

### Skid Steer Loader Battery Problem:

It's come to our attention that some units are having problems with dead batteries in the new Army Skid Steer loaders.

We've done a field investigation and analyzed batteries from multiple locations in our lab. We found:

- With many users, this equipment can sit unused for extended periods.
- On-board electronics create a high parasitic amperage load, even while the loader is not being used. This leads to an extreme deep discharge of the batteries, causing sulfation of the plates.
  - We measured parasitic discharge rates ranging from .02 to .06 amps. At an average rate of .04 amps, the 2 Optima D31T batteries will be discharged 38% in one month of sitting unused.
  - When any battery sits in a discharged state sulfation of the plates occurs. The worse the sulfation, the less likely the chance of recovering and recharging the battery.
  - The Skid Steer has no battery/master disconnect switch to stop the discharge.



**Solution:** Any one of these actions will stop the battery failures due to onboard parasitic loads.

1. Run the Skid Steer weekly at least one hour. OR
2. Every other week, plug a charger into the NATO receptacle and fully charge the battery set. There is an approved charger for this in the ARMY SATS, NSN 6130-01-500-3401. OR
3. For equipment stored outdoors, use a solar maintenance charger. They are in the supply system and cost less than one set of batteries. NSN: 6130-01-558-5371 plugs into the NATO receptacle and no modifications to the equipment are needed. (Fully charge batteries before using the solar maintainer)

One customer told us about testing a group 31 battery with a larger reserve capacity. This is not a solution. It will just take a couple of weeks longer for these batteries to be discharged & sulfated. Additionally, this larger capacity battery will cost the user more money.

Pure lead/tin batteries such as the Optima have the best ability to recover from deep discharge & sulfation. However, when plate sulfation becomes severe enough, any battery can get to a non-recoverable condition. **The key is to prevent the deep discharge from happening and always recharge batteries as soon as possible.**

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