GEZ-5539

Elec-Trak®

Garden Tractor

E12M Owner's Use and Care Manual

GENERAL ELECTRIC

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Ⓣ TRADEMARK

The E12M tractor is not designed for use in heavy towing or shock-load applications. Applications requiring high or sudden stress on the drive train should use the E15 or E20 models which have the LL drive range and heavy-duty gearing.

This manual does not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purpose, the matter should be referred to your authorized ELEC-TRAK dealer.

Introduction

Congratulations! You now own a fine product produced by the General Electric Company, which has been designed to provide you high quality and excellent service.

Electricity is the cleanest, most dependable and economical source of power. Every day, all around you and often taken for granted, electrical power is working for you . . . heating, cleaning, lighting, and cooling.

The ELEC-TRAK Ⓣ garden tractor is the result of careful design engineering with the operator foremost in mind. Safety, ease of operation, economy, ruggedness, and maintenance-free features are built into the ELEC-TRAK tractor.

This manual has been carefully prepared to instruct you in operating, maintaining, and lubricating your ELEC-TRAK tractor. **IT IS VERY IMPORTANT THAT EACH OPERATOR FULLY UNDERSTANDS THE ENTIRE CONTENTS OF THIS MANUAL FOR SAFE, DEPENDABLE OPERATION AND TO PROLONG THE LIFE OF THE EQUIPMENT.**

Your ELEC-TRAK tractor dealer is equipped with a complete stock of genuine ELEC-TRAK tractor parts. He has factory-trained service personnel using the latest approved test and repair equipment and will service your tractor to assure safe, efficient, and economical operation. **UNAUTHORIZED SERVICE VOIDS WARRANTY. HOWEVER, BEFORE CALLING YOUR DEALER FOR SERVICE, SEE THE TROUBLE-SHOOTING CHECK LIST ON PAGE 18.**

WARRANTY REGISTRATION

To validate your registration your dealer must complete and submit a Dealer Delivery Report to General Electric. To assure proper warranty coverage be sure that the dealer prepares this form for you with a copy properly dated and sent to the General Electric Company at the address shown below.

Manager – Product Service
Outdoor Power Equipment Operation
General Electric Company
Corporations Park
Schenectady, New York 12345

Your dealer will also record the Dealer Delivery Report and model and serial number of your General Electric tractor.

Remember to specify model and serial number shown under the hood when ordering parts.

Plug-In . . . The key to automatic refueling

The ELEC-TRAK tractor is designed to refuel itself and always be ready for service if it is plugged in and the charger dial turned to the appropriate "Start" position. *IT SHOULD ALWAYS BE PLUGGED INTO A 3 WIRE (GROUNDED) 110 VOLT OUTLET WHEN NOT IN USE.* When turned on, the charger automatically senses the power pack condition and adjusts the charging rate to the proper level to bring the power pack to a fully-charged condition as fast as possible. The charger timer will continue to move for several hours after full charge is reached but the charge rate is very low and only assures equalization of all the individual cells.

It is especially valuable to put the tractor on charge during any short breaks in operation (10 minutes or longer), since the high rate of input during the early part of the recharge cycle re-activates the power pack's plates and adds considerable range to the work period.

THE POWER DISCONNECT MUST ALWAYS BE ENGAGED TO PERMIT RECHARGING.

Ⓣ TRADEMARK

Elec-Trak®

OPERATION

Prior to initial use of the ELEC-TRAK tractor, the user should completely familiarize himself with all tractor controls and the safety interlocks (Pages 4 through 10).

Safety Practices

As with all power devices, prime responsibility for safe operation of the equipment rests with the operator. It is necessary that both operating instructions and the following safety information be fully understood by each operator before using the tractor and attachments.

- Become familiar with the location and function of all controls.
- Be sure the work area is clear of objects which might be picked up and thrown, such as stones, bottle caps, or sticks.
- Regulate travel speed according to ground conditions.
- Don't forget to set the brake and shut off attachment power before you leave the tractor.
- Don't drive too close to creeks or ditches, in order to avoid the chance of tipping.
- Watch out for traffic when near roadways.
- Stay alert for holes and other hidden hazards.
- Watch where you're driving! Pay attention! The tractor is very powerful, and weighs approximately 1000 pounds.
- Beware on steep slopes! Reduce speed on all side slopes and sharp turns to prevent tipping or losing control.
- Don't attempt to operate tractor when not in seat.
- Don't carry passengers without proper provisions.
- Keep children and pets at a safe distance.
- Don't wear loose-fitting clothing that might get caught in moving parts.
- Never attempt to get off the tractor while it is in motion.
- Don't stop or start suddenly when going uphill or downhill. A sudden change of speed could upset the balance of tractor or operator.
- Keep tractor in good operating condition. Maintain all safety devices as indicated in this manual.
- Remove key before leaving tractor.
- Plug tractor charger cord into a normal 110-volt, 3-hole receptacle. Do not use a 2-hole adapter unless properly grounded.
- Keep hands and feet clear of all rotating equipment.
- Disconnect power cord from PTO receptacle before handling power attachments.
- All safety devices are for your protection. Do not attempt to defeat them.

NOTE *The ELEC-TRAK tractor should be plugged in and brought to the full charge state as soon as the owner takes delivery. (See Page 10.)*

TO START

1. Move speed control to "neutral".
2. Turn tractor key to "On".
3. Move range selector to desired position (D_2, D_1, or L).
4. Release parking brake.
5. Move speed control slightly forward. Increase movement for higher forward speed.

OPERATION

WARNING

Operator should not "firewall" or quickly advance the speed control in starting from a standstill, especially if starting under load. This practice draws high current through the drive motor and can also result in a sudden snap-start. The ELEC-TRAK E12M tractor is much the same as an automobile; it is a powerful machine which must be handled with care and judgement. Special care in starting and braking on hilly terrain is imperative for safe operation since the balance shifts to make the machine less stable as the angle of the ground increases. Sudden starts uphill or stops when rolling down hill, could upset stability and cause possible damage to the equipment or injury to the operator. It should also be noted that the tractor will climb a steeper hill than it can safely descend, due to the shift of weight balance which results in more traction uphill but much less wheel grip going downhill. Starting should be done by gradually advancing the speed control until the full-forward position is attained. This position gives maximum torque and efficiency. Shifting to a lower range selector position or depression of the power pulse switch may be necessary if the starting load is high or if the tractor slows and the power use gage reads in the red. (See Page 4 for Power Pulse Switch operation).

