

ROMO

BIOPULSE



BIOPULSE Therapy Unit



Instruction Manual

Introduction

Thank you for choosing our **BIOPULSE** Therapy unit. The **BIOPULSE** Unit has been designed around a central computer that checks and controls the outputs pulses to the applicators precisely.

The unit is designed to switch off by default after 20 minutes, as there would seem to be no more benefit derived from extending beyond this point, and the body is then given time to naturally heal.

It is recommended that at least four hours is allowed to elapse between treatments.

THE BIOPULSE UNIT IS FULLY GUARANTEED FOR 1 YEAR AND IS ALSO BACKED BY OUR CONSULTANCY SERVICE AND ROMO ADVICE LINE.

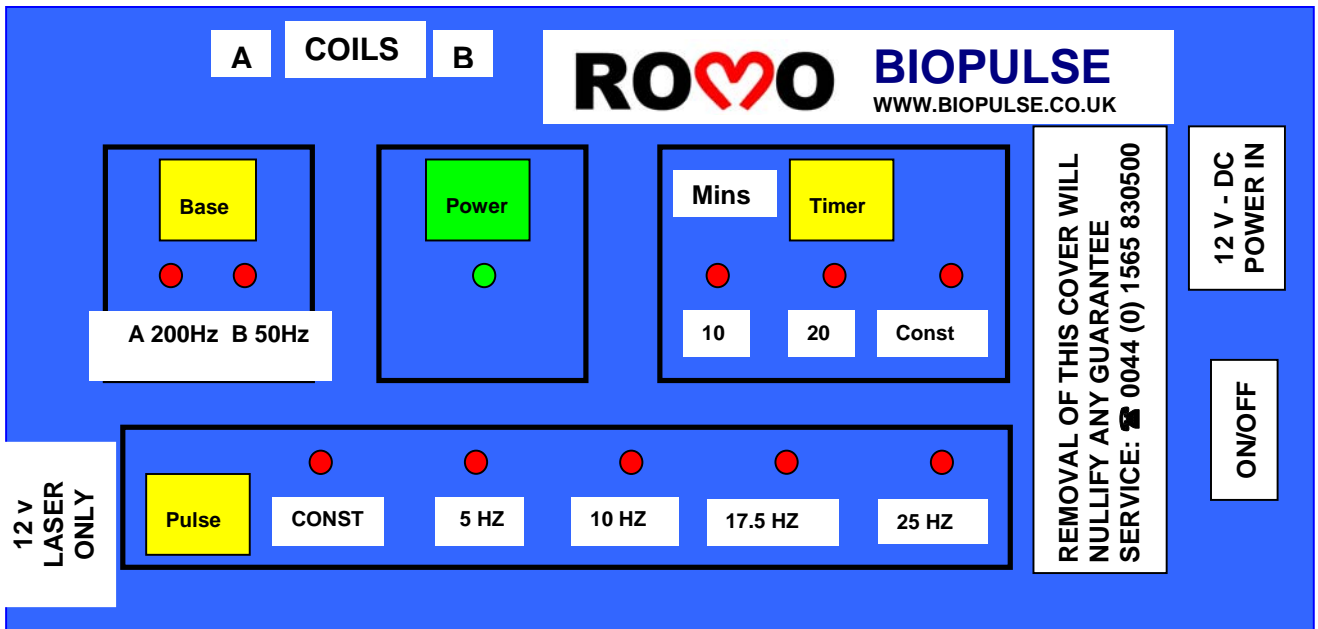
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Control Panel Layout



ON/OFF This is located below the **ON/OFF** label on the end of the unit

Power The GREEN Power light comes on when the Unit is switched on using the on/off switch on the end of the unit. The GREEN LED indicates that the unit output sockets are active.

Timer When the Unit is switched on, the timer automatically selects the default time which is 20 minutes, to change selection to 10 minutes or constant Press Timer button until the red LED above the desired time lights up

In **constant** mode, the power will stay on until the Unit is switched off.

Base Pressing the base button switches between 50Hz and 200Hz to select the required base frequency. The red lights indicate which one has been selected.

Pulse Successive pressing of the pulse button will scan the preset pulse frequencies to select the desired output pulse rate. The appropriate light indicates the selection.

