Intelect® TRANSPORT

2 CHANNEL ELECTROTHERAPY

Leading Therapy in a New Direction

User Manual

Operation & Installation Instructions for:

2783- Two Channel
Transportable
Electrotherapy Unit

CHATTANOOGA GROUP A DIVISION OF encore MEDICAL

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FOREWORD

This manual has been written for the users of the Intelect Transport 2-Channel Electrotherapy units. It contains general information on the operation, precautionary practices, and maintenance information. In order to maximize use, efficiency, and the life of the unit, read this manual thoroughly and become familiar with the controls, as well as the accessories before operating the system.

Specifications put forth in this manual were in effect at the time of publication. However, owing to Chattanooga Group's policy of continual improvement, changes to these specifications may be made at any time without obligation on the part of Chattanooga Group.

Before administering any treatment to a patient, the users of this equipment should read, understand, and follow the information contained in this manual for each mode of treatment available, as well as the indications, contraindications, warnings, and precautions.

Consult other resources for additional information regarding the application of electrotherapy.

Product Description

The Intelect Transport 2-Channel Electrotherapy unit, designed and manufactured by Chattanooga Group, offers a new dimension in clinical electrotherapy made possible by software design and digital signal processing.

Effectiveness of this treatment is dependent upon correct use. If treatment times are exceeded, the therapy may not result in positive clinical outcomes.

Stay current with the latest clinical developments in the field of electrotherapy. Observe all applicable precautionary measures for treatment.

Keep informed of appropriate indications and contraindications for the use of electrotherapy.

This equipment is to be used only under the prescription and supervision of a licensed practitioner.

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SAFETY PRECAUTIONS

PRECAUTIONARY DEFINITIONS

The precautionary instructions found in this section and throughout this manual are indicated by specific symbols. Understand these symbols and their definitions before operating this equipment. The definition of these symbols are as follows:

Caution-
Text with a "CAUTION" indicator will explain possible safety infractions that could have the potential to cause minor to moderate injury or damage to equipment.

Warning-
Text with a "WARNING" indicator will explain possible safety infractions that will potentially cause serious injury and equipment damage.

Danger-
Text with a "DANGER" indicator will explain possible safety infractions that are imminently hazardous situations that would result in death or serious injury.

NOTE:
Throughout this manual, "NOTE" may be found. These Notes are helpful information to aid in the particular area or function being described.

SAFETY PRECAUTIONS

CAUTIONS

⚠ CAUTION

- Read, understand, and practice the precautionary and operating instructions. Know the limitations and hazards associated with using any electrical stimulation device. Observe the precautionary and operational decals placed on the unit.
- DO NOT operate the Intelect Transport 2-Channel Electrotherapy unit when connected to any unit other than Chattanooga Group devices.
- DO NOT operate this unit in an environment where other devices are being used that intentionally radiate electromagnetic energy in an unshielded manner.
- DO NOT use sharp objects such as a pencil point or ballpoint pen to operate the buttons on the control panel.
- This unit should be operated, transported, and stored in temperatures between 59° F and 104° F (15° C and 40° C), with relative humidity ranging from 30%-60%, and where the atmospheric pressure is between 950 h Pa and 1050 h Pa.

⚠ CAUTION

- The unit should be routinely checked before each use to determine that all controls function normally; especially that the intensity control properly adjusts the intensity of the electrotherapy power output in a stable manner. Also, determine that the treatment time control actually terminates electrotherapy power output when the timer reaches zero.
- The Intelect battery pack is designed for use only with Chattanooga Group Intelect Transport 2-Channel Electrotherapy, Combo, Laser, and Ultrasound systems.
- Inspect cables and connectors before each use.
- The Intelect Transport 2-Channel Electrotherapy unit is not designed to prevent the ingress of water or liquids. Ingress of water or liquids could cause malfunction of internal components of the system and therefore create a risk of injury to the patient.
- DO NOT permit any foreign materials or liquids to enter the unit. Take care to prevent any foreign materials including, but not limited to, inflammables, water, and metallic objects from entering the unit. These may cause unit damage, malfunction, electrical shock, fire, or personal injury.

