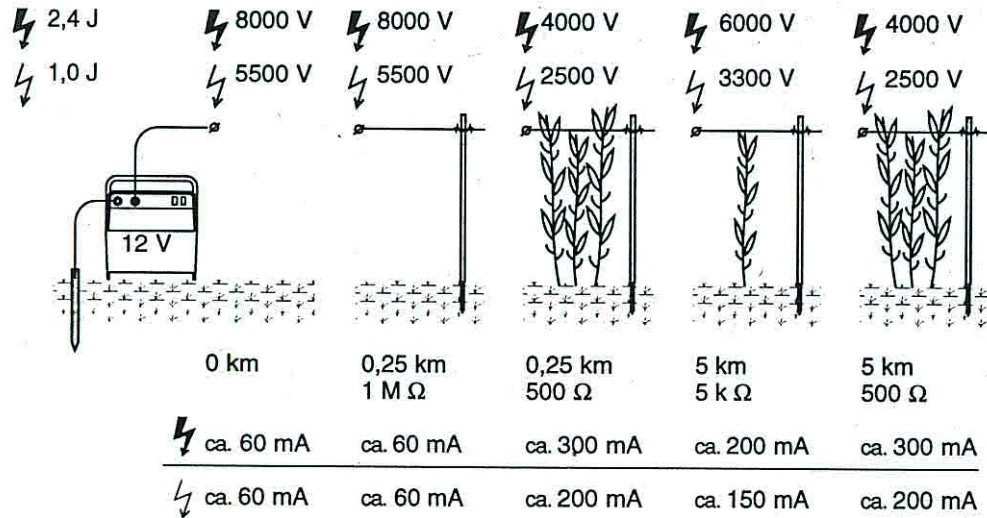
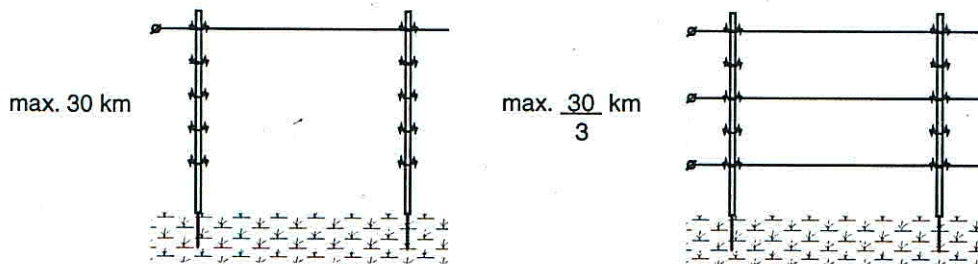


Technical Data



Weight (without accu) : 3,6 kg

CEE:
max. fence line length



OPERATING INSTRUCTION
Electric Fence Energizer

85770 D



made in Germany
by horizont agrartechnik



1
PREMIER

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INTELLISHOCK™
55B

Type 10425 12V D

Operating instruction INTELLISHOCK 55B

in connection with SECURA safety and installation hints for electric fence energizers

Installation and connection: (fig.1)

Install the energizer near the fence, out of reach of livestock. Drive the energizer ground rod or rods into a moist area. Good grounding is very important for proper operation of the energizer and fence. Connect ground wire to ground terminal, then ground rods. Connect the fence lead to fence energizer terminal, then to fence.

The energizer housing can take a deep cycle 12V battery with following dimensions: max. 10" x 7,68" x 9". Suitable connection cables are included.

Operation and control: (fig.2)

Press switch into desired position (**LEVEL 1.0** or **LEVEL 2.4**).

Press switch **TEST - OFF - ON** in position **ON**.

After a few seconds you will hear a regular tic-tac and the operating indicator light flashes in the rhythm of the impulses. The energizer is supplying voltage to the fence. If the operating indicator light is not flashing or only flashing irregularly, then either the battery needs to be recharged or replaced, there is a dead short on the fence, or there is a problem with the energizer.

Battery test:

In position **TEST** you can check at the same time the state of discharge of the battery. If the battery charge is still ok, you will see a permanent indicator light. If the charge is no longer sufficient, the light will stop flashing.

After testing the battery, the switch **TEST - OFF - ON** has to be put back in the position **ON**.

Requirements: The energizer conforms to the standards indicated on the case (all European standards), which are more strict than USA UL standards.

