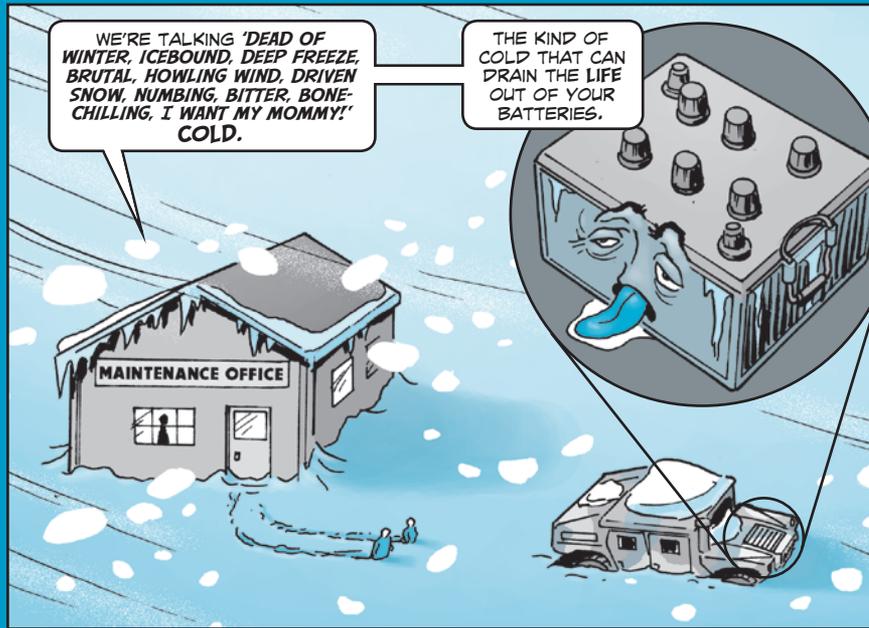


BABY, IT'S COLD OUTSIDE!



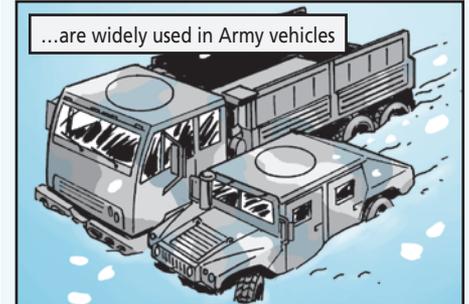
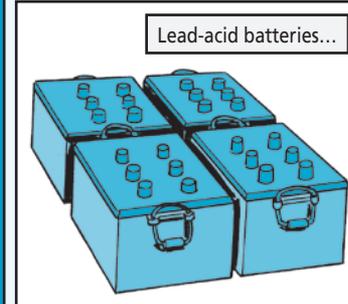
Energy density: amount of energy stored in a given space per unit volume
Capacity: amount of energy a battery can deliver in a single discharge (normally expressed in ampere hours)

ARM YOURSELF WITH COLD-WEATHER KNOWLEDGE.



PONDER A FEW BATTERY PRINCIPLES AS YOU RIDE OUT THE WINTER...

- As the temperature falls, chemical reactions in batteries slow. A cold-soaked battery takes a sharp drop in energy. Depending on how much power your equipment draws, a battery may be too weak to power or even start equipment. Also, a cold battery recharges slowly because of the slowed chemical reactions.



- Compared to a charged battery, a **discharged** battery is more likely to suffer damage because of freezing. Never try to recharge a frozen battery. Thaw it completely before recharging.
- When discharged, a **lead-acid battery** becomes vulnerable to freezing. It doesn't charge well when cold, and it loses power at low temperatures. But a lead-acid battery is cheap. And it's widely used in the Army's vehicles and construction equipment in cold weather.

Keep your batteries fully charged to lower the freezing temperature of the battery acid. That helps prevent damage from freezing.

- At low temperatures, a **nickel-cadmium (NiCd)** battery works better than a lead-acid one. It's not likely to freeze, and it has better cranking power. But it costs more. NiCd batteries are commonly found on aircraft.

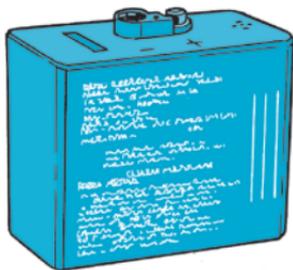
Make it a practice to warm up a lead-acid battery before cold starting an engine or charging the battery. Check your equipment TM and operator's manual for cold weather starting instructions. Also check the manuals to see if your equipment comes with a heating blanket. If you don't have a heating blanket, remove the battery and bring it indoors to warm up.



PS MORE

- A **nickel-metal hydride (NiMH)** battery has a higher energy density than a NiCd battery. But it loses more capacity at low temperatures than a NiCd or lead-acid battery. You're advised not to charge NiMH when it's below 32°F. Below 59°F, you must charge NiCd and NiMH batteries at reduced rates. NiMH batteries are used in the Javelin and the AN/PRC-126 radio.

Use NiMHs...



...in
AN/PRC-126
radios



- A **lithium-ion (Li-ion)** battery doesn't lose much capacity at low temperatures. You can charge it at normal rates above 32°F. You can charge it at reduced rates in temps as low as -4°F. A Li-ion battery costs more than a NiCd or NiMH. But its higher energy density offsets the higher cost. That can make the Li-ion the battery of choice for hybrid-electric drive systems. Its high energy density and high power mean good service in cold weather. Li-ion batteries are used in the PLGR and the SINCGARS (except for the RT-1523A and D).

Use Li-ions...



...in some SINCGARS radios



FOR MORE
ON LEAD-ACID
BATTERIES,
SEE PAGES 10-
11 IN PS 696.



PAGES
27-34 IN PS
696 COVER
COMM
BATTERIES.

PS
END