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Dear buyer!

You have got "Polymag-01" magneto-therapeutic device (hereinafter- the device) intended to be used for therapy of a wide spectrum of diseases by low-frequency, low-intensity magnetic field. The device pertains to products of medical technique and is included in the nomenclature of physiotherapeutic devices allowed for application in medical practice.

Attention! Before the device application it is necessary to study thoroughly the enclosed operating manual in order to get the effective treatment.

The operating manual is the document identifying basic technical parameters, characteristics of the device guaranteed by manufacturing enterprise, therapeutic indications and treatment procedures with the device.

1. INTENDED USE

1.1 General information

1.1.1 The device is intended to be used for therapy with low-frequency, low-intensive magnetic field.

Device provides generation of continuous and discontinuous pulsed magnetic fields (traveling, rotating, pulsating) differ in configuration, intensity, direction and speed of magnetic field traveling in space. The device ability to influence the large affected areas (extremities, body) increases magneto- therapy efficiency due to the extensive influence on micro-circulation flow.

1.1.2. The device is designed to be operated in normal climatic conditions:

- air temperature: from +10°C to + 35 °C;
- atmosphere pressure 86,6 – 106,7 кPa (600-800 мм.Hg) .

1.1.3 The device electrical safety: Class I, type B (IEC 601-1-88).

1.1.4 According to failure effects the device belongs to Class B.

1.2 Indications for application

BLOOD ILLNESSES, ILLNESSES of BLOOD-FORMING ORGANS AND SOME ABNORMALITIES INVOLVING THE IMMUNE MECHANISM

– Other immunodeficiencies (Immunodeficiency conditions with radial therapy).

MENTAL DISORDERS and BEHAVIORAL DISORDER

- Somatophormic dysfunction of vegetative nervous system
- Neurocirculatory dystonia on hypertonic type

ILLNESSES OF NERVOUS SYSTEM

- Disseminated sclerosis
- Remittent sclerosis
- Secondaty - progressive sclerosis
- Primarily - progressive sclerosis
- Progressive
- Migraine
- Transient transitional cerebral ischemic attacks and congenerous symptoms
- Affection of separate nerves, nervous roots and plexuses.
- Mononeuropathies of the top and bottom extremity (« Tunnel neuropathies »)
- Causalgia
- Alcoholic polyneuropathy
- Diabetic polyneuropathy
- Children's cerebral paralysis, spastic, hyperkinetic forms.
- Hemiplegia

ILLNESSES OF CIRCULATORY SYSTEM
- Idiopathic hypertension of I-II degree.
- Stenocardia
- Heart chronic ischemic illness
- Insult (hemorrhage or an infarct)
- The other cerebrovascular illnesses
- Aftereffects of cerebrovascular illnesses
- Atherosclerosis

Including:
- Arteriolosclerosis
- Arteriosclerosis
- Degeneration:

- arterial
- arteriovascular
- vascular

- senile deforming or an obliterating endarteritis :

- arteritis
- endarteritis

- Phlebitis, thrombophlebitis
- Lower extremities varix dilatation and itsaftereffects
- Nonspecific lymphadenitis

Other infectious diseases of lymphatic vessels and lymphatic nodes (including lymphostasis in the postoperative period).

ILLNESSES OF RESPIRATORY ORGANS
- Pneumonias
- Community-acquired pneumonia
- Acute bronchitis
- Simple and mucopurulent bronchitis
- Unspecified chronic bronchitis
- Asthma
- Bronchoectatic disease

ILLNESSES OF DIGESTIVE APPARATUS
- Stomach ulcer
- Ulcer of duodenal intestine
- Gastritis
- Duodenitis
- Syndrom of irritated intestines without a diarrhea
- Abdominal adhesions
- Alcoholic illness of a liver
- Liver unspecified toxic affection
- Cholecystitis
- Biliary dyskinesia
- Chronic pancreatitis
- Syndrom of operated stomach
- Postcholecystectomy syndrom
- Celiac disease

ILLNESSES OF THE SKIN AND SUBCUTANEOUS FAT
- Atopic dermatitis

- Psoriasis

OSTEOMUSCULAR SYSTEM AND THE CONNECTING TISSUE DISEASES
– Gout
– Traumatic arthropathy
– Polyarthrosis
– Coxarthrosic
– Gonarthrosis
– Arthrosis of the first carpometacarpal joint
– Other arthrosis
– Joint contracture
– Rheumatic polymyalgia
– Backbone osteochondrosis
– Affection of cervical spine intervertebral disks
– Affection of intervertebral disks of other parts
– Vertebrobasilar syndrome
– Dorsalia
– Cervicalgia
– Radiculopathy
– Lumbago with an ischias
– Ischias
– Myalgia
– Neuralgia and neuritis
– Pain in an extremity
– Osteoporosis with pathological fracture
– Osteoporosis without pathological fracture
– Osteomyelitis
GENITOURINARY SYSTEM DISEASES
– Chronic tubularinterstitial nephritis
– Tubularinterstitial and tubular affections caused by medicaments and heavy metal
– Renal and ureteral calculus
– Calculuses of urinary ways lower parts
– Cystitis
– Urethritis and urethral syndrome
– Hyperplasia of prostate gland
– Prostate gland inflammatory diseases
– Benign dysplasia of lactiferous gland
– Salpingitis and oophoritis
– Uterusinflammatory diseases, except for uterus cervix
– Uterus cervix inflammatory diseases
– Other inflammatory diseases of female pelvis organs
PREGNANCY, CHILDBIRTH, PUERPERAL PERIOD
– Children-bearing related non purulent mastitis
– Other changes of lactiferous gland and lactation disturbances related with children-bearing
INDIVIDUAL STATES ARISING IN PERINATAL PERIOD
– Birth trauma of peripheric nervous system
TRAUMAS, POISONINGS AND SOME OTHER CONSEQUENCES OF EXTERNAL INFLUENCE
– Brain concussion

– Neck injury
– Backbone cervical part fracture
– Dislocation, a stretch and injury of capsular ligamentous apparatus at the neck level
– Both nerves and a spinal cord trauma at neck level
– Chest traumas
– Rib (ribs), breast bones and backbone thoracal part fracture
– Dislocation, stretch, both chest joints and capsular ligamentous apparatus injury
– Thorax nerves and spinal cord trauma
– Both stomach, back lower part, backbone lumbar part and pelvis traumas
– Fracture both of backbone lumbosacral part and pelvic bones;
– Dislocation, stretch and injury both of lumber spine capsular ligamentous apparatus and pelvis
– Trauma of both nerves and spinal cord lumbar part at stomach level, back lower part and palvis a basin
– Thorax traumas
– Fracture of both a rib (ribs), breast bone and a backbone thoracal part
– Thorax both dislocation, stretch and injury of both joints and capsular ligamentous apparatus
– Trauma of both nerves and thoracal part spinal cord
– Bruise, commotion (liver, lien, kidney) .
– Thermal second-degree burns (bubbles) (loss of epidermic tissue)

Additional spheres of application:
- Gerontology -general restorative therapy

1.3 Contraindications

- Inflammatory diseases at acute period;
- Hemophilia;
- Thrombocytopenia;
- Purulent processes before surgical treatment;
- Cardiovascular collapse of II - III degree.
- Pregnancy;
- Presence of an implanted cardiostimulator.

