PARMAK PRECISION

TRADEMARK OF QUALITY SINCE 1921

ELECTRIC FENCE PRODUCTS

ENERGIZER INSTALLATION AND USER MANUAL



Français au verso

TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
HOW ELECTRIC FENCING WORKS	1-2
INSTALLING THE ELECTRIC FENCE SYSTEM	
I) INSTALLATION TIPS	2-3
II) TYPICAL FENCE SET UPS	3-4
III) INSTALLING THE ENERGIZER	5-6
IV) PARMAK® SOLAR MODELS DF-SP-LI & MAG12-SP	7-8
TROUBLESHOOTING GUIDE	8-10
ELECTRIC FENCE MAINTENANCE	10
TYPICAL LAYOUT FOR ROTATIONAL GRAZING	10
PARMAK® ENERGIZER PRODUCT LIST	11-12
RECOMMENDED GROUND RODS	13-15
IMPORTANT SAFETY TIPS	15-16
WARRANTY INFORMATION	16-17

WARNING READ ALL INSTRUCTIONS

PARMAK® ELECTRIC FENCE PRODUCTS

PARMAK® ENERGIZERS – USER/INSTALLATION MANUAL

CONGRATULATIONS!
You have purchased one of the most advanced energizers in the world. Specially designed and specially selected state-of-the-art components are used in this energizer to provide unprecedented performance and reliability.

We welcome your comments and suggestions. Our engineering department is continually reviewing new product concepts and new applications of our current products. Your input is a valuable guide to this research and development program, enabling us to bring you the equipment that best meets your changing needs.

This manual is straight forward and thorough enough to answer most questions about installation and operation. **READ THIS MANUAL COMPLETELY BEFORE YOU START TO INSTALL YOUR ELECTRIC FENCE SYSTEM.** This manual covers installation of PARMAK models. Additional information is provided for the PARMAK Solar Energizer. For further information, feel free to contact either your dealer where you purchased this product or write to our customer service department at Parker McCrory Mfg. Co., 2000 Forest Ave, Kansas City, MO 64108 or visit our website at www.parmakusa.com.

THE WARRANTY ON PARMAK ELECTRIC FENCE ENERGIZERS IS SET FORTH ON PAGE 16 & 17.

How Electric Fencing Works:
The object of electric fencing is to keep your livestock inside their grazing area by giving them an electric shock when they contact the charged fence wire. Properly installed and grounded electric fence is an effective, economical way to fence livestock. **WARNING** Electric fence is a psychological barrier, not a physical barrier. It's effectiveness depends on proper fence construction. Under certain circumstances livestock can escape the fenced area. Do not rely on a portable electric fence as the only means of keeping livestock out of areas that may cause injury to themselves or people. Fence construction will vary depending on location of fence and type of livestock being confined. It is the users' responsibility to construct the fence so that it will properly confine animals for the conditions. Special attention to constructing fence should be given when fence is located near roadways, railroad tracks, rivers, ponds, etc., to insure animals cannot escape the fenced area, which may cause injury to themselves or people. Constructing a temporary, portable fence is not recommended for these locations, a multi-strand permanent fence should be used in these locations.

The fence energizer must provide a high guard voltage on the charged wires to force the shock current to jump from the wire to the animal's skin. The fur, hair, or wool of the animal insulates the wire from the animal's skin. A guard voltage of 5000 Volts will jump through about 1/8 inch (3mm) of hair. Domestic cattle can usually be managed with a guard voltage of approximately 2000 Volts (horses and pigs can be managed with slightly lower guard voltages).

The shock current travels through the body of the animal and into the earth ground where they are standing. The effect of the shock on the animal depends on the amount of shock current, the duration of the shock, and the body weight of the animal.

The shock current travels through the moist earth back to the ground rod and through the grounding wire back to the energizer to complete the circuit. The amount of shock current is limited by all of the resistances of this electrical circuit including: the charged wire, the animal's body, the contact between the animal and earth ground, the earth ground, the

contact between earth and the ground rod, and the ground rod wire back to the energizer.

When grass and weeds grow up and touch the charged wires, current is leaked to the earth. The energizer automatically supplies this leakage current through the weed load and tries to maintain an effective guard voltage on the charged wires. When this leakage current increases beyond the capacity of the energizer, the guard voltage decreases and the available shock current is no longer adequate.

The larger the animal, the more shock current is required for it to feel an involuntary muscle reaction. Horses tend to be more excitable than cattle and can be easily trained to respect an electric fence. Since small animals are more sensitive, it is best to use a less powerful energizer that is capable of maintaining an adequate guard voltage on the fence.

Wildlife management requires special considerations for fence design and energizer selection. Wild animals do not casually approach the fence while grazing like domestic animals do. Wild animals see a fence as something to be jumped over or crawled under. The fence design should entice the wild animal to crawl through the fence between charged wires. You need to have a guard voltage of at least 5000V to jump through the animals hair on the very first contact with the fence. It is necessary to keep grass and weeds away from the fence to increase the visibility of the fence and to minimize the weed load losses.

TRAIN STOCK TO RESPECT NEW FENCE INSTALLATION

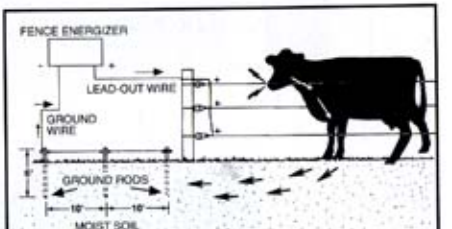
Proper training of stock is important. Remember, it is not the wire that holds them, but their fear of the sting they receive each time they touch the wire. Training is easy and quick.