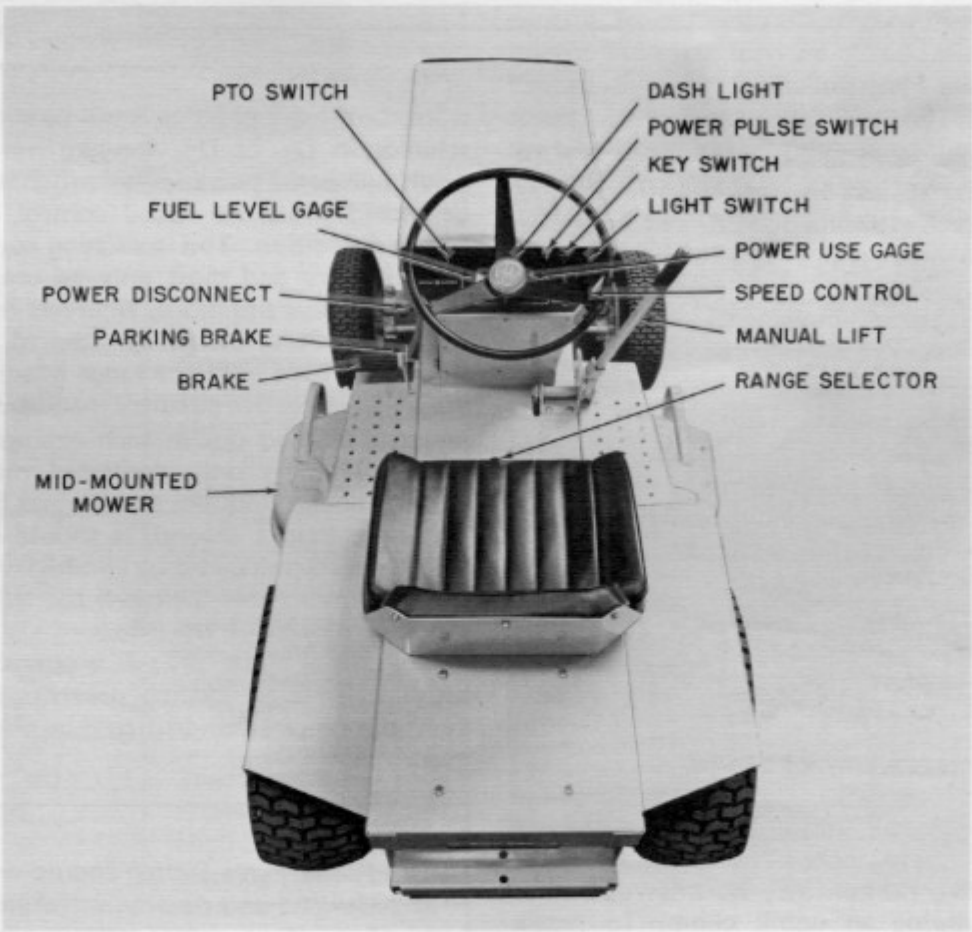

Figure 1. E12M ELEC-TRAK Tractor

CONTROLS AND FEATURES

TO STOP

Return speed control to neutral and/or depress brake pedal.

NOTE

Quick stops can be made by fully depressing the brake pedal without returning the speed control to neutral. Full depression of brake pedal switches drive power off for circuit protection.
Before drive power can be restored, the speed control must be returned to neutral and the brake released. Movement of the speed control will then restore operation.

TO REVERSE

1. Stop tractor by returning speed control to neutral and/or depressing the brake.
2. Release brake.
3. Move speed control slightly to the rear. Higher reverse speed results from moving lever further to the rear.

NOTE

New power packs have a "break-in" period. It is recommended that deep discharging be avoided for the first 5 operational periods. This will assure longer power pack life.
Deep discharging can be identified when the Fuel Level Gage reads in the red to the left of "E".

ATTACHMENTS

Use and care information for ELEC-TRAK attachments is found in the specific manual supplied with each attachment.

The rear pin hitch is provided for light hauling only. Heavy hauling, impact pulling, or operation of ground breaking implements requires the addition of the optional sleeve hitch.

NOTE

Under no circumstances should automotive electrical equipment such as lights, horns, or any grounded frame device be attached to the ELEC-TRAK tractor. The tractor frame is not grounded and such devices could cause damage to the control system if used. Use only approved ELEC-TRAK equipment.

POWER PULSE SWITCH

For convenience, a Power Pulse Switch is located on the control panel. This switch provides additional drive motor torque for unusual starting situations which may occur. For example, while mowing, forward motion may be interrupted for maneuvering during an uphill climb. To regain forward speed, the speed control would normally be returned to neutral and then moved fully forward, but if this practice is followed with the range selector in D_1 or D_2, forward motion may not result unless the power pulse switch is momentarily depressed while the speed control is in the full-forward position. This switching overrides protective circuitry and must only be used for starting during unusual situations. Wherever repeated use of the Power Pulse Switch is required, a lower gear should be used with the range selector which will keep the protective circuitry inactive.

As is pointed out in each example, the Power Pulse Switch is only depressed momentarily to obtain forward motion, and is never held depressed for more than a second. It should also be noted that the same hill could be climbed without the use of the Power Pulse Switch if the tractor were not stopped midway on the hill.

The Power Pulse Switch is operable in forward only. When high loading prevents reverse operation, the range selector should be placed in a lower gear.

NOTE

The Power Pulse Switch should only be used as suggested and no attempt should be made to abuse it or defeat its purpose, or equipment damage may result.

TRACTOR KEY SWITCH

The "OFF" position disconnects all tractor electrical circuits with the exception of the charger, lights, and accessory receptacle. These circuits are active with the key in either the "OFF" or "ON" position. The clockwise "ON" position allows power to be applied to the drive motor and PTO equipment.

RANGE SELECTOR

Range selector lever position determines one of three speed-torque ranges according to the pattern shown in Figure 2. The "L" position gives the highest torque and "D_2" gives the highest speed. See Table 1.

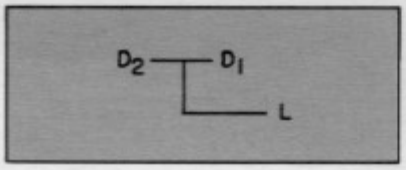

Figure 2. Range Selector Diagram

Designation	Use
L – Low (Up to 2.5 mph)	Snowthrowing Hauling (Heavy Loads) Ground Engaging (Tilling, etc.) Snow Plowing
D_1 – Drive One (Up to 4.0 mph)	Heavy Mowing Hauling (Medium Loads) Raking and Seeding Snow Plowing (Dozer Blade)
D_2 – Drive Two (Up to 6 mph)	Transporting Snow Plowing High Speed Mowing Hauling (Light Loads)

Table I

Range selection is made with a quick, positive hand motion, *BUT ONLY AFTER DRIVE MOTOR ROTATION HAS STOPPED.*

NOTE

When range selector gears do not mesh immediately, a momentary application of drive power will reposition the gears and allow shifting. Do this by moving the speed control forward, return it to neutral, and move the shift lever. Do not force gear changes if any interference is indicated.

SPEED CONTROL

Control of speed and of forward and reverse motion is made with one lever. Moving the speed control from "neutral" toward the front of the tractor increases forward speed. Moving the lever toward the rear from "neutral" increases reverse speed. (See Figure 3). The full-forward speed-control position provides maximum torque and highest efficiency after forward motion has started. (See the section on Power Pulse Switch).