1.4 Mechanism of magnetic fields physical and therapeutic effect

Action of magnetic field on an organism is characterized by:
– differences in individual sensitivity to magnetic field exposure;
– remedial effect of magnetic field on an organism and its functional systems;
– degree of therapeutic action intensity: effect and changes in organs are more evident with the influence of alternating and pulsed magnetic field, than that of the constant one;
– magnetic field application aftereffect. Reaction of an organism is kept within 1-6 day after magnetic field single-action, and after the taken procedure course - 30-45 days, this stipulates necessity to make break between repeated magneto-therapy courses for chronic diseases treatment.

Influence of magnetic field on background of organ or system increased function results in its decrease, and application of magnetic field in the state of function depression is accompanied with its elevation.

Organism organs and systems have different reaction upon the action of magnetic field. Organism response reaction selectivity depends on tissue electric and magnetic properties, their difference in microcirculation, metabolism intensity.

According to organism systems degree of sensitivity to a magnetic field, nervous system takes the first place then come endocrine systems, sense organs, cardiovascular, muscular, digestive, secretory, respiratory and skeletal (osteal) systems.

At influence by low intensity magnetic fields on nervous system central parts and reflex zones there are the changes of conditioned-reflex function, physiological and biological processes. The most evident reaction of the organism from central nervous system reveals itself in hypothalamus, then comes cerebral brain cortex, hippocampus, reticular formation of midbrain. As a result there is inhibitory processes resulting in sedative and healthiness effect of magnetic field to sleep and emotioanal excitement of the organism.

From the part of hippocampus there is noted synchronization of secretory cells function, activation of synthesis and getting neurosecretory substance out of its nucleus as a result of the magnetic field exposure. At the same time there is increase of hypophysis portions functional activity. However under the long and great (more than 70 mTl) magnetic field exposure there can be depression of neurosecretory function and development of productive dystrophic processes in CNS (central nervous system) cells.

So as result of the action of low intensity magnetic field we have evident positive effect: reduction of cerebral vessels tone, improvement of brain blood supply, activation of nitrogen and carbohydrate - phosphoric metabolism intensifying brain stability to hypoxia.

Under the influence of magnetic field on cervical sympathetic nodes (suboccipital or transcerebral area) there is improvement of cerebral blood flow (the data of rheovasography).

Under the influence of magnetic field on suboccipital area (patients with a circulatory insufficiency invertebrobasilar system) there is evident improvement of cerebral hemodynamics.

Thus, with the help of alternating magnetic field there may be correction of cerebral hemodynamics abnormality with various pathological states.

There is noted the reaction of peripheric nervous system to action of a magnetic field:

– decrease of peripheric receptors pain sensitivity threshold resulting in anesthetizing effect with traumas;

– improvement of conductivity function stimulating the restoration of injured peripheric nerve endings functions, due to the better axons growth, myelination and inhibition of connecting tissue development in them.

Stimulation of hypothalamo-hypohpysial system causes chain reaction of peripheric endocrine glands activation under the influence of release-factors.

In endocrine system under the influence of alternating magnetic field with induction up to 30 mTl, frequency up to 50 Hz during the little exposition (20 minutes) there is development of both training reaction and excess activity of all parts of endocrine system.

From the part of thyroid gland there is noted stimulation of its function under action of magnetic field, in contrast to suppressive effect of many others stimulus , that gives the background to use magnetic fields in complex therapy.

The sympaticoadrenal system is slightly activated within the first procedures, and by the 7-9th day there is inhibition of peripheric adrenoreceptors which plays the important role in the formation of antistress effect.

The influence of alternating traveling pulsed magnetic field on collar zone there is a reaction from cardiovascular system that gives the ground to suppose the reflex nature of these fields action. .

There is marked decrease of blood pressure in system of deep hypodermic veins and arteries, simultaneously, increase of vessels walls tonus, the change of elastic properties and bioelectric resistance of blood vessels walls.

Change of hemodynamic, including hypotensive effect, is connected with the development of bradycardia effect and decrease of myocardium contractive functions. This property founds its application for idiopathic hypertensia treatment and also is used to reduce heart burden with stenocardia.

Magnetic field makes the influence for the development of changes in various tissues microcirculatory canal.

At the beginning of the process of magnetic field influence there is short time (5-15 minutes) slowing-down of capillary blood-flow which lately changes for microcirculation intensification.

During the time and upon the termination of magnetotherapy course there are acceleration of capillary blood flow, improvement of vascular wall contractive abilities and increase of vessel blood accumulation. Enlagement of microcirculatory canal functioning components lumen promotes the opening of previous capillaries, anastomoses and shunts.

Under the influence of magnetic fields there is increase of vascular and epithelial permeability, direct result of which is accelaration of both edema and taken medicinal substances resorption.

Due to this effect, magnetotherapy has found its wide application to liquidate edemas of various aetiology (traumatic, inflammatory).

Under the influence of permanent alternating treveling magnetic field there is incease of metabolic processes in bone regeneration area (with fracture), at earlier period there is occurrance of fibrous and osteoblasts in a zone of regeneration, process of osteal substance formation is going on more intensively.

Under the influence with magnetic fields there is the change of rheological properties of blood. Hypocoagulation effect is marked due to:

- ctivation of anticoagulative system,
- decrease of intravascular parietal thrombosis,
- recrease of blood viscosity due to the action of low intensity magnetic fields on enzymatic processes, electric and magnetic properties of blood elements taking part in hemocoagulation .

The action of a magnetic field renders considerable influence on metabolic processes in organism.

Under the action on organism particular systems there is increase both of the amount of albumens and globulins in blood serum and their concentration in tissues due to α - and γ - globulin fractions resulting in the change of albumen structure.

With short-term daily action of magnetic fields on an organism there is reduction of pyruvic and dairy acids content not only in blood, but also in liver and muscles resulting in incrase of glycogen content in a liver.

There is reduction of ions *Na* content with simultaneous rising of ions *K* concentration in the tissues due to the action of magnetic field , that is the evidence of the change of cellular membranes permeability .

