# MEGASONIC 700 & MEGASONIC 707

## USER'S MANUAL AND APPLICATIONS

**MEGASONIC 700 & MEGASONIC 707** is one of the latest products manufactured by ELECTROMEDICARIN, and aims to provide all currents that are suitable for electrotherapy. It can generate both the most traditional currents and also the latest ones developed by ELECTROMEDICARIN, S.A. Furthermore, the MEGASONIC 700 & MEGASONIC 707 have the possibility to generate ultrasound in two frequency (1 y 3 Mhz.), with two different heads (1.6 y 6 cm²), only ultrasound therapy or combined therapy.
With MEGASONIC 700 & MEGASONIC 707 we aim to provide professionals with a tool capable of generating the electro-stimulation required by any given pathology.
Furthermore, the apparatus is equipped with diagnostic programs enabling the professional to obtain accurate knowledge of the state of the lesion.

Thank you for confiding in our technology. We are sure that you will find you have made the right decision.

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# WARNING

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- The treatments and other examples described in the present document have the sole purpose of illustrating the characteristics and functions of the product. Likewise, ELECTROMEDICARIN, S.A. assumes no responsibility for any demand upon the ownership of the aforementioned treatments and examples, or any other problem resulting of the application based on the examples described in this document.

This warranty included the free change of the components that it's will be necessary to replace and the refurbishment.

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# 1. INTRODUCTION

## 1.1 General considerations

The electrotherapy equipment manufactured by ELECTROMEDICARIN, S.A. has gained world-wide recognition for its excellent quality and manufacturing techniques.

The **MEGASONIC 700 & MEGASONIC 707** incorporates up to date electronic circuits and the latest technologies to obtain the best performance.

The **MEGASONIC 700 & MEGASONIC 707** is a high-technology equipment, therefore it is essential to follow carefully the instructions described in the present manual to obtain an adequate level of performance. This manual provides the necessary information for the installation, handling, maintenance and operation of the equipment.

Read carefully the following instructions before operating the equipment.

Compliance with the instructions will prolong the effective lifetime of the equipment, as well as ensure the improvement of its performance, resulting in benefit for the user.

## 1.2 Warranty

ELECTROMEDICARIN, S.A. guarantees **MEGASONIC 700 & MEGASONIC 707** against any defect of manufacture for a period of 1 year from date of purchase.

This warranty includes the replacement without cost to you of any components that may be necessary to substitute.

This warranty includes the displacement expenses related to the repair of the equipment.

This warranty does not include any accessories or fungible material provided with the equipment.

For this warranty to be effective, the customer should contact the nearer Service of Technical Attention or, if this were not possible, the central in Barcelona (Spain).

The customer should also fill up the certificate enclosed with the equipment, and send it to the address detailed on it.

ELECTROMEDICARIN, S.A. assumes no responsibility in the following assumptions: (the equipment will automatically be excluded from the present warranty)

- If the equipment has been opened, adjusted, modified or repaired by personnel unauthorised by ELECTROMEDICARIN, S.A.
- If the equipment is used under different conditions to those indicated in this manual.
- If the electric installation, where the equipment is being used, does not conform to the safety requisites determined by the prevailing regulations.

# 2. INSTALLATION, HANDLING AND OPERATION

## 2.1 General considerations

Before connecting **MEGASONIC 700 & MEGASONIC 707** you must check the following:

- The package should not have suffered any important damage during transport, and the equipment should not present external anomalies due to transport.
- If deterioration were important, it is recommended to inform the transporting company and contact ELECTROMEDICARIN, S.A. Technical Service (+34/3/5730724).
- Do not place a short-wave apparatus closer than 3 meters to the equipment, unless it is protected by a metallic cage.
- The patient should not be situated near uncovered metallic structures such as: radiators, door or window frames, tubes, etc.
- Do not expose the equipment to excessive temperatures, do not install the equipment near heat focuses. The temperature range at which this equipment functions properly is 10 ºC to 30 ºC.
- Do not expose the equipment to adverse atmospheric conditions, such as: dust, humidity, direct sunlight, vibrations, etc.
- Do not install the equipment in rooms dedicated to hydrotherapy, or places where the floor may be damp due to water spilling.
- ELECTROMEDICARIN, S.A. does not assume responsibility for any damage caused either to the equipment or to individuals as a result of an improper use of **MEGASONIC 700 & MEGASONIC 707** by not conforming to the conditions detailed.

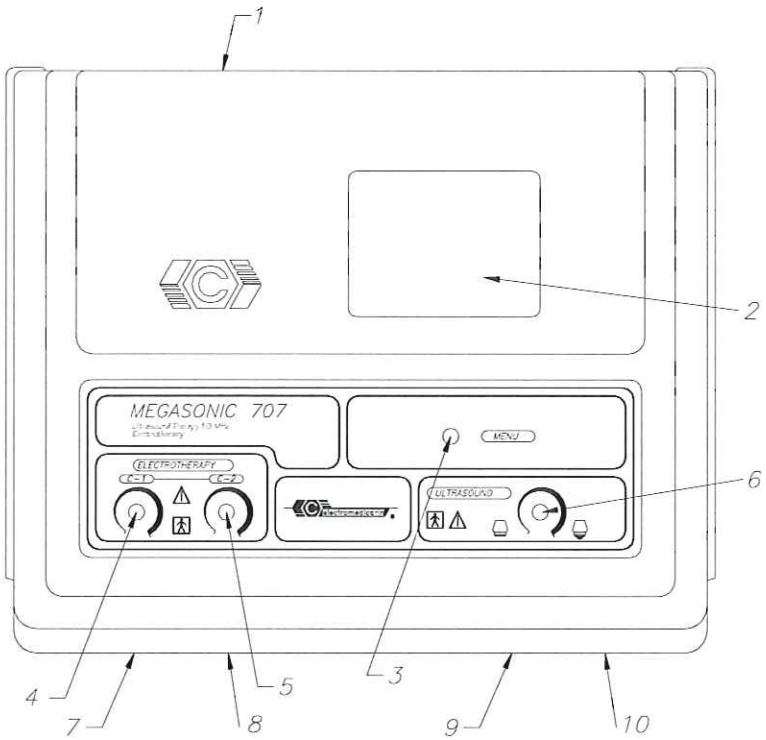
## 2.2 Verification

Check that if the frecuency and voltage defining on the identiy plaque, are according with the power supply.

Use the model inscribed “220 V” in countries with voltages 220-230-240 V.

Use the model inscribed “110 V” in countries with voltages 110-115-120 V.

## 2.3 Keyboard, meters and connectors



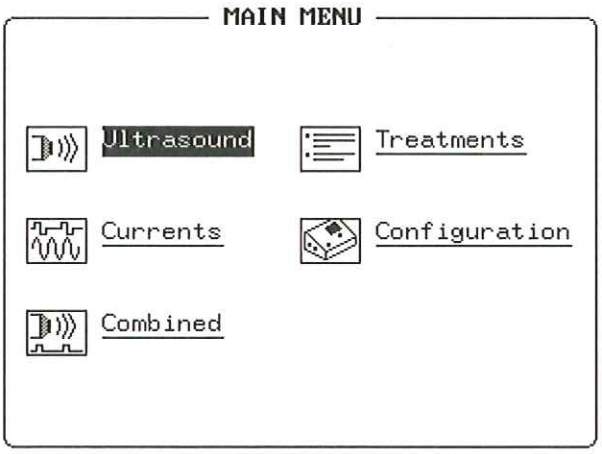

1. SWITCH
2. GRAPH SCREEN
3. MENU SELECT ENCODER
4. CHANNEL ONE DOSAGE ENCODER
5. CHANNEL TWO DOSAGE ENCODER
6. ULTRASOUND DOSAGE ENCODER
7. PATIENT CONNECTOR CHANNEL ONE
8. PATIENT CONNECTOR CHANNEL TWO
9. ULTRASOUND BIG HEAD CONNECTOR
10. ULTRASOUND SMALL HEAD CONNECTOR

## 2.4 Switching on/off

At the beginning of every working day and every time the apparatus is switched on by pressing switch no. 1 (located on the left-hand side of the back of the apparatus), the general function test is automatically carried out. This test only takes a few seconds. When it is complete the MAIN MENU screen display appears accompanied by a musical signal.

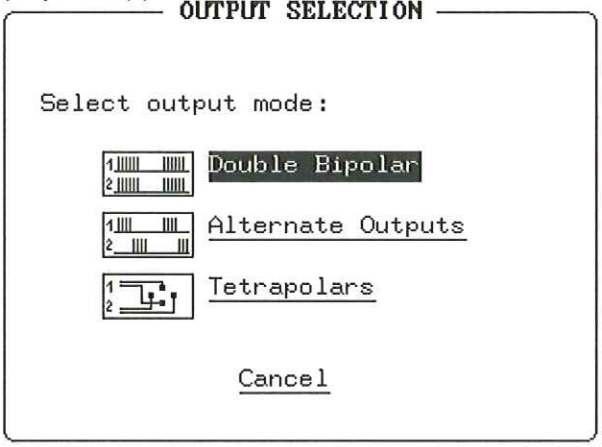
## 2.5 Programming the apparatus

### 2.5.1 Programming low and high frequency outlets 1 and 2 *(ONLY MEGASONIC 707)*




### 2.5.2 Manual programming (single phase tns) *(ONLY MEGASONIC 707)*

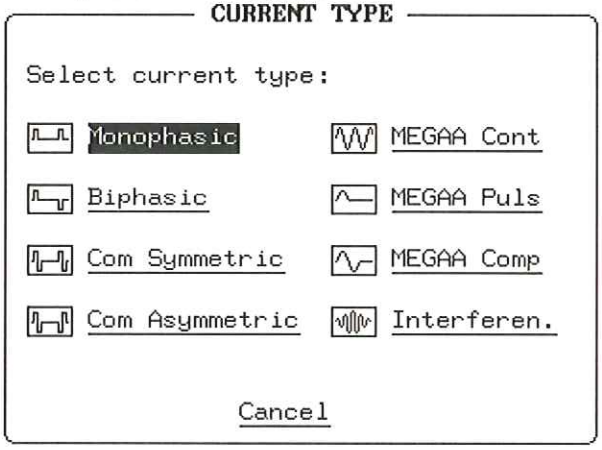
First, we shall program OUTLETS 1and 2. Press the Select Menu button and the following screen display will appear:



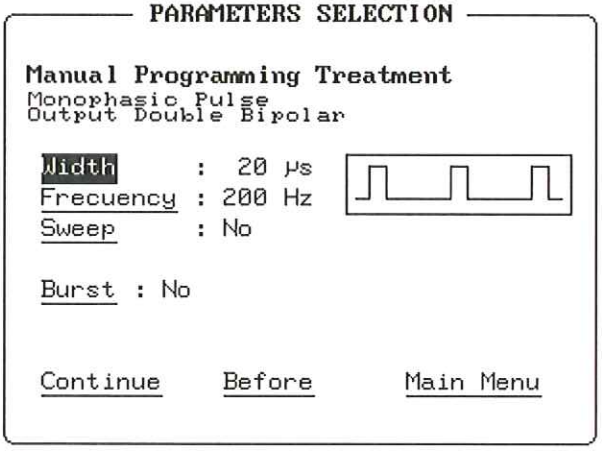

By pressing the Select Menu button, situate the cursor on Double Bipolar, then press the button. With this option allows you to program Outlets 1 and 2.

### 2.5.3 PROGRAMMING SINGLE PHASE TNS CURRENTS *(ONLY MEGASONIC 707)*

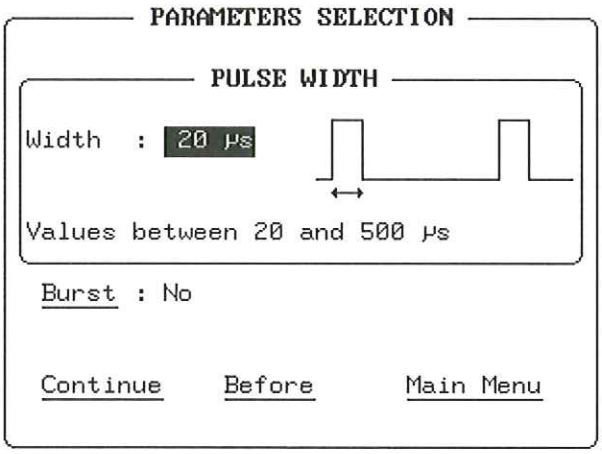
Using the Select Menu button, situate the cursor over Double Bipolar; then press the Menu button, the following screen will appear:



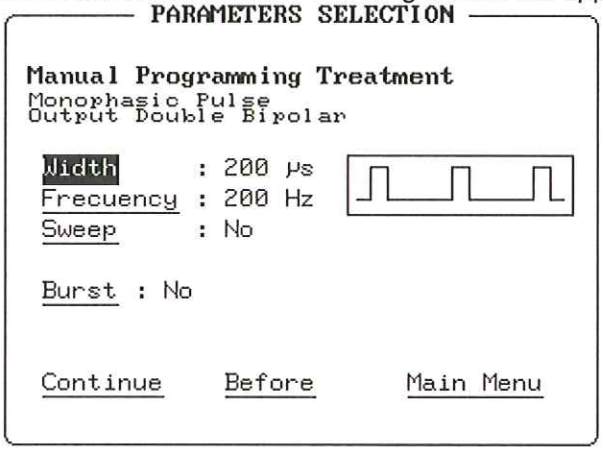

Now by using the Select Menu button, you can select one of the eight types of current appearing on the screen, all of which are bipolar.
For example, let us choose Single Phase TNS. By using the menu button place the cursor over Single Phase TNS on the screen, then press the button and the following screen will appear:



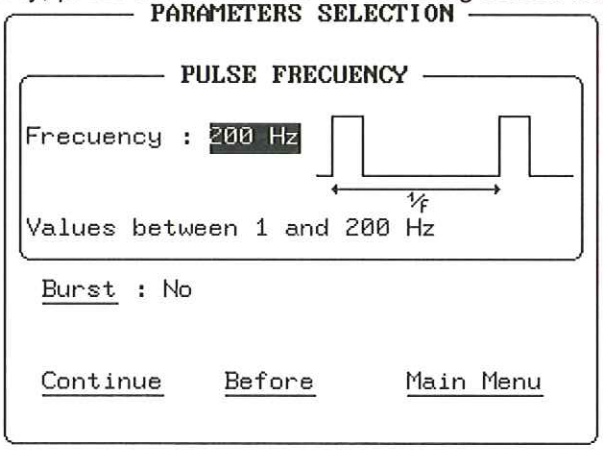

On the screen you will see the default parameter settings, since these are the last ones to have been entered. To change these settings, situate the cursor over the parameter to be changed and then press the Menu button. If you have chosen "change pulsation width" , the following screen will appear:



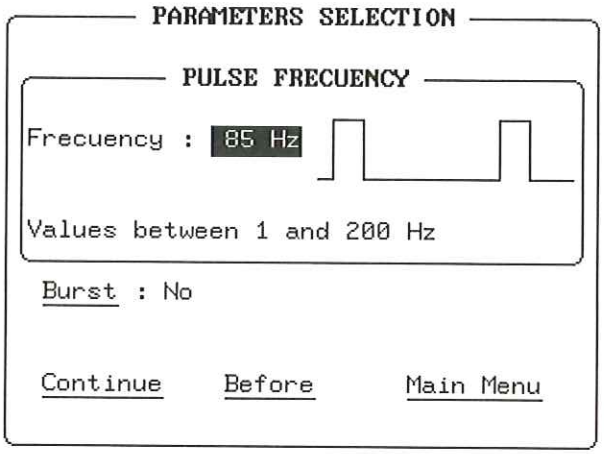

By turning the Select Menu button, you can vary the pulsation width setting between 20 and 500 µs. Press the Select Menu button and the setting you have entered will be saved. Then press the menu button and the following screen will appear:



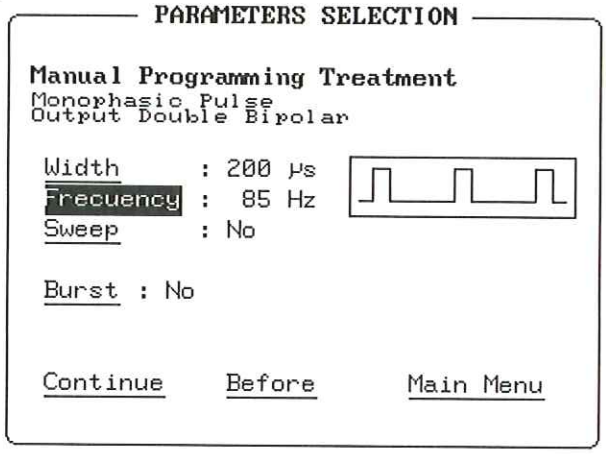

You can now change the Frequency by following the same procedure. Position the cursor over Frequency, press the button and the following screen will appear:




You can use the Menu button to vary the Frequency.




Once you have selected the Frequency, press the Menu button and the following screen will appear:

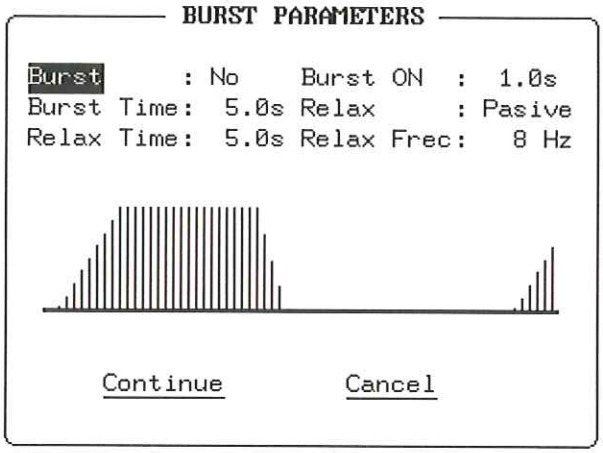



### 2.5.3.1 Programming a sweep *(ONLY MEGASONIC 707)*

After programming this current, you can now decide to program a sweep of different frequencies or a steady frequency. The sweep will occur between the settings you enter. To program a sweep, position the cursor over Sweep, press the Menu button. Change the option on the screen, press the Menu button again and the Sweep option will be saved. Now you must program the apparatus for Continuous or Train mode.

