or broken off?**
 Battery not treated as per manufacturer's instructions (terminal clamps loose, short-circuit between the poles, impact damage).
No right to claim under guarantee.

NO



- A2 Battery leaking at the weld between case and top?**
 Manufacturing defect
Right to claim under guarantee.

NO



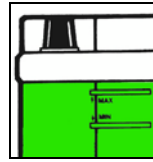
- A3 Breakage of case or top?**
 Battery not treated as per manufacturer's instructions (impact damage, shock loading or external pressure).
No right to claim under guarantee.

NO



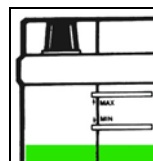
CHECK OF ACID LEVEL

Check the acid level in each individual cell.



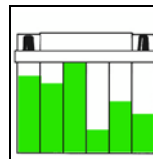
- B1 Acid level too high?**
 Yes Carelessness when topping up, or battery topped up during the cold season of the year, when the temperature subsequently increases the acid level rises. Risk of acid overflowing.
 Draw off excess acid and continue at C1.

NO



- B2 Acid level too low?**
 Yes Poor maintenance or overcharging.
 Top up with distilled water (to VDE . . . 0510) and continue at C1.

NO








- B3 Acid level varies significantly from cell to cell?**
 Yes Possibility of damaged individual cells.
 Use distilled water (VDE 0510) to equalise the acid levels and continue at C1.

NO



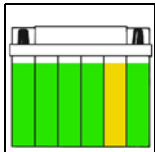
CHECK OF ACID DENSITY

Battery charge state

	Acid density at +27°C	Off-load voltage for 12 V batteries (multiply by 0.5 for 6 V batteries)
	Acid density more than 1.30 kg/l	
	charged 1.25 - 1.29 kg/l	12.5 - 12.8 V
	half-charged 1.20 - 1.24 kg/l	12.2 - 12.5 V
	low charge level 1.12 - 1.19 kg/l	11.8 - 12.2 V
	deep discharge less than 1.12 kg/l	less than 11.8 V

Temperature-correction factor ± 0.0007 kg/l per 1 °C e. g. 1.26 kg/l at + 27 °C corresponds to 1.28 at 0 °C and 1.25 at 40 °C.

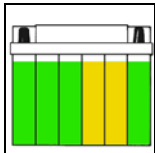
Check the acid density in each individual cell.



C1 Acid density badly down in a single cell?

Yes Possible short-circuit, continue at D.

NO

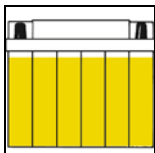


C2 Acid density badly down in two neighbouring cells?

Yes Check for leaks between the two cells; bubbles rising in the neighbouring cell are indicative of a leak.

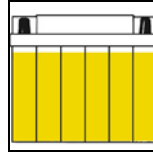
Right to claim under guarantee.

NO



C3 Acid density in all cells less than 1.12 kg/l, possibly accompanied by milkiness of the acid?

Yes Damage due to deep discharge; recharge the battery. If acid density after charging is less than 1.24 kg/l, the battery was not treated as per manufacturer's instructions. **No right to claim under guarantee.**



C4 Acid density the same in all cells, but less than 1.20 kg/l?

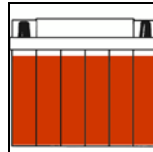
Yes Battery charge level is low; recharge the battery. If acid density after charging is less than 1.24 kg/l, the battery was not treated as per manufacturer's instructions.

No right to claim under guarantee. Otherwise, continue at D.

NO C3



NO

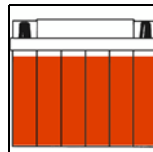


C5 Is the acid in all the cells slightly brownish in colour?

Yes Battery has been subjected to excessive strain, or normal wear and tear.

No right to claim under guarantee. Otherwise, continue at D.

NO



C6 Acid density in all cells or individual cells higher than 1.30 kg/l?

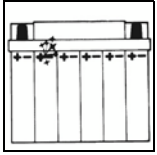
Yes Battery was topped up with acid instead of distilled water. Dilute the acid. **No right to claim under guarantee.**

NO



ELECTRICAL TEST

Check battery voltage



D1 Off-load voltage less than 11 volts (12 V battery) or 5.5 volts (6 V battery)?

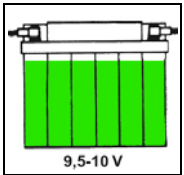
Yes Possible short-circuit
Continue at D2



D2 High-current test

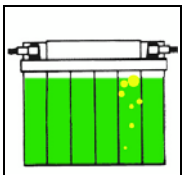
Do not perform this test until acid density has been measured and ascertained to be at least 1.24 kg/l and uniform in all the cells (corresponding to an off-load voltage of at least 12.4 V); if these preconditions are not satisfied recharge the battery before proceeding.

Set the test current as described in the operating instructions accompanying the tester being used. The duration of the test is approx. 15 s. The reading is indicated either by a voltmeter or by means of LEDs (automatic tester, e.g. accumeter).



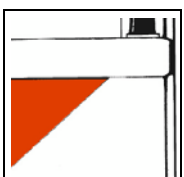
Voltage constantly above or compliant with the specified values?

Yes Battery OK
9.5 - 10 V at an acid density of 1.24 - 1.28 kg/l or reading >>good.



D3 Did the battery gas severely from one or more cells while the high-current was in progress?

Yes - Short-circuit of the cell or cells in question
- Current path inside the battery interrupted (slight smoking and acrid odour)
Right to claim under guarantee.



D4 Separators and acid in all cells slightly brownish in colour?

Yes Battery has been subjected to excessive strain, or normal wear and tear.
No right to claim under guarantee.

NO= Right to claim under guarantee.