Outputs **Pad Sockets**
are under each label **A** and **B** and are located on the long side of the Unit. It is good practice to attach the applicators to the sockets with the unit in the off or standby mode.

Laser Gun an Digital Infra Red Thermometer

Should **ONLY** be plugged into the socket located at the end of the unit to the Power Input Socket and the on / off switch, and marked **LASER ONLY 9 VOLTS**. **Plugging this into any other socket can lead to damage to the laser gun and the PEMT unit and is not covered by warrantee.**

**Input Cigar
Lighter Plug
IMPORTANT** The RED END of the plug provided is designed to enable the Cigar Lighter Socket to be dedicated to this plug. If the end is just pushed on and then inserted into the socket, then, upon subsequent removal of the plug, the Red Collar will remain in the socket, thus dedicating it to this plug.
TO REMOVE THE COLLAR, using the red folded hook on the side of the plug, the collar can be retrieved.
If the Red Collar is replaced on the end of the plug and rotated in the direction of the arrow stamped upon it, the collar will lock on to the end of the plug and will **not** remain in the socket.

Fuse This is 3 Amp rated and located in the Cigar Plug – access by unscrewing the plug screw in the centre of the body of the plug.

Cleaning Wipe with damp cloth, do not use detergents or spirits. Avoid getting the unit wet.

Note: We reserve the right to make changes and improvements to the units described without prior notice.

General Treatment Notes

Pulsed Magnetic Therapy is an aid to helping the natural repair of injuries; it does not in itself cure, but helps to establish the optimum conditions for healing to take place.

There are 4 broad categories of treatment. The base frequency and pulse frequency settings to be used are dependent upon the type of treatment required. Recommendations for frequency and treatment regimes have been chosen from established research into specific types of injury; -

- a) Pain relief
- b) Pain relief followed by treatment of a particular injury
- c) Treatment of new or existing injuries
- d) Sports therapy – as a tone up aid for muscles.

All pain relief is carried out using a base of '**A**'- **200Hz**.

Start with the 'constant' setting for 20 minutes, after which there is no more benefit, but extending this treatment time will do no harm, then follow by a pulse setting of 5Hz for 20 minutes as required.

Stop the treatment and allow it to take effect before the next treatment – this is a minimum of 4 hours from the end of one treatment to the beginning of the next

The pulse settings of **5Hz, 10Hz, 17.5Hz and 25Hz** are used along with the base setting of '**B**'- **50Hz** to treat soft tissue injuries. It effectively switches the base frequency off and on at the rate selected. This allows a variety of assimilation times for cellular effects of electromagnetic induction on them to take place.

Important Note: Wherever possible any therapy should be used in consultation with the medical/veterinary professionals or therapists. Research over many years has shown that low field and frequency electromagnetic therapy is an extremely safe form of therapy. No general contra-indications have been noted. However do not use near to anyone with a cardiac pacemaker. Tumours are still being researched using pulsed magnetic therapy so that as the time of writing it is not advisable to use this type of therapy until more is known as to its beneficial effects. This also applies to pregnancy.

Treatment Regimes

The following is a general guide to applying Pulsed Magnetic treatment and the selection of the combination of base and pulse settings that may be appropriate.

Treatment regularity should allow for at least a 4 hour gap between applications for all soft tissue or neural symptoms, Orthopaedic applications have no set time limit between treatments, dependant upon type of injury, but be advised by the professional.

Pain management.

Base 'A'- **200Hz** has been designed into the unit specifically for the relief of pain, both in general use and in pre-palpation situations for diagnostic purposes on animals.

For new injuries with acute pain select Base 'A'- **200Hz** on a constant 'C' setting.

For chronic pain use 'A'- **200Hz** base at No. **5Hz** pulse but this may be increased through the pulse range for optimum effect.

Gum and toothache may respond best with a '**C**' **constant** setting on Base 'A'- **200Hz** allowing for a 4-hour delay between treatments. But should only be regarded as an emergency option...always seek professional help.

Treatments for swellings and oedema and general bruising injuries.

For use in the early stages of soft tissue injury to prevent swelling and bruising set the base at '**B**' - **50Hz** and the pulse rate at **5 Hz (5 pulses per second)** and the timer for 20 minutes. Repeat at 4 hourly intervals – see above.