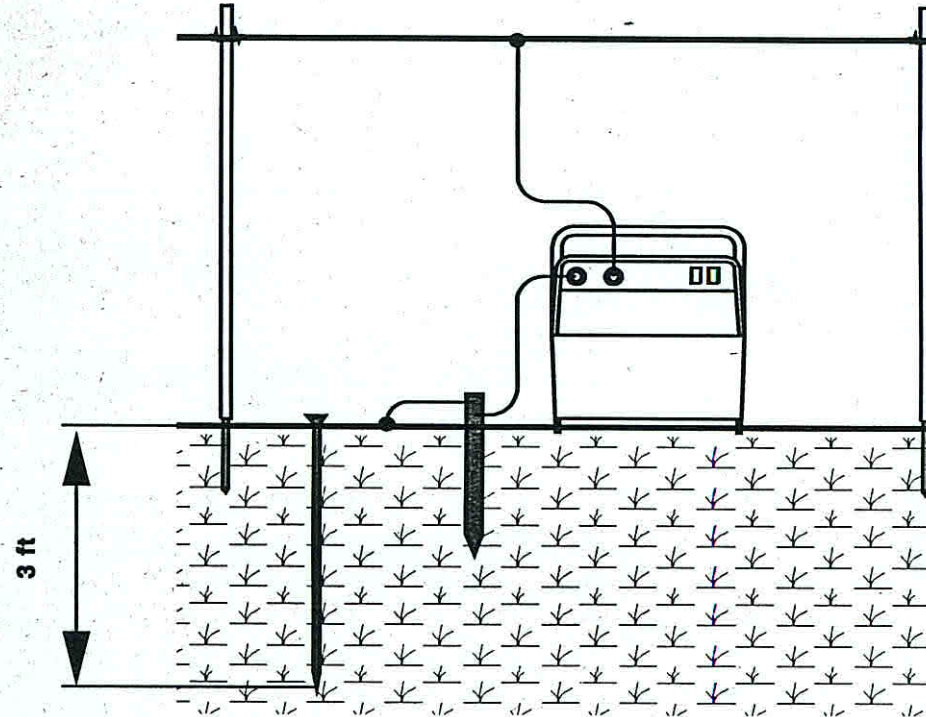
Change of battery:

Open the unit according to (fig.3) and change or insert battery.

Solar operation:

On request, a 10W solar panel is available that can be mounted on top of the energizer and be directed towards the south (fig. 4). The 10W panel is not capable of completely charging the battery, especially if in the more powerful position. The 10W panel will only extend the operation time of the 12V battery depending upon the sun intensity. However, with a 20W panel you can fully recharge the battery while operating the standard output terminal.