SAFETY PRECAUTIONS

CAUTIONS (continued)

⚠ CAUTION

- This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to other devices in the vicinity. However, there is no guarantee that interference will not occur in a particular installation. Harmful interference to other devices can be determined by turning this equipment on and off. Try to correct the interference using one or more of the following: reorient or relocate the receiving device, increase the separation between the equipment, connect the equipment to an outlet on a different circuit from that to which the other device(s) are connected and consult the factory field service technician for help.
- Where the integrity of the external protective earth conductor arrangement is in doubt, equipment shall be operated from its internal electrical power source.

⚠ CAUTION

- The battery pack should be removed when storing the unit for extended periods of time.
- DO NOT disassemble, modify, or remodel the unit or accessories. This may cause unit damage, malfunction, electrical shock, fire, or personal injury.
- DO NOT remove the cover. This may cause unit damage, malfunction, electrical shock, fire, or personal injury. There are no user-serviceable parts inside the unit. If a malfunction occurs, discontinue use immediately and consult the dealer for repair service.
- Failure to use and maintain the Intelect® Transport 2-Channel Electrotherapy unit and its accessories in accordance with the instructions outlined in this manual will invalidate your warranty.

SAFETY PRECAUTIONS

WARNINGS

⚠ WARNING

- These devices are restricted to sale by, or on the order of, a physician or licensed practitioner. This device should be used only under the continued supervision of a physician or licensed practitioner.
- For continued protection against fire hazard, replace fuses only with ones of the same type and rating.
- Make certain the unit is electrically grounded by connecting only to a grounded electrical service receptacle conforming to the applicable national and local electrical codes.
- Care must be taken when operating this equipment around other equipment. Potential electromagnetic or other interference could occur to this or to the other equipment. Try to minimize this interference by not using other equipment in conjunction with it.
- The user must keep the device out of the reach of children.
- Electronic monitoring equipment (such as ECG monitors and ECG alarms) may not operate properly when TENS stimulation is in use.
- Powered muscle stimulators should be used only with the leads and electrodes recommended for use by the manufacturer.

⚠ WARNING

- Before administering any treatment to a patient you should become acquainted with the operating procedures for each mode of treatment available, as well as the indications, contraindications, warnings, and precautions. Consult other resources for additional information regarding the application of Electrotherapy.
- To prevent electrical shock, disconnect the unit from the power source before attempting any maintenance procedures.
- Keep electrodes separated during treatment. Electrodes in contact with each other could result in improper stimulation or skin burns.
- Long term effects of chronic electrical stimulation are unknown.
- Stimulation should not be applied over the anterior neck or mouth. Severe spasm of the laryngeal and pharyngeal muscles may occur and the contractions may be strong enough to close the airway or cause difficulty in breathing.
- Stimulation should not be applied transthoracically in that the introduction of electrical current into the heart may cause cardiac arrhythmia.
- Stimulation should not be applied over swollen, infected, and inflamed areas or skin eruptions, e.g., phlebitis, thrombophlebitis, varicose veins, etc.

SAFETY PRECAUTIONS

WARNINGS (continued)

⚠ WARNING

- Stimulation should not be applied over, or in proximity to, cancerous lesions.
- Output current density is inversely related to electrode size. Improper application may result in patient injury. If any question arises as to the proper electrode size, consult a licensed practitioner prior to therapy session.
- Dispose of all products in accordance with local and national regulations and codes.
- For continued protection against fire hazard, charge the battery pack only while installed on the Intelect Transport 2-Channel Electrotherapy unit.
- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous conditions causing damage to the battery pack or cells.
- To prevent electrical shock, disconnect the battery pack from the system before attempting any maintenance procedures.

SAFETY PRECAUTIONS

DANGERS

DANGER

- In the event that an Error message or Warning appears on the LCD beginning with a 2 or 3, immediately stop all use of the unit and contact the dealer or Chattanooga Group for service. Errors and Warnings in these categories indicate an internal problem with the unit that must be tested by Chattanooga Group or a Field Service Technician certified by Chattanooga Group before any further operation or use of the system. Use of a unit that indicates an Error or Warning in these categories may pose a risk of injury to the patient, user, or extensive internal damage to the system.
- DO NOT connect the unit to an electrical supply without first verifying that the power supply is the correct voltage. Incorrect voltage may cause unit damage, malfunction, electrical shock, fire, or personal injury. Your unit was constructed to operate only on the electrical voltage specified on the Voltage Rating and Serial Number Plate. Contact your Chattanooga Group dealer if the unit is not properly rated.
- Charge the battery pack according to the instructions found in this manual. Never attempt to charge the battery pack on any other charging mechanism.
- Use the battery pack only with the Intelect Transport Series units.