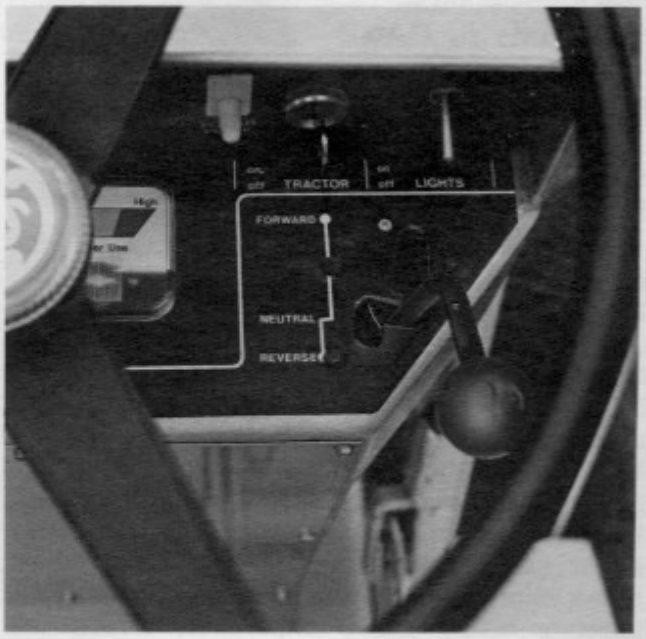

Figure 3. Speed Control

LIGHTS

Operation of the tractor lights is independent of the key switch position, so that the lights can be used at night for lighting work areas or servicing front mounted attachments with the power safely turned off. In addition to lighting the dash panel, the dashlight serves as a reminder that the headlights are on. A rear tail light kit is available for safer night operation. (See page 20.)

PTO (Power Take-off)

The dash-mounted PTO switch controls motorized attachments. Power is delivered through the PTO receptacle located just under the left edge of the hood toward the front of the tractor (See Figure 4).

The PTO switch will work only if turned on after the key switch is turned to "ON". This is due to the safety interlock which prevents unintentional attachment start-up. If the driver leaves the seat with an attachment running, a safety interlock interrupts the attachment power. To restore attachment power, sit on seat and turn PTO switch to "OFF" and then to "ON".

FUEL LEVEL GAGE

On the fuel level gage the green zone between the "E" (empty) and "F" (full) represents range of the power pack. Readings in this zone are fractional portions of full range remaining. See Figure 6.

When the charger is in operation and nearing completion of its cycle, the "CHG" zone indicates the power pack is being fully charged. This assures you of proper charger operation. After the charging cycle is completed, the indication should be "F" or higher, to be interpreted as "full". Use of heavy work attachments or high loads on the tractor will cause the indicator needle to drop below "F" as the heavy drain period begins. The fuel level gage will always read lower during heavy power usage. When the gage consistently reads below empty, the load should be reduced until the indicator needle returns to the green area or the tractor is recharged enough to permit further operation.

Figure 4. PTO Receptacle

While the right red zone represents "overcharge", the left one represents "overdischarge". If either of these zones are indicated after charging, check the troubleshooting tips on page 19. If proper operation is not restored by the suggestions there, disengage the power disconnect and consult your dealer.

POWER USE GAGE

Proper use of the power use gage can extend the ELEC-TRAK tractor range considerably. Continued operation with an indication in the red or "HIGH" section of the gage should be avoided. Prolonged operation with this indication will result in more rapid discharge of the power pack and is usually due to improper choice of speed-torque range or a jammed attachment. Whenever possible, the speed control should be maintained in the full forward position for most efficient operation.

During normal mowing operation, the power use gage indicator should remain in the green or lower yellow zone when proper gear selection has been made with the range selector. Heavy work such as snow removal and tilling may require operation in the red zone.

NOTE

The drive motor and its circuitry are protected by a circuit breaker. This automatic switch may open and shut off power under extremely heavy loading. A few minutes wait is usually sufficient for the circuit breaker to automatically reset. If the circuit breaker continues to trip, reduce the load by shifting to a lower range.

ACCESSORY RECEPTACLE

The accessory receptacle on the ELEC-TRAK tractor lets you take your power source to your work. A variety of 36-volt electric power tools, made just for the ELEC-TRAK tractor to make your home, yard, and garden chores easy and enjoyable are available from your GE dealer.

The accessory receptacle is located on the left side of the tractor under the edge of the hood to the rear of the PTO outlet as shown in Figure 5.

When using a hand power tool, apply the parking brake and insert the accessory plug into the special receptacle rotating it slightly to the right to lock it in place. Voltage to this receptacle is always on regardless of key switch position. In the event that a power tool does not operate, be sure that the power disconnect is engaged and the manual reset circuit breaker button is pushed in. (See Figure 9).

Figure 5. Accessory Receptacle

> **NOTE**
>
> *The 36-volt accessory receptacle is designed to prevent the use of standard 110-volt AC power tools. Use only approved 36-volt tools in the accessory receptacle.*

MANUAL LIFT

The manual lift is used to raise and lower the E12M mid-mounted mower. The lift handle, mounted just to the right of the control cabinet, is drawn towards the rear of the tractor to raise the mower. Lowering is accomplished by drawing the handle back slightly while depressing the release button before moving the handle forward. (See Figure 7.)

With the mower removed, the lift handle should be to the rear for maximum clearance between the ground and the lifting arms on the underside of the frame.