As a general rule, for most muscular injuries use the '**B**'- **50Hz** base and select a pulse setting of **17.5Hz**, Apply for at least 10 minutes duration two or three times daily.

The **10Hz pulse** setting may also be used after healing is well established.

Where there is a new injury use the base setting of '**B**'- **50Hz** with a pulse setting of **5Hz** for initial treatments is believed to cause slight capillary constriction and as such may help reduce swelling.

Sports Therapy (Toning)

Pulsed magnetic therapy may be used to assist tone up of specific muscles before sporting events. Using a base of '**B**'- **50Hz** with a pulse setting of **10Hz** apply at least two 10 minute treatments in the days preceding the events, followed by pulse **17.5Hz** at '**B**'- **50Hz** base on the day before the event. This may assist blood circulation in the target muscles allowing pre-race optimum conditions to be achieved.

Post exercise treatments may help disperse build up of lactic acid and assist stress related injuries. This should be as for pre-race treatments using pulse **17.5Hz** and base '**B**'- **50Hz**.

It is inadvisable to use pulsed magnetic therapy on the day of, or directly prior to, the event to be undertaken. This may cause relaxation of the muscle groups and reduce efficiency.

Orthopaedics

Pulsed magnetic therapy has for many years been used in the assistance of bone healing and conditioning. Its use should be directed by the professional managing the condition, but with the following settings.

New fractures use Base 'B'- **50Hz** for 10 minutes on **17.5Hz** to help blood circulation around the fracture site followed by at least 20 minutes on a constant 'C' setting, maintaining this regime until the formation of callus has been established. Continue with the Base 'B'- **50Hz** on 'C' twice daily from then onwards until mobilisation. Then, once daily, if possible, until the fracture is fully healed.

Where a non-union fracture has been established, pulsed magnetic therapy may assist in establishing union. Treat as for a new fracture and continue until the fracture segments show sign of uniting.

Theoretical Background

This Pulsed Magnetic Therapy System has been designed by an internationally acknowledged Consultant in Clinical Engineering specialising in the application of pulsed magnetic therapy to a variety of conditions. These range from neurological effects to those on soft and hard tissue.

The basis of all setting has been designed using research findings from both human and veterinary studies. Pulsating fields induce small electric currents in the target tissue, which may result in increases of cellular potentials, which could have been lowered due to damage. Establishing near normal voltages may re-establish nutrient flows into and out of the cells to repair and regain normal function.

Applying the Base 'A'- **200Hz** field around sensory nerve endings and synapses has been shown to increase the cellular potential

differences, hyperpolarising them. Slow chronic pain signals generated and passed on by them to the brain become less effective after a 10-minute treatment and as such help reduce the perception of pain. Fast acting myelinated nerves such as reflex nerves are not affected by pulsed magnetic fields. Therefore numbness never results from such treatment. Pain medicaments may be more effective if taken in concert with pulsed magnetic therapy. ***Reducing them should be only undertaken after professional consultation if pulsed magnetic therapy is started after the commencement of medication.***

Metal implants do not affect or reduce the effectiveness of pulsed magnetic therapy. Also, any bandaging or plaster cast will ***not*** have any effect on a pulsating magnetic field applied through them and as such treatment can be given with these in situ.

Technical specifications BIOPULSE System

Pulse trains applied to ROMO Applicators generally are a square wave formation gated at the pulse setting rates.

System Voltage	12 volt
Current Drain	1.5 Amps (max) (pulsated) Fuse 3 Amps
Total power consumption	18 Watts

Photo -Therapy Options

The ROMO BIOPULSE Pulsed Magnetic Therapy System has been designed to enable a variety of Phototherapy applicators to be connected to the system. Generically known as LASER therapy, The

ROMO BIOPULSE has selected the following frequencies for use with its applicators;-

Visible Red

630nm

Used for more superficial injuries and to stimulate epithelial cells during wound healing.

Laser Gun



This has the dual purpose of transmitting a visible red laser for use on wound healing and an Infra red thermometer which should be held as closely to the skin as possible and which will indicate on an LED screen at the back of the gun the temperature of the skin at the point of impact of the red laser.

