

MINING LOCOMOTIVE BATTERY



Batteries
Which
Redefine
Toughness

SALIENT FEATURES

1. Stronger Bus bar for more strength and increased life
2. Four Posts for stronger and efficient connection
3. Robust Filling cum Venting plugs
4. Bolted Cells for easy maintenance
5. Fire Retardant Jar and Lids



Less frequent
topping up required



Lower
maintenance



Reduced
operating cost



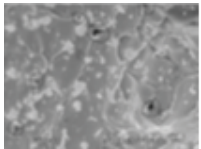
Increased
service life

Exide manufactures batteries that use state of the art spine casting equipment. Exide's manufacturing process ensures less corrosion and longer life.

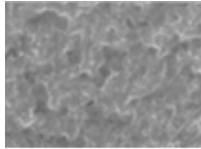
These batteries comply with the specification IEC 60254-1, meaning our locomotive batteries can be used in many International markets.

POSITIVE PLATE

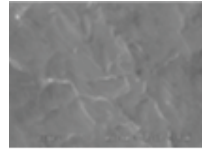
The backbone of the plate. The positive spines are cast at incredibly high pressure with a special antimony alloy of 5%.



Gravity Cast



Low Pressure



Exide High Pressure



CHARGING A BATTERY

Correct charging is the sole requirement to maximise battery performance and lifespan.

- Battery covers should be opened while charging to help cooling, minimise corrosion & hydrogen accumulation.
- Recharge using IU1 taper charging. Preferably on a daily basis.
- Always provide optimum amount of charge. Insufficient charge will cause gradual sulphation of the plates, leading to capacity loss and reduced battery life. Excessive charging may corrode the positive spines, cause excessive gassing, deplete active material from the plates and increase operating temperatures.

Checks to determine whether or not the amount of charge is correct -

1. If the charge is optimum, the specific gravity will reach its fully charged value at the end of recharge and will remain unchanged.
2. If the specific gravity does not reach the desired value it means that the battery is undercharged.
3. If the specific gravity reaches its desired value but the cells require an excessive amount of topping up, it means that the battery is overcharged.

ENSURE CELLS ARE CORRECTLY TOPPED UP:

Topping up water must be stocked, in a clean non-metallic container with a stopper to prevent dust formation. To avoid short-circuit through connectors while topping up, all metal objects should be kept away from the cell top. Topping up weekly is ideal even though at times only a small quantity of water is needed. Though frequency of this routine depends on operating conditions, the topping up routine is to be followed.

Overtopping will cause electrolyte levels to flood the top of the cells during gassing, thereby resulting in excessive gassing and loss of electrolyte. The electrolyte level should be kept minimum 5 mm above the separator and 30 mm below the Vent hole. If spillage occurs, local branch is to be contacted for assistance. The correct time to top up is when the battery is about 80% through a charge. Topping up batteries should be avoided directly after discharge.

NEVER ADD ACID OR ANY 'SPECIAL' SOLUTIONS TO CELLS:

All cells in a battery requires roughly the same amount of water. If individual cells are found to need appreciably more or less than others, this should be investigated and reported to the service engineer. Only distilled, deionized or other approved water should be used for topping up to prevent premature battery collapse.

Filler vent plugs and connections are to be tightened and removed only when topping up or taking specific gravity readings. Foreign matter must not be allowed to enter cells.

Under normal operating conditions water is lost from the cells through natural evaporation and electrolysis through gassing during charge. This water is replaced during topping up and NOT the acid. Check that the shrouds are fitted to the inter-cell connectors correctly and that they are not damaged. Any damaged shrouds should be replaced immediately.

A NAKED FLAME SHOULD NEVER BE LIT NEAR A BATTERY as Gases given off by a battery are explosive.

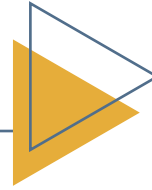
CELLS, TRAYS AND CONTAINERS SHOULD BE DRY AND CLEAN:

In case of cleaning always use water for a better result.





BATTERY MAINTENANCE



A lead acid motive power battery requires very little maintenance, but the following points will ensure the maximum performance and longer service life of the battery.

EQUIPMENT CHECKS

- The charger gives rated output and matches the battery capacity.
- The timer period between the voltage relay operating and the end of charge is set correctly.

UNDERCHARGING

Undercharging over a period leads to the formation of lead sulphate, leading to the expansion and breakage of positive plates while also causing hardening of the negative active material, resulting in loss of capacity. The best protection against under-charging is to regularly check the specific gravity readings after completion of the normal recharge. If readings show consistent undercharging, remedial action must be taken.

OVERCHARGING

Overcharging affects battery life too, although its effects are not as immediately obvious. It is, therefore, important to check battery voltage and charge current from the charger's ammeter, and compare it with the recommended rate. Overcharging due to prolonged charging and excessively high charging rates produces excess gassing, high temperatures and corrodes the positive spine. All these result in shedding of active materials and greater water loss.

OVERDISCHARGING

Batteries should normally not be discharged more than 80% of its capacity. The specific gravity of the electrolyte reflects accurately the ampere hours, taken from a cell on discharge. The battery is 80% discharged when the specific gravity is 1.140. Undercharging combined with over-discharging, intensifies the effects. Strictly speaking, a battery is not over-discharged at any rate unless more than its capacity at that rate has been taken out. Nevertheless, it is highly undesirable to take out anything approaching 100% of its rated capacity on a regular basis.