### 2.5.3.2. Programming trains *(ONLY MEGASONIC 707)*

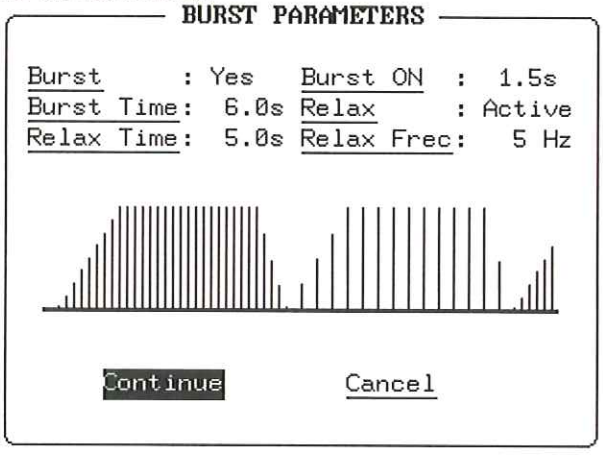
To program trains, position the cursor over Trains, and press the Menu button. The following screen will appear:



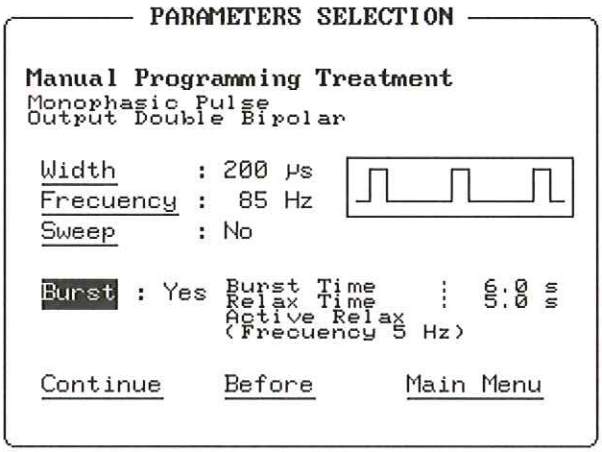

The train settings which appear are default settings, since they were the last ones to be entered.

The first option you have, is to change the "Trains Yes" or "Trains No" setting. To change to "Trains Yes", press the Menu button once and then once again. The next option is the Train Time, which you can set to 6 seconds. Again, you can do this by pressing the Menu button to select the setting, and then once again. The next parameter is Rest Time, which we will not change. Move the cursor to Ramp ON, the default setting is 0.5 s. Since the Train is quite long, you can increase this setting to one (1) second. Press the button, change the setting and then press the button again to save the setting. The following parameter is Rest, which can either be set as Active or Passive; Active means that during Rest time there is a pulsation frequency and in this case it will be 8 Hz, if you wish to set Active Rest, position the cursor and by pressing the button change the option to Active. Now press the button, the setting will be reflected on the screen.

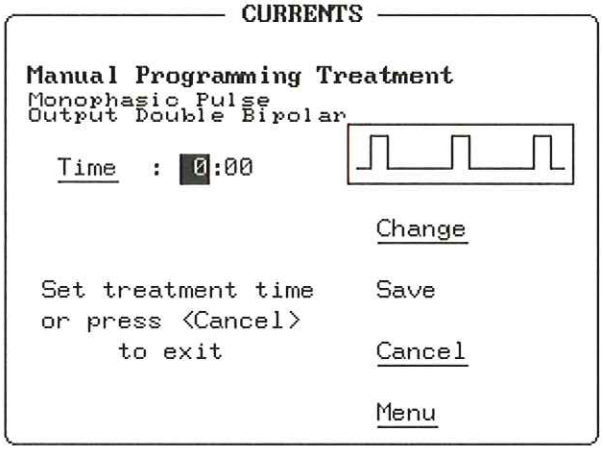
Finally, you must now program the currency frequency for the Rest phase. Position the cursor over Rest Freq., press the button, change the setting to 5 Hz, press the button once again to save. Now all parameters have been set for this treatment. The new settings will be shown on the screen:



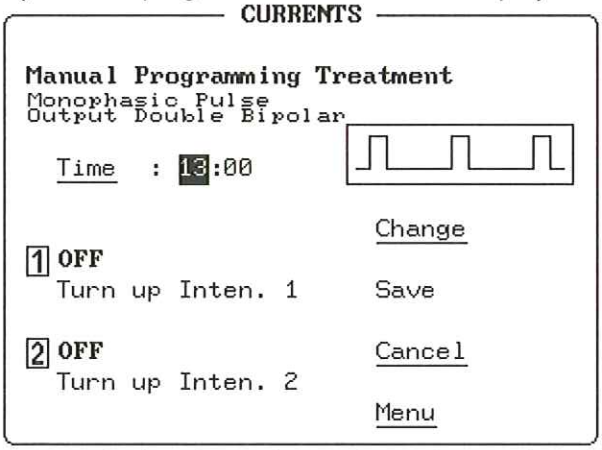
Position the cursor over Continue and press the button. The following screen will appear:



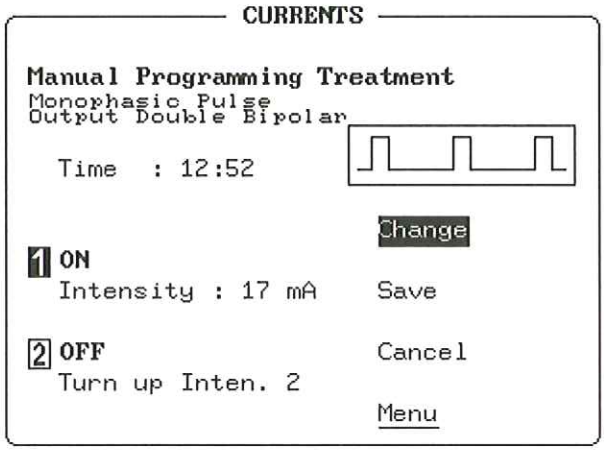

This current has now been fully programmed. All you need to do now is position the cursor over Continue, press the Menu button and the screen will be as follows:




Position the cursor over Time, press the button and enter the time settings for treatment duration. Now press the button once again, and the apparatus is ready to generate the current you have programmed. The screen display will be as follows:



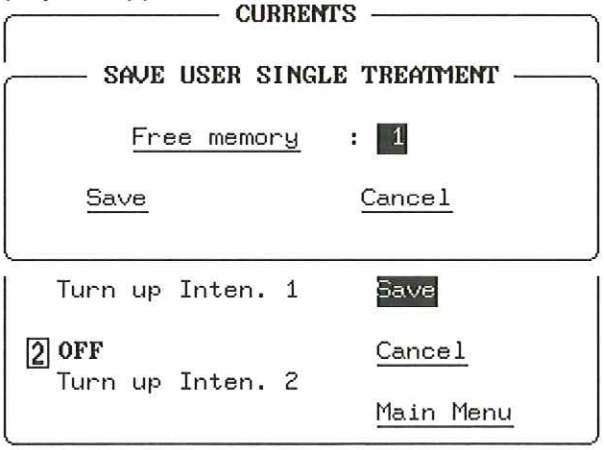

Now, it only remains to apply the electrodes to the patient and apply treatment through the corresponding electrode outlets. If the patient is connected to Outlet 1, the screen will be as follows:



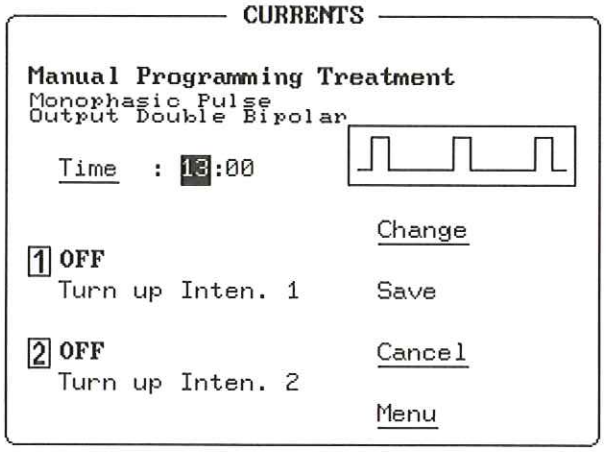

Intensity has increased from 0 to 17 mA, which is the setting established for this treatment. The same would happen if we applied Outlet 2 to another body zone or patient.
Once treatment time has elapsed, and if there have been no difficulties involving incorrectly attached electrodes, defective contact, etc. the apparatus will emit a musical signal, advising us that treatment has ended.
You now have four options: You can change the parameters of this treatment and apply it, save the treatment, cancel or program a new treatment, or return to the Menu and program another type of current for Outlet 3.
We shall opt to save the treatment.

### 2.5.3.3. Saving a simple treatment. *(ONLY MEGASONIC 707)*

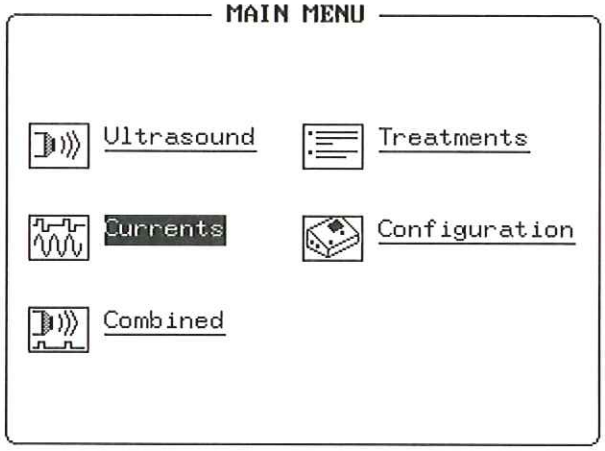
Working from the screen above, you can opt to save a treatment so as to be able to use it again with the same patient or another patient with a similar condition. Position the cursor over Time. Press the Menu button and program treatment time, press the Menu button again. Position the cursor over Save and press the Menu button. The following screen display will appear:



**MEGASONIC 707** leaves our factory with all user memory slots empty. Therefore, the apparatus will present the first memory slot, which is where you can save the treatment. Position the cursor over Save. Press the Menu button and the screen will be as follows:




The treatment has been saved in Memory slot no. 1.
Now, position the cursor over Cancel. Press the button and the Main Menu will appear as shown below:




## 2.5.4 PROGRAMMING TWO PHASE TNS *(ONLY MEGASONIC 707)*

The procedure for programming this current is identical to that described for Single Phase TNS currents. Therefore, to program it, follow the procedure described from **2.5.3** on.

## 2.5.5 PROGRAMMING COMPENSATED SYMMETRIC CURRENTS *(ONLY MEGASONIC 707)*

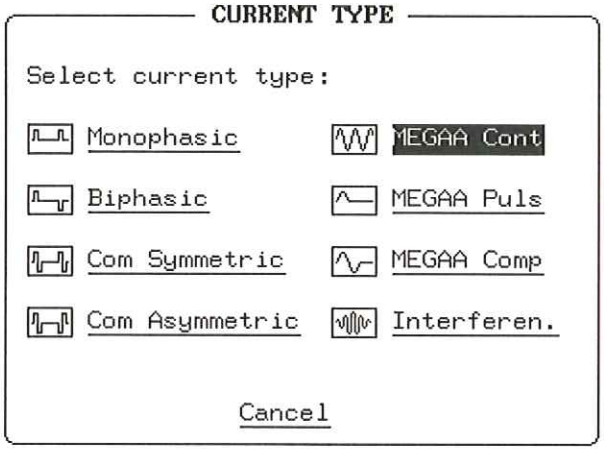
To program this current, follow the same procedure as described above.

## 2.5.6 PROGRAMMING COMPENSATED ASYMMETRIC CURRENTS *(ONLY MEGASONIC 707)*

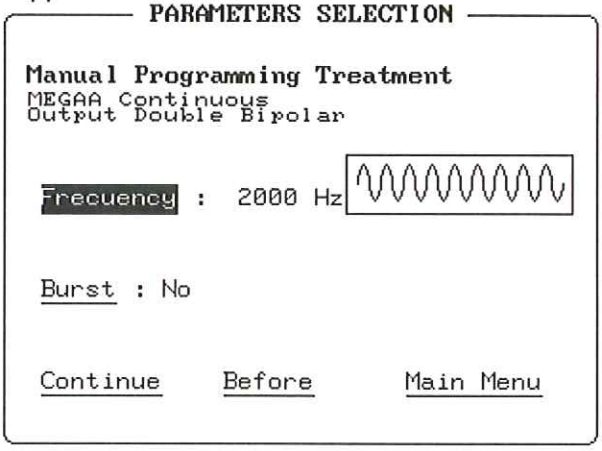
To program this current, follow the same procedure as described in section **2.5.3.**

## 2.5.7 PROGRAMMING CONTINUOUS MEGAA CURRENTS *(ONLY MEGASONIC 707)*

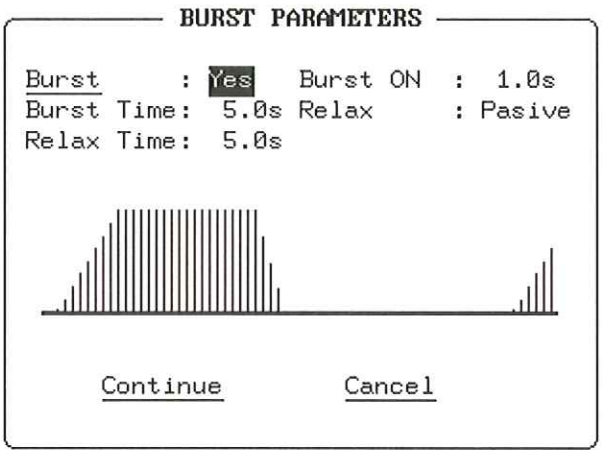
From the screen:



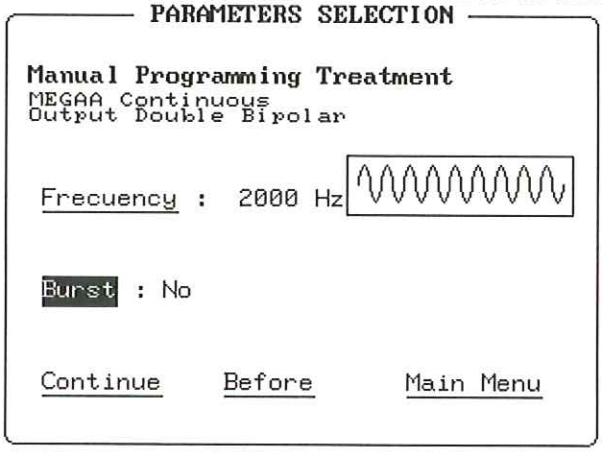

Position the cursor over MEGAA Cont. and press the Select Menu button. The following screen will appear:



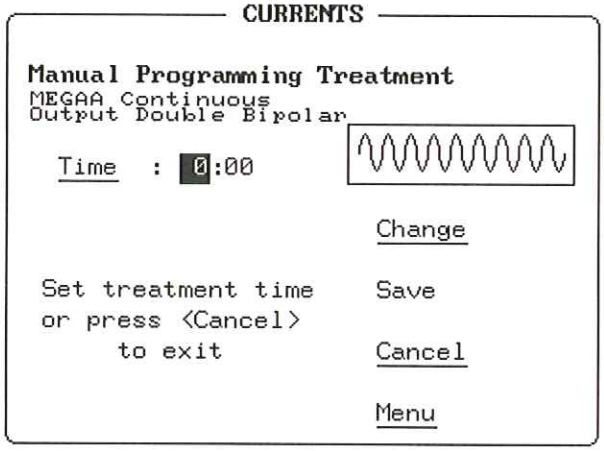

With MEGAA current it is only necessary to program the frequency, which may be between 1,000 and 5,000 Hz (at intervals of 200Hz). For the present example, let us choose a frequency of 5,000 Hz. Position the cursor over Frequency. Press the Select Menu button. Turn the button to set frequency at 5,000 Hz. Then press the button again. Now you can program Trains. Here, you must decide whether you want to apply Trains or not. If you decide NO, place the cursor over Trains, press the Select Menu button and the Train Parameter screen will appear:


BURST PARAMETERS
Burst : Yes
Burst ON : 1.0s
Burst Time: 5.0s
Relax : Pasive
Relax Time: 5.0s
Continue
Cancel

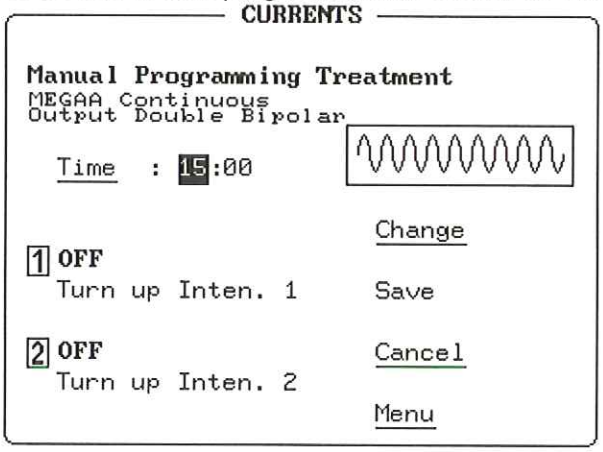
In our choose, we don't like burst and then the screen will be as follow:



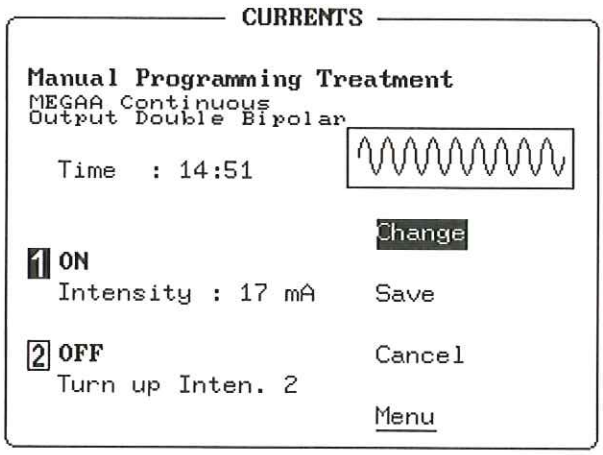

To program Trains in Continuous MEGAA currents, follow the same procedure as in section **2.5.3.2**, bearing in mind that there cannot be any active phase, since **MEGASONIC 707** will not allow you to program it.
To complete programming, position the cursor over Continue. Press the Select Menu button. The screen will be as follows:




It now only remains to program treatment time. Turn the cursor to set the treatment duration time. For example, let us select 15 minutes. Now press the Select Menu button and **MEGASONIC 707** is now programmed, as shown on the screen:

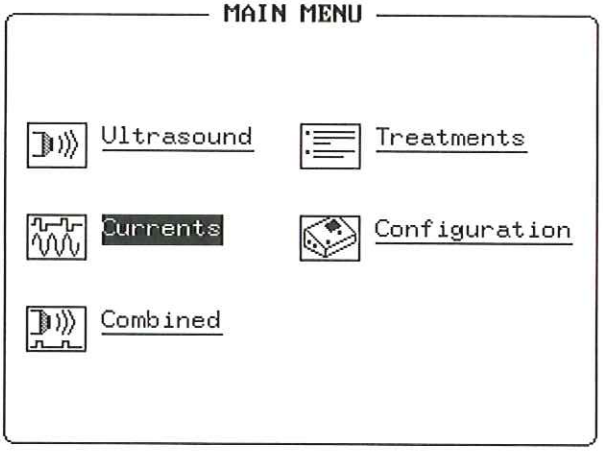



Now, it only remains to apply the electrodes to the patient and apply treatment through the corresponding electrode outlets. If the patient is connected to Outlet 1, the screen will be as follows:




Intensity has increased from 0 to 17 mA, which is the setting established for this treatment. The same would happen if we applied Outlet 2 to another body zone or patient.