This temperature reading is updated continuously as the laser moves over the surface, and, if the trigger is released, will hold the last

temperature recorded, and save it on the LED screen at the rear of the Laser Gun; this is particularly useful in poor visibility conditions.

The temperature calibration can be altered from Centigrade to Fahrenheit by using the switch under the hinged front part of the Laser pistol grip.

FINDING CENTRE OF INJURY

The Laser Gun can be used to determine the exact centre of the injury if this is not known or is not obvious (Bruising or fracture).

Traverse the injury site slowly with the Laser Gun, the temperature will increase towards the centre of injury, and decrease when moving away from it. Thus the region showing highest temperature indicates the centre of the injury and the location shown by the red laser can be marked for future reference, or found again easily.

Use of applicators: In order to prevent spread of infection, cover the applicator with cling film whilst using the laser when there is a possibility of contact with the wound. Discard the cling film after each application.

Important note

The emitters used are extremely bright and may cause headaches or retinal damage if viewed directly. Never look into the beam or direct the beam towards someone's eyes. We always recommend the use of protective glasses for the user and do not recommend the use of this therapy close to the patient's eyes, which should also be suitably protected.

The following is a guide to the colour of lenses suitable to provide protection.

Infrared and Visible Red emitters-

Dark Green Glasses

Avoid staring at the beam directly or its reflection from wet wounds.

Treatment Regimes for Photo Therapy

Duration of treatment – Research suggest that maximum therapeutic effect takes place when a minimum of one joule of energy has been applied. This is dependant upon several factors, not least of which is the size of the area to be treated and the rating and number of emitters. The following is therefore a suggested guide;-

Lesions - 630nm - switch to 'A'- **200Hz** base on 'C' setting and direct at wound for at least 6 minutes moving the applicator to cover the periphery of the wound in a circular motion. A fistula (untreated area) should be left in the centre of the wound when using the laser for treatment, this allows an escape hole for toxins, pus etc., Apply 3 times daily and then reduce as healing continues.

Pressure Sores - 880nm - These can be treated as for lesions, however pressure sores show a good response to pulsed magnetic therapy.

Bruising - 880nm - Bruises are best treated with a combination of phototherapy and pulsed magnetic therapy. Use the phototherapy with a 'C' setting at 'A'- **200Hz** base. Scan the area for a minimum of 6 minutes 3 times daily for 1 or 2 days until pain relief is felt. Switch to pulsed magnetic therapy after this.

Burns and Scarring - 630nm - Treat twice daily for two days at 'A'- **200Hz** Base then reduce to 'B'- **50Hz** Base until resolved.

Soft Tissue injuries –630nm - Treatment should initially commence at 3 times daily with the 470nm applicator on 'A'- **200Hz** Base. This is best followed by pulsed magnetic therapy.

Arthritic conditions - Phototherapy is useful for treating small joints of the hands and feet. Settings and durations should be the same as for wound treatments. Treatment is best combined with pulsed Magnetic therapy.

THE BIOPULSE KIT FOR TREATMENT OF WOUNDS, HEALING, PAIN AND INJURIES

Wounds and wound healing

Wounds can be *partial skin thickness* (grazes), *full skin thickness cuts* (lacerations), or *puncture* wounds through the skin leaving a very small surface wound, (but with the possibility of damage to deeper structures).

Wound healing

Skin is trying to heal as soon as 5 minutes after it is wounded. White blood cells move quickly to the site to kill bacteria and destroy dying body cells and debris. Fibrinogen is secreted by the nearby blood vessels, forming a scab over the wound. Healing will only occur on a healthy infection free tissue bed.

If this is the case, epidermal cells from around the outside of the wound migrate across the wound under the scab. This can take weeks in an open wound, but is much quicker in a bandaged wound. Meanwhile under these advancing cells granulation tissue is being laid down. This provides a fibrous network for the fragile new skin cells to grow over.

We are trying to look beyond the skin injury to decide if deeper structures are involved – penetration of anything into a horse's joint or tendon sheath can produce a life threatening infection.