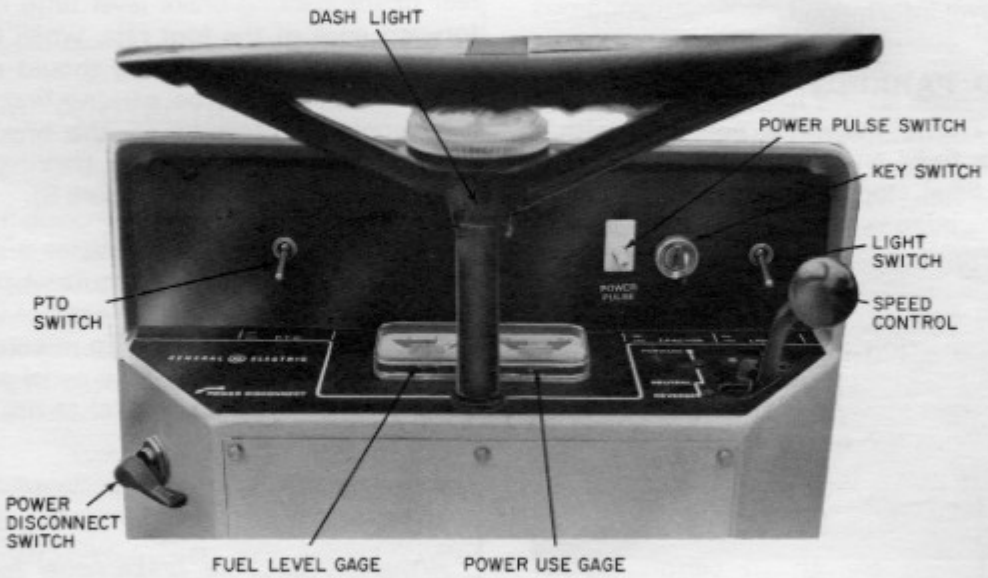

Figure 6. Control Panel

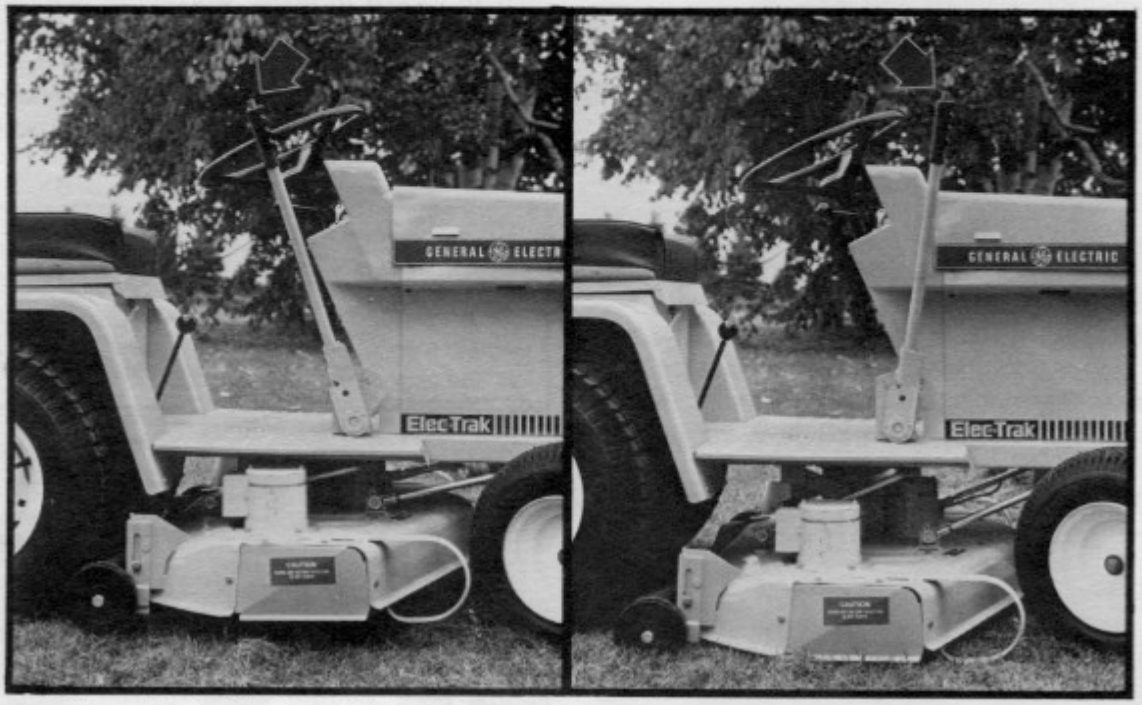

Figure 7. Manual Lift

MOWER ATTACHMENT AND REMOVAL

Refer to the mower manual for mower attachment and removal information.

BRAKE AND PARKING BRAKE

The ELEC-TRAK tractor is equipped with a disc-type brake fixed on the transaxle. This brake is used for normal stopping as well as a parking brake. To apply the parking brake, it is necessary to fully depress the brake pedal and pick up on the rear of the parking brake lever until it engages the forward edge of the foot rest. When foot pressure is released, the brake pedal should remain in its depressed position. The parking brake is released by reapplying pressure on the brake pedal and moving the rear end of the parking brake lever downward to its stop (See Figure 8).

Figure 8. Brake Pedal and Parking Brake

The brake pedal also activates a switch which shuts off the drive motor circuit when the pedal is *fully* depressed. The tractor control is inoperative with the parking brake set. To restore drive motor power, fully release the brake pedal and then start by returning the speed control to neutral and then moving it forward.

NOTE

Always release the brake pedal fully before drive power is applied.

SAFETY INTERLOCKS

Seat Switch

The seat must be occupied in order to close a switch which permits power to be applied. If the seat is vacated for any reason, all power circuits are shut off.

Brake Switch

When the brake is applied fully, a switch interrupts power to the drive motor only. The PTO receptacle remains energized.

Return-to-off

If power to the PTO is interrupted by the seat switch or turning off the key switch or power disconnect, it cannot be restored unless the PTO switch is turned off and then on again.

If power to the drive motor is interrupted, the speed control must be returned to neutral and then moved forward in order to start.

NOTE

These interlocks are used to ensure maximum safety for the operator of the ELEC-TRAK tractor. They should never be removed from the circuits, and should be kept in good working order.

ELECTRICAL PROTECTION

Power Disconnect

The power disconnect is an emergency device, which disconnects all electric power to the vehicle. It disengages power when you push the end of the lever downward (See Figure 9). Should any electrical malfunction occur, disengage this unit immediately and check the troubleshooting check list on page 19 before consulting your dealer.

ALL SERVICING OF THE TRACTOR SHOULD BE DONE WITH THE "POWER DISCONNECT" DISENGAGED. (CHARGING REQUIRES THE POWER DISCONNECT TO BE ENGAGED).

Figure 9. Power Disconnect

The power disconnect is engaged by pushing the lever in before it is rotated upward. It is locked in this position by rotating counter-clockwise one-quarter turn.

Circuit Breakers

Circuit breakers are used to protect the drive and charger circuits from damaging overloads. These devices operate on both high current and high temperature to sense potentially severe conditions that could damage the circuits or components, and they remove power to the circuits under such conditions. After a short interval of time, these breakers automatically reclose and operation can be restored by following the normal starting procedure. Continued tripping is a signal to reduce the load, or to search for a fault such as jamming or maybe an electrical problem that requires dealer service. The automatic circuit breakers are located at or within the motors. (Manual reset circuit breakers are used on some of the attachments while the automatic types are used for others. See the specific attachment manual for additional information.)

The circuit breaker located on the control panel next to the fuse block is used to protect the charging circuit, as well as the accessory receptacle. This manual reset breaker operates on over-current conditions in a similar manner to the motor breakers, but, when tripped, *must be reset by pushing the red reset button* (Figure 10).

POWER PACK CARE AND CHARGING

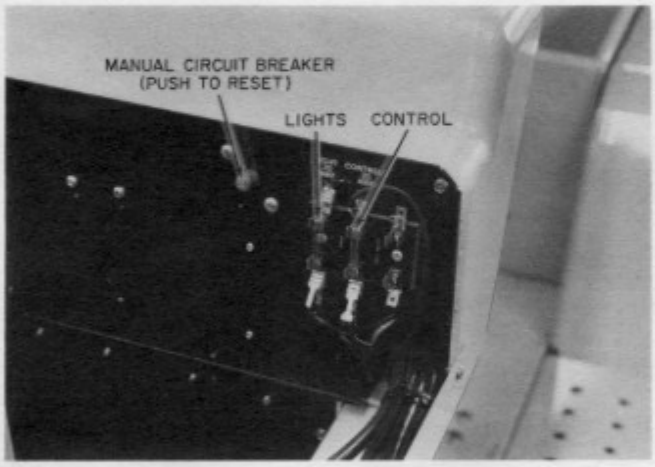

Figure 10. Fuses and Manual Circuit Breaker

> **NOTE**
> *Power pack charging cannot occur if this manual circuit breaker is open.*

FUSES

The fuse in the center fuse block position protects the tractor control and PTO circuitry. (See Figure 10.) If this fuse fails, the drive motor and PTO operated attachments will not function. It should be replaced only with a 3AG20A fuse. The other fuse in the block protects the light circuitry. This fuse should also be replaced with 3AG20A fuse if necessary.

POWER PACK CARE AND CHARGING

Batteries are one of man's oldest and most reliable sources of power. By following a few basic rules you can expect excellent service and long life from the advanced ELEC-TRAK power pack.

The power pack is like a tank of energy. When using the tractor, this energy is drained. The charger replaces the used energy by properly converting and metering your household electricity into the power pack. The charger is designed to restore full charge to the power pack after one cycle of operation. Under normal conditions a full charge is nearly reached after 5 hours; however, the charger runs up to 19 hours to equalize cell voltages (when started on the "Yrs. 1-2" position. Older power packs require less charging time.)

> **NOTE**
> *The Power Disconnect must be engaged before the power pack can be charged.*

The charger runs independently of the key switch. It is suggested that the key be removed to prevent unauthorized use of the tractor.