Once treatment time has elapsed, and if there have been no difficulties involving incorrectly attached electrodes, defective contact, etc. the apparatus will emit a musical signal, advising us that treatment has ended. You now have three options: You can change the parameters of this treatment and apply it, cancel or program a new treatment, or return to the Menu and program another type of current for Outlet 3. We shall opt to Cancel. The screen will show the Main Menu:




## 2.5.8 PROGRAMMING PULSATION MEGAA CURRENTS *(ONLY MEGASONIC 707)*

To program this current, follow the same procedure described in section **2.5.3.**

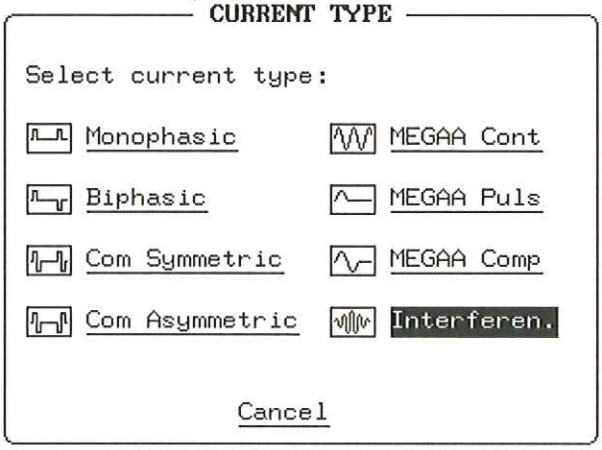
## 2.5.9 PROGRAMMING COMPENSATED MEGAA CURRENTS *(ONLY MEGASONIC 707)*

To program this current, follow the same procedure described in section **2.5.3.**

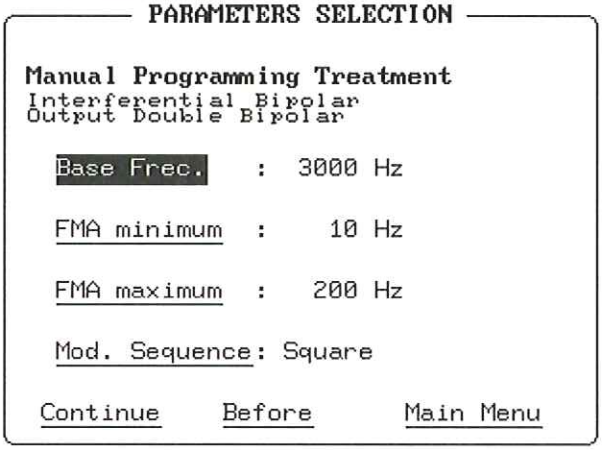
## 2.5.10 PROGRAMMING INTERFERENTIAL BIPOLAR CURRENTS *(ONLY MEGASONIC 707)*

### 2.5.10.1 Programming parameters current *(ONLY MEGASONIC 707)*

Starting from the screen display:



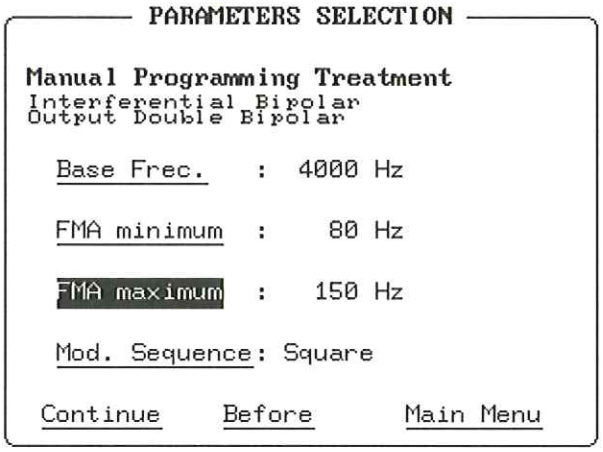

Use the Select Menu button to position the cursor over Interferential. Press the button. The screen will be as follows:



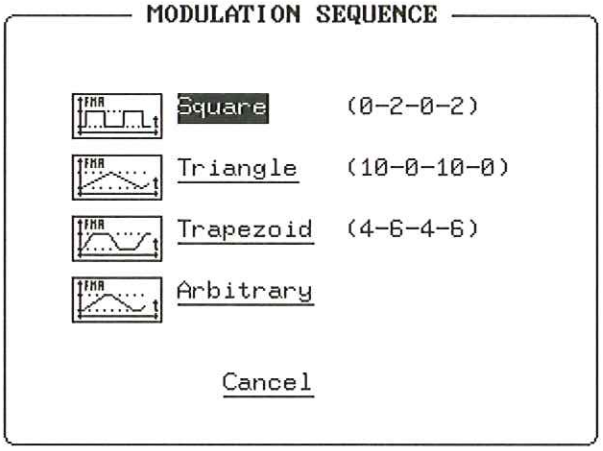

You can now modify the parameters shown on the screen, so as to obtain the Interferential Bipolar current you wish to use. Use the Select Menu button to position the cursor over the setting that you wish to modify. Press the button and you can then vary the setting by turning the button.

- Base Frequency: it can be varied between 2,000 Hz and 10,000 Hz
- Minimum AMF: from 0 to 240 Hz.
- Maximum AMF: this must always be set at 10 Hz above Minimum AMF.
- Modulation Sequence: there are 4 types: Square (0-2-0-2), Triangular (10-0-10-0), Trapezoidal (4-6-4-6).
- Arbitrary: this is a modulation sequence that can be programmed in all settings, thereby creating a personalised sequence.

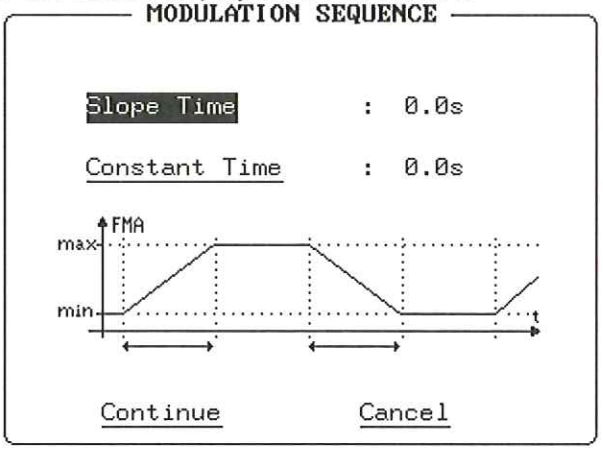
Let us program the Base Frequency at 4,000 Hz. When this has been set, press the Select Menu button. Now position the cursor over Minimum AMF. Set 80 Hz. Program Maximum AMF and set it at 150Hz. These two settings define the parameters between which the frequency sweep will occur. The screen will be as follows:



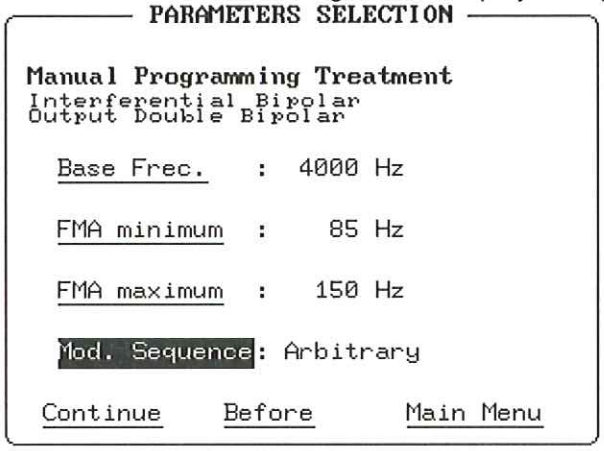

Now you must program Mod. Sequence. As mentioned before, there are four sequences. In this example, we choose Arbitrary sequence. Position the cursor over Mod. Sequence and press the Select Menu button. The screen display will be as follows:



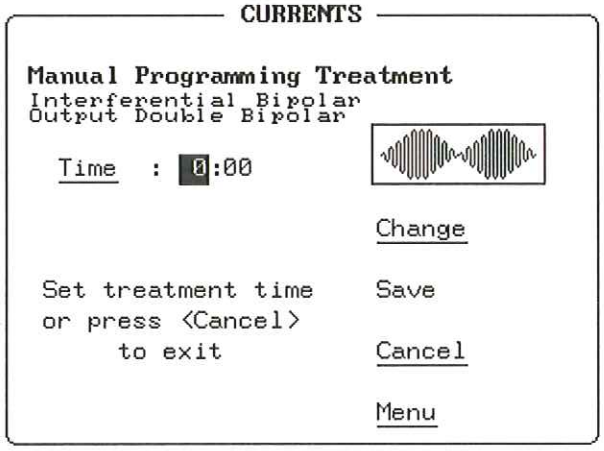

Choose the Arbitrary sequence by positioning the cursor over Arbitrary and press the Select Menu button. The screen display will be as follows:



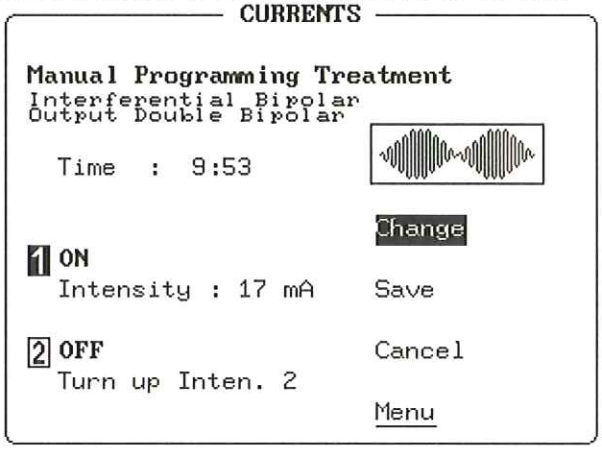
Modulation sequence is the time taken to move from Minimum AMF to Maximum AMF and vice-versa. The on-screen graph with the fluctuating vectors indicates that this time setting can be varied between 0 and 25 seconds, in which 0 seconds would correspond to a square sequence. From this sequence, which is the most commonly employed in electro-stimulation treatment, since it is the most stimulating with its abrupt change, a triangular sequence can be obtained with gentle ramps of 25 seconds duration.
We shall program a personalised Trapezoidal sequence, in which all the factors of the different sequences are involved.
Ramp Time, let us set this at 6 seconds, which is the development time for Minimum AMF, in this case 80 Hz to reach Maximum AMF of 150 Hz, - movement from the first to the second frequency (80, 81, 82 ..... 150 Hz).
Constant Time, let us set it at 4 seconds. The Maximum AMF frequency of 150 Hz will remain constant for 4 seconds.
Ramp Time, in this case a downward ramp which we will set at 6 seconds. This is the time it will take the Maximum AMF frequency to reach the Minimum AMF frequency (150, 149, 148 ... 80).
Constant Time, for the Minimum AMF is set at 4 seconds and for this time it will remain at 80 Hz, which is the Minimum AMF.
Once the sequence has been completed, it will be repeated throughout treatment.
The modulation sequence has now been programmed. Position the cursor over Continue.
Press the Select Menu button and the following screen display will appear:



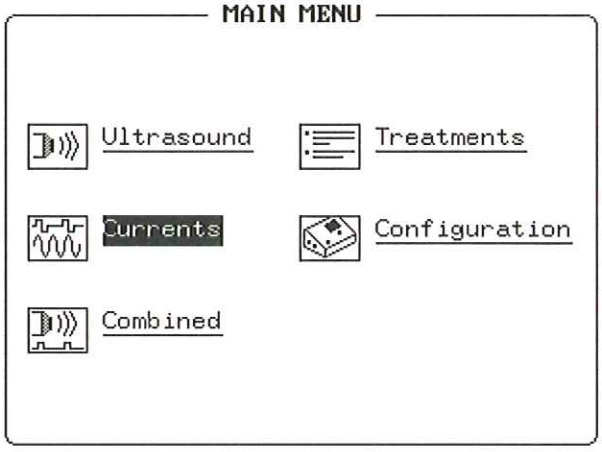

All the parameters of the Interferential Bipolar current are now set. To conclude, position the cursor over Continue and press the Select Menu button. The following screen will appear:



Choose treatment time by turning the Select Menu button. Set it for 10 minutes. Press the button. The apparatus is now ready for application of two bipolar channels of interferential currents. Place the electrodes in position and increase the intensity through the corresponding channel. The screen will be as follows:

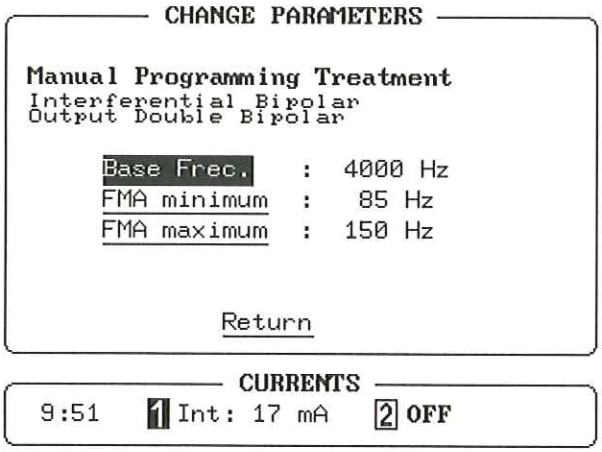



As intensity increases, the indication (from 0 to 17 mA) for the channel for which the treatment has been set also increases. The same would happen if we applied Outlet 2 to another body zone or patient. Once treatment time has elapsed, and if there have been no difficulties involving incorrectly attached electrodes, defective contact, etc. the apparatus will emit a musical signal, advising us that treatment has ended. You have now three options: You can change the parameters of this treatment and apply it, cancel or program a new treatment, or return to the Menu and program another type of current for Outlet 3. We shall opt to cancel, and the Main Menu will appear on the screen.

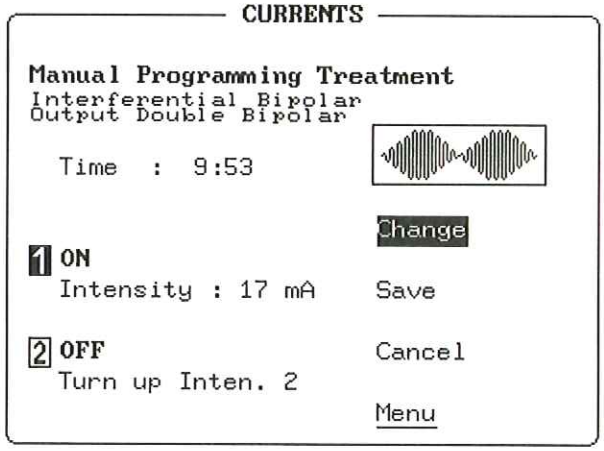



### 2.5.10.1 Changing settings (during treatment) *(ONLY MEGASONIC 707)*

If the programmed current does not seem to be suitable once treatment has begun, it is possible to change the settings from the Dose screen. Position the cursor over Change. Press the Select Menu button and the screen will be as follows:

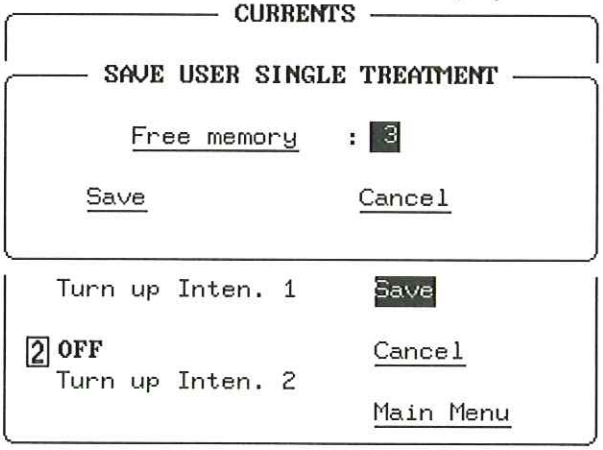



The Base Frequency, Minimum AMF and Maximum AMF can be varied. Once the changes have been made, position the cursor over Return, press the Select Menu button. The patient will now receive the new current. Treatment continues and the screen display will be as follows:



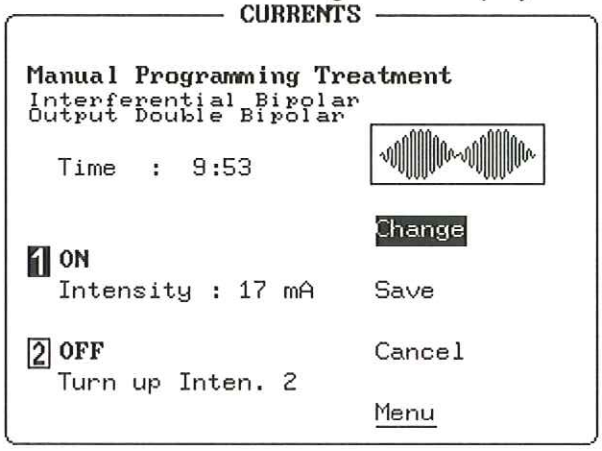

### 2.5.10.2 Save *(ONLY MEGASONIC 707)*

From the screen shown above, you can save the treatment so as to be able to use it again with the same patient or others. To save the treatment, position the cursor over Save and press the Select Menu button. The screen display will be as follows:



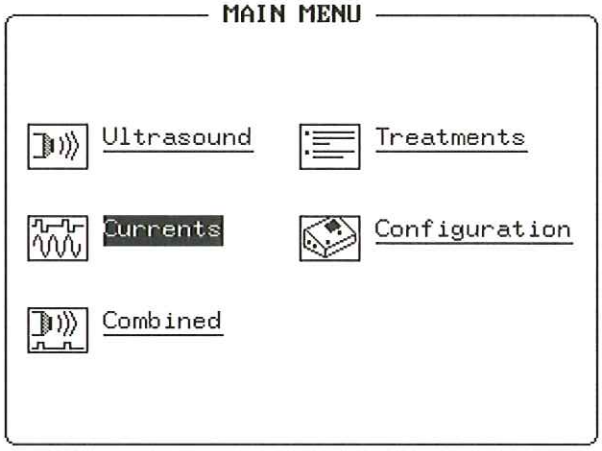

Select a vacant memory slot. **MEGASONIC 707** will only display vacant memory slots, those occupied by other treatments will not appear on the screen (in our case Memory

no. 3). Press the Menu button, then position the cursor over Save, press the button again and the treatment is saved. The following screen display will appear:



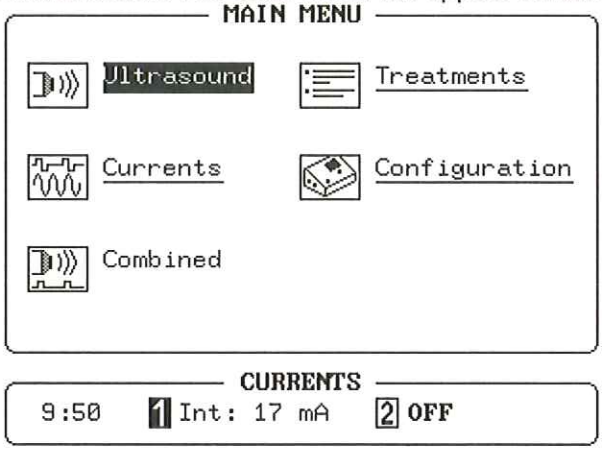

### 2.5.10.3 Cancel *(ONLY MEGASONIC 707)*

To cancel the current that has been programmed and return to the Main Menu, place the cursor over Cancel. Press the Select Menu button and **MEGASONIC 707** will return to the Main Menu.