DANGER

- Do not reverse the polarity of the battery pack. Doing so can increase the individual cell temperature and cause cell rupture or leakage.
- NiMH Batteries contain Class E corrosive materials. In the event of battery cell rupture or leakage, handle battery pack wearing neoprene or natural rubber gloves. Contents of a ruptured or leaking battery can cause respiratory irritation. Hypersensitivity to nickel can cause allergic pulmonary asthma. Contents of cell coming in contact with skin can cause skin irritation and/or chemical burns.
- Never, under any circumstances, open the battery pack housing or cells. Should an individual battery from a battery pack become disassembled, spontaneous combustion of the negative electrode is possible. There can be a delay between exposure to air and spontaneous combustion.
- Never dispose of the battery pack in fire. Never short circuit the battery pack. The battery pack may explode, ignite, leak, or get hot causing serious personal injury.

DANGERS (continued)

DANGER

- Dispose of NiMH batteries according to national, state, and local codes and regulations.

SAFETY PRECAUTIONS

INDICATIONS, CONTRAINDICATIONS, AND ADVERSE EFFECTS

Indications for Russian, High Voltage Pulsed Current (HVPC), IFC, and Premodulated Waveforms

- Relaxation of muscle spasms
- Prevention or retardation of disuse atrophy
- Increase local blood circulation
- Muscle re-education
- Maintaining or increasing range of motion

Additional Indications for IFC and Premodulated Waveforms

- Symptomatic relief of chronic, intractable pain
- Post-traumatic acute pain
- Post-surgical acute pain

Contraindications

- This device should not be used for symptomatic local pain relief unless etiology is established or unless a pain syndrome has been diagnosed.
- This device should not be used when cancerous lesions are present in the treatment area.
- This device should not be used when open wounds are present in the treatment area.
- Other contraindications are patients suspected of carrying serious infectious disease and or disease where it is advisable, for general medical purposes, to suppress heat or fevers.
- Electrode placements must be avoided that apply current to the carotid sinus region (anterior neck) or transcereberally (through the head).
- Safety has not been established for the use of therapeutic electrical stimulation during pregnancy.
- Powered muscle stimulators should not be used on patients with cardiac demand pacemakers.

Additional Precautions

- Caution should be used for patients with suspected or diagnosed heart problems.
- Caution should be used for patients with suspected or diagnosed epilepsy.
- Caution should be used in the presence of the following:
  - » When there is a tendency to hemorrhage following acute trauma or fracture
  - » Following recent surgical procedures when muscle contraction may disrupt the healing process
  - » Over a menstruating or pregnant uterus
  - » Over areas of the skin which lack normal sensation.
- Some patients may experience skin irritation or hypersensitivity due to the electrical stimulation or electrical conductive medium. The irritation can usually be reduced by using an alternative conductive medium or an alternative electrode placement.
- Electrode placement and stimulation settings should be based on the guidance of the prescribing practitioner.
- Powered muscle stimulators should be used only with the lead wires and electrodes recommended for use by the manufacturer.

INDICATIONS, CONTRAINDICATIONS, AND ADVERSE EFFECTS (continued)

Adverse Effects

- Skin irritation and burns beneath the electrodes have been reported with the use of powered muscle stimulators.
- Potential adverse effects with TENS are skin irritation and electrode burns.

OVERVIEW

The Intelect Transport 2-Channel Electrotherapy unit, designed and manufactured by Chattanooga Group, offers a new dimension in portable electrotherapy made possible by advanced software design and digital signal processing. The result is a unit with extraordinary versatility based on simplicity of operation.

The Intelect Transport 2-Channel Electrotherapy unit offers "On the Go" clinical electrotherapy. The unit provides an innovative case design, with a logical control system and a large, easy to read graphical LCD. User defined protocols allow you to customize any electrotherapy treatment to the specific needs of your patient. The repositional base allows the unit to be configured for desktop or wall-mount use.

The following features are available on the Intelect Transport 2-Channel Electrotherapy unit:

- Two channels of electrotherapy stimulation output
- Independent intensity and parameter controls for each channel
- Four currents - IFC, Premodulated, High Voltage Pulsed Current (HVPC), and Russian
- Fifteen user-defined memory positions
- Lightweight design
- Battery powered option

Common Terms

Accommodation - condition where nerves lose their ability (sensitivity) to respond to electrotherapy.