Fig. 1



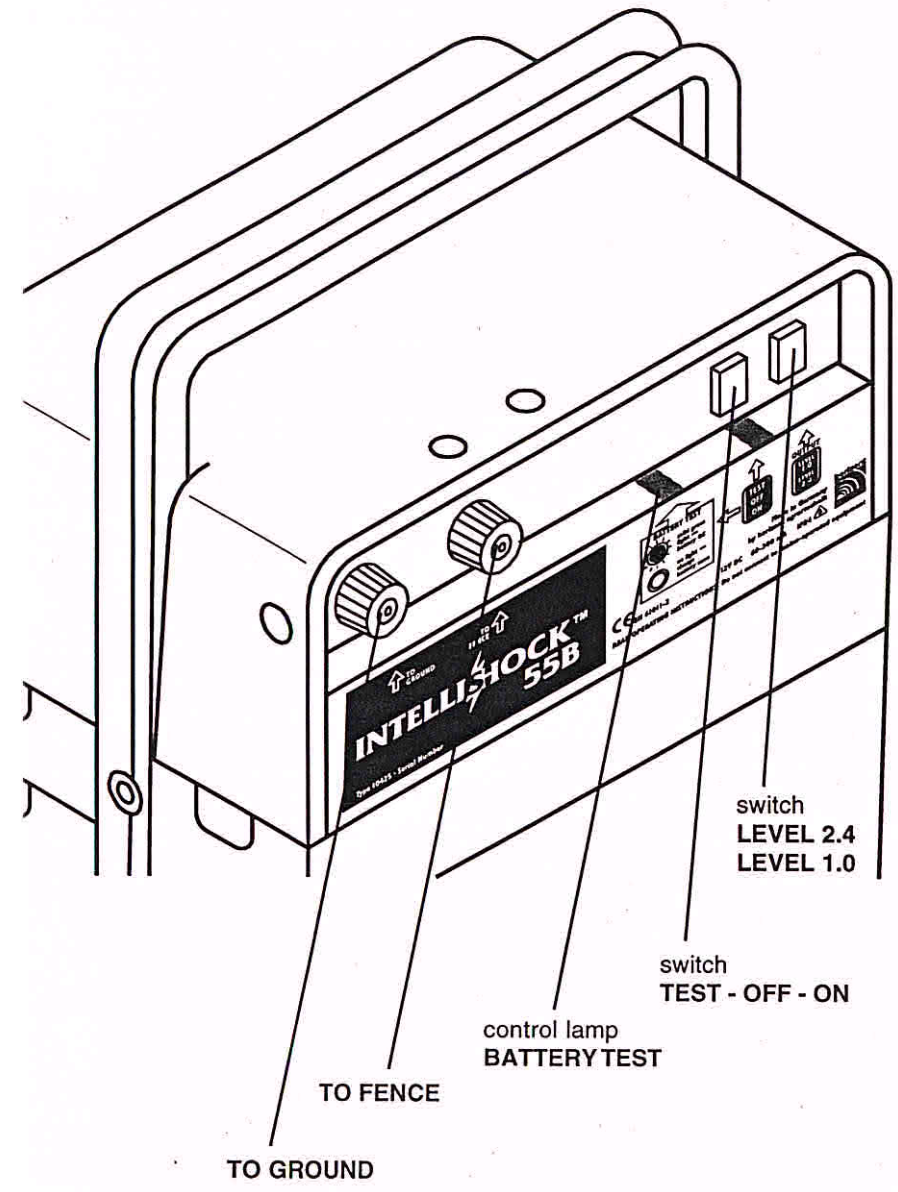


Fig. 3

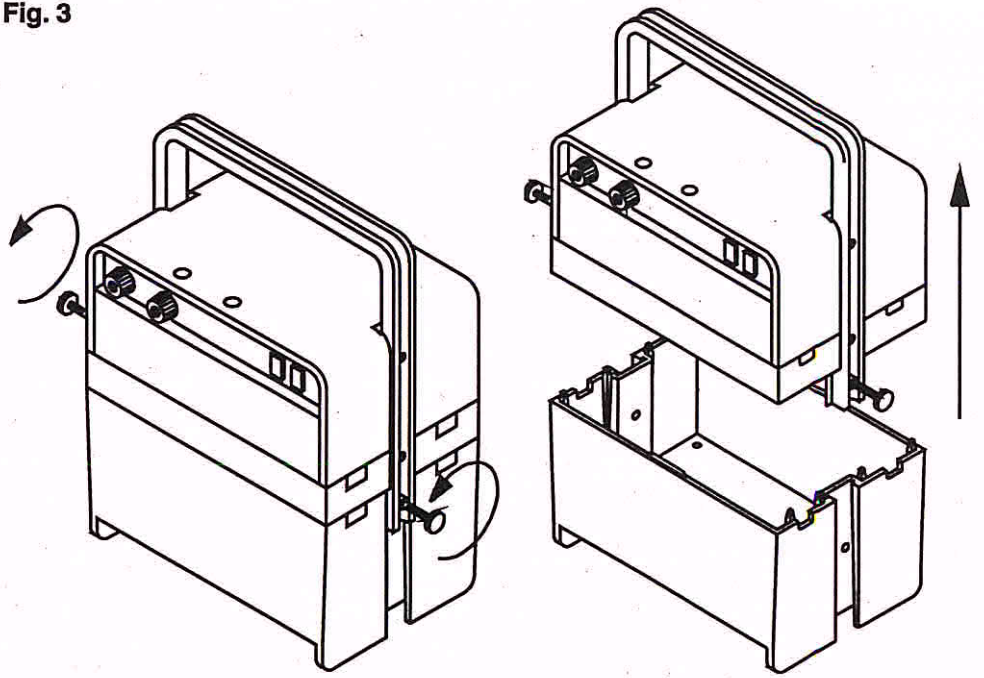
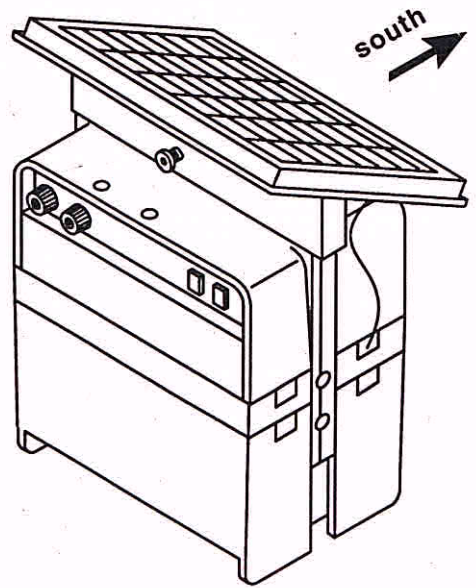
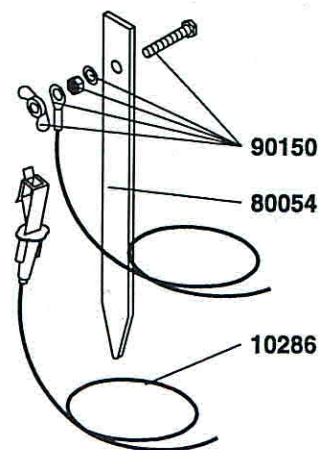
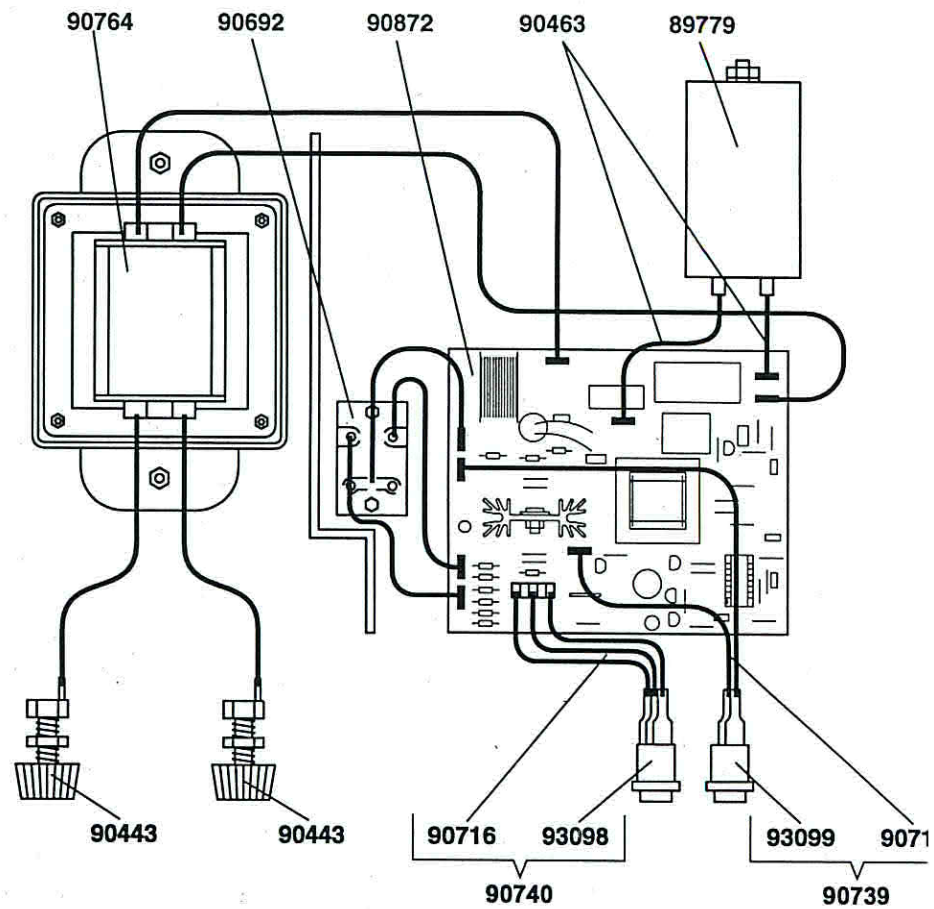
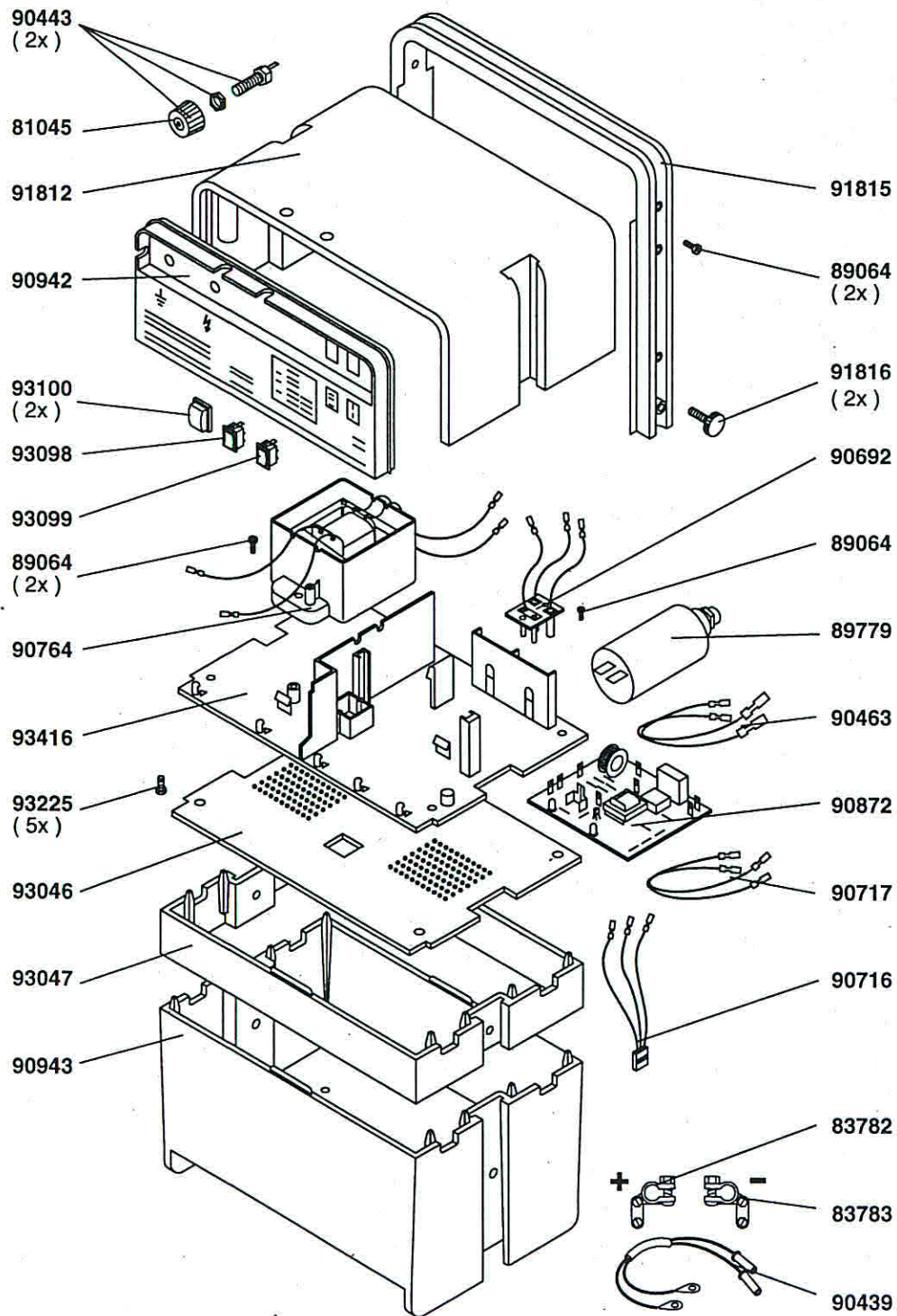


Fig. 4





1) Maintaining normal operating conditions

1) The following checks must be carried out

Testing the controller according to the manual especially the output voltage (daily)
Some horizontal controllers have an incorporated testing device "argutektor resp. arguswitch" (Pat.pend.). This device is capable to recognize fence faults at the controller, e.g. fallen down fence. It is very important to measure the fence voltage at the "end of the fence" for example with the digital-voltmeter or the horizontal voltage tester (fig.2).