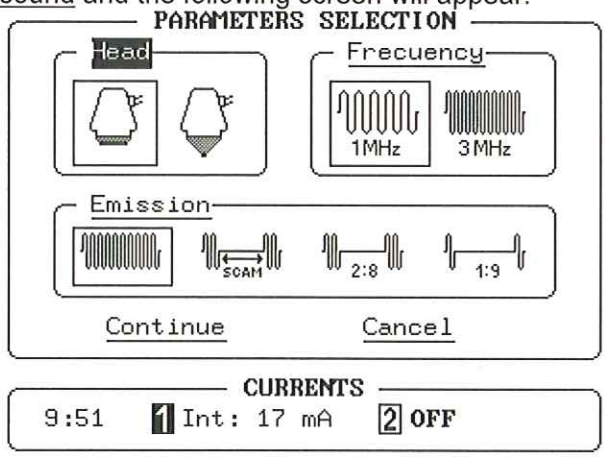



### 2.5.10.4 Menu *(ONLY MEGASONIC 707)*

Returning to the stage described in section **2.5.10.2.** and from the same screen, you can program a new ultrasound treatment by positioning the cursor over Menu and pressing the Select Menu button. The Main Menu will appear on the screen:



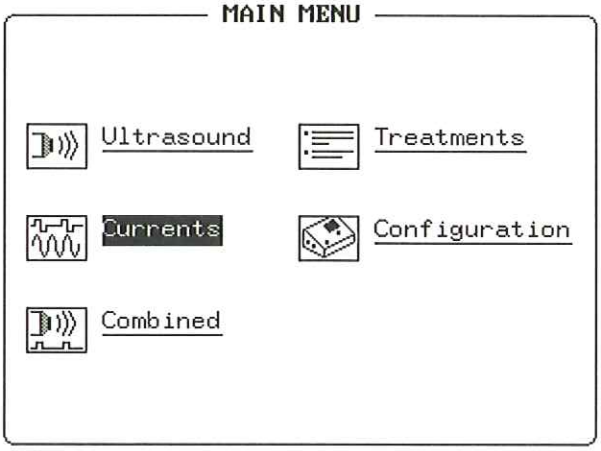
Let us say you want a ultrasound treatment; Press the Select Menu button when the cursor are on Ultrasound and the following screen will appear:



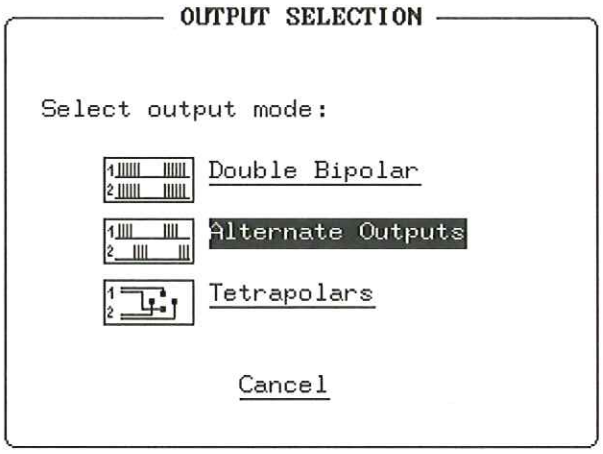

We must see in this screen all the options that we may choose (frecuency, ultrasound head, emission way). Once the ultrasound program is enter, it's aplicate it to the patient and we increase intensity to the desire level (see **2.6**).
This option permite us to apply one current treatment and one ultrasound treatment at the same time and totally independent way, and then, this option permite us to apply thw two treatments to the same patient or to two differents patients.

### 2.5.11 PROGRAMMING ALTERNATING CURRENTS *(ONLY MEGASONIC 707)*

From the Main Menu:

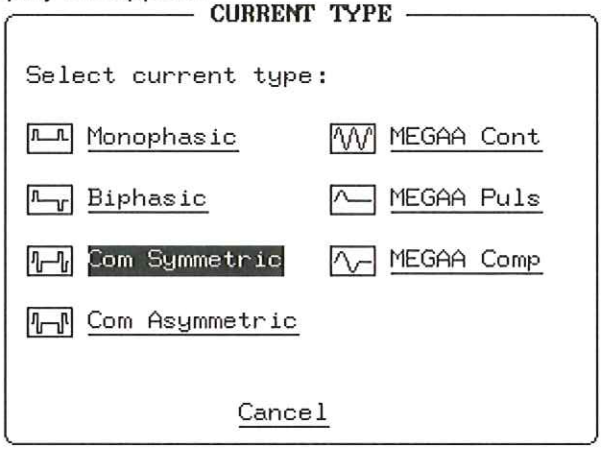



First, program OUTLETS 1 and 2. Press the Select Menu button and the following screen will appear:

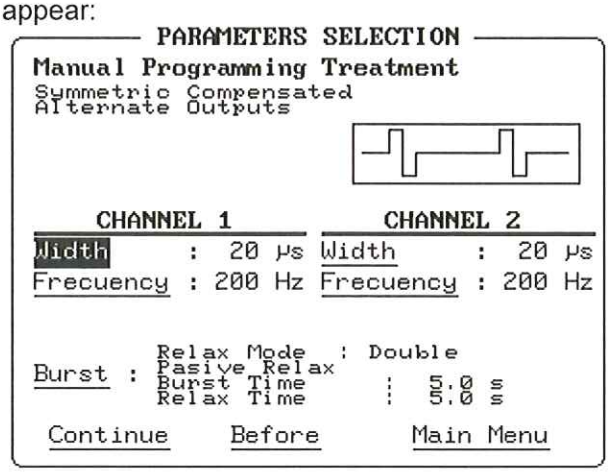



**(To illustrate this example, we shall program a Compensated Symmetric currents treatment).**

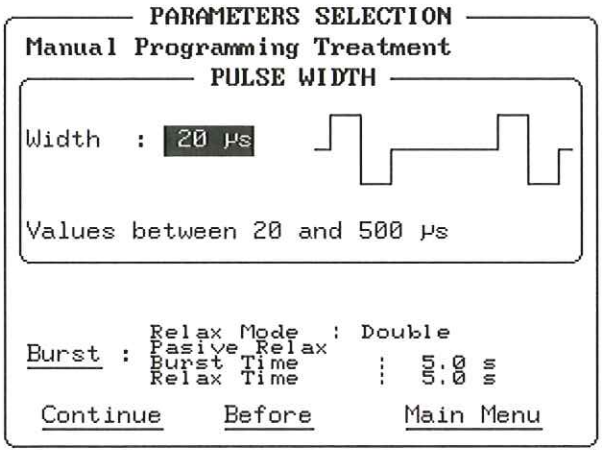
Position the cursor over Alternating Outlets, press the Select Menu button and the following screen display will appear:



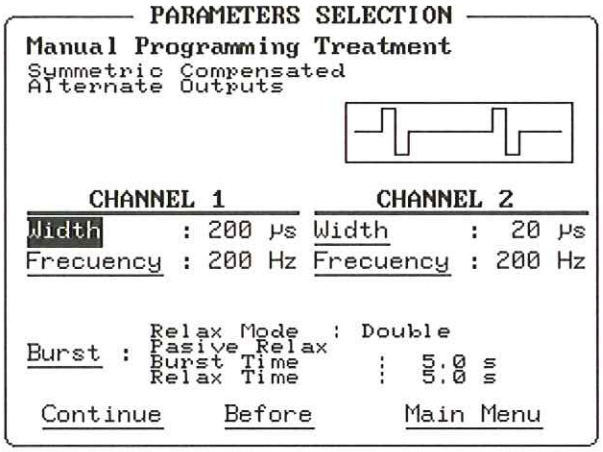

Position the cursor over Com. Sym., press the Select Menu button and the following screen display will appear:



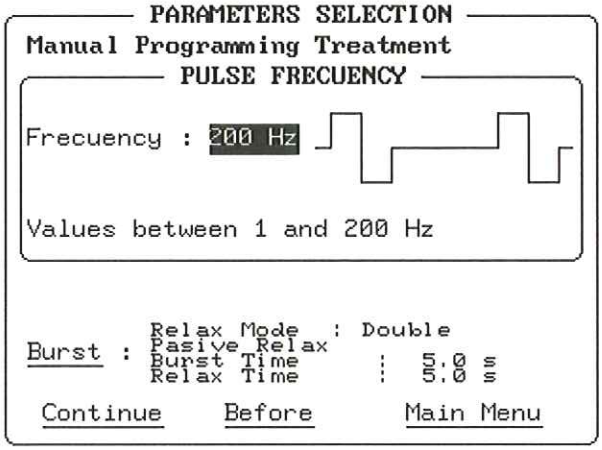

The screen shows the defect settings. You can change the settings for Outlet (or Channel) 1 and Outlet (or Channel) 2. The procedure is as follows: Position the cursor over Width in Channel 1 and press the Menu button. The following screen will appear:



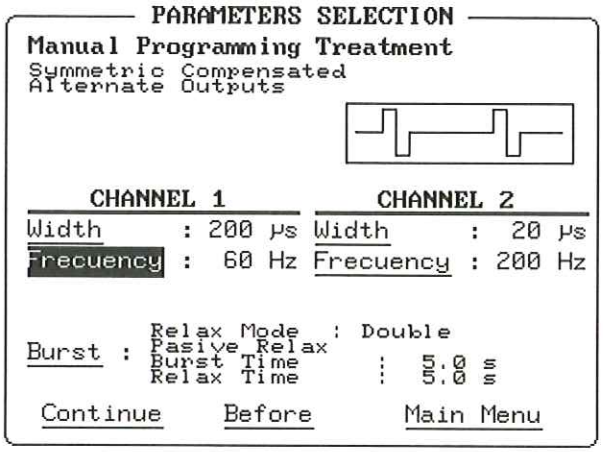

The cursor is positioned over the pulsation Width setting. This setting can be modified by turning the Menu button (for this example, let us select 200 µs). Press the Menu button and the screen will be as follows:




As you see, the setting has changed. Now you can change the frequency. Position the cursor over Frequency. Press the Menu button. The following screen display will appear:



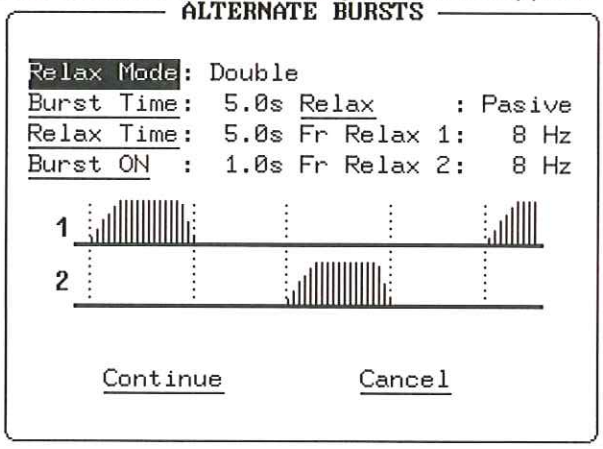

The cursor is positioned over the Frequency setting. This setting can be modified by turning the Menu button (for this example, let us set it to 60 Hz). Press the Menu button, and the following screen will appear:




To change the Channel 2 settings, follow the same procedure as described above.

### 2.5.11.1 Programming alternating trains *(ONLY MEGASONIC 707)*

We shall now program the settings for Alternating Trains. Position the cursor over Trains. Press the Menu button and the following screen will appear:

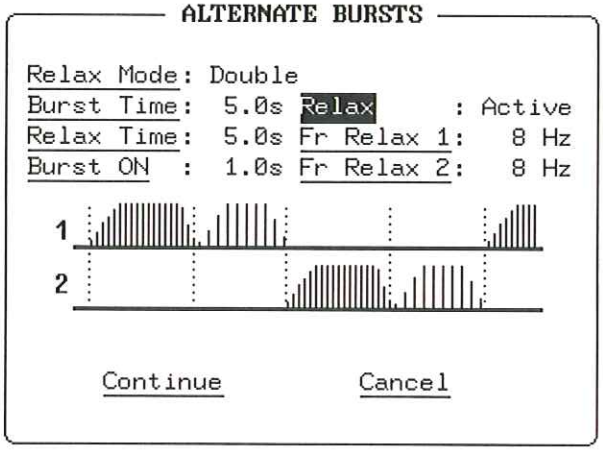



As you can see, this screen shows all the settings for Trains in both outlets.

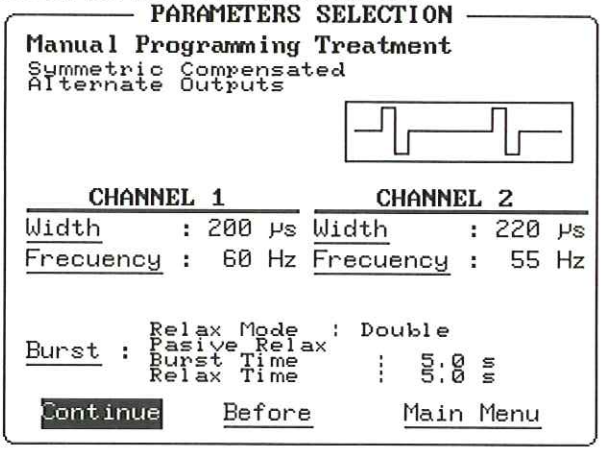
- **Double Relaxation Mode:** This mode means that after the stimulation Train period in Outlet 1, there is a programmed relaxation phase. This relaxation phase is followed by the Outlet 2 Train. This is followed by an Outlet 2 relaxation phase. The pattern is repeated until the end of treatment.
- **Train duration:** 5 seconds. This setting is the duration of the Train.
- **Relax. Duration:** 5 seconds. This setting is the duration of the Train relaxation phase.
- **Ramp ON:** 0.5 seconds. This is the time the Train takes to pick up the programmed intensity.
- **Relaxation:** Passive. This indicates that the muscle receives no stimulation in the relaxation phase.
- **Relaxation:** Active. This indicates that the muscle receives stimulation in the relaxation phase (in this case, 8 Hz). This frequency can be varied.
- **Relaxation Frequency:** 1:8 Hz. This is the frequency which would apply in the active relaxation phase for Outlet 1.

- **Relaxation Frequency:** 2:8 Hz. This is the frequency which would apply in the active relaxation phase for Outlet 2.

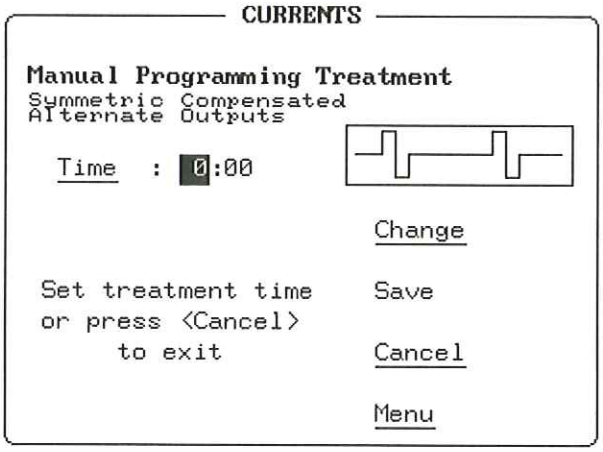
To change Train settings in both outlets the procedure is similar. Remember the settings that can be modified are those which are underlined.
You can now program Relaxation Mode, which can be either Single or Double. Position the cursor over Relax. Mode and press the Menu button. By turning the button you can set it at Double or Single. For this example, let us select Double. The change in Relaxation Mode (Single or Double) on this screen is very important. The on-screen graph shows the difference between both modes.
Position the cursor over the underlined words, press the Menu button and turn it to the desired setting, then press the button again to complete the process. In Relaxation, if you have selected Passive, you will find that you are unable to change the relaxation frequencies in Outlets 1 and 2, which means there is no stimulation in the relaxation phase. If you select Active, you will see that the Relaxation Frequency settings are underlined, indicating that you have the option of programming the frequency of the relaxation phase.



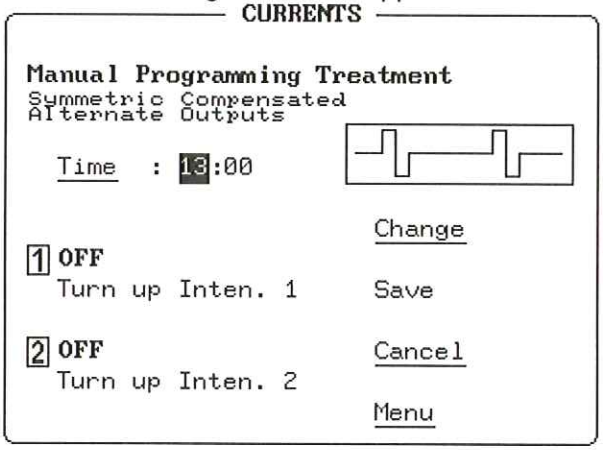

Once all the train settings have been entered, position the cursor over Continue and then press the Menu button and the screen will display all the settings both for Outlet 1 and Outlet 2, and also for the Trains in this treatment.



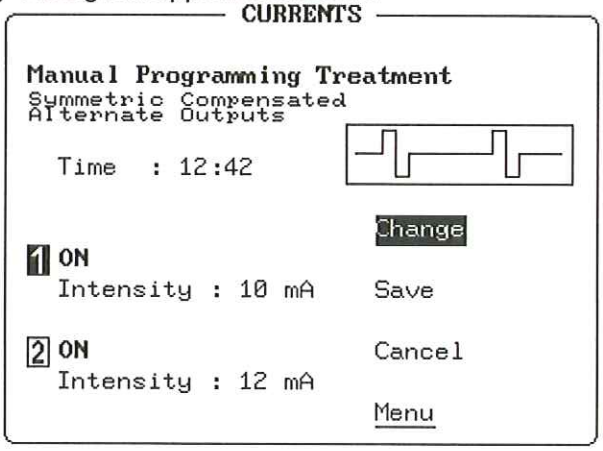

Position the cursor over Continue, press the Menu button and the following screen will appear:




The cursor will remain positioned over the treatment duration setting. By turning the Menu button, you can modify this setting. Once you have set the desired duration, press the Menu button. The following screen will appear:

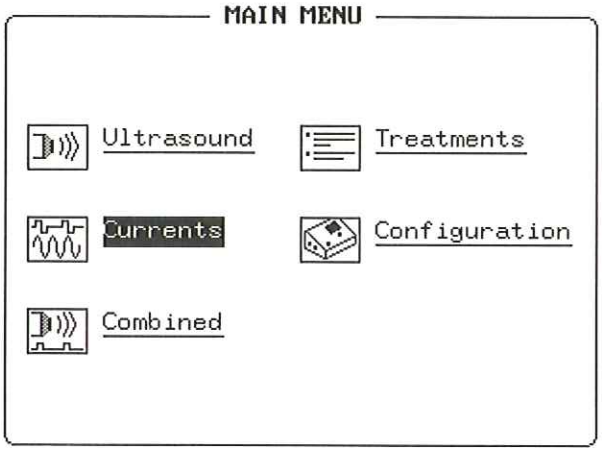



Now, it only remains to apply the electrodes to the patient and set the intensity of each Outlet. The intensity setting will appear as follows:




The apparatus will emit a bleep to indicate the Channel and active phase. At the same time, the cursor will automatically move from Outlet 1 to Outlet 2, when they are active. Once treatment duration time has been completed, the apparatus will emit a musical signal. **MEGASONIC 707** is now ready to apply another treatment or to reapply the same one, if you reset the treatment duration. To finish treatment, position the cursor

over Cancel as indicated by the screen. Press the Menu button and the Main Menu will appear on screen.