Beat Fixed - Associated with the Interferential waveform, Beat Fixed is the parameter at which the beat frequency remains constant. When the Sweep setting is turned off, you must select a fixed beat for the therapy session. The available settings for Beat Fixed are 1 to 200 Hz.

Beat High - During a sweep, the Beat High setting is the highest number to which the beat frequency increases. The available range for the Beat High parameter is 2 to 200 Hz. This parameter is unique to the Premodulated and IFC waveforms.

Beat Low - During a sweep, the Beat Low setting is the lowest number to which the beat frequency decreases. The available range for the Beat Low parameter is 1 to 199 Hz. This parameter is unique to the Premodulated and IFC waveforms.

Burst - A burst is a series of pulses at a predetermined pulse frequency.

Burst Frequency (Freq.) - This is the number of bursts per second (bps). The available burst frequencies on the Intelect Transport 2-Channel Electrotherapy unit are 20 to 100 bps. This parameter is unique to the Russian waveform.

Carrier Frequency (Freq.) - Associated with the Interferential and Russian waveforms, Carrier Frequency is the frequency of the un-modulated medium frequency current. The available carrier frequencies are 2,500, 4,000, and 5,000 Hz for IFC, but fixed at 2,500 Hz for Russian and Premodulated waveforms.

CC/CV - This is the abbreviation for Constant Current/Constant Voltage. Constant current is a stimulator capable of delivering an electric current that flows at the same amplitude regardless of changes in tissue impedance over time. Constant voltage is a stimulator capable of delivering a source of voltage at the same amplitude regardless of changes in tissue impedance over time. Most modern electrotherapy units are of the constant current type because they provide a consistent, or stable level of current amplitude throughout the therapy session, thus making it comfortable for the patient and predictable for the clinician. Keep in mind that the amount of stimulation is directly proportional to the current.

Channel Mode - The available channel modes are Single Channel (in which electrotherapy is distributed from one channel), Reciprocal (where electrotherapy alternates between channels), and Co-Contract (where electrotherapy is distributed from both channels at the same time). This parameter is unique to the Russian waveform.

Cycle Time - Cycle Time is the alternating time which the current is "on" and "off." Using the 10/30 setting as an example, the current is on for 10 seconds and off for 30. The available cycle times are Continuous, 5/5, 4/12, 10/10, 10/20, 10/30, and 10/50. This parameter is unique to the Russian, Premodulated, and HVPC waveforms.

Display - Available only on the HVPC waveform, the Display feature allows you to change the displayed Intensity parameter from Volts to Peak Current (Amps).

Duty Cycle - This is the ratio of the "On" time to "Total" time of the cycle, expressed as a percentage. The duty cycle describes the pulsed modes of electric stimulation. The lower the percentage, the lower temporal average intensity. 100% is continuous electrotherapy. The available Duty Cycles are 10, 20, 30, 40, 50%. This parameter is unique to the Russian waveform.

Frequency - Frequency is the number of times per second a pulse will repeat itself. The unit is selectable from 10-120 pps. This parameter is unique to the HVPC waveform.

Intensity - Intensity is the output of electrotherapy distributed by the unit to the patient. Depending on the waveform, intensity is measured in milliamps (mA), volts (V), and microamps (µA).

Leadwires - The leadwires consist of the main plugs that are connected to the unit, and 4 leads (2 black and 2 red) that connect to electrodes.

Medium Frequency Current - These are the currents used by the Traditional Interferential (IFC), Interferential Premodulated, and Russian waveforms that is higher than 1000 Hz, but lower than 10000 Hz.

Operating Channels - Operating Channels are the paths by which the electrotherapy is distributed from the unit to the patient. The unit provides two channels of electrical stimulation.

Polarity - Polarity refers to the charge of an individual lead: positive or negative. This parameter is unique to the HVPC waveform.

Ramp - Ramp is the gradual increase and decrease in current. The purpose of ramping up the current is to maximize patient comfort by preventing the abrupt and sudden exposure to the current. This parameter is unique to the Russian and HVPC waveforms.

Sweep - This is the modulation of therapeutic frequency commonly used to prevent accommodation. Sweeps are measured in pulses per second (pps) and Hertz (Hz). The available sweeps are 1-120 pps for IFC and Premodulated, and 1-10 pps for HVPC.