A battery should not normally be discharged more than 80% of its capacity. Gross over-discharge will raise the temperature later. The battery should be allowed to cool before recharge. A battery should never be removed from the charger while in operation. Since the charger has a fixed operating programme, interrupting the charge will result in over or under-charging of the battery.

Weekly readings of a pilot cell just is required, since specific gravity will be at its lowest. For specific gravity falling below 1.140, appropriate action should be taken for battery failure or over discharge. Weekly reading of specific gravity before commencing work helps determine if the battery is being undercharged (specific gravity below 1.280) or if the battery is faulty.

Once per month record top of charge readings of specific gravity of each cell.



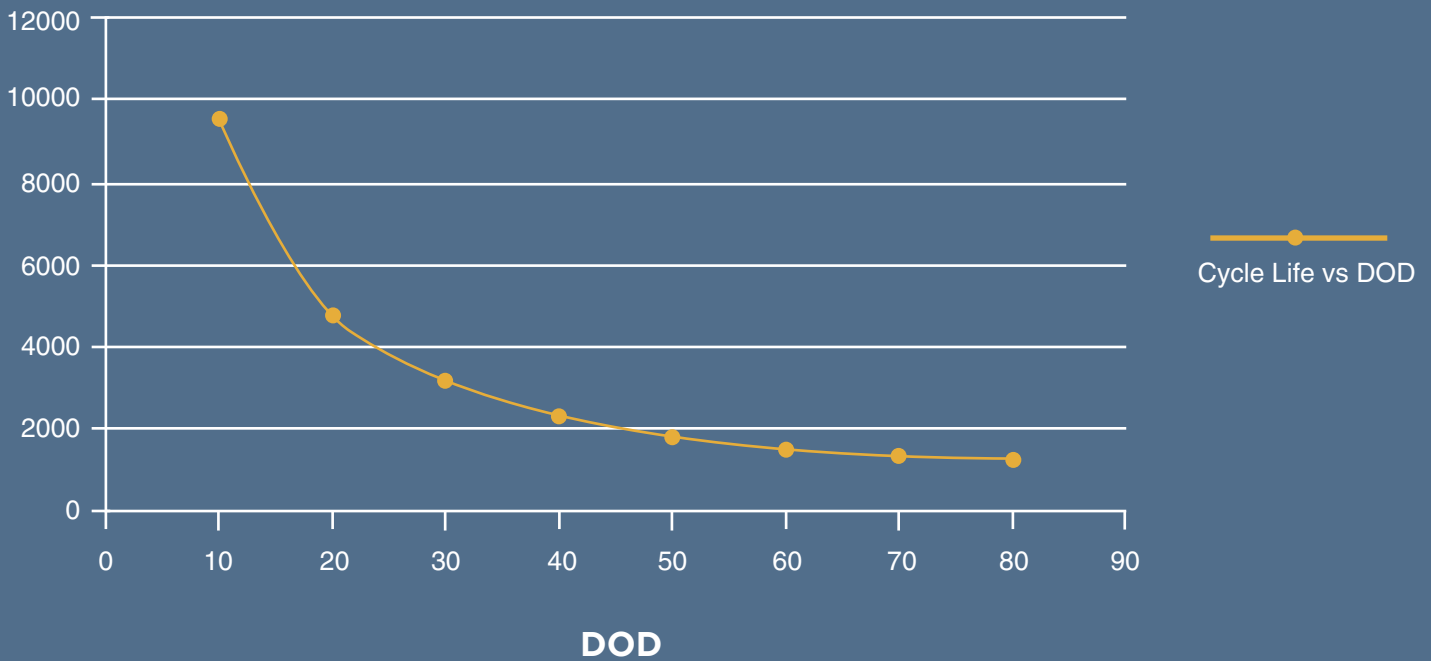
TECHNICAL SPECIFICATION

Specific Gravity 1.28

	Mining EIL Nomenclature	Rated Ah (@C5) VPC at temp(EIL)	Length in mm	Width in mm	Overall Height in mm	Height to top of Lid in mm	Dry Weight in KG	Wet Weight in KG	Approx. Electrolyte Volume (litres)
Classic Series	MXILF23	594	189	158	431	401	28.1	36.7	6.7
	MXILF25	648	205	158	431	401	30.8	40.1	7.3
	MXTLF21	650	173	158	483	453	30.5	39.7	7.2
	MXTLF25	780	205	158	483	453	36.4	47.4	8.6
	MXTHF23	803	189	158	542	512	34.3	45.4	8.7
	MXTHF25	900	205	158	542	512	40.9	53.1	9.5
J series	MXILF 23-25j	605	205	158	431	401	29.9	40.1	8
	MXTLF 21-23j	650	189	158	483	453	30.5	40.9	8.1
	MXTHF 23-25j	810	205	158	542	512	34.3	46.5	8.7

- Four Posts
- Strengthen Group Bar
- Strengthen Filler Cap
- Fire Retardant

CYCLE LIFE vs DOD



Global Presence

Norway	Sri Lanka
UK	Malaysia
Canada	New Zealand
Croatia	Australia
Poland	Singapore
Greece	Indonesia
Malta	Brunei
Israel	Philippines
Jordan	Thailand
Egypt	Cambodia
Bahrain	Vietnam
Qatar	Hong Kong
Peru	Taiwan
Argentina	Bangladesh
Mali	China
Nigeria	Japan
Botswana	Korea
South Africa	Afghanistan
Zambia	Oman
Tanzania	Kuwait
Mozambique	Armenia
Kenya	Finland
Mauritius	Germany
UAE	Scotland



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