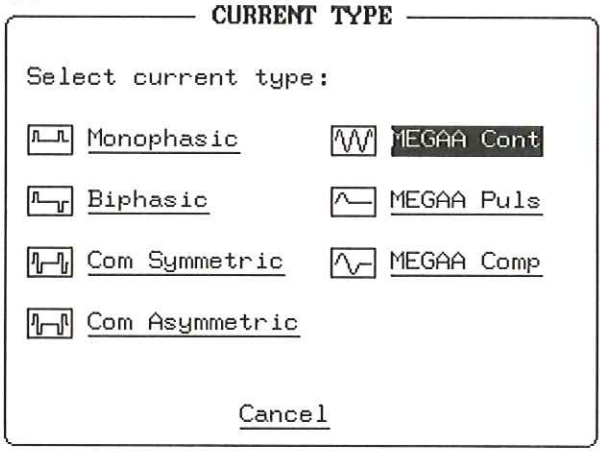

### 2.5.11.2 Programming alternating outlet currents (general) *(ONLY MEGASONIC 707)*

With the exception of Continuous MEGAA, all manually programmed treatments with alternate outlets are programmed by the same procedure.

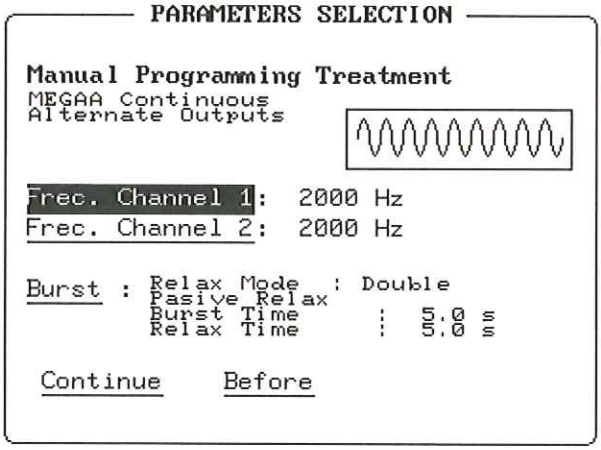
- Single Phase TNS
- Two Phase TNS
- Compensated Symmetric
- Compensated Asymmetric
- Pulsation MEGAA
- MEGAA Compensated

### 2.5.11.3 Programming continuous megaa *(ONLY MEGASONIC 707)*

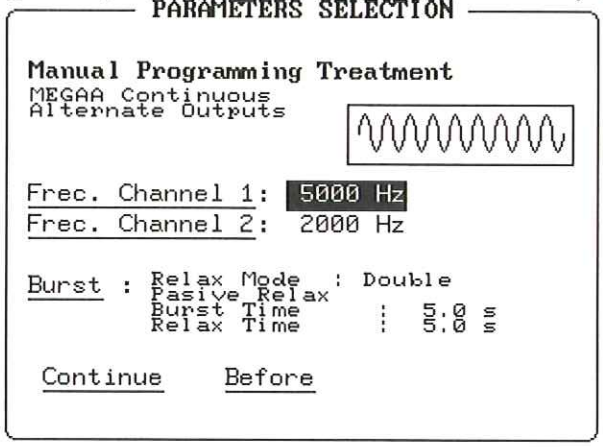
Starting at this screen:




Position the cursor over Continuous MEGAA. Press the Menu button, the following screen will appear:



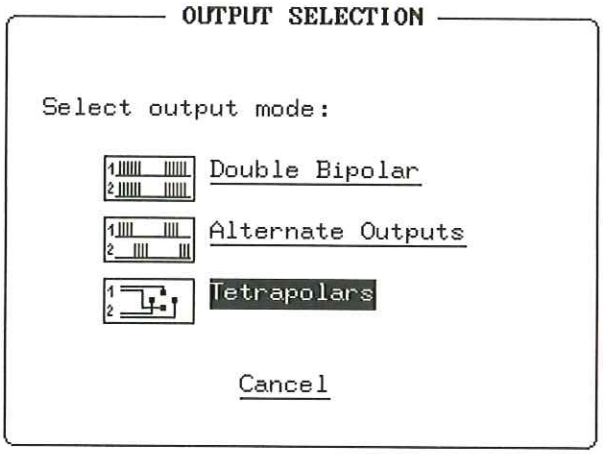

As you can see, this screen display is similar to the previous ones and allows you to modify the frequency of Channel or Outlet 1 and 2, by positioning the cursor over Frequency Channel 1 and pressing the Menu button. The cursor will position itself over the frequency setting and by turning the Menu button, you can vary this setting.



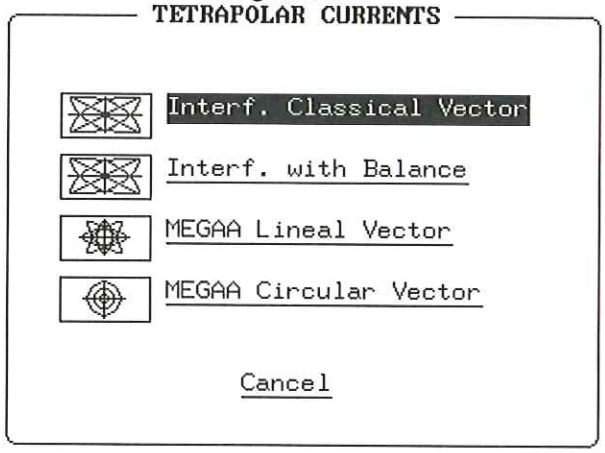

Once you have entered the new setting (for this example, let us take 5,000 Hz), press the button again and the cursor will move back to Frequency Channel 1. To change the frequency in Channel 2, position the cursor over this channel and repeat the procedure outlined above. To complete the process of programming this current, follow the instructions from point **2.5.12.1**.

## 2.5.12 PROGRAMMING INTERFERENTIAL TETRAPOLAR CURRENT *(ONLY MEGASONIC 707)*

From the screen:

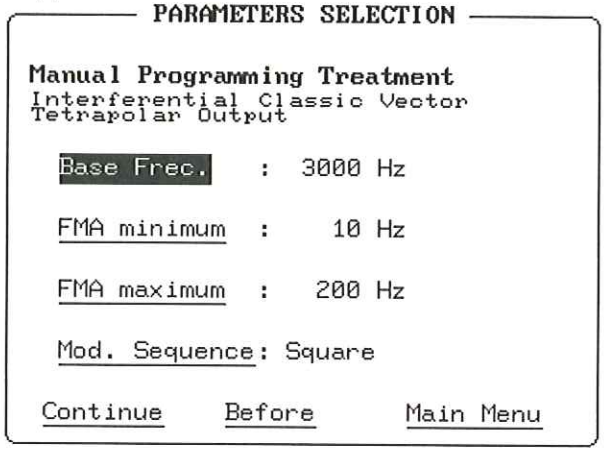



Position the cursor over Tetrapolar. Press the Menu button and the screen will show us the vectors that **MEGASONIC 707** can generate.

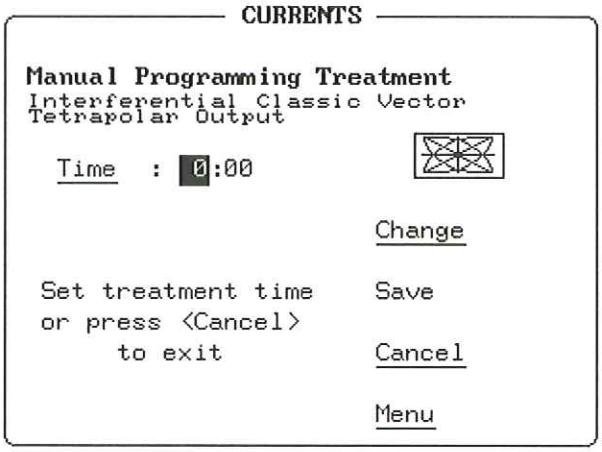



### 2.5.12.1 Programming classic vector *(ONLY MEGASONIC 707)*

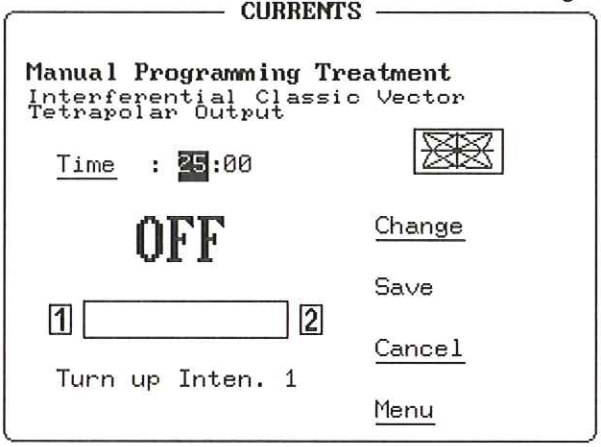
Position the cursor over Classic Vector Interferential. Press the Menu button and the following screen will appear:



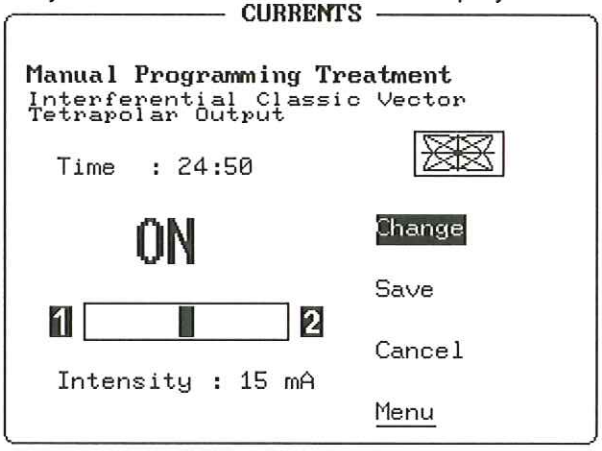

From here, the process is identical to that described in point **2.5.10.1**. When the following screen display appears:




The cursor will position itself over treatment duration. By turning the Menu button you can select the duration desired. Press the button and the following screen will appear:



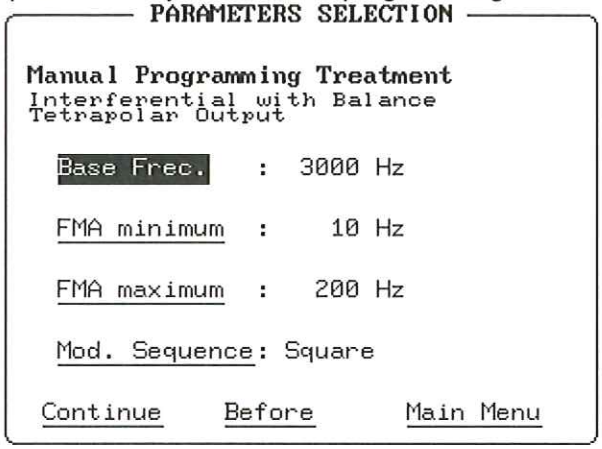

Now, you must position the electrodes in the corners of an imaginary rectangle, with the Outlet 1 electrodes on one diagonal and the Outlet 2 electrodes on the other. Now, you can set the intensity for both Outlets. The screen display will be as follows:



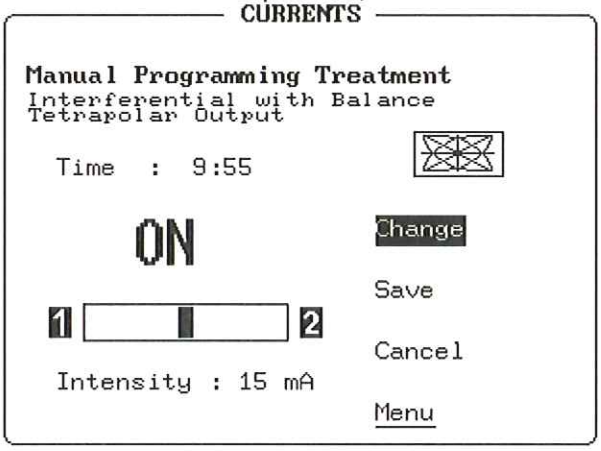

During administration of treatment, you can observe the movement of the cursor between each pair of electrodes of Tetrapolar current. This will continue until the end of treatment, which the apparatus will mark by emitting a musical signal. **MEGASONIC 707** is now ready to be programmed for another treatment in the Main Menu or to be reset for the same treatment.

## 2.5.13 INTERFERENTIAL CURRENT WITH MANUAL BALANCE *(ONLY MEGASONIC 707)*

Interferential Tetrapolar current with Manual Balance is a type of interferential current in which the vector is moved manually and remains in the position where we place it. To program this current, follow the same procedure as for Classic Vector Interferential as outlined in previous point. When you reach the programming screen:



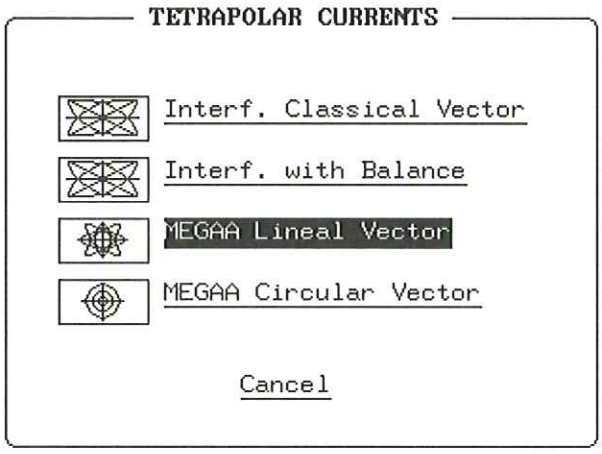

Now, it only remains to position the electrodes in the corners of an imaginary rectangle, with the Outlet 1 electrodes on one diagonal and the Outlet 2 electrodes on the other. Now, you can set the intensity by using the Outlet 1 button and with the Outlet 2 button we can move the balance to the desired position, which will be shown by the screen.



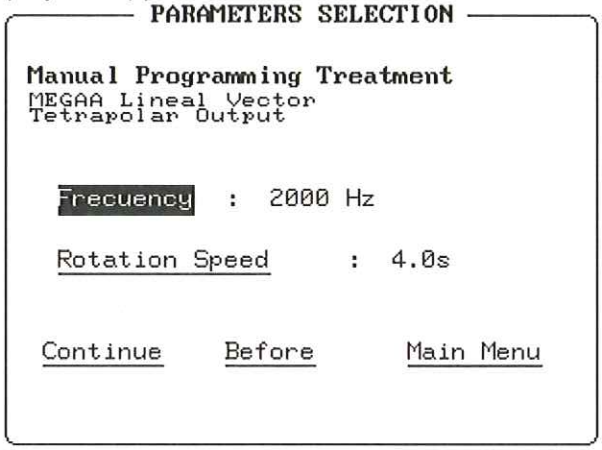

During treatment, you can observe how the cursor remains stable in the position in which you have placed it and will only move if you change it. At the end of the treatment, the apparatus will emit a musical signal. **MEGASONIC 707** is now ready to be programmed for another treatment in the Main Menu or to be reset for the same treatment.