Charging

A *deeply discharged* power pack requires the charger to draw approximately 14-amperes from the 110-volt line receptacle. To prevent 15-ampere household fuses or circuit breakers from "opening" and interrupting power, it may be necessary to disconnect other appliances, tools, or lights from that circuit.

To start the charging operation grasp both louvers at the rear of the hood and lift upward. Plug the charger cord into any 3-wire grounded 110-volt receptacle and turn the charger knob to the "Start" position determined by the age of the power pack (Figures 11 and 12). (New power

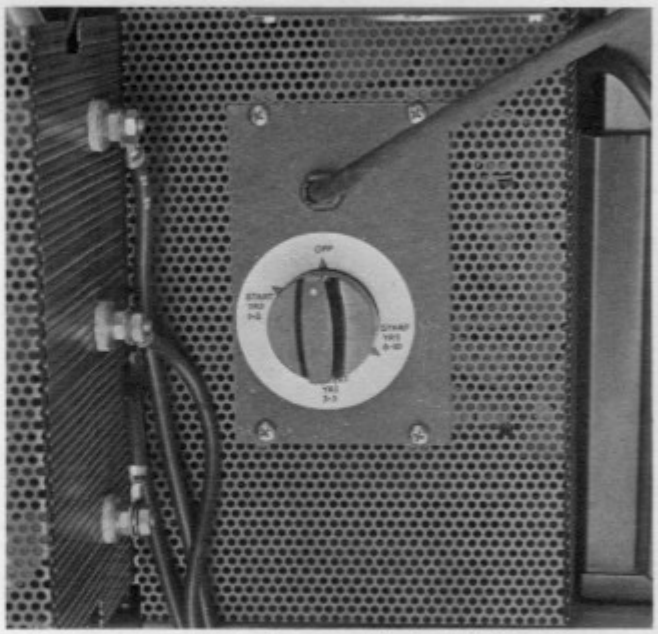

Figure 11. Charger Starting Switch

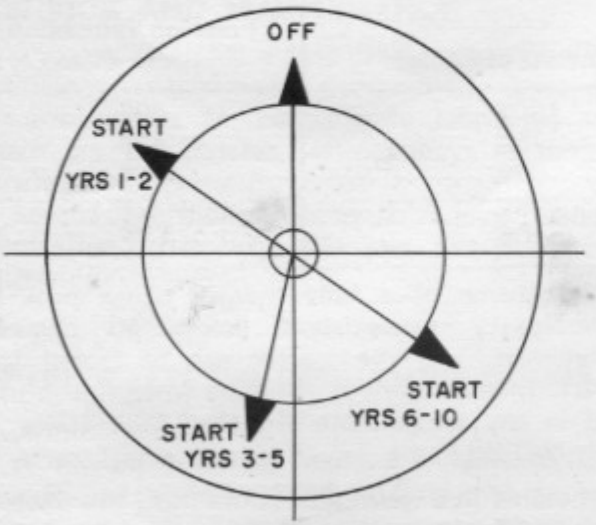

Figure 12. Charger Starting Positions

packs go through a seasoning period and must be charged longer.)

When the power pack is fully charged, the charging rate is automatically reduced for the remainder of the charger running time. It is *not* necessary to remove the plug from the house receptacle after completion of the charging cycle. However, the tractor charger may be unplugged at any time during or after the charging cycle if the tractor is needed.

The charger line cord is equipped with a standard 3-prong plug which grounds the charger through the home electrical system. When a 2-hole receptacle is available, an adapter must be used between the plug and receptacle *with the ground lead permanently fastened to the ground screw on the outlet* or other *tested* ground on your electrical system.

In older homes equipped with original electrical wiring, the receptacle cover plate screw may not provide a ground connection when used with an adapter plug. If there is any doubt concerning the ground of your receptacle, consult your dealer or a qualified electrician.

NOTE

The power pack should not be charged in an area where the temperature is above 110F to prevent overcharging.

NOTE

The charging process evolves small amounts of hydrogen gas; therefore, normal precautions like those for gasoline refueling should be used whenever the ELEC-TRAK tractor is being charged. (No sparks or open flames near the tractor.) This gas concentration will not occur if there is free air circulation in the area where the tractor is stored or if the area is large so the concentration is reduced (i.e., a garage).

POWER PACK WATERING

During the late stages of the charging cycle, there is a bubbling action or gassing process which allows some water in the electrolyte solution to evaporate. Remember that during this charging procedure *only water is lost*; so it is only necessary to *add water* to bring up the electrolyte level to the proper point. Distilled water or tap water that is low to average in mineral content is satisfactory for use in the ELEC-TRAK power pack.

Water should be added only after the power pack is charged. The only exception to this rule is if the water level should fall below the top of the plates. Sufficient water should be added to bring the electrolyte level just above the plates. The system should then be charged, and if necessary additional water added *after* charging. (This is because the electrolyte expands during charging.)

WARNING

Power pack electrolyte can cause irritation of the skin and may damage clothing. Any contacted electrolyte should be immediately neutralized with a solution of baking soda and water, or washed thoroughly with soap and water.

Any electrolyte running out of the top of the cells is an obvious sign of overfilling. It is important that the electrolyte level be maintained above the plates but never above the indicator ring. Overfilling can result in dilution of electrolyte,

POWER PACK CARE AND CHARGING

which reduces capacity and life of the power pack. Overfilling can also cause corrosion where spillage of electrolyte occurs. (Your ELEC-TRAK tractor dealer has an automatic cell filler jug available at a low cost.)

Under normal conditions it only will be necessary to check the electrolyte approximately once per month. Use of the tractor in higher temperature locations or under very heavy use may require more frequent checks of the level. Also, after several years of use, it may be necessary to add water more often.

COLD WEATHER POWER PACK CARE

The efficiency of a power pack is somewhat less at lower temperatures. In order to obtain optimum performance of your ELEC-TRAK tractor during the winter months, and to properly care for the power pack when not in use, the following recommendations should be followed:

Tractor in Storage

1. Fully charge power pack by setting charger knob to indicator mark appropriate for age of power pack and letting charger operate until it shuts off.

NOTE

Always be sure that the disconnect is in (engaged) when charging.

2. Add water to each cell of power pack to the specified level as described in the previous section. It is important for best power pack care to be sure (a) that the perforated plates which may be seen through the filling holes are covered by the water level to a depth of 1/4-3/8" before charging, and (b) that the water level is brought to the bottom level of the indicator ring after charging. In this way, overfilling is prevented but sufficient water is assured.

3. The tractor may be stored in the cold provided the power pack is charged. A discharged power pack can freeze in cold temperatures unless recharged at once. The following table illustrates the relationship between amount of charge and freezing temperature of the electrolyte.

Amount of Charge	Freezing Temperature of Electrolyte
100%	-80F
75%	-42F
50%	-16F
25%	- 2F
10%	+ 7F

Self-discharge of a fully charged power pack is practically nonexistent below 40 degrees Fahrenheit, and the tractor can be stored for several months without attention when not in use and in any temperature less than 40F. (Only if fully charged first.)

4. If stored in a warm area above 40F, the tractor should be recharged and the water level in the power pack checked and adjusted about once a month.