The voltage at the end of the fence shall not be much lower than the voltage at the terminal measured against ground.

In case of much lower voltage the reason may be bad conductivity of the fence wire (bad poly wire) or bad conductivity of the ground. In the last case an additional ground wire must be installed with intermediate ground rods at distances of app. 100 m.

No voltage at the end of the fence means interruption of the fence leads.

Testing of the battery voltage (daily)

Testing of the fence - mechanical state and vegetation (daily)

Testing of indoor installations, wires connection leads and earth leads with respect to combustible materials getting into contact with the leads (weekly)

Testing of connections at connection leads, fence wires (e.g. knots) and earth leads with respect to good contact. It must be ensured that there are no loose contacts in order to provide an orderly operation and to avoid radio interference (weekly)

Testing of insulators, poly wires and tapes on being damaged or brittle (weekly)

Due to safety risk. Servicing of fence controllers shall be made only in authorized service places.

2) Fault finding in case of not sufficient fence power

Inadequate earthing - increase the number of earth rods (1 m) in moisty ground until the voltage across earth terminal and ground drops below 500 V (digimeter)

bad ground conductivity in dry ground with little grass - install an additional ground wire

or use a multiwire fence with alternating polarity (hot - ground - hot etc.)

controller does not operate - no output, with fence or without. - Check the fuse -if available- and the battery. If no success let the controller be tested by a service station

Discharged dry or wet battery. - renew or recharge the battery. Use the battery testing devices if available

Too long fence, especially with electric fence netting or multiwire fences -check the voltage at the end of the fence with the digital-voltmeter - the indication shall exceed 1500 V. Reduce fence length or use a more powerful unit

Interruption or bad conductivity of the fence wire - in case of poly wire use only high quality material (1ohm/m or less), make knots carefully and always more than only one. The leads must be in close contact one to the other. Be aware of the limited life time of poly wire at all. To detect interruptions on the line check the voltage beginning from the end of the fence

Unsatisfactory insulators - can be perceived partly by brittle, cracked surface or broken plastic body - this is especially dangerous in case of insulators on metal post = direct short to the ground.

SECURA . . . SAFETY . . . HINTS

General hints for the installation, operation, controllin and maintenance of fence controllers and electric fence

A) Principle

An electric fence consists of a controller and a connected fence where the controller fee electric impulses into the fence. The fence represents a "psychological barrier" for t animals; it can also be used to train a certain behavior (eg. cow trainer in the stable).

B) Standards for the fence controller

Electric fences must be so designed and operated that they cause no danger to person animals or surroundings.

This is ensured if the fence controllers correspond to the European Standards.

The following standards are effective:

EN 61011 for mains operated fence controllers

EN 61011-1 for battery operated fence controllers suitable for connection to the mains

EN 61011-2 for fence controllers being operated by batteries (9V, 12V)

There are controllers of different output performances. A main rule is: Not as powerful possible but as powerful as necessary. For safety reasons high power controllers (with mc than 5 Joule at 500 Ω) shall not be used. Medium power controllers (up to 3,5 Joule) provi safe fencing with all ordinary fences even with some vegetation, dry ground and long fence
There are special controllers for cowtrainers and similar applications.

Further application hints can be found in the catalogue.

The time between two pulses must not be shorter than 1 second. Especially in case accumulator or mains controllers they must be set out of duty immediately and be repair in an authorized service station.

C) Instructions for the installation and operation of electric fences and their controllers are laid down in

EN 61011 Appendix E

Warning signs

Warning signs according to the standards are to be mounted at good visible places on the fence securely fastened to the post or firmly clamped to the fence wire. The warning signs can be supplied by the horizontal organisation.

Operating with only one controller

Electric fences shall not be supplied from more than one electric fence controller. Multi-wire electric fences may be supplied from different fence circuits of the same electric fence controller provided only one fence circuit is used to supply a specific wire. The distance between the fence wires or the connecting leads of different electric fence installations must be at least 2 m. If this gap is to be closed this shall be effected by means consisting of electrically non-conductive material.

Mounting

In case of indoor mounting the fence controller shall not be installed at places where there is a risk of fire, eg. barns or stables. Indoor installed connecting leads having a voltage of more than 1000 V require a special insulation which is effective with respect to structural parts connected to earth. This insulation can be achieved by adequate air gaps or with high voltage cable. The controllers shall be so installed that they are out of reach of children and not subject to mechanical damage.