## 2.5.14 MEGAA WITH LINEAR VECTOR *(ONLY MEGASONIC 707)*

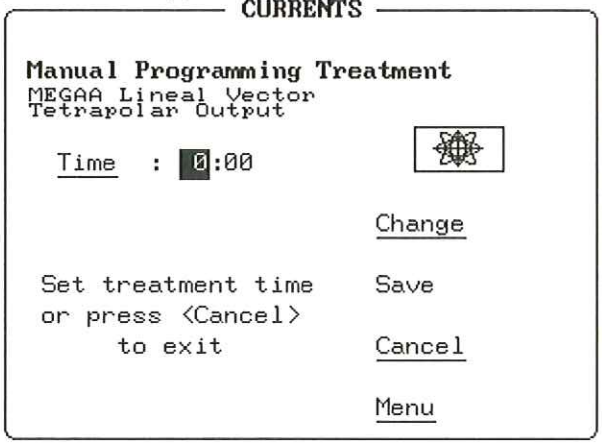
From the screen:



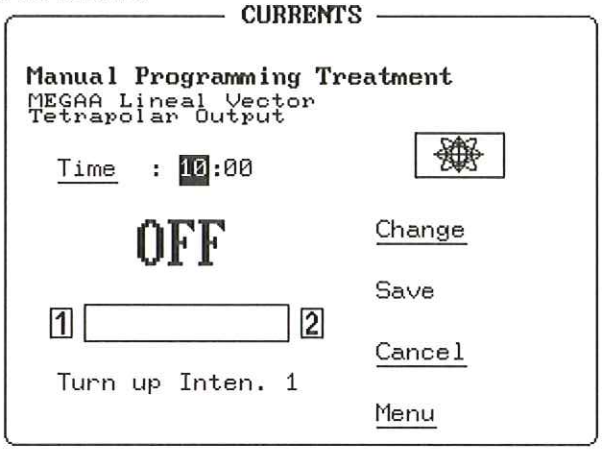

Position the cursor over MEGAA Linear Vector. Press the Menu button and the following screen display will appear:



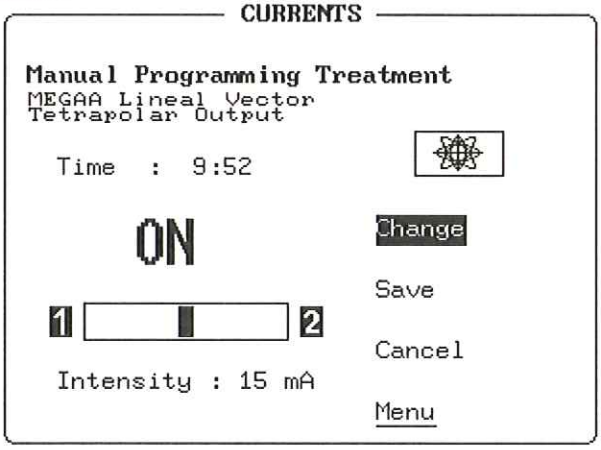

By positioning the cursor over Frequency, you can change the setting within a range of 1,000 and 5,000 Hz in intervals of 200 Hz. For example, let us select 4,200 Hz. Press the Menu button. Position the cursor over Rotation Velocity and press the Menu button. Now you have the option of changing the time taken by the vector in turning full circle. This time can be set in a range of between 1 and 25 seconds. Let us select a time of 6 seconds. Press the Menu button. Position the cursor over Continue, press the button again and the following screen will appear:



The cursor is now positioned over the treatment duration setting. By turning the Menu button, you can select the desired treatment duration. Press the Menu button again and the screen will show as follows:



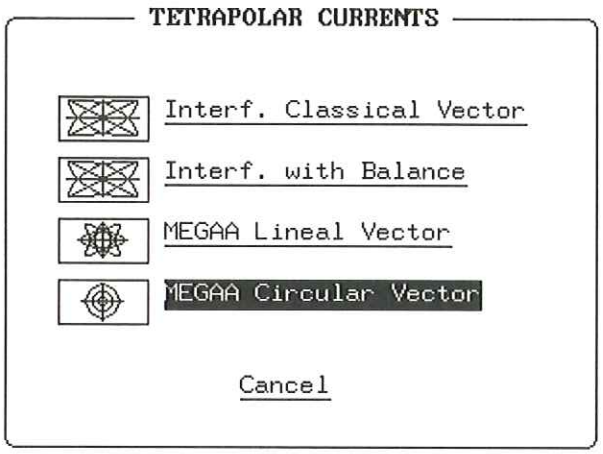

Now, it only remains to position the electrodes in the corners of an imaginary rectangle, with the Outlet 1 electrodes on one diagonal and the Outlet 2 electrodes on the other. Now, you can set the intensity by using the Outlet 1 or Outlet 2 button. The screen display will be as follows:



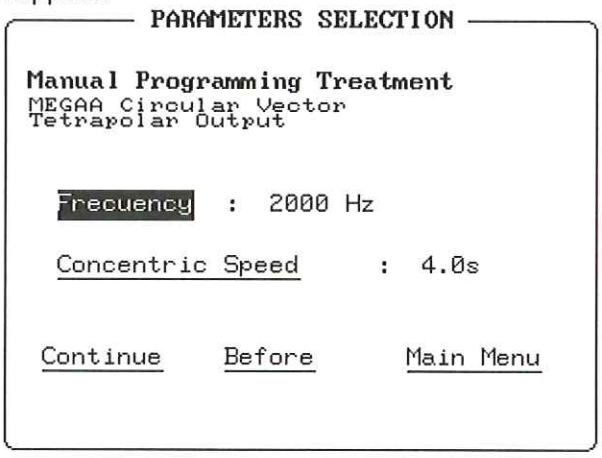

During administration of treatment, you can observe the movement of the cursor between each pair of electrodes of Tetrapolar current. This will continue until the end of treatment, which the apparatus will mark by emitting a musical signal. **MEGASONIC 707** is now ready to be programmed for another treatment in the Main Menu or to be reset for the same treatment.

### 2.5.15 MEGAA CIRCULAR VECTOR *(ONLY MEGASONIC 707)*

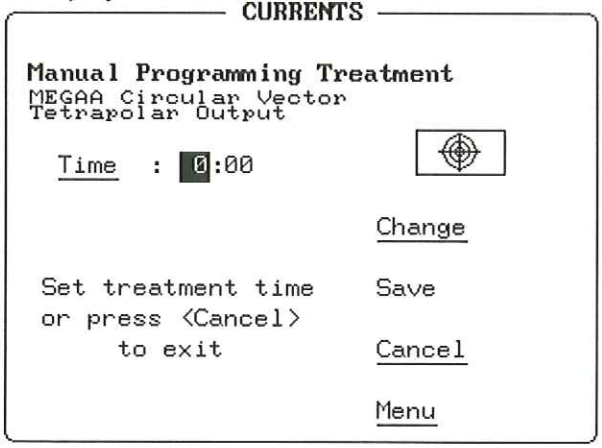
From the screen:



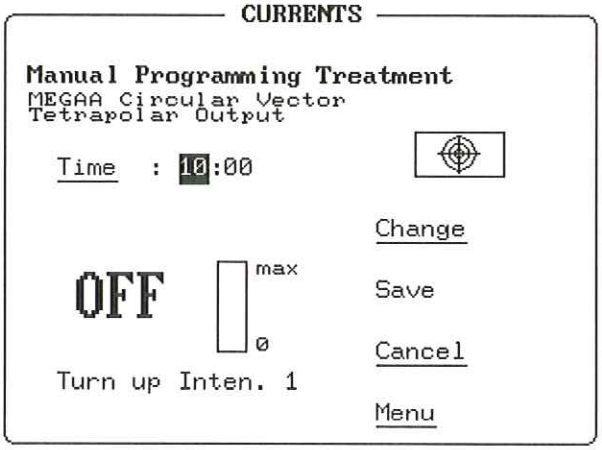

Position the cursor over MEGAA Circular Vector. Press the Menu button and the following screen will appear:



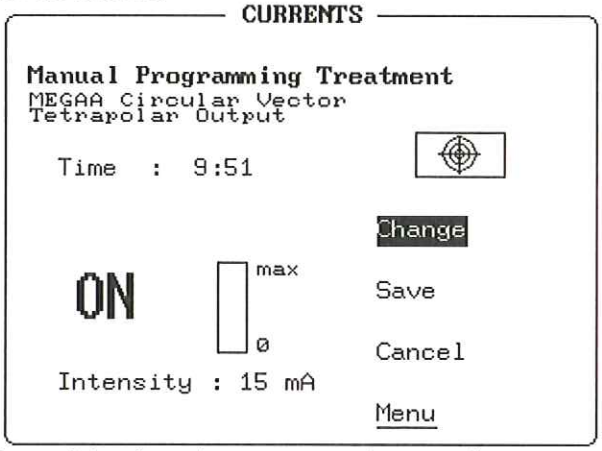

By positioning the cursor over Frequency, you can change the frequency setting in a range between 1,000 and 5,000 Hz at intervals of 200 Hz. For this example, let us select 5,000 Hz. Press the Menu button, position the cursor over Concentric Speed and press the button again. Now you have the option of modifying the time the vector takes in making a full turn in a range between 1 and 25 seconds. Let us select 10 seconds. Now press the Menu button and position the cursor over Continue. Press the button again and the screen display will be as follows:



The cursor is now positioned over the treatment duration setting. Turn the Menu button, select the desired duration and press the Menu button. The following screen will appear:




Now, it only remains to position the electrodes in the corners of an imaginary rectangle, with the Outlet 1 electrodes on one diagonal and the Outlet 2 electrodes on the other. Now, you can set the intensity by using the Outlet 1 or Outlet 2 button. The screen display will be as follows:




During administration of treatment, you can observe the movement of the cursor between each pair of electrodes of Tetrapolar current. This will continue until the end of treatment, which the apparatus will mark by emitting a musical signal. **MEGASONIC 707** is now ready to be programmed for another treatment in the Main Menu or to be reset for the same treatment.

## 2.5.16 TREATMENTS *(ONLY MEGASONIC 707)*

In the Treatments menu you have three possibilities:

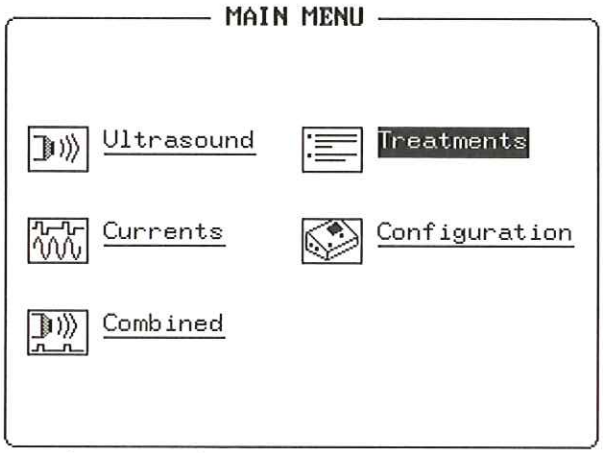
-Ultrasound treatments.
-Current treatments.
-Combined therapy treatments.

In current treatments menu you have three possibilities:

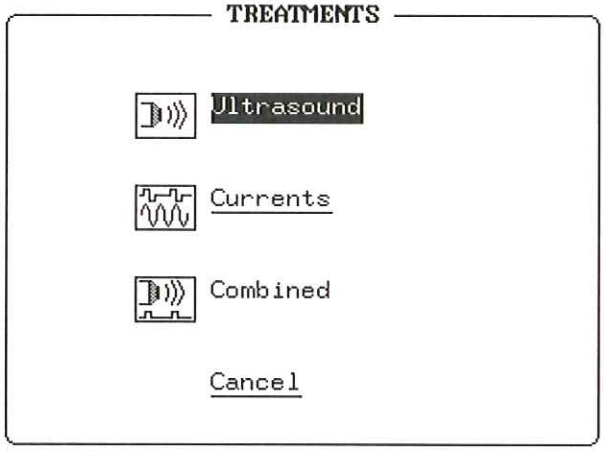
- Carin Treatments; these are treatments with one or more types of current which are pre-set by the manufacturer. The only option you have is whether to use them or not.
- Single User Treatments; these are treatments with one type of current which the user programs. You can decide to use these treatments or erase them.
- Chained User Treatments; these are treatments with two or more types of current which the user programs. You can decide to use these treatments or erase them.

## 2.5.17 CARIN TREATMENTS. *(ONLY MEGASONIC 707)*

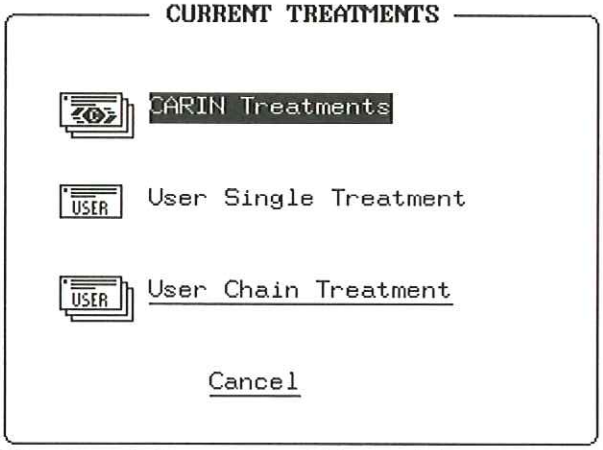
To use one of the pre-set factory single treatments, position the cursor over Treatments, press the button:



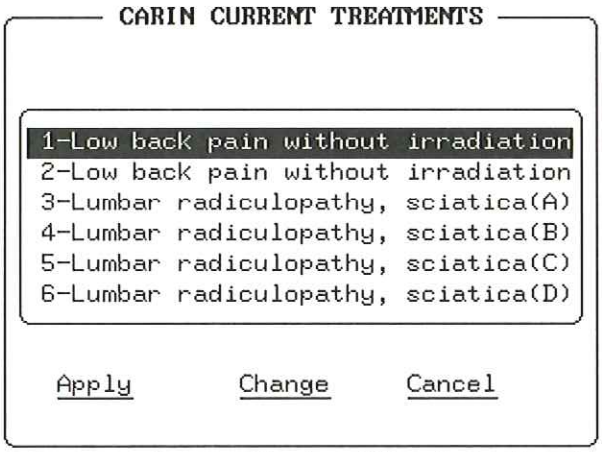

position the cursor over Current and press button:



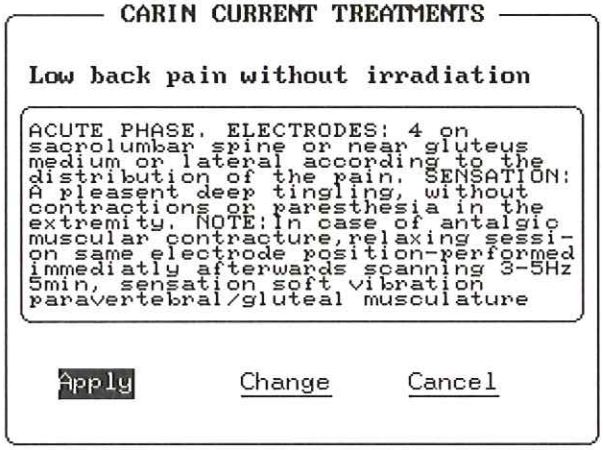

Use the cursor to select a Carin treatments from the list and then press the button:



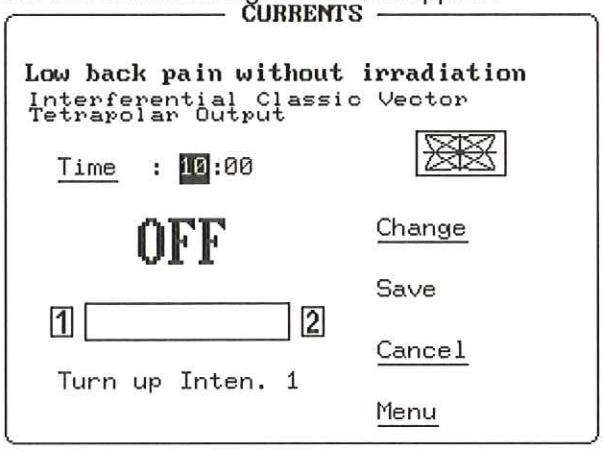

If you select the first treatment, the screen will be as follows:




This displays information regarding positioning of the electrodes, the sensations that should be noted by the patient and general recommendations.



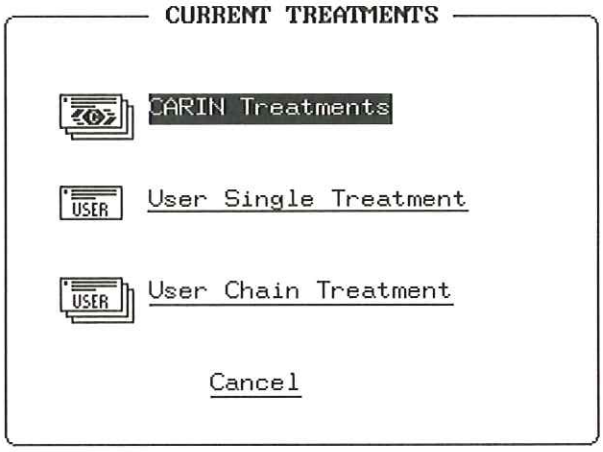

Once the electrodes have been placed in position. Position the cursor over Apply. Press the Menu button and the following screen will appear:



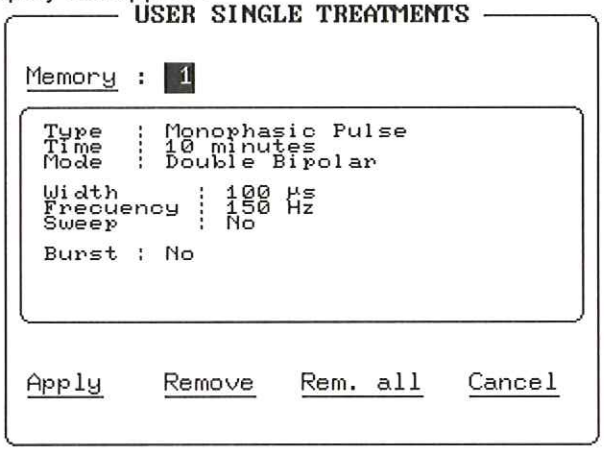

Now it only remains to set the intensity by using the Outlet 1 or 2 controls.

## 2.5.18 SINGLE USER TREATMENTS *(ONLY MEGASONIC 707)*

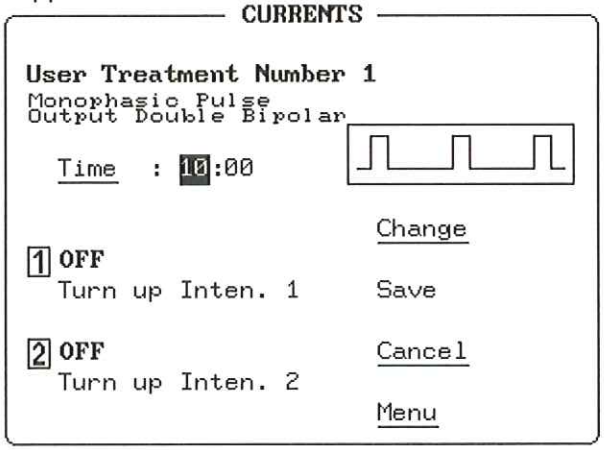
From the screen:



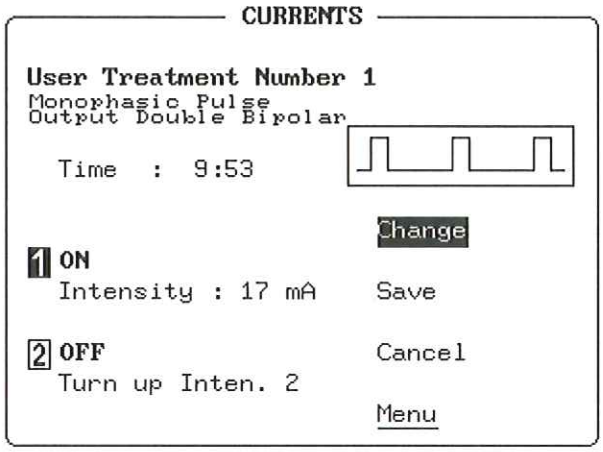

Position the cursor over Single User Treatments. Press the Menu button and the following screen display will appear:




The screen shows the current settings saved in memory slot no. 1. Should you wish to locate other treatments saved in memory you can do so by turning the Menu button until you come to the memory slot where you have saved the treatment. In this example, we only have two treatments saved in memory, so **MEGASONIC 707** only offers us these two possibilities. To select memory no. 1, which is the one shown on the screen above, press the Menu button and position the cursor over Apply. The following screen will appear:



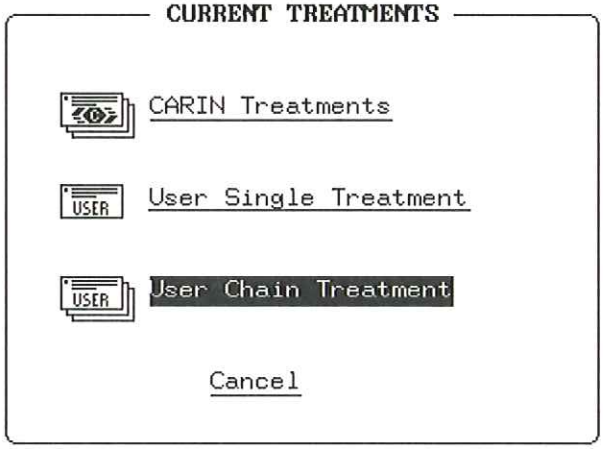

Now, it only remains to apply the electrodes to the patient and set current intensity by means of the corresponding outlet controls. The screen will be as follows:




The screen will remain like this for the duration of the treatment, unless you choose to modify it. At the end of treatment the apparatus will emit a musical signal.