String a piece of wire, on insulators, across one section of barnyard about two-thirds height of animals. Place some tempting feed on opposite side of wire. Allow stock to approach wire slowly so as to learn what gives them the sting. Then when they meet up with fence in field they will know why to respect it. After one or two attempts to reach feed, stock will realize sting is coming from wire, and they are ready to be turned out into field. Ten to twenty minutes is usually time enough to complete training period. A short length of electric fence installed on the farm will make the stock think twice before touching any fence.

⚠ WARNING If used for portable electric fencing, this product must be used within permanent fencing. Its effectiveness is dependent upon proper installation and electrification. Do not use portable electric fencing as only means of animal restraint. If used as only means of restraint without permanent fencing, animals may escape with the risk of serious injury to animals or people.

INSTALLING THE ELECTRIC FENCE SYSTEM:

An electric fence system includes the energizer, fence wires, insulators, posts, and the ground rod system. The fence energizer stores energy from the power source (110-120 Volt AC, 6 Volt battery, 12 Volt battery, or Solar panel) for about one second. The stored energy is then discharged to the fence in a very short pulse at a high voltage. If an animal is touching a charged wire when the discharge occurs, *the shock current will flow from the energizer, through the fence wire, through the animal to the earth ground, back through the moist earth to the ground rod, and back through the ground wire to the energizer to complete the circuit.*



The earth grounding system is the most important variable in your electric fence system. The resistance of the contact between the animal and the earth, the resistance of the earth itself, and the resistance between the earth and the ground rod change dramatically from farm to farm and seasonally.

INSTALLATION TIPS:

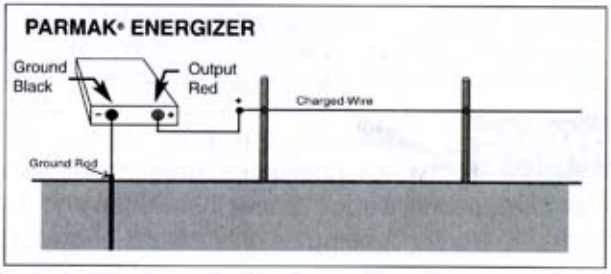
The fence materials and design must be suitable for electric fencing. Fence construction must be adequate to confine livestock in the fenced area. The fence wires must not touch each other, metal posts, trees, or the earth. A perimeter fence around the farm must provide a permanent physical barrier. The wires may be charged to enhance the permanent fence or to run power to other parts of the farm fence system.

The height of the wire should be approximately 2/3rd the height of the animal. If there are different size animals within the field, there must be a charged wire at 2/3rd the height of each size of animal. Portable fence wires are often attached to plastic or fiber glass posts. If metal posts are used, then good quality insulators must be used to prevent the wires from shorting against the steel posts.

TYPICAL FENCE SET-UPS

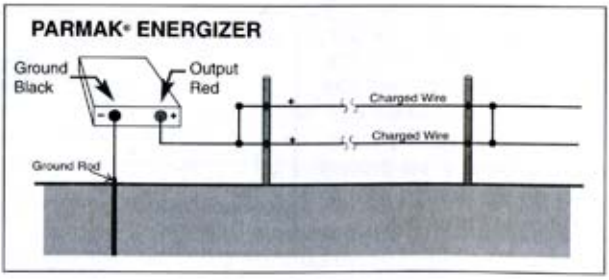
Single Wire Fence

A single wire portable fence may be used for pasture management. The single wire must be at approximately the nose height of the animal. A single wire fence will not work reliably if there are different sizes of animals in the pasture. Do not use portable fence in locations where animals can escape the fenced area, which may cause injury to themselves or people.



Multi Wire Fence

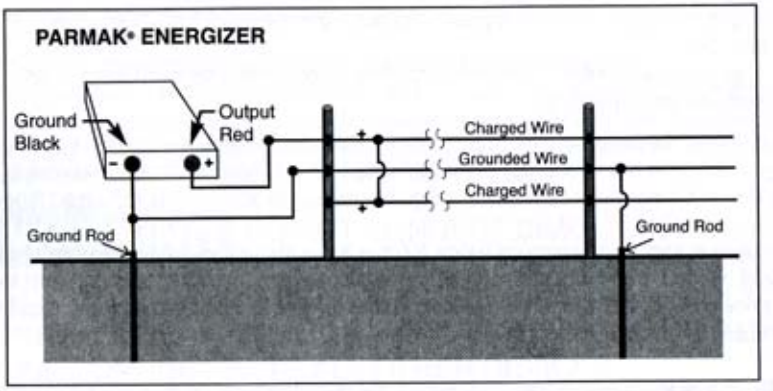
For a pasture with different size animals, a multi-wire fence is required with a charged wire at the nose height of each size animal. Connect similarly charged wires together every 1/4 mile (400 m) to reduce the voltage loss from wire splices.



⚠ WARNING Do not allow livestock to become entangled in electric fence wire. Doing so will cause stress to animal and animal could cause serious injury or death to itself trying to escape fence. Do not use barbed wire or equivalent with electric fence.