It is marked the reducrion of *Fe* content in a brain, heart, bloods, liver, muscles, spleen (lien) and its increase in an osteal tissue. This *Fe* redistribution is connected to change of hemopoiesis organs state .

Besides there is increase of CU content in in heart muscle, lien, spermaries that stimulates adaptive-compensatory processes of an organism. *Co* content in all organs reduces and there is its redistribution between blood, separate organs and tissues. Under influence of a magnetic field there is increase of *Mg* biological activity. It results in decrease of the development of pathological processes in a liver, heart, muscles.

It is noted, that magnetic fields of low induction stimulate processes of tissue respiration, changing a balance of free and phosphorylate oxidations in respiratory chain. Increase of nucleic acids and albumen synthesis exchange resulting in acceleration of trophicoregenerative processes.

Tipical manifestation of action of magnetic field on an organism is activation of processes of carbohydrates and lipids metabolism. The last is shown in the increase of nonesterificated fat acids and phospholipids in blood and internal organs, decrease of cholesterin in blood.

Thus, the short time action by magnetic field on human organs and systems has a number of beneficial effects:

- analgesic ;
- anti-inflammatory;
- anti-edematous ;
- trophico-regenerative ;
- hypotensive;
- sedative actions.

With influence on large vessels, magnetotherapy renders disagregative and hypocagulatory effects, improves microcirculation and regionary blood circulation, favorably influences immunoreactive and neurovegetative processes.

Magnetic field action, as a rule, does not cause formation of endogenic heat, rise in temperature and skin irritation .

It is marked the good tolerance of magnetotherapy by the weak patients, advanced age patients, suffering with accompanying diseases of cardiovascular system that allows to apply magnetotherapy devices in many cases when influence with other physical factors is not indicated.

2. SPECIFICATION

2.1 The induction amplitude value on surface of emitter- inductors for "traveling "field type is from 2 up to 10 mTl with discreteness 2 mTl and from 10 up to 25 mTl with discreteness 5 mTl, and for "fixed" field - from 2 up to 6 mTl with discreteness 2 mTl.

For magnetic field induction values from 2 mTl up to 20 mTl an absolute deviation from the rated value A is in the ranges ± [0,2 A + 0,6] mTl, for induction value 25 mTl, frequency 75 Hz is in the ranges 6,3 mTl.

2.2 Magnetic field pulse repetition rate is set as follows:

- for "traveling" field, induction amplitude from 2 up to 20 mTl - in the range from 1 up to 100 Hz, for induction amplitude 25 mTl -in the range from 1 up to 75 Hz with discreteness 1 Hz. Relative deviation from the specified value is in the ranges ±5 %;
- for "fixed" field type - in the range from 1 up to 16 Hz with discreteness 1 Hz. Relative deviation from the specified value is in the ranges ± 5 %.

2.3 Magnetic exposure procedure set time intervals range is from 5 up to 30 mines, setting interval is 5 minutes. Relative deviation from the specified value is in ranges ± 5 %.

2.4 The device operates in the following regimes - continuous "CF", discontinuous "DF".

2.5 In a regime of discontinuous magnetic exposure, the time of magnetic

exposure Te and time of pause Tp is set in the ranges from 1 up to 60s with discreteness 1s. Relative deviation from the specified values is in the ranges ± 5 %.

2.6 There is marking of magnetic field polarity: "N"- the north, "S"- the south on the device emitters.

2.7 The device provides detection of the basic fault conditions: signalling system and automatic stopping of the device exposure mode.

2.8 Time of device continuous operation - min. 8 h. with cyclic operating mode: 30 min. - magnetic exposure, 10 min. - break.

2.9 The device is in the state of operation being supplied with mains alternating current: frequency - 50 Hz, voltage - 220V (-10 %, +10 %) or 230V (-10 %, +6 %).

2.10 Electric power consumption: 210 V A.

2.10 Overall dimensions and weight of device component parts are shown in the table 1

Table 1

Name of component parts	Dimensions , mm, max.			Weight , kg, max.
	length	width	height	
Device	685	440	1200	40,0
Emitter Working area	1000 580	400 372	40 14	4,0 -
Additional emitter Working area	900 580	120 93	20 14	1,0 -
Power cable	1800	-	-	-
Emitters power cable	2500	-	-	-

2.12 Mean lifetime, min. - 5 years.

2.13 External surfaces of the device component parts are stable to disinfection by chemical methods: 3% solution of hydrogen peroxide or 5 solution of chloramine.

3. PACKAGE SET

«POLYMAG-01» magnetotherapeutic device including:

1	Control block-unit	1 pc.
2	Emitter	4 pcs.
3	Additional emitter	1 pc.
4	Magnetic field indicator	1 pc.
5	Operating manual	1 pc.
6	Methodical recommendations for «POLYMAG-01» magnetotherapeutic device application in physio-therapeutic practice.	1 pc.
7	Accessories complete set	
	- stand-rack	1 pc.
	- frame	1 pc.