Connecting leads

If it is necessary to lay the connecting leads underground a high contact resistance between the live wire and the surrounding soil shall be ensured, for example by using a high voltage cable or a conduit of insulating material. Moreover the effects of cattle hooves and tractor wheels sinking into the ground shall be taken into account.

Keep off combustible materials

Combustible materials shall be kept away from the fence wires and the connecting leads.

Electrical connections

When installing fence wires and connecting leads, it shall be ensured that the connections have a low contact resistance, and provision shall be made to prevent loosening of the connections.

Operation inside stables

Voltage leading parts of fence installations inside stables must be so installed that animals can move freely. It must be ensured that animals cannot get in contact with those parts that are not intended to get into touch in normal use. All voltage leading parts must be separated automatically from the voltage supply if an animal becomes entangled with the parts.

D) Fence wire, posts and insulators

Wires

must have a good conductivity and breaking strength and they must be weather resistant. A good visibility can enhance the efficiency. Barbed wire shall not be used for electric fences. Zinc galvanized wires with a diameter of 1,5 - 2,5 mm are used for permanent fencing. Temporary fences are realized preferably with tinsel wires or plastic poly wires or tapes. The conductivity of poly wires and tapes can be different but cannot be assessed from outside.

High quality poly wires or tapes have a typical resistance of less than 1 Ohm/m, low quality can reach 10 Ohm/m, resulting in making even powerful controllers ineffective already with medium fence lengths. The single conductors of the poly wires or tapes must be in contact in order to avoid parts of the fence losing voltage.

Important: pay attention to the technical data of the manufacturer and prefer poly wires and tapes with a typical resistance of 1 Ohm/m or less.

Connection cable fence

Using poly wires and tapes as fence wires the connection of the high voltage cable from the controller to the fence wire made e.g. by a heart clamp can be unsafe. The new horizontal universal-clamp provides safe contact with all kinds of fence wires.

Fence posts

All materials can be used for fence posts in connection with adequate insulators. Especially suitable are wooden and plastic posts. Metal posts can very easily short the fence voltage to ground in case of brittle insulators and high peak voltages. The distance between the posts can vary between 4 - 10 m, depending on the wire weight. Parts of the electric fence intended to be handled must be insulated, e.g. gate handle. Fence wires and connecting leads shall not be in contact with metal parts not belonging to the electric fence such as railings of a bridge. Fence wires and connecting leads shall not be fixed to poles used for low-voltage, high-voltage, telephone or telegraph lines. When installing electric fences the national safety regulations must be respected.

How to avoid radio interference

Faulty connections on the fence can cause radio and TV interferences. Knot connections and wires loosely put onto each other are critical as the supplied voltage causes sparks. This may occur especially with poly wire and polytape. The horizontal tape connector is an adequate mean to avoid sparks. Control: walk along the fence with a radio - faulty connections cause crack sounds. In the darkness sparks become visible.

Fence installation

Fence wires and connecting leads shall be adequately supported on insulators of electrically and mechanically reliable material. Insulators must be placed in such a manner that fence wires and connecting leads maintain a distance of at least 3 cm to structural parts, pipes, wires and comparable parts. Connecting leads to electric fences for domestic and wild animals shall not be laid into or through buildings or places where there is a risk of fire (barns, stables etc.).

E) Installation of mains controllers

In case of outdoor installation of the controller this shall be done by a competent person in accordance with the relevant wiring rules. Indoor installation can be carried out by a plug in connection. In USA and Canada observe the relevant marking on the controller concerning indoor / outdoor installation.

System earth for mains and accumulator operated fence controllers

For a faultless operation and to obtain best possible output a good grounding is very important. Therefore the grounding must be made at a rather moisty and overgrown place. An 1 m earth stake (e.g. 12 mm ϕ) and or an additional 5 m strip type earth conductor (two spades deep) shall be used. With long fences and on dry soil a ground return wire with intermediate groundings (every 50 m) is necessary (see corresponding sketch in the instruction manual). The distance between the system earth and the protective and system earth of the supply net work shall be at least 10 m.

Electric fence installation in stables

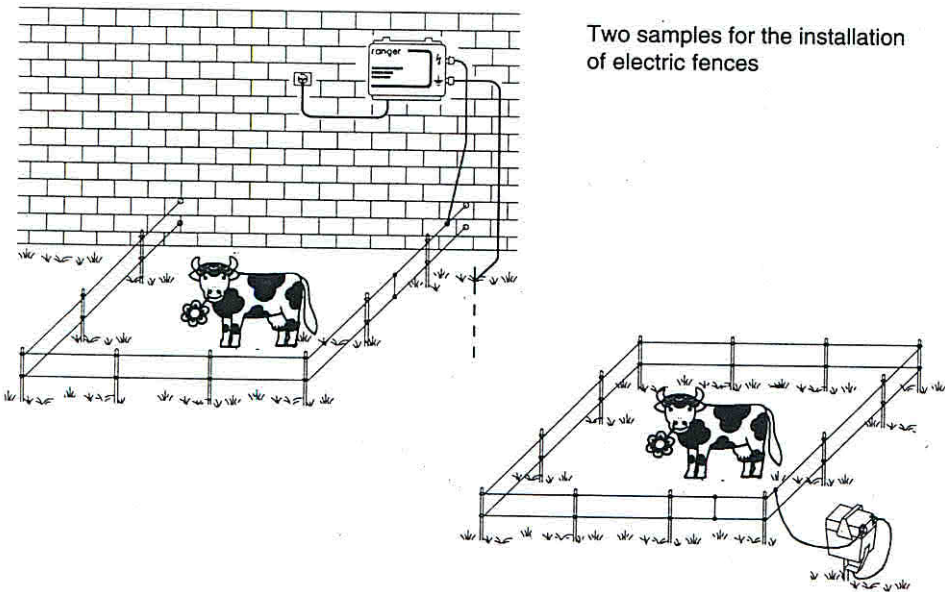
For installation in stables ask your local electricity supply utility.