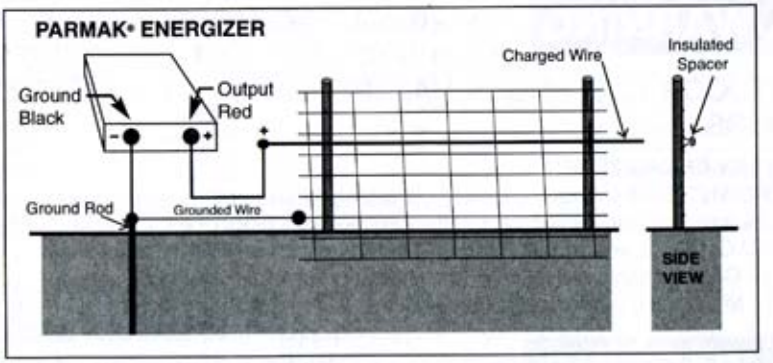
Ground Return Fence

In dry or frozen conditions you cannot rely on the earth ground to return the shock current through the earth to the ground rod. A multi-wire fence with alternate wires charged and grounded will work in these conditions. The animal must touch both a grounded and charged wire to get a strong shock. If the animals are likely to reach under the bottom wire, it must be one of the charged wires. Use extra ground rods connected to the grounded wire every 1/4 mile (400 m). The animals will then be 1/8 mile (200 m) or less from a grounding location no matter where they are along the fence.



Woven Wire Fence

If woven wire is dug into the ground, then connect the woven wire to the ground rod and run a charged wire above the woven wire and/or on the inside of the fence using insulators. Do not allow charged wire to connect woven wire fence.



⚠ WARNING Check local and state codes regarding the use of electric fence. Some locations require the electric fence be identified with "Electric Fence Warning Signs". Use Parmak/Baygard warning signs item #2160.

INSTALLING THE ENERGIZER

110-120 V AC ENERGIZERS:

A 110-120 Volt AC operated energizer must be mounted indoors. The energizer must be protected from rain, snow, high humidity, and condensation. Energizer must be installed in clean, dry location. The energizer should be as close to the fence and ground rod as practical.

IMPORTANT INFORMATION ABOUT YOUR FENCE CHARGER

Your new AC powered fence charger is equipped with a digital voltage meter. The digital meter reads guard voltage on the fence in kilovolts (example: a reading of 3.5 = 3,500 volts, 8.9 = 8,900 volts, 14.7 = 14,700 volts).



The reading of guard voltage will vary as fence condition changes (i.e. fence load).

- A guard voltage of 2.0 or higher indicates a good fence for most shorthaired animals.
- A guard voltage of 4.0 or higher indicates a good fence for most longhaired animals and predators.

On a properly contsructed, well-grounded fence of short length, it is normal to see a guard voltage reading in the mid to upper teens 12.7, 17.5. As additional charged wire is added to the fence, it is normal for the indicated guard voltage to drop due to increased fence load.

If the guard voltage reading drops below 2.0 the fence should be checked for shorts caused by grass, weeds, tree limb, etc., contacting fence, broken insulator causing short to fence post, poor ground, etc. Once the problem on the fence has been eliminated the guard voltage should return to a normal level.

NOTE: The digital meter is very sensitive. If the guard voltage reading goes to 19.9 kV, this indicates foreign voltage on the case of the fence charger and it is causing the meter to read incorrectly. Be sure that the charged fence wire or ground wire is not touching the fence charger case. Poorly grounded fence installations can also cause the meter to read 19.9 kV.

⚠ WARNING 110-120 VOLT A.C. MODELS ARE FOR INDOOR USE ONLY. NOT DESIGNED FOR OUTDOOR USE. SHOCK HAZARD MAY EXIST IF USED OUTDOORS.

BATTERY ENERGIZERS:

IMPORTANT! PARMAK model DF-LI-U.O. & Mag 12 U.O. battery operated energizers are manufactured for outdoor use. Use battery in good condition. Use 6 volt battery with model DF-LI-U.O. Use 12 volt wet cell lead acid battery minimum 80 A.H. rated with model Mag 12 U.O. Connect cable red lead (+) to positive (+) terminal of battery. Connect cable black lead (-) to negative (-) terminal of battery.

⚠ WARNING ALWAYS CONNECT NEGATIVE (-) LEAD FIRST. THE SOLAR MODELS DF-SP-LI AND MAG 12-SP ARE COMPLETELY WEATHERPROOF FOR OUTDOOR INSTALLATION. SOLAR MODELS ARE SOLD COMPLETE WITH BATTERY AND BATTERY IS CONNECTED AT FACTORY.

⚠ WARNING TO PREVENT A SHOCK HAZARD, DO NOT OPERATE BATTERY OPERATED ENERGIZERS WHEN USING A BATTERY CHARGER. DISCONNECT AND REMOVE BATTERY WHEN RE-CHARGING IS NECESSARY.

ENERGIZER TERMINAL CONNECTIONS
Use corrosion resistant metal wire such as galvanized steel or aluminum wire 14 ga. (2.5 mm) or heavier to connect the energizer to the fence and ground rod. Connect the BLACK GROUND terminal to the ground rod. Connect the RED FENCE terminal to the fence wire(s) being charged. If the energizer is inside a building, use insulated electric fence cable (under gate wire) for both connections. Where the wires go through the wall, additional insulating plastic bushing or porcelain bushings may be required to prevent damage to the cable from any sharp edges.

COLOR CODED OUTPUT TERMINALS: Your fence charger has, color-coded output terminals. **RED** terminal to fence, **BLACK** terminal to ground.