4. ARRANGEMENT AND OPERATION

Device appearance, fig. 1

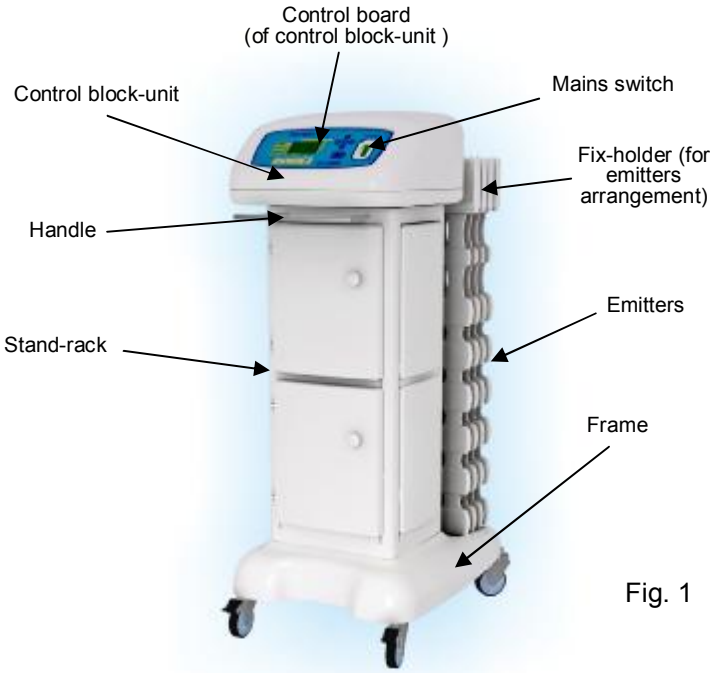


Fig. 1

Emitter appearance, fig. 2

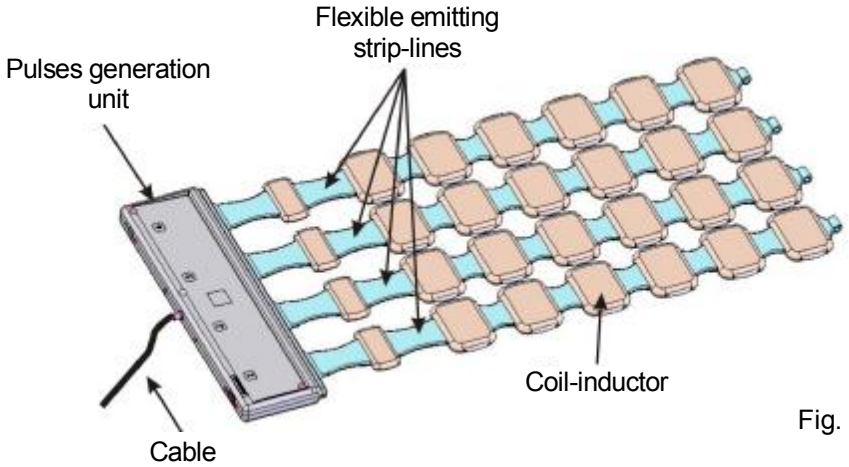


Fig. 2

Marking

There are following marking on the device:

"Attention, apply to operating documents";

"B type working part".
Sign indicating the belonging of the device to B type according to electric shock protection (IEC 601-1-88).

Device operation

The device generates pulsed magnetic field of two types – "traveling" and "fixed". In basic emitters «traveling» magnetic field has three type scans and two directions of these fild scan:

- "traveling vertical" (fig. 3) – simultaneous actuation of all inductor in one line (coils assembly exposure unit) with the following one-way actuation of next line all inductors according to cyclic mode law. Cycle for the given scan type is four « steps» actuation of inductor lines (according to the number of lines in emitter);

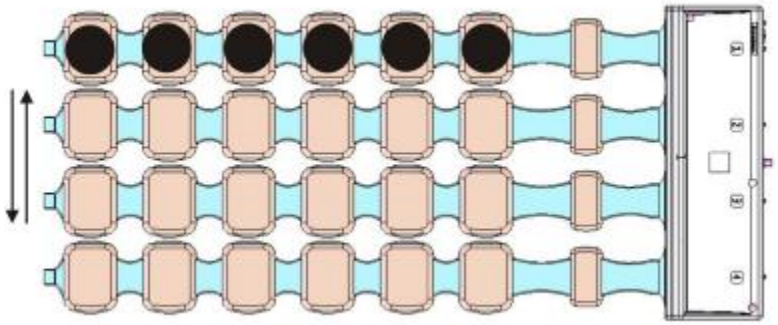


Fig. 3

- "traveling horizontal " (fig. 4) - simultaneous actuation of the one type inductors in all lines with the following one-way actuation of next inductors under the cyclic mode law; cycle for the given scan type is six «steps» actuation of the adjacent inductors (according to the number of inductors in lines);

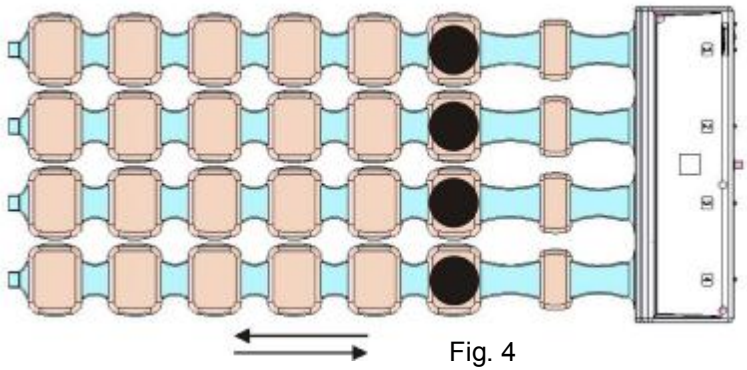


Fig. 4

- “traveling diagonal” (fig. 5) - simultaneous actuation of 4 inductors in all lines with diagonal location with the following one-way actuation of the adjacent inductors according to cycle mode law; cycle for the given scan type is six «steps» actuation of adjacent inductors (according to the number of inductors in line);

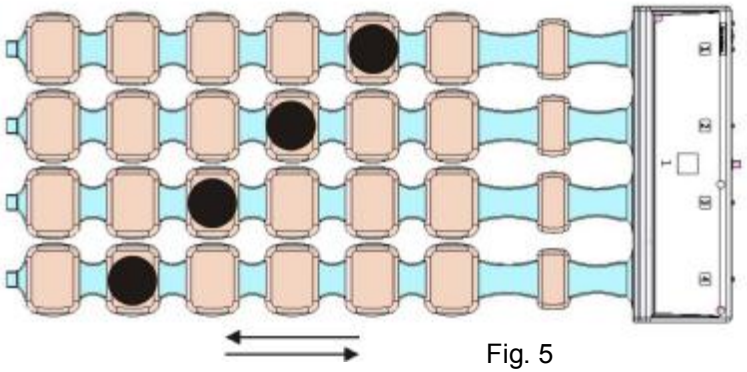


Fig. 5

In the additional emitter there is generated either of «traveling» field (fig.6) – actuation of the inductors according to cycle mode law in one-way direction, line cycle is six «steps actuation of adjacent inductors (according to the number of inductors in the line); or «fixed field» (fig.7)

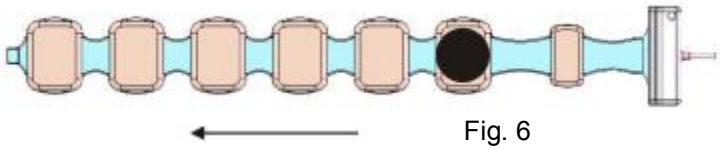


Fig. 6

“Fixed field” (fig. 7) – simultaneous actuation of all emitters inductors

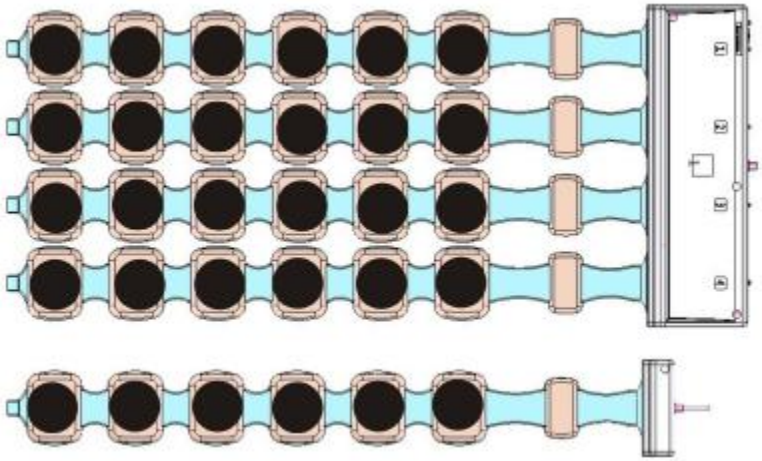


Fig. 7

Function of control and indication units

Emitters control unit

There are control and indication units on each emitter and control board of device control block-unit.