## 2.5.19 CHAINED USER TREATMENTS *(ONLY MEGASONIC 707)*

Similar to the treatment described above, this treatment consists of two or more types of current, which have previously been configured by the user. From the starting screen:

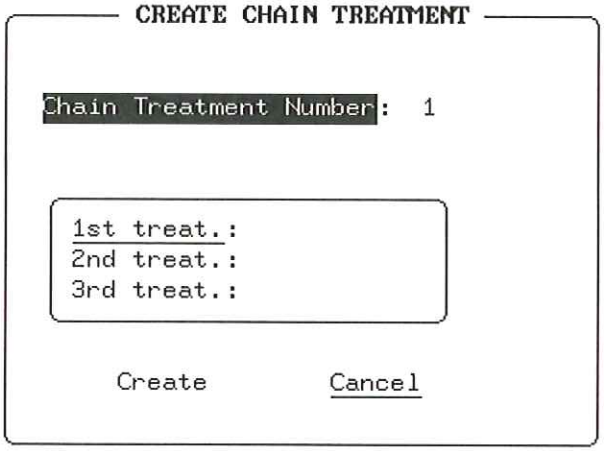



Position the cursor over Chained User Treatments and press the Menu button. The following screen display will appear:

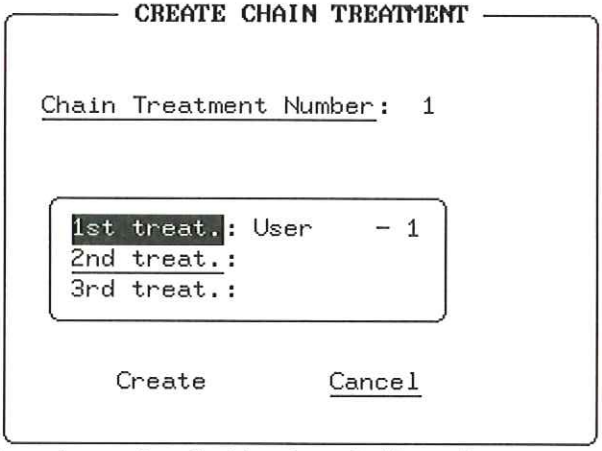
The screen tells us that there are no chained user treatments. You have the option to either create one or quit. We shall created a chained treatment involving the treatments saved in previous examples.

### 2.5.20 CREATING A CHAINED USER TREATMENT. *(ONLY MEGASONIC 707)*

Position the cursor over Create and press the Menu button. The following screen will appear:

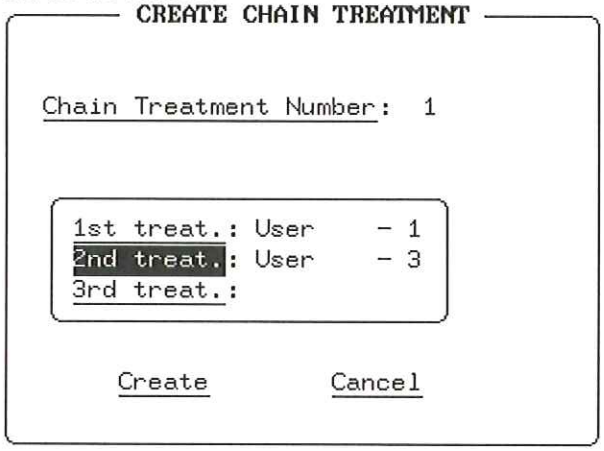



Select a memory slot (there are a total of 20 available). For this example, let us select memory slot no. 1. Press the Menu button and position the cursor over the first treatment. Press the button again and the cursor will move to the right of the first treatment. Turn the button and the two options CARIN and USER will be offered. This shows that the user can create combined treatments consisting of single CARIN or single user treatments which have been saved in memory. Select USER and press the Menu button. The first single user treatment will appear on screen and the cursor will be positioned over memory slot no. 1. Press the Menu button, position the cursor over Select and press the button again. The screen will show that user memory no. 1 has been selected:

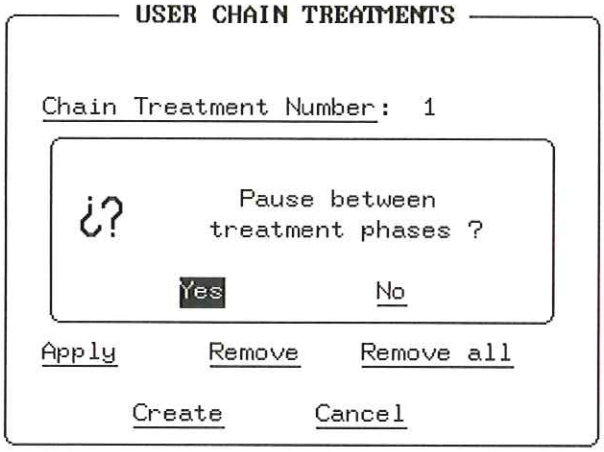



The cursor is positioned over the first treatment. Move the cursor and position it over the second treatment. Press the button. Select User again and then press the button again. Select memory no. 2, which contains an interferential bipolar current. Press the button, position the cursor over Select. Press the button again. The second treatment for the chained user treatment has now been saved. To add another current, follow the same procedure as described above. For this example, we shall only use two currents for the chained treatment. You should make a note of the treatment number and the

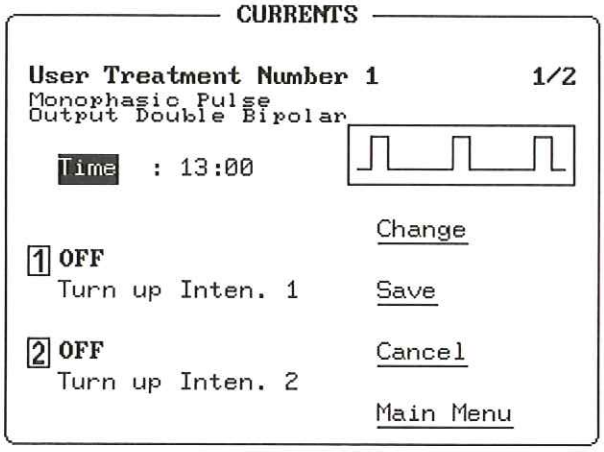
currents of which it consists. Position the cursor over Create and press the Menu button. The screen will be as follows:



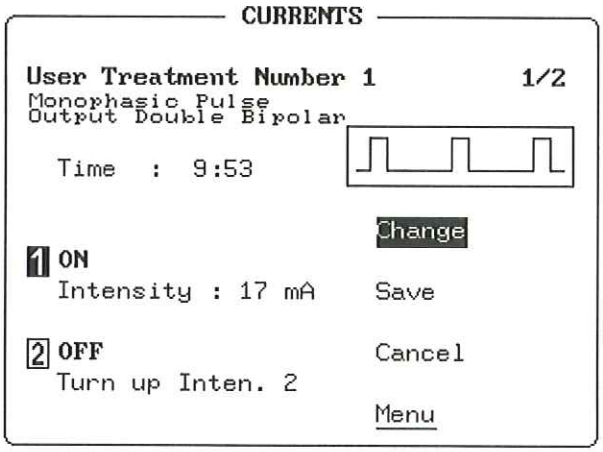

Position the cursor over Apply and press the Menu button. The following screen message will appear:



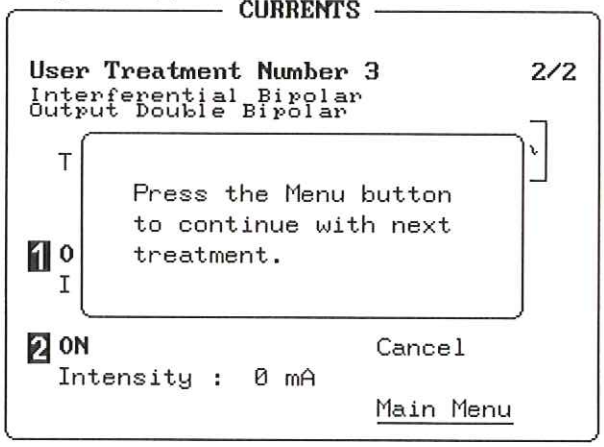

This screen asks whether there is to be a pause between the two currents in the treatment to allow the therapist to adjust the second current. If no pause is required, **MEGASONIC 707** will apply both currents without a pause. For this example, we shall select a pause. Press the Menu button and the screen will be as follows:




Set the intensity for each outlet. The screen display will be as follows:

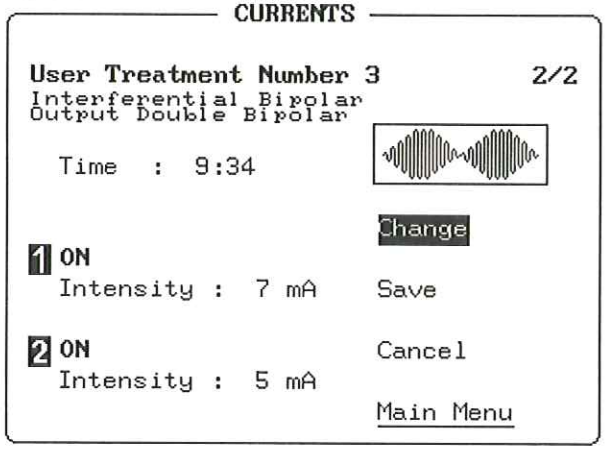



This indicates that the first current in the treatment will be applied for the first 13 minutes. At the end of the 3 minutes, **MEGASONIC 707** will emit a bleep and the following screen message will appear:

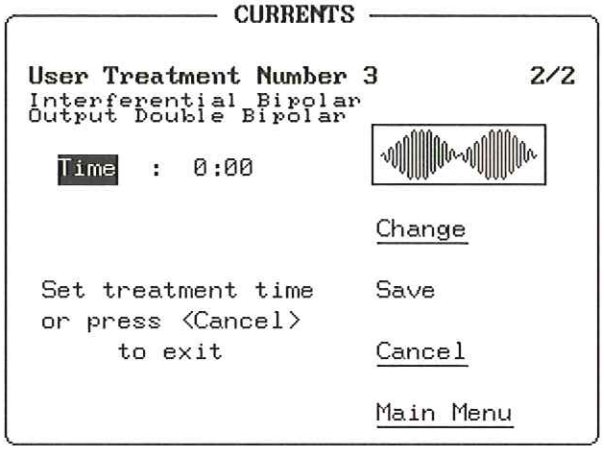



Press the Menu button. The screen will be as follows:

The treatment now continues with the second current and at the same intensity that was programmed for the first one. This intensity can be increased or decreased in accordance with the particular treatment needs. At the end of treatment, the apparatus will emit a musical signal.



And now continue the treatment with the second current and with the same intensity that the first current. This intensity we may change to increase or decrease it if it was necessary. When the time is over, the **MEGASONIC 707** will emit a musical signal. The screen will be as follow:

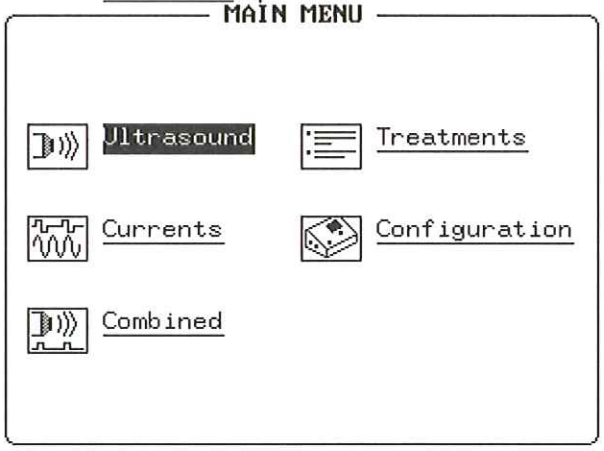



You now have three options: Change Cancel Menu

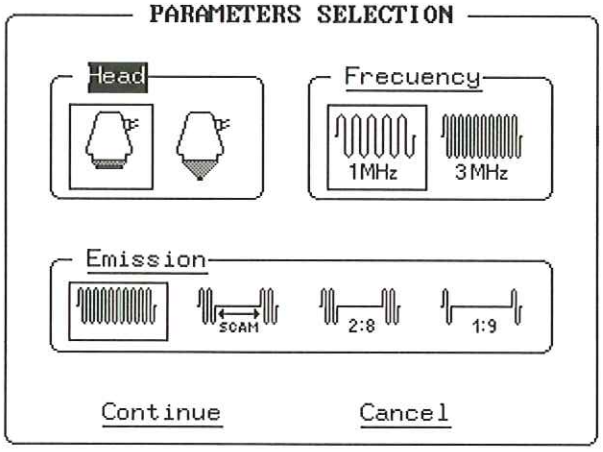
## 2.6 ULTRASOUND (Megasonic 700 & Megasonic 707)

### 2.6.1 PROGRAMMING A SINGLE ULTRASOUND TREATMENT (MEGASONIC 700 & MEGASONIC 707)

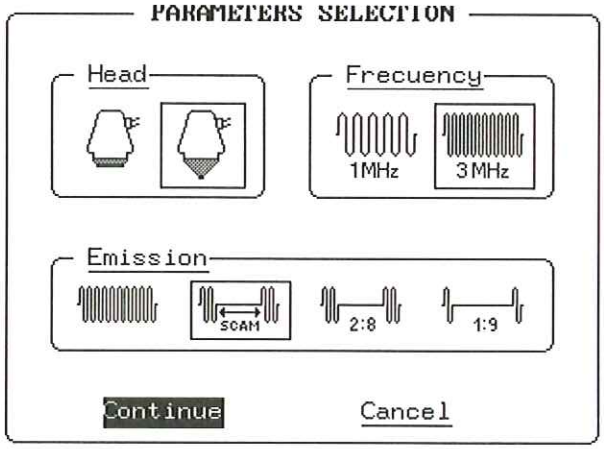
To program one ultrasound single treatment, we depart from the main menu screen and put the cursor over the ultrasound option:



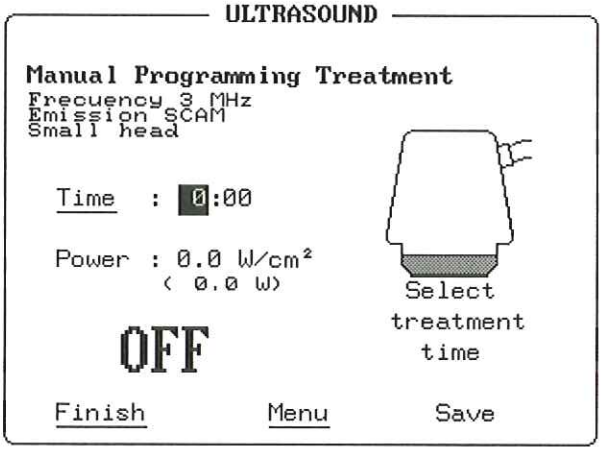

One time the option is selected with the cursor, we press the menu botton, and now the screen will be as follow:



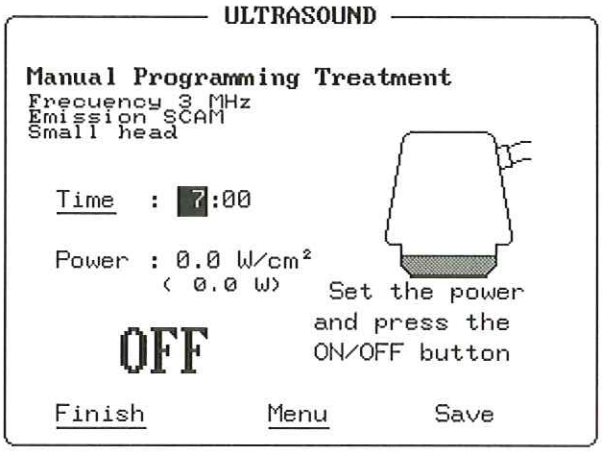

For example, we make a program of ultrasound treatment with small head, 3 Mhz, SCAM emission for 7 minutes and 1.5 W/cm².
To choose the head, frequency and emission options Emission, will be enough to be placing the cursor on each of the options, to press the button of menu and once chosen with the cursor, turning the encoder of menu, the wished option, we will press again the button of menu in order that she remains selected. Once selected three described parameters it stops the treatment commented as example, the screen will confirm to us our selection:



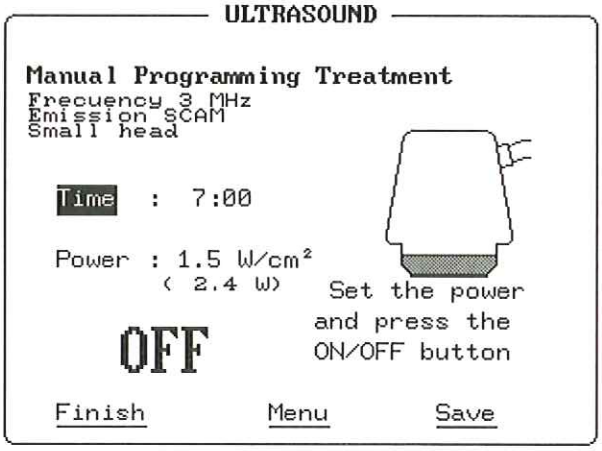

Immediately afterwards we will place the cursor on Continuing and us the following screen appears:



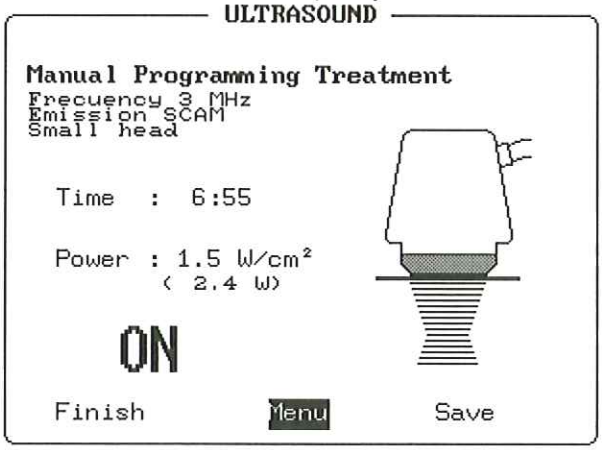
Now we will program the time and the intensity of the treatment. For that, locate the cursor on Time, push the menu bottom, and select the treatment time that you want with a simple turn of the encoder, that in our example is 7 minutes.