DO NOT OVERTIGHTEN OR USE PLIERS TO TIGHTEN TERMINALS!
These terminals have a wire locking mechanism that will allow you to simply hand tighten the terminals and the wires will be secure. Damage to the terminals may occur if over tightened. Damage caused by over tightening is not covered under warranty. Do not allow either the charged fence wire or the ground wire to contact the fence charger case.

⚠ WARNING DO NOT CONNECT SIMULTANEOUSLY TO A FENCE AND TO ANY OTHER DEVICE SUCH AS A CATTLE TRAINER OR A POULTRY TRAINER. OTHERWISE, LIGHTNING STRIKING YOUR FENCE WILL BE CONDUCTED TO ALL OTHER DEVICES.

INSTALLING THE GROUND ROD SYSTEM:
The ground rod must be a corrosion resistant metal rod such as galvanized steel, approximately 6' to 8' long. In order to determine that the ground rod is working satisfactorily, check the fence with a voltmeter on a regular basis. Only use a voltmeter made for electric fencing. If one ground rod is not satisfactory, additional ground rods spaced 10' (3m) apart and connected in parallel may provide satisfactory grounding. Connect the ground terminal of the energizer to the ground rod. For ground rod connections, always use corrosion resistant metal wire such as galvanized steel or aluminum wire 14 ga. (2.5 mm) or heavier. Use corrosion resistant electrical clamps to join the wire to the ground rod.
IMPORTANT! Proper grounding is essential to the effectiveness of an electric fence.

IMPORTANT! Dry or frozen soil conditions can reduce or eliminate the effectiveness of the fence shock. Before using this electric fence, check to determine that there is a shock satisfactory for the purpose desired. This check must be performed with a voltmeter made for electric fencing.

⚠ DANGER DO NOT USE A WELL, WATER PIPE, OR YOUR POWER SYSTEM GROUND AS A GROUND ROD. IF LIGHTNING WERE TO STRIKE THE FENCE, SOME OF THE LIGHTNING CURRENT WILL RETURN THROUGH THE WATER OR ELECTRICAL SYSTEM, CREATING AN EXTREMELY HAZARDOUS CONDITION.

GROUNDING INSTRUCTIONS FOR AC POWERED ENERGIZERS

If the energizer should malfunction or break down, grounding reduces the risk of electric shock by providing a path of low resistance for the electric current. These energizers are equipped with a cord having an equipment grounding conductor and a grounding attachment plug. The plug must be inserted into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

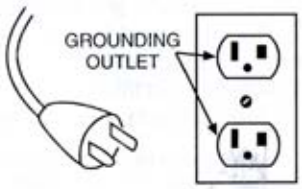
⚠ DANGER IMPROPER CONNECTION OF THE EQUIPMENT GROUNDING CONDUCTOR OR IMPROPER USE OF THE PLUG CAN RESULT IN A DANGEROUS ELECTRIC SHOCK.

ELECTRICAL SERVICE CONNECTION FOR AC POWERED ENERGIZERS

This energizer is designed for use with a 110-120 Volt AC electrical service installed in accordance with the National Electric Code. If the energizer should malfunction, it's internal protective circuitry will safely reduce risk of electric shock when properly connected to a correctly installed AC distribution system. Energizers are equipped with an electrical cord and polarized plug which carry fault induced currents to electrical ground which is part of a properly installed AC electrical distribution system. Inserting the plug into a polarized outlet which is a component of an AC distribution system installed in accordance with local codes or ordinances assures the maximum protection from electrical shock that the system will provide.

⚠ DANGER IMPROPER INSTALLATION OF THE AC ELECTRICAL DISTRIBUTION SYSTEM OR MODIFICATION OF THE ENERGIZER CORD OR PLUG CAN RESULT IN A DANGEROUS ELECTRICAL SHOCK OR FIRE HAZARD!

Check with a qualified electrician or service person if you are unsure that the AC distribution system is proper. Do not modify the plug provided with the energizer. If it will not fit in the outlet as shown in Figure A have a proper outlet installed by a qualified electrician. If repair or replacement of the cord or plug is necessary, a factory authorized service technician should perform the task.



UL MODEL **(A)**

If it is necessary to use an extension cord, a UL or CSA listed cord in good working order and capable of supplying 25 Watts to the 2 pin polarized receptacle is recommended.

ADDITIONAL INSTRUCTIONS FOR PARMAK SOLAR MODELS DF-SP-LI & MAG12-SP

Solar Energizer Installation

Choose a location that provides maximum exposure to the sun throughout the entire day. Position the energizer away from trees or buildings that could cast shadows on the solar panel. Hang the energizer off of the ground facing due SOUTH using the mounting holes

on the back of the unit.

Parmak solar fence chargers are shipped from the factory with a fully charged battery; however, due to the time from manufacturing date and retail sale, the battery may become discharged. The first time the energizer is used after purchase or after prolonged storage, place the energizer in the sun for 5 full **SUNNY** days with the switch in the off position to recharge the internal battery to a full charge. **CLOUDY DAYS DO NOT COUNT FOR THE NEEDED 5 SUNNY DAYS.**

The battery can also be recharged by removing battery from battery case and recharging it with a 6 or 12 volt taper charger (item #951 – 6 volt or #952 – 12 volt). The taper chargers are available from your local Parmak dealer. The taper charger will recharge the battery within 48 to 72 hours.