You must then decide how to manage the wound. There are two main choices:

- Primary Wound Closure – This is when a vet cleans and then sutures a wound straight away. To heal successfully, a wound must be sutured in the first 3 to 6 hours; after this time the level of bacterial contamination is too great to allow the wound to heal this way and the sutures will not hold. We call this “wound breakdown”.

WITH PHOTOTHERAPY

1. Clean the wound

2. **Visible Red**

627nm

Used for more superficial injuries and to stimulate epithelial cells during wound healing – penetration about 20mm. Using visible red light applicator again covered with cling film, the wand is applied around the periphery of the wound working slowly towards the centre and leaving the centre of the wound as broken skin (a fistula) this allows any infected matter a way out.


- Delayed Primary Closure – If there is some wound contamination, but the wound is still quite recent, the vet may thoroughly clean and bandage the wound for a few days. After this time, the infection in the wound may be controlled, and the swelling reduced. It may then be possible to suture the wound with less risk of the wound subsequently breaking down.

WITH PHOTOTHERAPY

This can still be used as above with the application of the leg wrap and using Pulse electro-magnotherapy **17.5Hz** pulse with a base of 'B'- **50Hz** Base to reduce any swelling.

Please remember that we are always happy to give telephone advice on **the use of the BIOPULSE Kit.**

ALL THE ABOVE ARE FOR SALE OR FOR HIRE, SHOULD YOU WISH TO BUY AFTER YOU HAVE TRIED, WE WILL DISCOUNT A PERCENTAGE OF THE HIRE CHARGES FROM THE SELLING PRICE

 ROGER ON 0044 (0)1565 830500 FOR DETAILS.

General and Contra-Indications – Phototherapy has been most widespread in the treatment of horses in order to reduce expense and long recovery periods, particularly for racing animals. However, its use is now expanding across the range of veterinary treatments. The following conditions, however, are contra-indicated. Phototherapy should not be used:-

- a) To treat eyes.

- b) Where there is a risk of haemorrhage.
- c) On infected tissue such as septic wounds except for initial treatments to stimulate immune response.

PROPOSED SPECIFICATION FOR BIOPULSE ELECTROMAGNETIC MASSAGE UNIT

PROGRAMMES

1. DEFAULT

Each output is selected in turn for 1 second – this is repeated 10 times the time is then increased to 2 second each for 10 times then 4 seconds X 10 times, then 8 seconds X 10 times, after which the cycle restarts.

2. PROGRAMME 'A' – Each output is selected in turn for 1 second each.

3. PROGRAMME 'B' – Each output is selected in turn for 2 seconds each.

4. PROGRAMME 'C' – Each output is selected in turn for 4 seconds each.

5. PROGRAMME 'D' – Each output is selected in turn for 8 seconds each.

- ❖ A virtually infinite combination of sequences can be obtained by switching the colour coded output plugs for each pair of coils i.e. By reversing 4 & 5 counting from 1 at the rear of the rug, then all the massage coils will act in a direction towards the heart.
- ❖ The Unit will remember the last sequence selected at the time of switch off, and automatically return to this when switched on next.
- ❖ The setting on the BIOPULSE can be set at constant 200 Hz base for pain relief and 17.5 pps at 50 Hz base for vascular dilation.

SETTINGS

17.5Hz / 'B'- 50Hz Base for pure massage would be the optimum setting.

5Hz / 'B'- 50Hz Base for new soft tissue injury (kicks, bruising etc.,) to be started as soon as possible after the injury was sustained and as soon as possible before swelling occurs – the treatment causes the pre-capillary sphincter muscle to tighten and reduces the amount of blood and lymph into the area of injury preventing welling, having the similar effect as an ice pack.

17.5Hz / 'B'- 50Hz Base has the opposite effect on the pre-capillary sphincter muscle in that it is a vascular dilator and therefore increases circulation around the established injury site and increases the flow into the lymphatic system.

25 Hz / 'B'- 50Hz Base is a low orthopaedic setting for bones that are well advanced in the healing process.

CONSTANT / 'A'- 200Hz Base for Acute Pain – it diminishes the perception of pain without effecting the Class 'A' nerve conduction.

5Hz / 'A'- 200Hz Base for chronic pain – it operates on the Class 'C' sensory nerve.

PHOTOTHERAPY

Red light to promote natural healing.