Treatment Time – Measured in minutes and seconds, it is the suggested time in which therapy is given.

Type - Displayed as a parameter on the unit, Type is used to signify the specific kind of waveform.

Vector - A vector is a geometrically descriptive feature used to increase the effective therapeutic current at the crossing point of Traditional Interferential (IFC).

Vector Position - The available vector positions are 0 to 90 degrees.

Vector Scan - Measured in percentages, vector scans are the rhythmic changes of the position of vector. The available vector scans are Manual, Auto 40%, and Auto 100%.

Waveforms - Waveforms are current or voltage that is varied by time and are the geometrical descriptions of a DC, AC, or pulsed DC/AC current. Current waveforms are described as either monophasic or biphasic. A biphasic wave is further described as either symmetrical or asymmetrical and as balanced or unbalanced. For more specifications and types of waveforms available on the Intelect Transport 2-Channel Electrotherapy unit, refer to the section entitled **"Waveform Specifications"** on **page 20**.

NOMENCLATURE

NOMENCLATURE

Power On/Off

The Power On/Off button controls the flow of electricity to the unit.

NOTE: Make certain there are no electrodes on the patient when turning the unit on or off.

LCD

The LCD (Liquid Crystal Display) allows the user to view and monitor the information displayed before, during, and after therapy.

Clinical Resources

Select this button to access the following functions:

- Retrieving User Protocols
- Restoring Factory Settings
- Restoring Factory Protocols
- Changing Languages
- Viewing Unit Information

TIME

Press the Up or Down arrow buttons to set total treatment time of therapy.

Back

Use this button to return to the previous window.

STOP

Select this button to stop a treatment session.

Down Arrow

When the window displays a list of options, press the Down Arrow button to scroll down the list.

PAUSE

Use this button to pause the treatment session. When pressed, the icon displays. To restart therapy, press the PAUSE button.

NOMENCLATURE

Accessory Panel
The Accessory Panel serves as a port of connection for the electrodes.

Channel 1 Lead Wire Connection
This port serves as the connection point between the unit and the Channel 1 Lead Wire.

Channel 2 Lead Wire Connection
This port serves as the connection point between the unit and the Channel 2 Lead Wire.

START
Select Start to begin a treatment session.

Parameter Display/Enter
Select this button to display the parameters of the waveform during treatment. Also, this button is used to accept the highlighted selection.

INTENSITY
Use the up or down arrow to increase or decrease output power dosage.

Up Arrow
When the window displays a list of options, press the Up Arrow button to scroll up the list.

Battery Indicator
When displayed on the LCD, this symbol indicates the battery pack option is present on the unit. This symbol also displays the charge status of the battery.

LCD Intensity/Contrast Dial
If the intensity of the LCD display diminishes, turn the dial until the display contrast is optimal.

Charge Indicator

This symbol displays when the unit is connected to mains power and the battery pack is charging.

NOTE: During battery operation, if the unit is left on, but is not active for more than five minutes, it will power off to conserve battery power. To restore power, press the Power On/Off button.

SPECIFICATIONS

UNIT SPECIFICATIONS

NOTE: All waveforms except High Voltage Pulsed Current (HVPC) have been designed with a 200 mA peak current limit. All waveform output intensities are measured, specified, and listed to peak, not peak to peak.

Dimensions

Width . . . . . 11.3 in (28.8 cm)
Height. . . . . 6.4 in (16.3 cm)
Depth . . . . . 12.8 in (32.8 cm)

Weight

Standard Weight (with base). . . . . 5.07 lb (2.3 kg)
Battery Pack . . . . . 1.87 lb (0.85 kg)

Power

Input . . . . . 100 - 240 V - 1.0 A, 50/60 Hz 100 W Max
Output . . . . . +24 V, 3.125 A
Fuses . . . . . 3.15 A Time Lag (not user serviceable)
Electrical Class . . . . . CLASS I

Electrical Type . . . . . TYPE BF

Battery Type . . . . . Nickel Metal Hydride (NiMH)
. . . . . (1.2 V x 20 size AA)

Operating Environment

Temperature. . . . . .Between 59° F and 104° F (15° C and 40° C)
Relative Humidity. 30%-60%

SPECIFICATIONS

WAVEFORM SPECIFICATIONS

Premodulated IFC

Premodulated current is a medium frequency waveform. Current comes out of one channel (two electrodes). The current intensity is modulated: it increases and decreases at a regular frequency (the Amplitude Modulation Frequency).