Solar Energizer Operation

The PARMAK Solar energizer's solar panel converts sunlight into electric current to charge the internal battery. The meter on the front of the unit indicates the unit operation and amount of voltage on the fence. The energizer will operate in cloudy or low light conditions. However, should low light conditions prevail for extended periods of time, this could cause the battery level to go extremely low. If this happens it is recommended that the energizer be turned off to allow the solar panel to recharge the battery in full sunlight for 5 sunny days or battery can be removed from the energizer and recharged by using taper charger either item #951 (6 volt) or item #952 (12 volt) depending on which model you own. With taper charger, recharge battery a minimum of 48 hours.

INSTALLATION

Location and Mounting of Energizer

All indoor models must be installed in a CLEAN, DRY LOCATION where rain or snow cannot blow in on energizer. Milkhouse or other normally damp buildings are not recommended. Mount energizer on wall with convenient mounting holes on back of energizer. DO NOT PLACE ENERGIZER ON FLOOR OR SHELF. See nameplate on front of energizer to determine whether you have an indoor or outdoor model.

The outdoor, portable, weatherproof models may be installed anywhere. Mount energizer securely on wood or steel post by using a 10" 2x4 across post. If energizer is installed on same side of fence as livestock, a charged wire may be stretched across the front of energizer to prevent stock from pushing energizer down. Do not allow charged wire to touch energizer case.

Special Note - Solar Models

The solar powered models must be installed outdoors away from any trees or buildings. Face energizer and solar panel DUE SOUTH in the Northern Hemisphere (U.S.A.) or DUE NORTH in Southern Hemisphere. Mount so energizer cannot move. Mount where solar panel will be in direct sunlight the entire day. Solar panel is mounted on energizer at correct tilt angle to insure maximum year round energy collection efficiency. If solar panel becomes dirty, clean with water to maintain maximum energy collection. Under normal conditions rain, etc. will keep solar panel clean.

NOTE Replace battery **only with** Parmak Powerhouse rechargeable lead acid (Gel Cell) battery either item #901 (6 volt) or item #902 (12 volt) depending on which model you own. Using any other brand battery will reduce the performance of your solar powered fencer.

TROUBLESHOOTING GUIDE

The best way to isolate a problem on an electric fence system is to follow the steps below:

1) To test the energizer, disconnect it from the fence and measure between the (+) POSITIVE and GROUND (-) terminals with an electric fence peak voltmeter designed for electric fencing (a regular voltmeter will be destroyed if you try to measure the fence output voltage). The voltage should be about 5000 Volts or more for all models. If you do not have an electric fence peak voltmeter, you can use a neon type fence tester and it should give a bright orange or blue flash if the energizer is working properly. If you do not have a fence tester, you can make a jumper from a piece of insulated wire and short across the output terminals. You should be able to draw an arc about 1/10 inch (2.5 mm) and will hear a sharp snap if the energizer is working properly.

With the energizer connected to the fence, measure the voltage between the fence and ground terminal on the energizer. If the voltage is lower than 2000 Volts, then check out the following:

a) There may be an accidental connection between charged and grounded wires on the fence. Make sure that all of the fence wires are isolated from each other and that only similarly charged wires on multi-wire fences are connected together.

b) There may be an accidental connection between a charged wire and earth ground. Make sure that extra ground rods installed along the fence line are only connected to the grounded wire, not a charged wire. Make sure that the charged wire is not touching metal posts or metal objects sitting on the ground. Make sure that a charged wire does not go through the water in a stream or slough.

c) Perhaps the grass and weed load on the charged wires is too much for the size energizer you are using. Make sure that the charged wires are not attached to trees in order to prevent shorting. You may need to remove grass and weeds from the fence line and/or use a higher output energizer. Minimize the load on the energizer by disconnecting sections of fence that are not required to keep your cattle in.

2) If the energizer output voltage measured at the energizer terminals is adequate but the voltage measured after it is connected to the fence seems to be too low or if the guard voltage seems to reduce along the fence, then check the following:

a) The ground rod may not be adequate or the earth around the ground rod may be too dry to conduct current properly. Move the ground rod to a place where the earth is moist all year round. Add more ground rods and/or use a ground return wire on a multi-wire fence. To test if your ground rod is adequate, lean a bare metal rod (metal post) against the charged wire about 100 ft (30 m) from the energizer to simulate a heavy weed load. Using an electric fence peak voltmeter, measure the voltage between the ground rod and a wire probe pushed into the earth about 6 ft (2 m) from the ground rod. If the measured voltage is more than 500 Volts, then you need to add another ground rod. A second ground rod should be driven into the moist earth at least 10 ft (3 m) from the first one and connected to the first ground rod. Repeat the test with the voltmeter and add a third ground rod if necessary. If three ground rods still do not work, then you will have to consider changing your fence to a multi-wire type with one wire carrying the ground return along the fence.

b) The charged wire may be accidentally touching trees, or the wire may be contacting metal posts, or the wire may be contacting other wires that are grounded. In any of these cases, the guard voltage on the fence may reduce as you get closer to the location of the short circuit to ground. Use insulators when using metal or wood fence posts.

c) A charged wire may be laying on the ground or passing through water. Repair the fence and use cutout switches to disconnect wires that are touching water.

d) Charged and grounded wires of a multi-wire fence may be accidentally shorted together. Remember that it is the animal that completes the electrical circuit. DO NOT connect charged and grounded wires together or the fence will be shorted!

e) There may be loose or corroded splices in the charged wire(s) or the connection to the ground rod may be corroded. Replace corroded wire and repair splices to ensure good electrical connections. Dissimilar metals may corrode. If connecting different wire types such as splicing portable electric fencing to permanent fencing, use a Baygard pulse connector item #676 to ensure good contact.

f) The resistance of the charged wire may be limiting the amount of current to the fence. Do not use portable electric fence wire to connect from the energizer to an electrified permanent fence.

g) The resistance of portable electric fence wire is too high to operate with grass and weeds touching the wire. Remove all contact with grass and weeds from portable fence wires.