5. After storage of more than a few weeks, it is advisable to give the power pack an overnight charge before using.

Tractor in Use

1. Start the winter in good condition by following steps 1 and 2 as previously outlined under Tractor in Storage.

2. Whenever possible, give the power pack another charge before using if cold weather operation can be predicted. (The night of the snow storm if you plan to remove snow in the morning.)

3. Do not let the power pack stay discharged in cold weather. As soon as the work is completed, recharge the power pack. If idle time occurs between start and finish, plug charger into outlet and let the power pack be on charge while you are not using the equipment, even if for only a few minutes. (This is helpful in *any* weather to give maximum range and performance.)

4. There is little danger of overcharging the power pack when it is cold, so extra charging in the winter is advisable when use is expected within the next 24 to 36 hours.

MAKE IT A HABIT!
REMOVE KEY • PLUG IN • START CHARGER

SERVICE AND MAINTENANCE

The ELEC-TRAK E12M tractor reduces your lubrication requirements tremendously since the electric motors are permanently lubricated and there are no clutches, idler pulleys or mower bearings to be greased.

Several high-friction points do require periodic lubrication to prolong life and give maximum operating satisfaction.

AFTER EACH 100 OPERATING HOURS —OR EVERY SIX MONTHS

After 100 operating hours, the transaxle filler plug should be removed and the fluid level checked (See Figure 13). The oil level should be to the bottom edge of the filler hole. If necessary, replenish with approved axle fluid only; i.e., SAE EP90.

Twice a year or every 100 operating hours the front spindles, the front wheel bearings and the front-axle main-pivot-pin should be greased with a hand grease gun using a No. 2 multipurpose lithium grease (See Figure 14). Pump gun until dirt and old grease are flushed out and wipe all surfaces clean.

All linkages and bearings should be oiled with a heavy duty (No. 30) machine oil. Major points to be considered include:

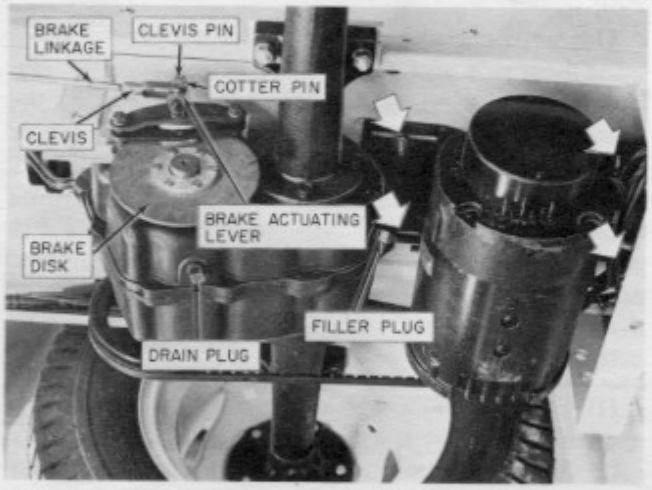

Figure 13. Brake, Transaxle, and Motor Mounting

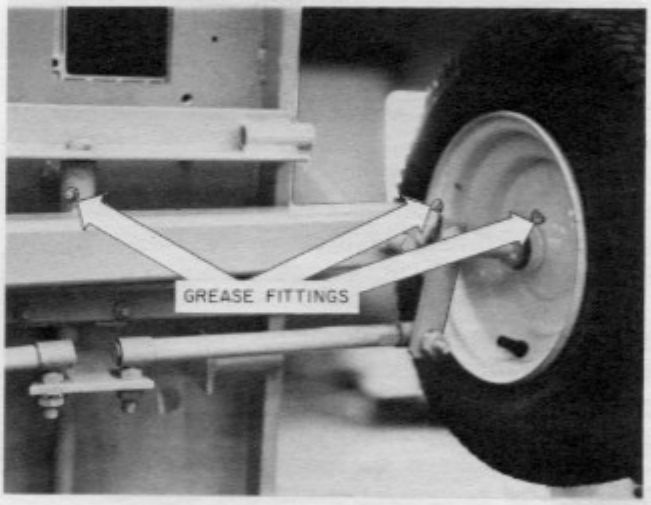

Figure 14. Front End Grease Fittings

1. Brake pedal shaft and linkage connections.
2. Hood and seat hinges.
3. Mower mounting pins.
4. Lift assembly pivot points.
5. Mower wheels.

Prevent dirt and dust accumulation, by wiping away all excess oil.

These lubrication intervals are meant to be a guide only. If the tractor is subjected to abnormal environmental conditions or greater-than-average use, the frequency of lubrication as well as other preventive maintenance measures should be adjusted accordingly.

VISUAL INSPECTION

Periodic inspection of the tractor is an important preventive maintenance measure. Make it a habit to visually check for loose fastening devices or any evidence of abnormal operation. Regular cleaning and polishing of exterior surfaces will give greater satisfaction in owning and operating the ELEC-TRAK tractor and will enhance resale or trade-in value.

Adjustments, inspections, and maintenance procedures on both the tractor and attachments should be performed at regular intervals to assure trouble-free, economical operation.

POWER PACK

In addition to power pack charging and watering as outlined, other services may be performed to give more desirable service.

Check the electrolyte level in the power pack monthly. Add water only if necessary. To protect your warranty, no addition of electrolyte should be done, except by your dealer.

City tap water or water of a low to average mineral content is acceptable for refilling. To prevent contamination of water, use the recommended ELEC-TRAK water-filling jug or clean glass or plastic containers with a funnel.

It pays to keep the power pack covers clean. Removal of accumulations of dirt, grass clippings, and so forth will assure optimum electrical system performance. An occasional wiping with wet paper toweling is usually sufficient or the power pack can be flushed off with water which will drain out at the bottom of the tractor.

Once a year the battery covers should be removed, the terminals cleaned (if necessary) and recoated with AP31 protective grease.

CAUTION

For personal and equipment protection, always unplug charger and keep dry when cleaning and flushing power pack surfaces.

DRIVE ASSEMBLY

Power is transmitted from the drive motor to the transaxle through a heavy-duty, direct-coupled belt. The belt should be kept free of grease, oil, electrolyte, and dressings and checked occasionally for tightness to assure best performance.

If the belt becomes contaminated, it should be wiped with a clean cloth. Any belt slippage is due to moisture or loose adjustment. If the belt becomes wet and slips, temporarily select a lower speed range (higher torque) until the belt dries, and then resume normal operation.

BELT ADJUSTMENT

With the belt properly adjusted, a 10-pound force will deflect it approximately 1/4-inch.

If increased tension is required, proceed as follows:

1. Loosen four carriage bolts holding motor plate. Insert a 1/4-inch wedge between the rear edge of the motor plate and the frame, and retighten bolts finger tight (See Figure 13).
2. With belt in place, force motor and mounting plate backward as far as possible. Tighten front two carriage bolts.
3. Remove the 1/4-inch wedge, and tighten the rear two bolts.
4. Recheck belt tension as outlined.

ELECTRONIC CIRCUITRY

The bulk of the ELEC-TRAK tractor electronic circuitry is used for power control and switching and is located primarily in the control cabinet. Service in this area should only be performed by your dealer.

TIRES AND WHEELS

Proper tire inflation pressure is an important factor in determining tire life. Pressures should be checked and corrected, if necessary, on a monthly basis according to the following table.