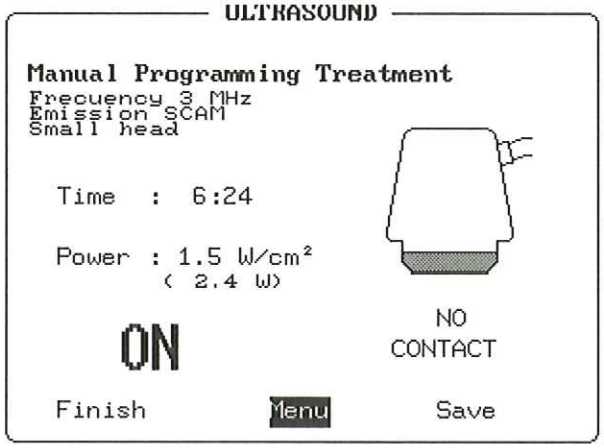

With the button of dosing of the power of the ultrasound, we will increase this one up to the wished value:



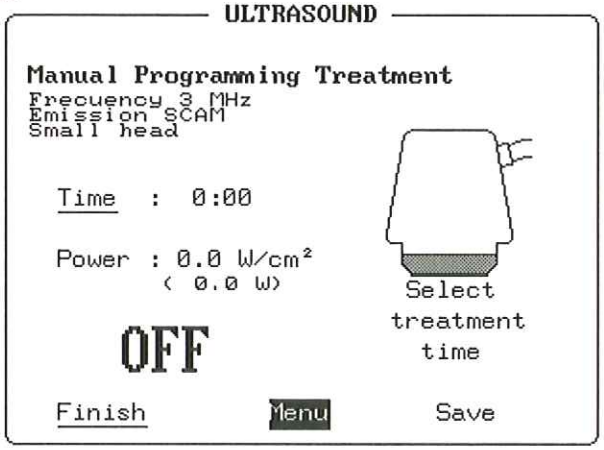

As soon as we have the way of contact (gel) in the anatomical chosen situation, we will devote the compress in the zone at treating, will press the ultrasound button and thanks to the modern control of contact that possesses the MEGASONIC 700 and MEGASONIC 707, it will begin to emit the treatment of a totally sure and trustworthy form, finding out at all time on screen of the quality of the emission.



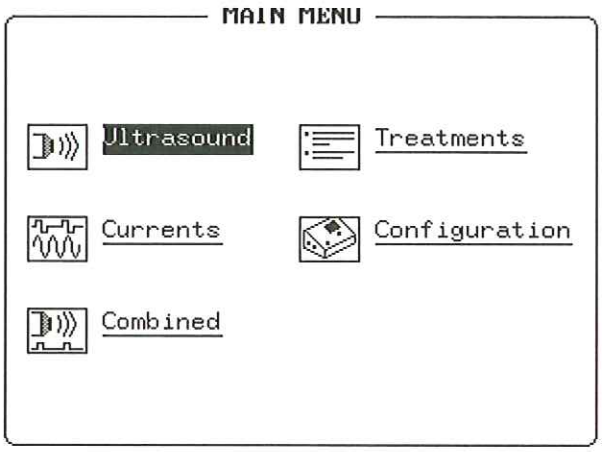
If in any moment of the treatment a good contact of the compress does not exist with the zone to treating, for the reason that is, the MEGASONIC 700 and MEGASONIC 707 will stop expressing(emitting) ultrasound (paralyzing also the book-keeper of time) and it will inform us on screen:




Once exhausted the time of treatment, the MEGASONIC 700 and MEGASONIC 707 will emit a sound it stops to warn of the end(purpose) of treatment and we will visualize the following screen:

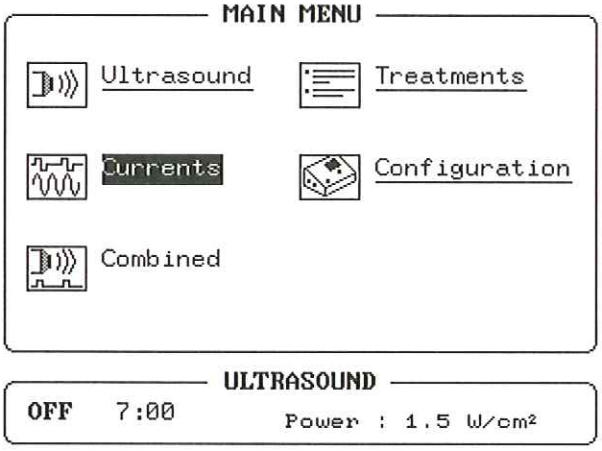



Come to this point, we have the option to return to have time it stops to apply the same treatment to another similar patient, or coming to the option menu stops to programme a treatment of currents and to be able to continue using the ultrasound, or to select To finish stops to give for the session finished.
In our case we choose to end the session; it stops we place the cursor on Finishing and press the button of menu, appearing again on screen the main menu.




### 2.6.2 PROGRAMMATION TO SIMULTANEOUS APPLICATION OF AN SIMPLE ULTRASOUND TREATMENT AND ANOTHER CURRENT (MEGASONIC 707)

If already we have programmed the ultrasound treatment and want to apply simultaneously a treatment of current to the same one or to another patient, it will be enough to place the cursor on Menu and press the button of menu; us the following screen will appear:




Definitively it is a question of realizing the inverse operation to which we have realized in the point 2.5.10.5. We will realize the programming of the current in the same way(alike) commented in the previous points referred to this fact.

## 2.7 CONFIGURING THE APPARATUS

To change general apparatus function settings, go to the Main Menu. Position the cursor over Configuration. Press the Menu button and the following screen will appear:

### 2.7.1 LANGUAGE

Position the cursor over Language and press the Menu button. The cursor will position itself over Castellano. By turning the Menu button, it can be set to English. Press the Menu button. Position the cursor over Accept and then press the button again. The screen will show us the Main Menu again, in the selected language.

### 2.7.2 CONTRAST

Position the cursor over Contrast and press the Menu button. The cursor will position itself over the percentage. By turning the Menu button, you can increase or decrease the contrast setting. When you have reached the desired contrast, press the Menu button. Position the cursor over Accept and press the button. The screen will show us the Main Menu again, this time with the new contrast setting.

### 2.7.3 VOLUME

Position the cursor over Volume and press the Menu button. The cursor will position itself over the percentage. By turning the Menu button, you can increase or decrease the volume setting. When you have reached the desired volume, press the Menu button. Position the cursor over Accept and press the button. The screen will show us the Main Menu again, this time with the new volume setting.

## 2.8 ADVICE FROM THE MANUFACTURER

- Once the apparatus has been switched on, we recommend it be left switched on if it is to be in use for 60% of the working day or more.
- On completion of each treatment, remove and clean electrodes.
- When plugging in and unplugging, pull by the plug, NOT THE CABLE!
- Periodically check the condition of the electrodes and their expiry date (in the case of adhesive electrodes).
- Once treatment has ended, unplug the cables from the apparatus.
- Periodically check the condition of the sponges; do not use damaged sponges.

# 3. TECHNICAL DESCRIPTION

## 3.1 SAFETY

CLASIFICATION:

| | |
|---|---|
| Protection against electric discharges, type: | CLASS I EQUIPMENT |
| Protection against electric discharges, grade: | TYPE BF EQUIPMENT |
| Protection against water: | ORDINARY EQUIPMENT |
| Flammable anaesthetic mixture safety grade: | NOT SUITABLE |
| Mode of operation: | CONTINUOUS OPERATION |

If requested, ELECTROMEDICARIN, S. A. will provide a copy of the report regarding the Tests performed (Electric Safety and Electromagnetic Compatibility).

### 3.1.1 STANDARDS

**MEGASONI** conforms to the following standards:

- EN 60601-1, Medical electrical equipment. General requirements for safety.
- EN 60601-2-10, Particular requeriments for nervous and muscular stimulators

All outputs are protected against short-circuit and open circuit.

**Output blockade:** Standard EN 60601-2-10 indicates that those stimulators that are able to provide output values higher than 10 mA or 10 V (effective values) should be built in such a way that voltage can be applied to the output only if the control or controls of output width are adjusted to the minimal position.

### 3.1.2 Electromagnetic compatibility

**MEGASONIC 700 & MEGASONIC 707** has been designed according to the following standards:

- EN 60601-1-2, Medical electrical equipment. Part 1: general requirements for safety. Section 2: Collateral standard. Electromagnetic compatibility. Requirements and test.

- This equipment conforms to the international safety standards EN 60601-1-1 for electric medical devices.

### 3.1.3 Precautions

- **This device** can supply currents higher than 10 mA, and voltages higher than 10 V (see MAXIMUN RATINGS section).
- Patients with implanted electronic devices (e.g.: a pacemaker) should not be stimulated, unless previously authorised by a physician.
- Simultaneous connection of a patient to a high- frequency surgical equipment may cause burnings in the contact points between the device and the patient, and the equipment itself may result damaged.
- Operation of a short wave or microwave therapeutic device in the proximity (3 m) may cause instabilities in the output power of the equipment.
- Current densities higher than 2 mA (effective value)/cm2 in any electrode may require special attention by the user.
- Use of electrodes of improper dimensions, or an improper application of the electrodes may cause cutaneous reactions or burnings.
- Disturbances on implanted devices may cause certain risks.
- This equipment supplies some signals with only positive pulses. This implies that the signal provided has a component of continuous (galvanic). The maximum level is that indicated in the MAXIMUM RATINGS section.
- The measures of the electrodes for the MEGASONIC 700 & MEGASONIC 707 are mentioned in the section 4. (ACCESSORIES). In the section 5. GUIDE OF APPLICATIONS AND TREATMENTS some treatments and methods of applications are detailed. Taking into account that the user of the MEGASONIC 700 & MEGASONIC 707 must be a professional in the field of Medicine and Physiotherapy, the decision on which electrode should be used in each treatment.
- The MEGASONIC 700 & MEGASONIC 707 show output sign with a continuous current component (galvanic) which never will be over the 1% form the Full Scale

(<1% F.S). This is indicated in the section MAXIMUN RATINGS for the waves forms. A special attention must be paid during the usage of the signels.

- For the mentioned electrodes, if the current density is higher than the limit of 2 $mA/cm^2$ (efficient current ) an special attention from the user is needed.

| | |
|---|---|
| 2A01009 | Conductive Rubber Electrode 30 x 50 (cm) 2mm |
| 2A01015 | Conductive Rubber Electrode 60 x 80 (cm) 2mm |
| 2A01016 | Conductive Rubber Electrode 80 x 125 (cm) 2mm |
| 2A01018 | Self adhesive Electrode Ref. 624 50 x 50 (cm) |
| 2A01017 | Self adhesive Electrode Ref. 623 50 x 100 (cm) |

**Note: All these precautions are contemplated by standard EN 60601-1.**

### 3.1.4 TECHNICAL DATA

If requested by the customer, ELECTROMEDICARIN, S.A. will furnish all technical documentation of **MEGASONIC 700 & MEGASONIC 707** to the Technical Service of the user, if the aforementioned Technical Service is considered sufficiently qualified by the criteria of ELECTROMEDICARIN, S.A.

The modalities of waves that **MEGASONIC 700 & MEGASONIC 707** can provide are defined by the following data:

### 3.1.5 POWER SUPPLY

| | |
|---|---|
| Voltage of electric installation | 220 V ± 10% (220 V version) |
| Voltage of electric installation | 110 V ± 10% (110 V version) |
| Frequency | 50/60 Hz |
| Equipment fuse: | 2 x 0.5 A. slow fusion (220V version) |
| Equipment fuse: | 2 x 1 A slow fusion (110V version) |
| Consumption: | 10 VA |
| Maximun consumption | 50 VA |

### 3.1.6 OUTPUTS

**MAXIMUM RATINGS**

| | |
|---|---|
| Nº of channels: | 3 |
| Utilization of the outputs | Output 1 and 2 for low and middle current frequency: TENS, MEGAA, Interferencital (bipolar and tetrapolar) |
| Insulation between outputs: | Yes |
| Protection against short-circuit: | Yes |
| Protection against open circuit: | Yes |
| Output blockade: | Yes |
| Trains application | Yes |

## 3.2 MAINTENANCE

### 3.2.1 Cleaning, disinfection and sterilisation

- Before proceeding to clean the apparatus, you must take the precaution of disconnecting the equipment from the electricity.
- The equipment should be cleaned with a cloth dampened with soap and water.
- The painted zones of the furniture and the frontal pad can be cleaned in this way.
- Do not forget drying the device afterwards
- The silicone electrodes incorporated to the equipment as accessories should be cleaned with soap and water.
- A 5 % bleach solution can be used to disinfect the apparatus.
- The cleaning of the elastic bandages used to fasten the electrodes can be performed as the user considers fitting.

### 3.2.2 Inspection or preventive maintenance

To obtain an optimum level of performance from the equipment and avoid possible inconveniences during its use, it is necessary to carry out daily verifications of its correct functioning and to check the accessories.

#### 3.2.2.1 Cables

The patient cables are the elements more liable to present incidences unless they are subjected to a special care.

- To avoid the rupture of the conductor wires it is recommended that the operations of connecting and disconnecting the patient cables (to the electrodes as well as to the apparatus) be performed holding the connectors, and not the cables.
- Check the cables periodically, specially around the connection to the electrodes.
- Perform a periodical cleaning of the metallic terminals of the connectors.
- It is recommended to keep a spare set of cables in good condition.

#### 3.2.2.2 Electrodes

Electrodes are another element to take into account, as their effective lifetime is finite. The resistance of the electrodes increases with time. This increase is faster when electrodes are used more frequently. The electrodes can reach a level of resistance such that when a treatment is applied to a patient, the patient will not notice any sensation, even though the applied dose is maximum.

When this happens usually and with all the treatments, a loss of electrode conductivity should be suspected. In this case, the electrodes should be replaced for new ones in good condition

It is recommended to keep a spare set of electrodes in good condition

### 3.2.5 TROUBLES SOLUTIONS

The equipment you have purchased has been designed not to need regular maintenance care. In any case, the equipment has test functions that will inform you of the possible incidences that may occur.

**MEGASONIC 700 & MEGASONIC 707** has been designed with high quality components, so that malfunctioning due to failure will be minimal. However, in case some problem does appear, or to solve any doubts, you can consult the following quick guide for troubleshooting.

Look for the symptom you have detected in the column headed "SYMPTOMS", and in the right column, "SOLUTIONS", you will find the possible causes of the malfunctioning of your equipment.

You will see that some situations are not malfunctions in themselves, and can be easily solved after consulting the guide. If you are not able to find the defect or the solution in this section, do not worry: it is possible that you will not be able to solve the problem and it may be necessary to contact the Technical Service.

| **Troubles** | **Solutions** |
|---|---|

Problems: Solutions:

1. The screen does not light up and there is no initial bleep.

(a) Check that the main switch is on.
(b) Check that the main cable is plugged in.
(c) Check the entry fuses. If any are found to be defective, change them. See the section *Changing the fuses*.

2. Some seconds after beginning treatment, the error alarm signal sounds.

(a) Check that the electrodes are correctly positioned.
(b) Check that the cable leading to the patient is not damaged. Should it prove damaged or cut in any way, change it.
(c) The electrode may be defective. Change it.
(d) If none of the above apply, inform the Technical Service.

3. An electrode error message occurs above a certain intensity. However, if the outlet is short-circuited and intensity increased, then no error signal occurs.

(a) The electrodes have probably deteriorated. Change them.
(b) It may be that there is poor contact between the cable and the electrode, or between the electrode and the patient. Check.

Remember:
If you cannot solve the problem, do not open the apparatus. The apparatus does not have any internal parts which can be adjusted by the user. The apparatus must only be opened by authorised Technical Service personnel.

## 3.3 REPLACING THE FUSES

**MEGASONIC 700 & MEGASONIC 707** has two fuses placed on the left part of the back of the equipment. The fuses can be easily replaced by the user (see fig. 2).

The operations to perform are the following:
1) Turn off the power switch.
2) Remove the power cable for connection to the electric installation.
3) Press the lateral edges as indicated in figure 2, and remove the piece that supports the fuses.
4) Check which one is burned out.
5) Replace it for a new one of the same type or equivalent.
   **Note:**
   **For version 220V use type 1.25 A slow fusion 5 x 20 mm fuses.**
   **For version 110V use type 2.5 A slow fusion 5 x 20 mm fuses.**
6) Replace the piece with the fuses in its original compartment.
7) Connect the power cable.
8) Connect the power switch and check if the equipment is working correctly.
9) If you detect any problem consult section 3.3.3 (Troubleshooting).

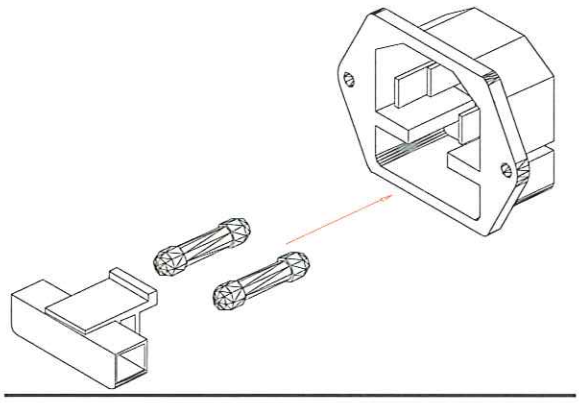


Figure 2

## 3.4 TECHNICAL ASSISTANCE SERVICE

The equipment manufactured by ELECTROMEDICARIN, S.A. is developed with the latest technologies in Hardware as well as Software. Therefore, access to repair of the equipment is restricted to our Technical Service or duly qualified personnel approved by ELECTROMEDICARIN, S.A.

All equipment manufactured by ELECTROMEDICARIN, S.A. includes a warranty of repair, through our technical services distributed in different areas and co-ordinated by our central in Barcelona.

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Fax: + 34 - 93 - 573 03 31

E-mail: exportacion@electromedicarin.com
Web site: www.electromedicarin.com

# 4. STANDARD ACCESSORIES

**MEGASONIC 700**

| REF. | DESCRIPTION | UNITS |
|---|---|---|
| **1E04008** | **MEGASONIC 700 Device** | **1** |
| 2A03001 | A/C Cable | 1 |
| 2A14008 | Head 6 cm | 1 |
| 2A14007 | Head 1,6 cm *(en option for two heads - Ref. 1E04008A)* | 1 |
| 2A00010 | Support for head | 1 |
| 2GEL001 | CARINGEL 250 ml | 1 |
| | User's manual | 1 |
| | Warranty | 1 |

**MEGASONIC 707**

| REF. | DESCRIPTION | UNITS |
|---|---|---|
| **1E04007** | **MEGASONIC 707 Device** | **1** |
| 2A14007 | Head 1,6 cm of 1 and 3 Mhz *(in option of 2 heads - Ref. 1E04007A)* | 1 |
| 2A03054 | Patient cable injection red | 2 |
| 2A14008 | Head 6 cm of 1 and 3 Mhz | 1 |
| 2A01015 | Conductive rubber electrode 60x80 Banana 2mm | 4 |
| 2A02003 | Sponge for electrode 60x80 Banana 2mm | 4 |
| 2A01017 | Disposable electrodes 50x100mm | 4 |
| 2A04002 | Elastic velcro strap 75cm | 4 |
| 2GEL001 | CARINGEL 250 ml | 1 |
| 2A03001 | A/C Cable | 1 |
| 2A03058 | Cable for combined therapy | 1 |
| | User's manual | 1 |
| | Warranty | 1 |