TRAINING ANIMALS TO RESPECT ELECTRIC FENCING

Animals should be trained to respect the fence by introducing them to it in a small area. It may be helpful to bait the fence with feed. For example, aluminum foil and molasses can be used to bait wildlife. Remember, the charged wire must be at the nose height of each size animal being trained.

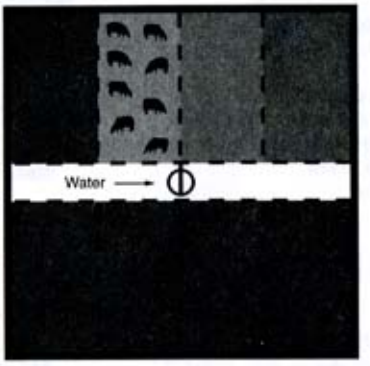
ELECTRIC FENCE MAINTENANCE

Electric fencing is an economical, effective means of livestock management, but it does require regular monitoring and servicing. Extremely heavily weeded fences will eventually overload even the largest fence energizer. Portable electric fence wire and fence tapes will not work effectively when grass and weeds are touching the charged wires.

TYPICAL SERVICING:

1. Maintain adequate permanent boundary fencing.
2. Remove all vegetation from electric fence line.
3. Check electric fence on a regular basis with voltmeter made for electric fencing.
4. Check all fence components on a regular basis to ensure that they are working properly.

IMPORTANT! Store portable electric fence wire or tape for winter. Do not allow portable electric fence wire or tape to be loaded with snow or it may break.



TYPICAL LAYOUT FOR ROTATIONAL GRAZING

——————— Permanent Boundary Fence

- - - - - - - - - - - - - PARMAK® Portable Electric Fence

PARMAK ENERGIZER PRODUCTS*

BATTERY ENERGIZERS



MODEL DF-SP-LI
6 volt - Solar/Battery Operated
America's first solar-powered electric fencer
- New more powerful solar panel
- Exclusive built-in performance meter
- Will operate for 21 days in total darkness
- Weatherproof, outdoor model.
- Sealed rechargeable 6 volt battery
- Charges up to 25 miles of fence
- 100% American made • UL Listed



MODEL DF-LI-UO
6 volt - Battery Operated
- Small to medium pastures.
- 100% solid-state with increased shock output
- Fully weatherproof, portable outdoor model
- Build-in operational light.
- Use a Ray O Vac #641 or equivalent
- Charges up to 25 miles of fence • UL Listed



MODEL MAG.12 U.O.
12 volt - Battery Operated
12 volt advanced solid state circuitry
- New compact design
- Performance meter that shows condition of fence
- Low impedance for maximum power, longer life
- Ideal for livestock or predator control
- Medium to large pastures
- Weatherproof, portable - outdoor model
- Use with 12 volt storage battery, complete with battery clamps
- Charges up to 30 miles of fence • UL Listed



MODEL MAG.12-SP
12 volt - Solar/Battery Operated
Solar powered, uses free energy from the sun
- Low impedance for maximum power, longer life
- Performance meter that shows condition of fence
- No operating costs
- America's first solid state solar powered electric fencer
- State-of-the-art solar panel for superior charging power
- Complete with sealed 12 volt rechargeable battery
- Weatherproof, portable outdoor model
- Charges up to 30 miles of fence
- UL Listed

110-120 VOLT AC ENERGIZERS



MODEL S.E. 4
110-120 volt - AC Operation
- Low Impedance designed specifically for large pastures
- Single or multi-wire high tensile fences
- Advanced solid state circuitry
- Parmak's exclusive built-in digital performance meter.
- Ideal for controlled grazing of livestock
- For indoor installation
- Charges over 50 miles of fence
- UL Listed • US & Canada

Model Mark 7
110-120 volt - AC Operation



Low impedance for medium to large pastures
- Single or multi-wire high tensile fence.
- Advanced solid state circuitry
- Parmak's exclusive built-in digital performance meter.
- Ideal for livestock or predator control.
- For indoor installation.
- Charges up to 30 miles of fence
- UL Listed • US & Canada
- Low impedance

Model FM-2
110-120 volt - AC Operation



- Small to medium pastures
- Advanced solid state circuitry
- Shocks through wet weeds & brush
- Built-in operational light
- For indoor installation
- Charges up to 15 miles of fence
- UL Listed • US & Canada

Model RM-1
110-120 volt - AC Operation



The most technically advanced Parmak fencer
- Digital meter shows voltage on fence-accurate within 100 volts
- Ultra-high visible multi-color LED lights shows condition of fence
- Audible and visible "Shut Down Alarm" sounds when fencer is not functioning properly.
- Low impedance - Over 11.4 joules of "shock output power" to control livestock or predators.
- Advanced built-in computer controlled circuitry
- Rugged high impact ABS housing
- Color coded fence and ground terminals
- Charges over 100 miles of fence
- UL Listed • US & Canada • For indoor installation • Full two year warranty



Parmak Standard Fence Tester- Item #814
- For use with fence energizers with peak voltage of up to 5000 volts



Parmak Professional Fence Tester- Item #815
- Easy to read analog design
- Reads to 10,000 volts
- Sold complete with storage pouch
- No batteries required

***SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.**

NOTE: The fence guard voltage can only be measured with a peak voltmeter designed for electric fencing. A regular voltmeter will be destroyed if you try to measure fence voltages. A more economical neon flash type fence tester can be used to get a general idea of the shock available from a fence. You will have to learn how bright the flash is when the fence is working properly.

