



# **Elec-Trak<sup>®</sup>** Tractor

## POWER PACK CARE AND MAINTENANCE

An audit of several thousand of the tractors in service the past year included a check of the condition of each power pack. The information gained indicates that attention to power pack care is needed by many Elec-Trak tractor owners, in order to assure desired performance and life. This bulletin contains some additional information to that in the Use & Care Manual on necessary steps for proper care and maintenance of the power pack. Reread your Use & Care Manual section on the power pack.

### Maintenance

The water level in the power pack must be maintained properly. With the caps removed the perforated shield, visible through the openings, must never be dry. The liquid level should be 1/2-3/4" above these plates. To prevent water bubbling out of the caps when charging, water should be added after the charging cycle is completed, except the shield should be covered before charging if it is exposed. Filling should be done carefully to avoid spilling water on the power pack or tractor. Distilled water is best but most tap water used for drinking is acceptable. Addition of water is needed more often in warmer weather. Check the water frequently (once/month or every 4-6 uses) and add whenever needed. An inexpensive, semi-automatic filler jug is available from your Elec-Trak tractor dealer which makes this maintenance very easy.

While water is the liquid added to the power pack, it must be remembered that the liquid in the power pack is an acid solution (electrolyte), and must be treated cautiously to avoid metal corrosion and possible acid burn of skin contacting the acid. When caps are removed they should be set down on the plastic cover, and not on any metal surface. After inspection and/or filling, any residual liquid should be wiped up with a cloth or paper towel. The tops and covers should be kept clean and free from dirt, dust, grass, etc.

If any excess spillage of electrolyte occurs, the acid can be neutralized by applying a paste of baking soda and water to the acid. Do not allow this mixture to fall inside the battery. When bubbling stops, wash the soda off and rinse with clean water. The electrolyte will eat holes in cloth, and can burn if contacting skin. After handling the power pack or caps always wash hands, and any other skin contacted.

If corrosion is noticed at the terminals, it should be removed by wire brushing. Heavy corrosion buildup can create leakage currents that will reduce power and range. Be sure to open disconnect before working on the power pack. Care must be exercised to avoid shorting any single power pack unit or group of units with metal, such as a wrench or screwdriver. The power pack post should be cleaned and also the post clamp. Do not hammer the clamp onto the post, but spread it to go on easily. Dealers have special tools for power pack service. After reassembly, the clamp and post should be protected with a coating of special grease, which is available from your dealer.

Clamps are used to prevent severe impacts on the power pack during service. These clamps should not be removed because then shocks encountered on rough terrain might cause damage to the power pack, either to the case or to the internal plates.

**REMEMBER: PROPER POWER PACK MAINTENANCE MEANS BEST PERFORMANCE AND LONGEST LIFE, AND CONSISTS PRIMARILY OF MAINTAINING THE CORRECT WATER LEVEL.**

### Charging

The Elec-Trak charger replaces the energy to the power pack. It requires that the power disconnect be engaged as during operation and the timer switch be turned on. When the time is set on

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**GENERAL**  **ELECTRIC**

"1-2 yr. ", the charger will operate for a total of about 18 hours. The current into the power pack is variable over this time, depending on voltage. The first 5-6 hours operates at a higher current to replace 95 percent of the charge level of the cells. The last 10-12 hours of charge replaces the remaining 5 percent plus a prescribed amount of overcharge to equalize the voltage level of all 18 cells. The charger can be disconnected at anytime without harm. If the tractor is needed while on charge, the timer should be turned to off, and the plug removed from the house outlet.

Care should be taken to avoid pulling or cutting the charger cord. Close the hood carefully so that the cord fits through the space between hood and side plate. Remember to disconnect cord before driving off. If the hood is left open while charging, it helps to remind the user of proper storage of the charger cord before moving the tractor.

If water is bubbled out of the caps during charging, the liquid level inside the power pack is too high and should be maintained at a lower level. (Do not remove electrolyte, but do not fill as high next time.)

The fuel level gage should read in the white region during charging. After charging it should read at the Green-white interface, marked F. As the power pack discharges the meter drops through the green to E. Under the load the meter will read lower and will even be in the red. Estimating the fuel level should be done when the tractor is not under load (not operating).

The time of use can be extended significantly by charging at every opportunity, even if for only a few minutes. When stopping for lunch, coffee, etc., plug in the charger if extra total running time is desired. Always keep the power pack charged. Recharge after each use. Be sure to fully charge before a period of long idle time (vacation, change of seasons, etc.)

#### Testing the Power Pack

The test for determining unsatisfactory performance from the Elec-Trak tractor power pack is inability to carry a 75 ampere load down to 31.5 volts for a minimum time of 60 minutes. This test is designed to measure end of life after long service. Failure to pass this test in the first several months of service indicates a bad cell or cells in one or more power pack units.

A measurement of the specific gravity of each cell should then be made. If any cell is more than 50 points below the others, that power pack unit is suspect. Recharge the power pack for at least 12 hours, and check the readings again. If there is still a 50 point difference, the unit with the low cell reading should be replaced by your dealer.

Note: The specific gravity of the power pack electrolyte is 1.260 at full charge, at 80°F. A reading of 1.210 is said to be "50 point" lower. Temperature affects the readings in the amount of 4 points per 10°F. change from 80°F. Specific gravity is measured with a hydrometer, which may be obtained from your dealer, AP11, or purchased at a local hardware or auto supply store.

Readings should not be taken until at least one hour after charging, because the electrolyte may not have "averaged out" before that time.

A bad cell may manifest itself by a noticeable loss of power or speed when the tractor is under load (such as going uphill) or by a reduction in the time of use before discharge.

The power pack is the heart of your electric tractor. Observance of these suggestions for care and maintenance will pay off in fine performance and long life.