Tire Inflation	Soil	Hard Surface
Front	10-15 psi(1)	15-28 psi(2)
Rear	8-10 psi	10-24psi

Pressure measurement should be made with a low-pressure gage which can be purchased from your dealer.

Use with chains requires the lowest pressures for smoothest ride and maximum traction.

Stumps, holes, and sharp objects should be avoided, and any cuts occurring in the tires should be repaired immediately or tire life will be reduced.

The rear wheels are factory-assembled in their narrow tread configuration. (See Figure 15.) For greater safety when operating on hillsides, tread width may be increased by *reversing* the wheels on the hubs. (Remove and reinstall like changing an auto tire.)

(1) Lower pressure will soften the ride and improve traction.

(2) The higher tire pressure will decrease rolling resistance and extend use range on paved or other hard surfaces. (This does not apply to use with chains on hard surfaces.)

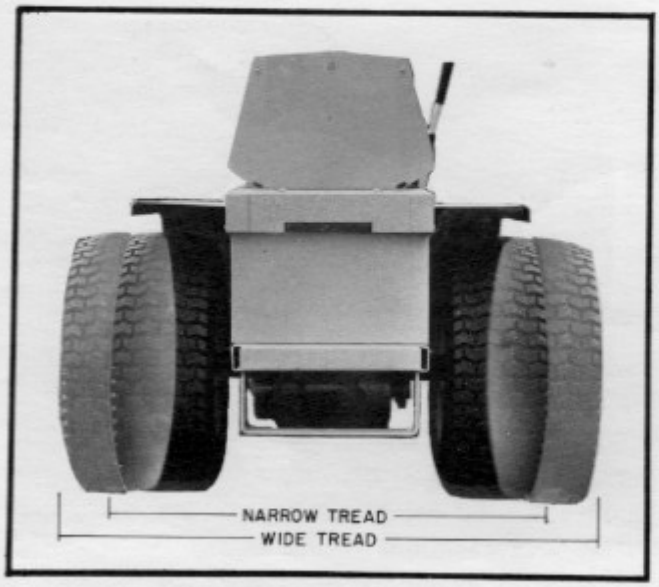

Figure 15. Rear Tread Configurations

BRAKE AND PARKING BRAKE

A fully depressed brake pedal or an engaged parking brake should prevent the tractor from rolling on average hillsides. If the brake does not perform satisfactorily, the following adjustment may be made: (See Figure 13.)

1. Block the front wheels and move the range selector to neutral.
2. Remove the rear wheel on the brake side of the transaxle.
3. Remove the cotter pin from the brake clevis pin.
4. Remove the brake clevis pin.
5. Rotate the brake clevis to shorten the brake linkage. Shorten till the brake drags (test by manually rotating the brake disk), then back off one-half turn at a time until brake drag is eliminated. The clevis and clevis pin must be temporarily reinstalled to check brake drag.
6. Reinstall the clevis, clevis pin, and cotter pin on the brake actuating lever.
7. Reinstall wheel and test brake function.

BRAKE SWITCH

Proper brake switch adjustment causes the drive motor to shut off when the brake is depressed to 1/4-inch from its bottom stop. (See Figure 16.)

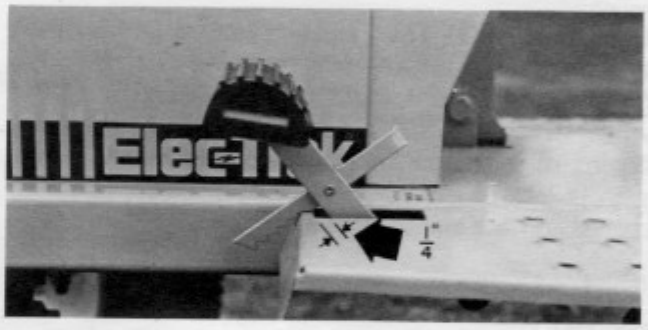

Figure 16. Brake Switch Adjustment

If adjustment is necessary, locate the brake switch mounted on the underside of the frame immediately to the right of the brake pedal. Notice that the switch is actuated when its lever arm is deflected as the brake pedal is depressed. During this actuation, the lever arm rides on a shoulder bolt mounted on a slotted pawl. It is this bolt that must be repositioned in the slot to adjust the drive motor/brake cut-off point. After adjustment is made, check the cut-off point and readjust if necessary.

STEERING ASSEMBLY

The front axle and steering system of the ELEC-TRAK tractor are extremely rugged. Toe-in, and steering gear and linkage are carefully adjusted at the factory and should require no additional adjustments in normal service, barring improper operation. If any service becomes necessary, contact your dealer.

USE OF CHAINS

The use of chains on the rear tires will be found helpful on loose or soft surfaces, and particularly when using the snow/dozer blade or snowthrower, which, when lifted, counterbalances some of the weight off the rear wheels. When chains are used, the mower must be removed and the rear wheels positioned on the hubs so they are at the widest spacing. (The wheel rims can be attached to the hubs with most of the width of the tire to the inside, under the fender; or can be flipped over with more of the width to the outside, leaving approximately 4 inches between the tire and

tractor frame.) This wide track also improves stability for snow removal service. If wheels are removed to obtain wide setting, assemble chains while wheel is off. If wheels are already set wide, chains may be assembled in normal manner with wheels left in place. Do not allow excess chain to rub or contact tractor body or frame.

STORAGE

Your tractor should be covered or under a roof in outside storage in snowy or rainy weather to give better protection and maintain performance and life of the equipment. Storage covers which are custom tailored for your ELEC-TRAK tractor are available from your dealer. (See Figure 17.)

Seasonal storage requires a minimum of preparation. The steps to be performed are as follows:

1. Wherever possible, store tractor in a cool, dry weather protected area or cover with the ELEC-TRAK storage cover.
2. Clean power pack covers if necessary as outlined on page 14.
3. Plug charger into approved receptacle and start charger operation. Ensure proper water level after first storage day (24 hours). (See page 11.)
4. Lubricate tractor and wipe oil on any parts that may be affected by rust.
5. Leave charger plugged in for the duration of storage period *and recycle its operation monthly.*

Figure 17. Storage Covers

The charge retention (without using additional electricity for recharging) of the power pack can be extended considerably if stored in a very cool place. Lower temperature slows the self-discharge. At temperature below 40F, virtually no self-discharge occurs on a fully charged power pack.

NOTE

At temperatures below 32F the full-charge state must be maintained to prevent cell electrolyte from freezing which may result in permanent damage to power pack.

PERIODIC SERVICE CHART

Service	Monthly	Every 100 Operating Hrs.
Check power pack water level	X	
Check tire pressures	X	
Check drive belt tension		X
Check transaxle oil level		X
Clean power pack top surfaces if necessary*		X
Check fasteners and connectors for tightness		X
Grease wheels, spindles and steering assembly		X
Oil exposed moving parts – brake pedal, hinges, etc.		X

*Remove covers and check terminals once a year (see page 14).

