

NOTICE:

This pamphlet is for the maintenance, charging, and troubleshooting of batteries for Nilfisk-Advance equipment. Most procedures refer to wet/acid batteries. AGM and gel type batteries are meant to be maintenance-free, but there is a minor amount of information for maintenance included inside. For trouble-shooting maintenance-free batteries, please contact our service centre in Edmonton.

For new battery installation, or replacement of defective or worn out batteries please contact our service centre for assistance.

WARNING:

Always use protective equipment such as safety glasses and gloves when performing inspection and maintenance procedures.

Read the operators' manual for your specific charger and/or equipment before performing any battery maintenance.



Battery Care

**SERVICE DEPARTMENT:
1-866-722-9144**

OFFICE LOCATIONS:

EDMONTON
(HEAD OFFICE & MAIN SERVICE CENTRE)
14704 - 119 Ave
(780) 451-1516
1-800-565-9898

CALGARY
6025 - 6 St. S.E.
(403) 640-4664
1-888-435-6257

FORT MCMURRAY
Bay H, 254 Gregoire Dr.
(780) 791-3466

GRANDE PRAIRIE
#106 - 11735 - 105 St.
(780) 532-8766
1-877-532-8766

LETHBRIDGE
210C - 12A St. N.
(403) 327-1531
1-866-327-1531

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**For Nilfisk-Advance
Wet (Acid) Batteries**

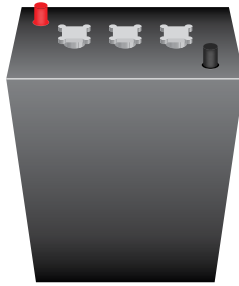


 **W.E. GREER LTD.**
"OUR REPUTATION IS SPOTLESS"

MAINTENANCE / INSPECTION FOR BATTERIES (WET):

1. Water batteries at least once a week.

- i. Add only approved water to the cells. Distilled water is recommended, high mineral content water must not be used. Maximum allowable impurities in percent-iron (.003), chloride (.004), fixed residue (.075).
- ii. Remove vent caps and water batteries preferably after charging to prevent overflow of acid due to expansion.
- iii. Fill all cells to the proper level. **Do not overfill.** Fill to level indicator or 1/2 inch over the top of the separators if there is no level indicator. Do not use a hose to water batteries.
- iv. Spot check cells between weekly waterings to assure electrolyte is above separators. Excess water usage indicates the presence of any one or all of the following conditions which should be checked
 1. Overcharging
 2. High temperature operation
 3. Nearing end of service life
- v. **Do not allow the electrolyte level to drop** below the top of the separators since this will lead to shortened battery life.



2. Clean batteries after weekly watering (or when washing machines).

- i. Wash the tops of the batteries making sure the vent caps are in place. Do not allow water or other foreign matter to enter the cells.
- ii. Use a solution of bicarbonate of soda and water to wash batteries if there is an accumulation of acid.

3. Inspect to insure good conditions, which will give better battery service.

- i. When watering batteries inspect battery and other terminal connections for:
 1. **Corrosion** - If any exists, clean connection and apply a non-metallic grease or protective spray to retard further corrosion.

2. **Loose connections** - Be sure all connections are tight and that good contact is made between terminals.
 3. **Broken or frayed cables** - Be sure all cable connections are good and that no loose or broken wires are exposed. Replace any which look suspicious.
- ii. Once a week after the batteries have been charged, spot check two or more cells for specific gravity reading. Gravity should be 1.250-1.280. If low readings are noted:
 1. Check charger to insure that proper charge is being returned to the batteries.
 2. Check connections as specified under **inspection 3i.**
 3. Check all cells to determine if batteries are near the end of life. This should be done to the same procedure as called for under the section covering “**Trouble Shooting**” of batteries.
 - iii. On a regular interval, check machine as outlined in the instruction manual for:
 1. Proper lubrication
 2. Proper operation of electrical system
 3. Proper operation of drive and transmission system
 4. Condition of charge plug and receptacle in machine

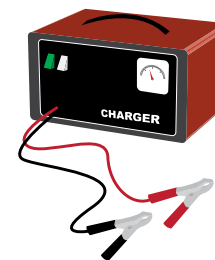
Any of these conditions which are detrimental to machine operation will shorten battery life

MAINTENANCE / INSPECTION FOR BATTERIES (GEL/AGM):

If you have maintenance free batteries such as Gel or AGM, the only maintenance required is to check that all terminal connections are tight on a weekly basis.

CHARGING PROCEDURE:

1. Become familiar with instructions issued with the charger or machine manual.
2. Batteries are to be checked after each



- day's use as soon as work has been completed.
3. **Do not charge batteries** if machine was not used that day.
4. **Do not allow batteries to sit in discharged condition** for prolonged periods of time.
5. **Always be sure batteries are fully charged** each day prior to starting work.

TROUBLE SHOOTING FOR WEAK OR BAD BATTERIES (WET):

When a machine fails to operate properly performing less than an acceptable amount of work, the batteries should be examined as follows:

1. Check terminal for corrosion, loose connections and broken or frayed cables.
2. If terminal connections appear to be in good condition, check all cells with a hydrometer for variation in specific gravity among cells. A variation of .030 points or more between cells of a battery is cause for suspect. Mark the low cells.
3. Recharge the batteries as recommended by the manufacturer.
4. Read all gravities again after recharge. Be sure that batteries are fully charged at gravities of 1.250 to 1.280. If cells vary by .030 points or more it is an indication of possible trouble within that battery.
5. Check the voltage. A fully charged 12 volt battery should have 12.6 volts, and a 6 volt battery should have 6.3 volts, when fully charged.
 - i. If the batteries run less than 40 minutes they have either reached the end of life or a defective battery is in the circuit. Battery replacement is then necessary.
 - ii. If batteries run 40-50 minutes they have lost capacity and may be nearing the end of their useful life.
 - iii. If batteries run more than 50 minutes, they are in good condition and satisfactory for continued service. Prior to putting the machine back in service it should be checked for the existence of other trouble as outlined in the instruction manual.