NOTE: The "miles of fence" that can be charged by an energizer depends on the type of livestock, the grass and weed load on the charged wires, the fence construction, the number of fence wires and the local soil conditions. Fence guard voltage specifications for specific fence loads are provided to allow the user or dealer to compare Parmak energizers with other models of energizers. Generally, on the same load resistance, the energizer that provides the highest peak output voltage will be the most effective.

SYMBOLS

SYMBOL	MEANING
	**CAUTION:** TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). REFER SERVICING TO QUALIFIED PERSONNEL
	**WARNING:** RISK OF FIRE. REPLACE FUSE AS MARKED.

RECOMMENDED GROUND RODS

3/8" to 5/8"diameter, 6 to 8 foot long corrosion resistant metal rod such as galvanized steel. Drive ground rods a minimum of 6 to 8 feet deep into permanently moist earth.

DO NOT use painted fence post or any metal rod which has a painted surface because paint is an insulator and will not conduct electricity.

DO NOT use utility ground or water pipe to ground your fence.

DO NOT install fence ground rods within 50 feet of any utility ground system. This causes a poor ground condition. Your fence charger MUST HAVE it's own separate ground system. Poor ground could cause stray voltage if fencer ground system is located within 50 feet of a utility ground.

DO install first ground rod within 20 feet of charger.

DO use ground clamp to attach ground wire to ground rods.

DO replace ground rods every two years or so. The ground rods will rust under ground and over time will no longer be a good ground.

SANDY, ROCKY OR CLAY SOIL GROUNDS

In some areas you can not drive a ground rod 6 to 8 feet deep due to rocks, etc. In these areas it is recommended that ground rods be driven at a 45° angle as deep as possible. Drive 4 or 5 ground rods in a circle like the spokes of a wheel. Connect all ground rods together with a ground wire and then back to the ground terminal of the fence charger.

UNDERGROUND WIRING

If you plan to run charged wire underground from your fence charger to the fence line you must install it properly using the correct material or your fence will be "grounded out".

DO NOT use standard insulated wiring such as Romex, etc. for underground wiring.

DO NOT use underground wiring by itself.

DO use insulated underground wire specifically designed for high voltage electric fence such as Baygard item #693 insulated cable insulated for a minimum of 15,000 volts.

DO run underground wire through PVC (plastic) conduit. Bring both ends of conduit a minimum of 6" above ground level. Caulk both ends of conduit so that water cannot enter conduit.

INDOOR INSTALLATION OF FENCE CHARGE

All 110-120 Volt A.C. power line operated models MUST BE installed in a clean, dry location protected from the weather - rain, snow, etc. The charged wire going from the fence charger to the fence line MUST BE insulated from the building wall, etc. and also insulated from ground wire going from fence charger to ground rods.

DO NOT use Romex or any standard electrical wire.

DO NOT allow charged wire to contact building wall or return ground wire.

DO use high voltage insulated wire, insulated for a minimum of 15,000 volts specifically designed for use with electric fence chargers. Baygard insulated electric fence cable item # 693 is an excellent choice.

IMPORTANT INFORMATION

POOR GROUND WILL DAMAGE YOUR FENCER AND WILL DECREASE SHOCK ON FENCE LINE

Your low impedance fencer MUST BE properly grounded. Three (3) eight foot ground rods, ten feet apart, driven eight feet deep into permanently moist earth are recommended.

NOTE: sandy, rocky or clay soil conditions cause a poor ground. In these areas additional ground rods may be needed to adequately ground the fence. (In some locations as many as 5 or 6 grounds rods are needed).
If you DO NOT properly ground your fence, your fence charger will be damaged and you will have decreased or no shock at all on the fence line.

THE BIGGEST CAUSE FOR A FAILED ELECTRIC FENCE IS "HUMAN"

The biggest cause for a failed electric fence is HUMAN!! Most people do not fully understand what it takes to correctly install and maintain an electric fence. They do not understand that any electric fence requires routine maintenance to keep adequate power on the fence or maybe they are just too busy to take the time to do the required maintenance.
The biggest maintenance problems are inadequate ground (poor ground), poor connections, using wrong wire size, using too small of an electric fencer for the job (under powered fencer), etc.
It all goes back to the "human factor":

POOR KNOWLEDGE - TOO COMPLICATED - TOO BUSY TO DO ROUTINE MAINTENANCE

If you use electric fences, take the time to learn how to correctly build the fence and maintain it. Buy the correct electric fencer for the job and read your owners manual thoroughly.

IMPORTANT!

Typical minimum shock requirements:

- Animals such as horses and pigs trained to electric fencing: 1000V
- Animals such as cattle and short haired stock trained to electric fencing: 2000V
- Predators (wild): 5000V
- Above rating based on well insulated single wire fence

This guide to shock requirements cites minimum levels only. Make sure you choose the right power level for your livestock application so the shock obtained is satisfactory for the purpose desired.