Output Intensity.....0-100 V
Carrier Frequency.....2,500 Hz
Beat Fixed (Sweep Off) ..... 1-199 Hz
Sweep Low Beat Frequency ..... 1-199 Hz
Sweep High Beat Frequency..... 2-200 Hz
Cycle Time.....Continuous, 5/5, 4/12, 10/10, 10/20, 10/30, and 10/50
Mode..... Constant Voltage
Treatment Time..... 1-60 min

IFC

IFC (Interferential) current is a medium frequency waveform. Current is distributed through two channels (four electrodes). The currents cross each other in the body at the area requiring treatment. The two currents interfere with each other at this crossing point, resulting in a modulation of the intensity (the current intensity increases and decreases at the beat frequency).

Carrier Frequency..... 2,000-10,000 Hz
Beat Frequency.....2,500, 4,000, or 5,000 Hz
Sweep Time .....15 sec
Sweep Low Beat Frequency ..... 1-199 Hz
Sweep High Beat Frequency..... 2-200 Hz
Scan Percentage..... Static, 40%, and 100%
Output Intensity.....0-100 V
Treatment Time..... 1-60 min
Mode .....Constant Voltage

SPECIFICATIONS

WAVEFORM SPECIFICATIONS (continued)

High Voltage Pulsed Current (HVPC)

The High Voltage Pulsed Current (HVPC) has a very brief pulse duration characterized by two distinct peaks delivered at high voltage. The waveform is monophasic (current flows in one direction only). The high voltage causes a decreased skin resistance making the current comfortable and easy to tolerate.

Output Intensity.....0-500 V
Polarity..... Positive or Negative
Ramp.....0.5 sec, 1 sec, 2 sec, 5 sec
Display..... Peak Current or Volts
Sweep.....Continuous, 80/120 pps, 1/120 pps, 1/10 pps
Frequency.....10-120 pps
Cycle Time.....5/5, 4/12, 10/10, 10/20, 10/30, 10/50, Continuous
Treatment Time..... 1-60 Min

Russian

Russian Current is a sinusoidal waveform, delivered in bursts or series of pulses. This method was claimed by its author (Kots) to produce maximal muscle strengthening effects without significant discomfort to the patient.

Output Intensity.....0-100 V
Channel Mode .....Single, Reciprocal, and Co-Contract
Duty Cycle..... 10%, 20%, 30%, 40%, 50%
Mode..... Constant Voltage
Cycle Time. 5/5, 4/12, 10/10, 10/20, 10/30, 10/50, and Continuous
Burst Frequency .....20-100 bps
Ramp.....0.5, 1, 2, and 5 sec
Treatment Time..... 1-60 min

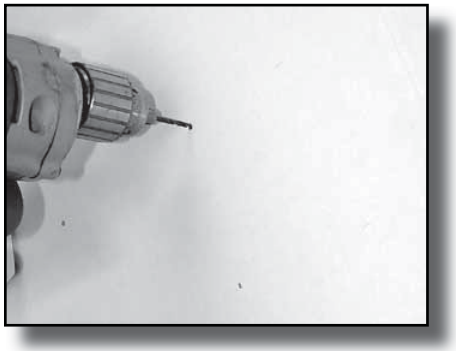
MOUNTING THE UNIT ON THE WALL

The Intelect® Transport 2-Channel Electrotherapy unit can be operated while the unit is resting on a flat surface or mounted on a wall. To mount the unit on a wall, do the following:

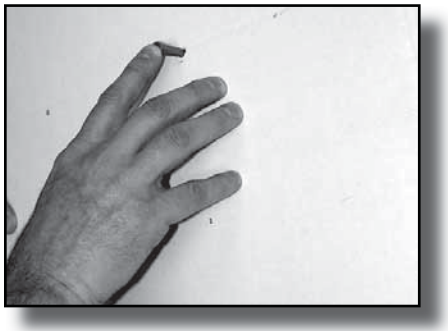
1. Remove the repositional base from the back of the unit.