F) Installation of electric fence controllers for battery supply

Battery operated controllers shall not be connected to the supply network neither directly nor indirectly (charger).

System earth for battery operated controllers

The original earth rod is to use according to the manual. It shall be driven into the ground as far as possible at a moisty place and close to the controller. An additional long earth rod (1 m) can improve the efficiency of the whole installation too. The same rules apply as with the mains controllers.



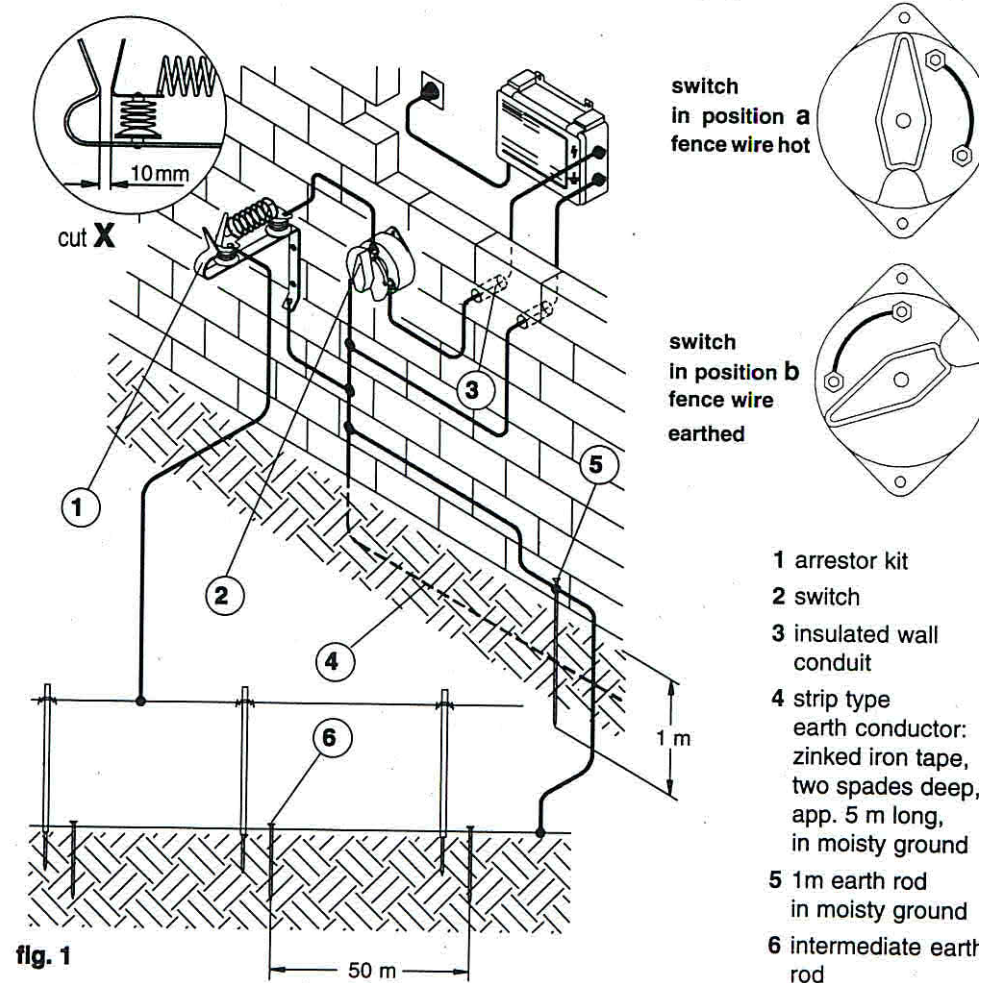
G) Precautions against lightning damages

Lightning suppression in buildings to prevent fire

To prevent damages caused by lightnings the connection lead must have a lightning gap in series before entering the building. Furthermore the controllers being installed inside buildings or supplying outside fences shall not be installed at places where there is a risk of fire, e.g. bar stables etc. The lightning suppression device must be installed by a competent person. According to experience mains controllers are more subject to lightning damage than battery controllers, so it is recommended to use a lightning arrester kit (ref.no. 15498). The installation is to be carried out according to fig. 1. The system earth of the electric fence shall be galvanically connected to the earthing system of the lightning arrester. If the connection lead is led away from a building a lightning arrester must be installed. Electric fences not being operated shall be connected to earth, **switch in position b.**

The base (lower) distance between the two horns of the spark gap (air gap) of the lightning arrester should be about 10mm, see cut X.