On the emitters (fig.8) there are:

- Four inductors (pos.1) signalling of magnetic field availability in each of the lines;
- Emitter activation button (pos.2).
- Activation state indicator (pos. 3) signaling of emitter operationability.

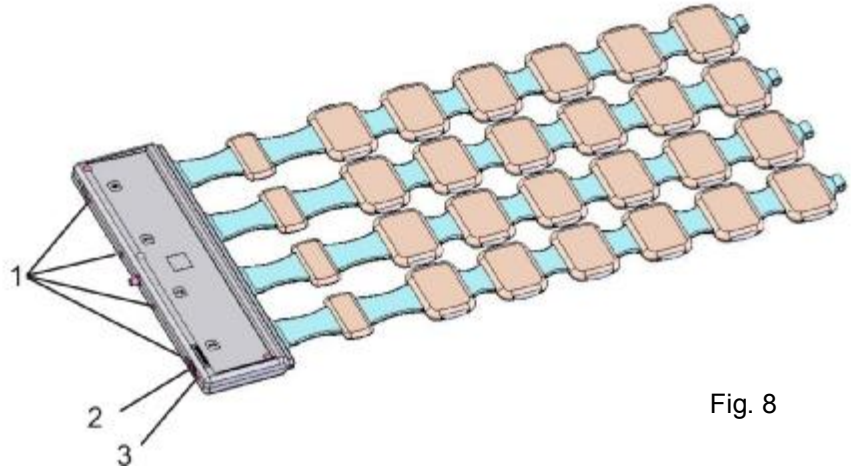


Fig. 8

Indicator, signaling of magnetic field availability in line lights each time within the process of magneto-therapeutic exposure (action) when there is magnetic field in any of the inductors.

The activation button (without fixation) allows to actuate the emitter by its one-touch pressing and to prepare it for the process of magneto-therapeutic influence or to dis-actuate it by its repeated pressing.

Lighting indicator proves the fact of emitter activation.

Note.

1. Emitters can be activated / dis-activated at any time after device actuation.

2. Activation state indicator after pressing of activation button should light not later than after two seconds.

Device control board control organs

There are following control and indication organs on the device control board (fig. 9):

1 – liquid-crystal display, indicating device exposure parameters .

Liquid-crystal display is divided into 4 area (fig.9) where the set parameters/ characteristics are grouped.

2 – button 

"1" – to select the first area of changeable parameters / characteristics "↑" – moving up inside the selected area;

3 – button 

"2" – to select the second area of changeable parameters / characteristics "-" – reduction of selected parameter;

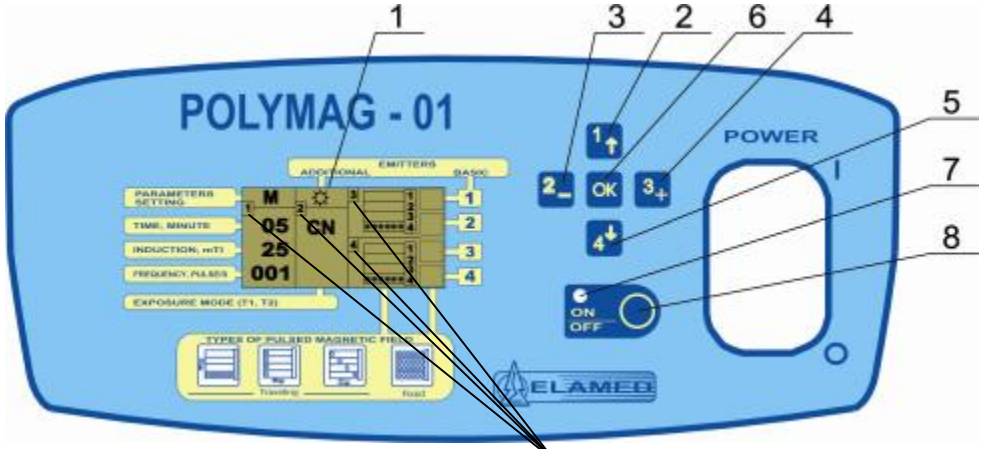
4 – button 3+ "3" – to select the third area of changeable parameters / characteristics "+" – increase of selected parameter;

5 – button 4↓ "4" – to select the fourth area of changeable parameters/characteristics "↓" – moving downward inside the selected area;

6 – button OK. This button serves to fix the selected parameter (to complete parameters setting (editing);

7 – indicator indicating the availability of magneto-therapeutic action;

8 – button ON OFF. Given button serves for magneto-therapeutic influence on/off.



Number of parameters/characteristics areas

The first area includes (fig. 10):
- Manner of parameters/characteristics setting – manual or programmed (pos. 1);
- Exposure time min (pos. 2);
- Induction value on the emitter surface, mTl (pos. 3);
- Magnetic field pulse repetition rate pulse/s (pos. 4).

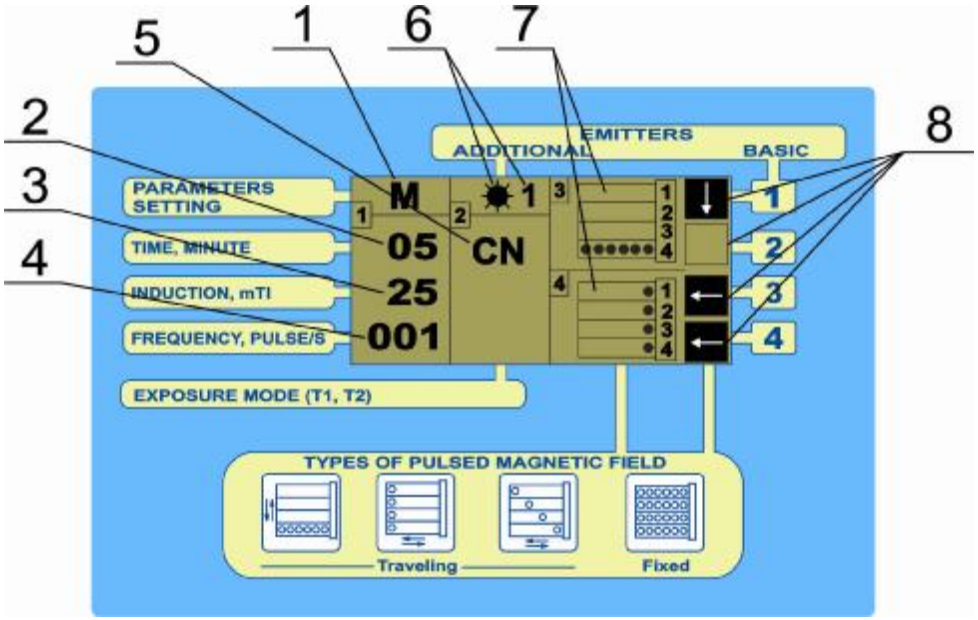


Fig. 10

In the second area there are:
- Indicator of the presence of additional emitter and its number (pos. 6);
- Exposure mode (continuous or pulsating (interrupted) (pos. 5);