SPECIFICATION CHART

General

Width	39 inches
Length (Overall)	72.5 inches
Height (Overall)	42 inches
Weight	825 lbs.
Turning Radius (inside)	62 inches
Frame	Unitized
Accessory Receptacle (36 volt)	Standard
Brake	Disc
Front Tires	4.80 X 8
Rear Tires	8.50 X 12
Seat	Deep Foam Cushion

Drive System

Power Pack	36 Volt Standard
Transaxle	3 Speed
Transaxle Oil Capacity	.3 US Pints
Speed Control	Hand Operated
Power Pulse Switch	Standard

TROUBLESHOOTING CHECK LIST

Indication	Possible Causes
Drive motor does not rotate and Fuel Level Gage does not indicate.	• Control fuse open. • Power Disconnect disengaged. • Circuit Breaker opened.
Drive motor does not rotate and Fuel Level Gage indicator is upscale	• Key switch not "On". • Parking brake engaged. • Momentarily return speed control to neutral, then restart. • Check connections on either brake or seat safety switches.
Reduced tractor range.	• Charger not turned to proper "start" setting. • Brake dragging. Check adjustment. • Check water level in power pack. • Check drive belt for slippage. • Underinflated tires. • Improper range selection (power use gage reading high).
Power Pack not charging.	• Power disconnect disengaged. • Circuit breaker opened. Reset manually. • 110-volt line receptacle inoperative due to open household fuse or circuit breaker. • Failure to turn charger knob to start position.
Lights inoperative.	• Light fuse open. • Bulbs burned out.

TROUBLESHOOTING CHECK LIST (Cont'd)

Indication	Possible Causes
PTO equipment inoperative but other circuits operative.	• Sit on tractor seat, turn key switch to "On", turn PTO switch to "Off", then "On". • Check attachment plug-in.
Accessory tools inoperative.	• Power disconnect disengaged. • Circuit breaker open. Reset manually (See Page 9.) • Check tool plug-in for loose connection.

ELEC-TRAK ATTACHMENTS AND ACCESSORIES

Model	Description	Model	Description
AH42R	42" Center Mounted Mower with KR42 Rear Discharge for E12M only	AP12	Measured Battery Filler
		AP14	Tire Gage (0-20#)
		AP20	Blade Sharpener (for TH20)
AH42S	42" Center Mounted Mower with KS42 Side Discharge for E12M only	AP25	Mower Blade
		AP29	Yellow Spray Paint
		AP30	Yellow Touch-Up Paint (pint can)
PM32	110v Walk Behind Mower (Requires PM10)	(3)	Rototiller (3) – Electric
		(4)	Tiller Mounting Bracket
PM15	Grass Catcher for PM32	AP31	Battery Terminal Protector (grease)
PM10	100 Ft. AC Ext. Cord for PM32		
AR57	3 Gang Reel Mower	AP35	Grease Gun
AB48	48" Snow/Dozer Blade (Requires AP55 and KB48)	AP36	Grease Cartridge (for AP35)
		AP50	Sleeve Hitch (for AP58 or AP59)
AD42	42" Snow Thrower (Requires AP56, AP85 and KD42)	AP58	Manual Rear Lift (for Sleeve Hitch)
AP56	Front Implement Mounting Bracket	AP59	Electric Lift (rear)
		CH10	Hitch Adapter
AP85	Rear Weight Box	AP51	Safety Hitch Pin (½")
AP55	Front Implement Mounting Bracket and Manual Lift for E12M	AP53	Convenience Pin Hitch
		AP60	Inverter
KB48	Adaptor Kit for Use of AB48 Dozer Blade with E12M	AP65	8:50 x 12 Two Link Tire Chain
		AP80	Tractor Cover
KD42	Adaptor Kit for Use of AD42 Snow Thrower With E12M	AP85	Rear Weight Box
		AP90	DC Arc Welder – 3 Heat
AF12	12 Cu. Ft. Dump Cart (½ Ton Cap.)	AP92	Welder Kit (Helmet, gloves & welding rods)
KF12	Trackless Train Hitch (For AF12)	CV60	Vacuum (hard surfaces)
		CV70	Vacuum & Cart (turf or hard surfaces)
AS31	31" Trailing Lawn Sweeper (2)		
AG55	Enclosed Cab		
BD22	Double Seat	**Kits**	
BC11	Canopy Top	KR42	Rear Mower Discharge Kit
BG33	Golf Bag Holder	KS42	Side Mower Discharge Kit
BA36	Aerator/Cultivator	KS31	Electric Lawn Sweeper Conversion Kit (Requires KS32)
BR36	Lawn Roller		
BS40	Broadcast Spreader	KS32	Motor & Circuit Breaker for KS31
AP10	Hydrometer (Hydro-Mite)		
AP11	Hydrometer (Specific Gravity)	AP69	Electric Horn Kit

(2) Can be electrified with Kits KS31 and KS32

(3) Available from Brinly-Hardy. Requires mounting bracket (4) and AP59 electric lift.

(4) Available from Brinly-Hardy

ELEC-TRAK ATTACHMENTS AND ACCESSORIES

Model	Description	Model	Description
AP70	Rear Tail Light Kit	TH80	Grass Trimmer Head (For TM3)
		HS13	Chain Saw (13") w/20 Ft. Cord
Hand Tools		HC05	Weeder/Cultivator (Requires HT25)
TM3	36 Volt DC Power Handle w/20-Ft of Cord	HE06	Lawn Edger/Trimmer (Requires HT25)
TH20	¼" Drill Head (For TM3)		
TH70	15" Hedge Trimmer Head (For TM3)	HT25	25 Ft. DC Extension Cord

WARRANTY
ELEC-TRAK GARDEN TRACTOR

General Electric Company warrants that it will repair or replace without charge, f.o.b. factory, including cost of parts and labor for replacement, any part of the ELEC-TRAK garden tractor, mower, snow thrower, and snow/dozer blade or other attachments with which this warranty is furnished which proves to be defective in material or workmanship within 12 months in ordinary home use (3 months if in commercial or institutional use) following the date of sales to the original purchaser for use. This warranty does not apply to the power pack, which is separately warranted and offers additional replacement coverage. These warranties do not apply to any repair or replacement made necessary by improper use or maintenance, or by abuse or accidental damage.

The foregoing warranty states the entire obligation of General Electric Company with respect to said products and is in lieu of any and all other warranties, express or implied. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY. IN NO EVENT WILL THE COMPANY BE LIABLE FOR INDIRECT OR CONSEQUENTIAL DAMAGES.

WARRANTY
ELEC-TRAK GARDEN TRACTOR POWER PACK

General Electric Company warrants that it will replace without charge, f.o.b. factory, any individual ELEC-TRAK garden tractor power pack unit with which this warranty is furnished if it fails because of defects in material or workmanship within 24 months in ordinary home use (six months in commercial or institutional use) following the date of sale *to the original purchaser* for use. After 24 months in home use, but within 60 months following the date of such sale a power pack will be replaced at a pro rata service charge equal to 1/60th of the list price for replacement units multiplied by the number of months which have elapsed from the date of original purchase to the date of failure. Labor and service call charges during the first 12 months in ordinary home use (3 months if in commercial or institutional use), will be covered as stated in the tractor warranty. Service calls and labor after the first 12 months are the responsibility of the owner. This warranty does not apply to any replacement made necessary by improper use or maintenance, or by abuse or accidental damage. A replacement unit will carry the above 24 month warranty and thereafter will be considered to be installed on the same date as the other units in the power pack for pro rata adjustment.

The foregoing warranty states the entire obligation of General Electric Company with respect to said products and is in lieu of any and all other warranties, express or implied. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY. IN NO EVENT WILL THE COMPANY BE LIABLE FOR INDIRECT OR CONSEQUENTIAL DAMAGES.

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PRINTED IN U.S.A.