The earthing must be carried out at a damp place with an earthing rod of at least 1 m depth



H) Safety distances

Distances to public roads

Distances of electric fences to public roads must be in accordance with the rules of the relevant public authority. Crossing a public road the vertical distance between the wire or lead and any point on the surface of the road shall be at least 5 m (s.fig.3)

Avoid approaching overhead power lines

Crossings with overhead power lines shall be avoided where ever possible. If such a crossing cannot be avoided it shall be made underneath the power line and as far as possible at right angles to it. Overhead power lines shall not be crossed by fence wires or connection leads. Electric fences shall not be installed in parallel to overhead lines for longer distances (possible charge of the fence). In case of doubt contact shall be sought with the electricity supply utility concerned. Parts of electric fences shall not be fixed to poles used for low-voltage, high-voltage, telephone or telegraph lines.

Points to mind approaching power lines with electric fences

If an electric fence has to be installed in the vicinity of an overhead power line, the vertical distance between any fence wire or connecting lead and the surface on the earth shall not exceed 2 m (s.fig.4) within a strip of 2 m at both sides of the fence. The crossing area must be marked with a warning sign.

If electric fences are led in parallel to overhead lines with more than 1000 V or undercross those lines the vertical distance of electric fences to the ground shall not exceed 1,5 m within a strip of 10 m at both sides of the fence (s.fig.5).

If the vertical distance to the ground of the connection lead exceeds 6 m outside the strip the horizontal distance to the outer strands of the power line must be increased according to the amount of the exceeding.

The crossing area must be marked with a warning sign.

Points to mind approaching communication lines

Communication lines can be overcrossed and undercrossed with the fence wires and the connection lead. A minimum distance to all directions is to be respected (fig.6):

Some regulations may be different in several countries. The local electricity supply utility should be contacted.

Gate insulation

Parts of electric fences liable to be handled (e.g.gates) shall be insulated from electric pulse leading parts, e.g. by insulated gate handles.

Fence controllers with metal enclosure

For controllers provided with metal enclosures, fence wires and connecting leads shall be so connected to the controller that they cannot come into contact with the enclosure.

Spacings to other metal parts

Fence wires and connecting leads shall not be in contact with metal parts not belonging to the electric fence, such as the railing of a bridge or a cattle water place.

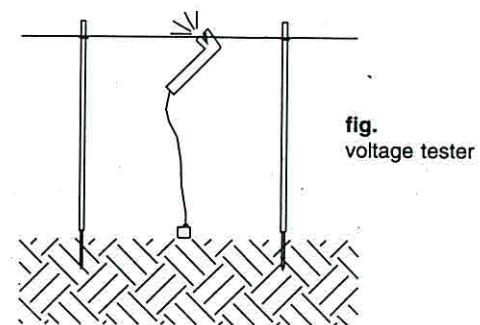
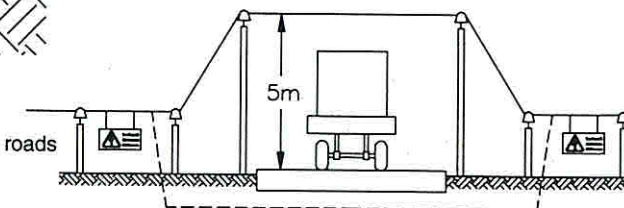


fig.
voltage tester

fig.3
crossing of public roads



2m 2m

fig.4
safety space for low voltage
overhead lines (up to 1000 V)

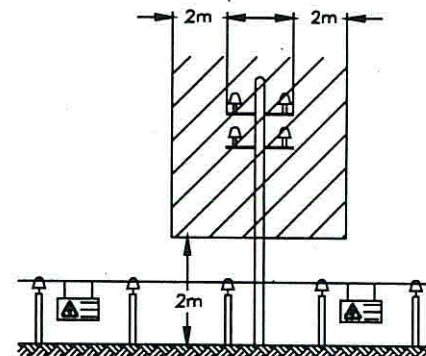


fig.5
safety space for high voltage
overhead lines (more than 1000 V)

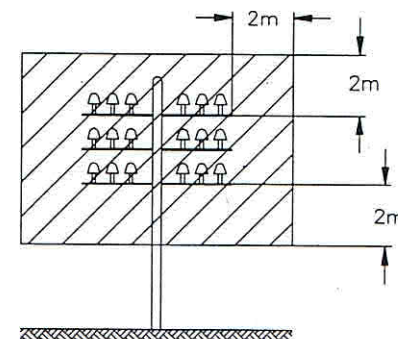
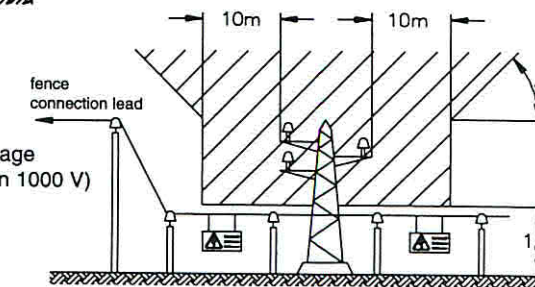


fig.6
safety space for communication lines