In the third and fourth areas there are:
- Pictogram of pulsed magnetic field scan type and kind for the first / second emitters pair (pos. 7);
- The indicators of the activated emitters combined with the pointer of pulsed magnetic field traveling direction (pos. 8);

Initial setting

The following values of parameters and modes are set, on default, on the liquid-crystal display after power supply with switch "POWER" and activation of required emitters by the proper buttons (fig. 11):

In the first area there are:
- The manner of parameters «M» (manual) setting;
- Exposure time – 5 minutes;
- Indication on the emitter surface – 25 mTl;
- Magnetic field pulses repetition rate – 1 pul/s;

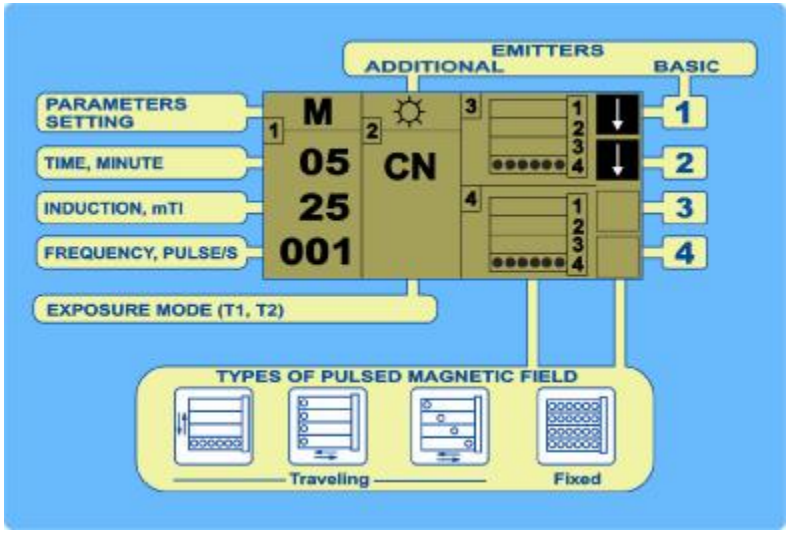


Fig. 11

In the second area there are:

- Indicator of additional emitter in the form of transparent "sun" in case of additional emitter absence and as dark "sun" and number - if it is connected.
- Exposure mode – "CN" – continuous;

In the third and fourth areas there are:

- Pictograms of pulsed magnetic field type for the first/second emitters pair – traveling horizontal
- The indicators of the activated emitters in the form of transparent square if the emitter is not activated, and in the form of black square with an arrow pointing the direction of field traveling if it is activated;

Editing of basic parameters/characteristics with manual manner of setting

Editing basic principle:

- transition to the required area;
- transition to the required exposure parameter/ characteristic;
- setting of selected parameters and characteristics;
- fixation of parameter/ characteristic selected value;

, , , buttons are used for transition to the required area. Transition to the required area is possible at any period of time, except the moment when the editing has already been taking place inside some area or magnetotherapeutic exposure is activated.

The fact of transition to selected area is signs blinking of:

- in the first area - manual «M»or programmed manner «P1»...«P8» of parameters and characteristics setting;
- in the second area – exposure modes («CN" - continuous mode) » or «PU – pulsating (discontinuous) mode»;

- in the third and fourth area - pictogram of field type.

Transition inside the area to the required parameter and characteristic is carried out with the buttons 1↑, 4↓.

The change of selected parameter and characteristic is carried out with buttons 2–, 3+ (only during the time of blinking). Signs «-» и «+» on the button lower register indicate the direction of edited parameter and characteristic change.

Parameter value fixation is carried out with button OK, or, if editing of other parameters in the selected area is not required by transition to the other editing parameters with 1↑, 4↓ buttons.

Note: Fixation of the edited parameter/characteristic takes place automatically, if there is no pressure on control buttons during 12-15 sec.

Editing in the first area

- switch over (move) to first area by one touch pressing of 1↑ button (sign «M» should start blinking);

- switch over to time value editing by one touch pressing of 4↓ button;

- set the required value by one touch pressing or holding button 2– or button 3+;

- switch over to editing of induction value by one touch pressing of button 4↓;

- set the required value by one touch pressing or holding button 2– or button 3+;

- switch over to editing of frequency value by one touch pressing of button 4↓;

- set the required value by one touch pressing or holding button 2– or button 3+;

- complete the editing of parameters in the given area by on touch pressing of button OK.

Note.

1. Editing of parameters / characteristics inside area can be carried out in a random order.

2. You can complete process of editing at any moment by pressing button OK.

Editing of the second area

- switch over to the second parameter area by one touch pressing of button 2 (sign «CN" (continuous field) at that should blink);
- set one of two exposure modes: «CN», «PU» by one touch pressing of button 2 or button 3 ;
- if «CN» exposure mode is selected , complete the editing of parameters in the given area by one touch pressing of button OK.
- if «PU» is selected, switch over to exposure time by one touch pressing of button 4 and set the required time by button 2 or button 3 ; then switch over to pause time by one touch pressing of button 4 and set the required time by button 2 or button 3 . Then complete the editing of parameters in the given area by pressing button OK.

Note: magnetic field parameters set in the first and second areas are common for all emitters (including addition one).

Editing in the third area

- switch over to third area of parameters/ characteristics by one touch pressing of button 3 (the pictogram of pulsed magnetic field type should blink at that);
- set the required type of magnetic field by one touch pressing or holding of button 2 or 3 ;
- if it is necessary to change the direction of magnetic field pulses traveling switch over to required indicator of activated emitter by one touch pressing of button 4 and set the required direction by button 2 or 3 (the change of the direction is possible only when emitter is activated).
- complete the editing of parameters in the given area by pressing button OK .