IMPORTANT SAFETY TIPS

USE COMMON SENSE WHEN USING ELECTRIC FENCE CHARGERS

INSTALLATION:

Install the fence charger per instructions included with each charger. The nameplate on front of charger will indicate whether it is to be installed indoors or outdoors. Indoor models must be installed in a clean, dry, location. The charger and all electrical connections must be protected from weather.

DO NOT contact electric fence wires with head or neck.

DO NOT climb over, through or under any electric fence. When crossing any electric fence – use gate or turn fence charger OFF.

DO NOT allow children to play with or around electric fence.

DO NOT electrify barbed wire or razor ribbon, etc.

DO NOT electrify any fence which could lead to animals or people becoming entangled.

DO NOT install any fence directly parallel underneath cross country overhead power lines.

DO NOT use more than one fence charger on the same fence.

DO NOT use or store combustible material near the charger or fence wire. If killing grass, weeds, etc., underneath fence wire, use non-combustible commercially available weed killer.

DO NOT use gasoline or any flammable material to kill grass, weeds, etc. underneath fence wire

WARNING SIGNS:

Where public has access, it is recommended (required by law in some states) that the electric fence be identified by installing ELECTRIC FENCE WARNING SIGNS. These signs are available as an accessory from your dealer. Use Parmak warning signs item #2160. Check state and local codes before using electric fence chargers.

SAFETY FIRST:

DO NOT attempt to repair charger yourself. All repairs must be performed by qualified authorized service centers or factory.

SERVICE OF DOUBLE-INSULATED APPLIANCES:

In a double-insulated controller, two systems of insulation are provided instead of grounding. No equipment grounding means is provided in the supply cord of a double-insulated controller, nor should a means for equipment grounding be added to the controller. Servicing a double-insulated controller requires extreme care and knowledge of the system, and should be done only by qualified service personnel. Replacement parts for a double-insulated controller must be identical to the parts they replace. A double-insulated controller is marked with the words "DOUBLE INSULATION" or "DOUBLE INSULATED". The symbol for double insulation (square within a square). ⧈

Instruct all persons on how to disconnect charger (turn it off). Warn all persons especially children that the electric fence is in operation.
NEVER climb over any electric fence wire.

USE CAUTION WHEN OPENING BOX AND WHILE HANDLING FENCER CHARGER

The solar fence charger is equipped with a fully charged battery.

DO NOT turn on fencer when removing from box.

When handling fence charger, to avoid shock:
DO NOT touch output terminal on front of fence charger.

SOLAR FENCE CHARGER IS HEAVY.
DO NOT carry fence charger by holding onto solar panel at top of fencer. Doing so could damage solar panel and could cause solar panel to come off causing injury or damage to fence charger. Do carry fence charger by placing hands securely on side of battery case making sure that you have a firm, secure grip on fence charger. DO NOT touch output terminal.

Your solar powered fencer is equipped with a special rechargeable sealed lead acid battery. Battery must be fully charged before using fencer or fencer will not operate properly. To recharge battery, face your solar fencer due south in northern hemisphere or due north in southern hemisphere in direct sunlight (away from any trees or buildings) for a minimum of 5 days with fencer turned off.

Special note: If you should decide to charge the battery by using an external system, use a current regulated type charge of 1 amp or less. Do not use an automotive type battery charger. Doing so will damage battery. Use Parmak® Taper Charger #951 for 6 volt battery or #952 for 12 volt battery.

SAVE THESE INSTRUCTIONS!

LIMITED WARRANTY

1 YEAR WARRANTY
2 YEAR WARRANTY ON SOLAR POWERED MODELS & RM-1

Parmak® warrants to the purchaser, for a period of 1 year (2 years on solar powered models & RM-1) from date of purchase, that Parmak® energizers shall be free from manufacturing defects. Parmak® energizers damaged by lightning are included in the above warranty.

Parmak® will repair or replace the energizer, at its option, at no charge to the purchaser, provided the energizer is returned securely packaged, shipping prepaid, and accompanied by a photocopy of the bill of purchase, to an Authorized Warranty Depot or the factory. Any energizer returned without a copy of the bill of purchase will be repaired or replaced,under warranty, at Parmak's option, only if the date of manufacture is within the one year warranty period. The repaired or replacement product will be returned freight prepaid.

Warranty Limitations

Parmak® shall not be liable for, and this warranty does not apply to, any failure, defect or damage resulting from or connected with misuse, abuse, neglect or improper handling or storage, improper fence construction or installation not in strict adherence to Parmak's written instructions. Parmak reserves the right to discontinue or modify any of its products, and

shall not be liable as a result of such discontinuation or modification. If Parmak replaces any energizer under this warranty, it may substitute a product designated by Parmak to be of comparable quality or price range in the event the product initially sold has been discontinued or modified.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER ORAL OR WRITTEN WARRANTIES, LIABILITIES OR OBLIGATIONS OF PARMAK. PERTINENT STATE OR PROVINCIAL LAW SHALL CONTROL FOR WHAT PERIOD OF TIME SUBSEQUENT TO SALE A PURCHASER MAY SEEK A REMEDY PURSUANT TO THE IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL PARMAK BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND, INCLUDING PERSONAL INJURIES, RESULTING FROM THE BREACH OF ANY WARRANTY SET FORTH ABOVE. SOME STATES OR PROVINCES MAY NOT ALLOW LIMITATIONS ON OR THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSIONS MAY NOT APPLY TO YOU.

This limited warranty gives you specific legal rights and you may also have other rights which vary from state to state or province to province.

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