Editing in the fourth area

- switch over to the fourth area of parameters by one touch pressing of button 4 (the pictogram of pulsed magnetic field type should blink at that);
- set the required magnetic field type by one touch pressing and holding of button 2 or 3 ;

- if it is necessary to change direction of magnetic field pulses traveling, switch over to required inductor of activated emitter by one touch pressing of button 4 ↓ and set the required direction by button 2 − or 3 + the change of direction is possible only when emitter is activated).

- complete the editing of parameters in the given area by pressing button OK.

Note.

1. The choice of area of parameters/characteristics for editing may be carried out in random order.

2. The change of exposure parameters/characteristics is possible only if there is no magneto-therapeutic influence.

3. In order to set the « fixed» magnetic field for additional emitter, it is necessary to set «fixed» magnetic field for the first pair of basic emitters (they can not be necessarily used). There are generation of unidirectional «traveling field» in the additional emitter for all other types of magnetic field»

Making of exposure program

In the device there is provided for the ability to store the set exposure parameters in the form of programs P1…P8, which are stored in non-volatile memory of the device and then can be easily recalled to speed-up parameters setting.

- switch over to the first area of parameters by one touch pressing of button 1 ↑ (sign “P” should start blinking with that);
- select the number of program where magnetic field parameters/characteristics will be stored by one touch pressing of button 3 +;
- set required parameters/characteristics with the help of control units according to procedure for manual setting.

Recall of exposure programs.

- switch over to the first area of parameters by one touch pressing of button 1 ↑ (sign “P” should start blinking with that);

- select the number of recalled program by one touch pressing of button 3 +;

- fix the selected exposure program by pressing button OK. Program fixation can be carried out after program sign blinking termination.

The device initially has the set of exposure programs (see table 2).

Table 2

No. of program	The name of nosology	Exposure parameters	
P1	Cerebral blood flow disturbance	Time , min.	20
		Induction,mTl	10
		Frequency pul./s	10
		Exposure mode.	Continuous(CN)
		Type of pulsed magnetic field	Traveling vertical
P2	Obliterating endarteri-tis, varicose disease	Time , min.	30
		Induction, mTl	20
		Frequency pul./s	10
		Exposure mode.	Continuous
		Type of pulsed magnetic field	Traveling horizontal
P3	Hypertonic disease	Time , min.	20
		Induction, mTl	2
		Frequency pul./s	5
		Exposure mode.	Continuous
		Type of pulsed magnetic field	Traveling horizontal
P4	Diabetic angio – and polyneuropathy	Time , min.	20
		Induction, mTl	20
		Frequency pul./s	10
		Exposure mode.	Continuous
		Type of pulsed magnetic field	Traveling horizontal
P5	Chronic hepatite	Time , min.	20
		Induction, mTl	20
		Frequency pul./s	8
		Exposure mode.	Continuous
		Type of pulsed magnetic field	Traveling horizontal
P6	Chronic pancreatitis	Time , min.	20
		Induction, mTl	10
		Frequency pul./s	5
		Exposure mode.	Continuous
		Type of pulsed magnetic field	Traveling horizontal
P7	Female genitals in-flammatory diseases	Time , min.	20
		Induction, mTl	6
		Frequency pul./s	16
		Exposure mode.	Continuous
		Type of pulsed magnetic field	Fixed
P8	Immunodeficiency state	Time , min.	30
		Induction, mTl	2
		Frequency pul./s	100
		Exposure mode.	Continuous
		Type of pulsed magnetic field	Traveling horizontal

Note: the storage of program data is carried out every time by pressing button 

or after the termination of editing object blinking .

ON/OFF activation/stopping) of magneto-therapeutic exposure

- ON/OFF magneto-therapeutic exposure by one touch pressing of button 

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Note: exposure activation is possible if at least one emitter is activated or additional emitter is connected.

5. SECURITY MEASURES

- Use the device only after careful reading of operating manual.
- Be sure in the absence of cable, mains operated plug, mains cord, emitter and control block- unit body mechanical damage. **It is FORBIDDEN** to use the device with presence of these damages.
- Prevent the ingress of moisture inside both emitters and control block-unit at their surfaces treatment with disinfectant solutions. Protect the device against dampness, shaking and shocks.
- The device is to be arranged in the places convenient to be connected to the mains operated socket, excluding power cable tension. You should use only service-able socket with grounding contact with mains working supply voltage 220V (-10%, +10%) or 230V (-10%, +6%) and frequency 50 Hz.

The device can be connected to mains with two-contact sockets (for example, with the help of an adapter), however in this case under electrostatic discharges there may malfunctions in its operation (display flash). For the purpose of malfunction elimination you should disconnect the device and then connect it again.

- Do not permit 10 ° side inclination of the device.
- When there is necessity in device displacement use only stand-rack handle designed for this purpose.

IT IS PROHIBITED!

– to lift or carry the basic emitters and additional emitter by power cable;
– to twist emitters connecting cables ;
– to plug in the device if the plug and the socket are incompatible;
– to unplug the device pulling the power cable;
- to carry (displace) emitters during the process of magneto-therapeutic influence;
- to place the activated device close(less than 0,5 m) to information magnetic carriers, audio, videodevices and others magneto-sensitive devices.

ATTENTION!

- In order to avoide the fail of the device IT IS PROHIBITED to actuate device if the position of emitter cables headers (connectors), connected to control block-unit, is not fixated with the help of screws.
- IT IS NOT ALLOWED to operate the device with the air temperature more than +35 °C.

- In order to prevent patient and attendants themselves from trauma you should be careful at work with emitters.
- Emitter should be carried by two hands, clasping the faces of the pulses formation device body with hands fingers.

- For the period of magnetic exposure the ACTIVATED EMITTERS should be REMOVED from the OPERATOR on distance not less than 0,9 m

Use the disinfected fabric material to protect emitters accessible parts from contact to the patient.

6. PREPERATION OF THE DEVICE TO OPERATION

- After device storing into the cold premises with the temperature below 10 °C before use let it be warmed up in the premise with the temperature from + 10 °C to + 35 °C for 4 hours.

- If it is required, make the disinfection of the device external surfaces with one of disinfectant agents listed in "Methodological Guidances on disinfection, pre-sterilization treatment and sterilization of medical products" by twice wiping with cotton napkin with the interval 10÷15 min.(Pay attention that the napkin should be wringed out in order to avoid ingress of solution into device).

7. THE ORDER OF DEVICE OPERATION

– Place the patient on a couch in position convenient for him for the time of treatment period.

– The device should be put towards the couch in the convenient position both to be connected to mains and arrangement of flexible emitters for magnetic exposure on the patient.

– Take, with care by two hands in order, necessary for exposure emitters out of fix-holder, clasping the faces of the pulses formation device body with hands fingers, and place them on the patient body.

– The manner of flexible stripe-lines disposition is defined by the procedure for definite illness treatment;

– Arrange control board in the position convenient to work with in oder to avoid the apearance of glare on the display)

– Connect the device to power supply mains and switch it on by pressing "POWER" switch.

– Activate required emitters;

Note.

1. Emitters should be connected to appropriate connectors of control block-unit (see the numbers of connectors).

2. Emitters connectors should be fixated to control block-unit connector with screws.

- Do editing of exposure parameters taking into consideration the following circumstances:

- for those cases when thin fabric materials are used to protect patient against contact to accessible strip-lines surfaces the same exposure parameters, specified in treatment procedures for concrete disease, are being set.

- Activate magneto-therapeutic exposure at the same time there should appear a sound signal and flash magneto-therapeutic exposure indicator on the control board-unit (fig.9, pos. 7), and indicators of magnetic field presence – on the emitters (fig. 8, pos. 1).

During taken procedure there are indication of set parameters on liquid-crystal display and time left up to magneto-therapeutic exposure termination in the position "Time, min."

Upon the exposure time termination, both indicator of magneto-therapeutic exposure and indicators of magnetic field presence on emitters become dim; on liquid-crystal display there is indication of preset treatment time, the other parameters are stored as well; sound signal is occurred in order to notify attendants of exposure mode termination.

– Disactivate the device by pressing the switch «POWER», unplug the device;

– Remove the emitters off the patient and place the emitters back to the fix- holder in reverse order holding pulse generation unit by two hands.

– Upon the exposure time termination, both indicator of magneto-therapeutic exposure and indicators of magnetic field presence on indicators light off, on liquid-crystal display there is indicated the preset treatment time and the other parameters, in order to announce attendants of exposure mode termination there is occur of sound signal.

Note: The given operating procedure is not strict and be changed at the user option. For example, you can first plug the device up, to activate necessary emitters, to set exposure modes and exposure parameters, and then to place emitters on the patient body.

8. MAINTENANCE SERVICE

The order of maintenance service is given in the table.

The name of the work	Periodicity
1. Device preventive inspection	Not rarer than once three months.
2. Dusting, cleaning, disinfection.	As required.
3. The check of emitters operation	Not rarer than once a month.

- When carrying out preventive inspection you should pay attention to of cables, plug, mains cord, both emitters and control block-unit bodys integrity
- The check of emitters operation is to be carried out as follows:

- connect emitters to the device and arrange them so that to provide access to all emitters inductors;
- plug device and actuate it by pressing switch "POWER";
- activate all emitters;
- set induction value -25 mTl, pulse repetition rate -75 Hz, the other parameters - on default;
- activate magneto-therapeutic exposure;
- check the presence of magnetic field in each of 24 inductors of each emitter with the help of magnetic field indicator;
- stop magnetic field exposure;
- disactivate the device by pressing switch «POWER» and unplug the device.

9. ROUTINE MAINTENANCE

Routine repair of the device is carried out under the contract between medical institution and the manufacturer or its branch-office after technical examination of nature and degree of failure by manufacturer representatives.

Upon the repair termination the device is passed on to the user with determination of warranty period.

Typical faults and methods of their elimination

The name of fault, their outward manifestation and additional features.	Fault probable reason	Method of elimination
1. There is formation of warring sound signaling and appearance of one of the signs on LCD : - "NO 1 EMMIT." - "NO 2 EMMIT." - "NO 3 EMMIT." - "NO 4 EMMIT." - "NO ADD. EMMIT."	Bad contact in connector of one of the emitters with an appropriate number or additional emitter. Break in the connecting cable.	Unplug the device. To check connector fixation, if necessary, to fixate connector. To actuate the device. Apply to service office.
2. There is formation of warring sound signaling and appearance of one of the signs on LCD: - "FAULT OF 1 EMMIT." - "FAULT OF 2 EMMIT." - "FAULT OF 3 EMMIT." - "FAULT OF 4 EMMIT." - "FAULT OF ADD. EMMIT."	The fault of one of the emitters with appropriate number or additional emitter.	Apply to service office.
3. There is formation of warring sound signaling and appearance of one of the signs on LCD : - "NO SAF. CONTR."	Fault of device current overloading protective unit	Apply to service office.
4. The absence of magnetic field in one of or several emitters` inductors.	The break of connecting wire inside the line (coil-inductors assembly exposure unit)	Apply to service office
5. No light indication of magnetic field availability in one of the emitter pairs.	There is actuation of self-regenerating safety fuse FU1 or FU2.	Unplug the device for 2 minutes, plug the device and actuate exposure mode. If the fault is repeated, it is necessary to apply to service office.

*- if one or several emmiters are out of order, the operation with the serviceable ones is allowed with disconnected from the device fault emitters.

10. STORAGE AND TRANSPORTATION OF THE DEVICE

The device withstands storage in not heated warehouses with air temperature from -50 °C up to +40 °C, air relative humidity, max. 98 %.

The device can be transported by all types of covered transport facilities according to the rules of cargo transportation for concrete type of transport facility at air temperature from -50 °C up to +50 °C and relative humidity, max. 98 %.

11. ACCEPTANCE CERTIFICATE

«POLYMAG-01» magneto-therapeutic device works number _____ is manufactured and accepted in compliance with technical specifications ГИКС.941519.101 ТУ and is recognised as ready for operation.

Output date _____ Stamp

_____

(signature of person responsible for acceptance)

«POLYMAG-01» magneto-therapeutic device is packed according to the requirements stipulated by the design documentation.

Date of packing _____

Packing is done by _____ Stamp

12. MANUFACTURER`S WARRANTY

The manufacturer guarantees the quality conformance of the device to requirements of operating manual section «Technical specifications» should the customer strictly observes terms and rules of storage, transportation and maintenance.

Device operation life warranty period - 12 month from the day of sale.

Within the warranty period manufacturer free of charge eliminate the defects or replace the device or its components parts against the warranty coupon presentation.

Guaranty terms.

The guarantee is valid only with the presence of the right filled guarantee coupon with trading organization product serial No, date of sale and seal in it.

The guarantee does not cover the following cases:

- device has marks of non-authorized action or there was attempts to repair it at the unauthorized service center;
- there is non-authorized changes of device design or circuit;
- device has mechanical damages;
- device has the damages as a result of ingress of foreign objects, substances and liquids in it.
- device has the damages caused by power supply mains parameters unconformity to requirements of State standards.

Electric circuits, the description and other design specifications are being sent by the manufacture on demand of the authorized service centers.

In order to make repair the faulty device is to be sent together with operating manual and enclosed explanatory note to the address:

JSC «Yelatma Instrument – Making Enterprise», 25, Yanina st.391351, Yelatma, Kasimov district, Ryazan region.

Additional information for operation and repair you can get by the phone (4912) 24-01-39, 44-06-61

FOR NOTES