2. Using the repositional base as a guide, mark the 4 wall holes with a pencil or pen.

MOUNTING THE UNIT ON THE WALL (continued)

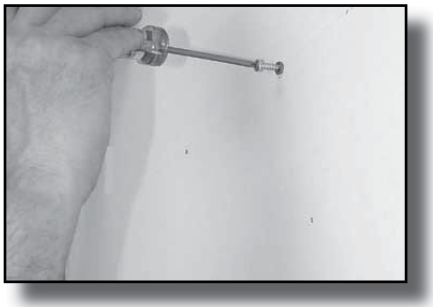


3. Using an appropriate size drill bit, drill four holes you marked in the previous step.



4. Press 4 appropriately sized drywall anchors into the wall so that the drywall anchor is flush with the wall.

MOUNTING THE UNIT ON THE WALL (continued)



5. Screw four #8 pan head sheet metal screws (1 inch or 2.54 cm) into the wall anchors. Make sure you leave 1/4 of an inch (0.635 cm) between the wall and the head of the screw.

6. Replace the repositional base on the back of the unit.

MOUNTING THE UNIT ON THE WALL (continued)

7. Line up the screw heads with the holes on the repositional base, and slide the unit down slightly until the screw heads are securely fastened to the repositional base.

INSTALLING THE BATTERY PACK

The Intelect® Transport 2-Channel Electrotherapy unit accommodates both AC mains power and an optional battery pack. The pack contains 20 Nickel Metal Hydride (NiMH) drycell batteries.

To install the battery pack in the unit, do the following:

1. Locate the battery access door at the bottom of the unit and loosen the screw with a flat head screwdriver.

2. Remove the battery access door and retain it.

INSTALLING THE BATTERY PACK (continued)

3. Connect the battery pack cable to the unit's battery connector in the bottom of the battery recess.

4. Put the battery pack into the unit, making sure to orient it as shown.

INSTALLING THE BATTERY PACK (continued)

5. Replace the battery access door and re-tighten the screw using the screwdriver.

6. Reverse the steps in this section in order to remove the battery pack.

CHARGING THE BATTERY PACK

The battery pack is automatically charged by the unit whenever there is mains power connected. Charging may be interrupted during operation of the unit by the control circuitry to limit total power consumption. A fully charged battery will provide 2-5 hours of treatment depending on the mode used.

NOTE: Even when the battery pack is connected, the unit will default to mains power when plugged in.

USING THE BATTERY PACK

To save battery power, the Intelect® Transport 2-Channel Electrotherapy unit is equipped with a "power off" function. This function is activated when the unit is powered on and has been left idle for approximately 5 minutes, at which time the unit powers off. To restore power, press the Power On/Off button.

ELECTROTHERAPY PATIENT PREPARATION

Electrode Placement

Use the following guidelines when preparing patients for electrotherapy:

- Examine the skin for any wounds and clean the skin.
- Apply the electrodes to the treatment area.
- Ensure the electrodes are applied securely to the skin.
- Ensure good contact between each electrode and the skin.
- Check the electrode contact regularly during the treatment.
- Examine the skin again after the treatment.
- Choose electrodes that fit the anatomy.
- Follow electrode manufacturer instructions.

⚠ WARNING

- Keep electrodes separated during treatment. Electrodes in contact with each other could result in improper stimulation or skin burns.
- Output current density is inversely related to electrode size (i.e., the larger the electrode, the lower the current density). Improper application may result in patient injury.
- Powered muscle stimulators should be used only with the leads and electrodes recommended for use by the manufacturer.

PATIENT PREPARATION

ELECTROTHERAPY PATIENT PREPARATION (continued)

DURA-STICK Electrodes

Chattanooga Group Dura-Stick Electrodes are a self adhesive, single patient, one time use disposable product designed specifically for use with Chattanooga Group Electrotherapy systems.

It is recommended that Chattanooga Group Dura-Stick Electrodes be used whenever possible to ensure the highest level of contact with the treatment area and most uniform delivery of the prescribed electrotherapy treatment.

Properly dispose of used Dura-Stick Electrodes upon completion of the therapy session.

Reusable Carbon Electrodes

If used for delivery of electrotherapy, the Carbon Electrodes must be used with a conductive medium such as Conductor™ Transmission Gel.

These Carbon Electrodes should be secured to the treatment area using the Nylatex® Wraps shipped with the Therapy System.

⚠CAUTION

The Nylatex® Wraps contain dry natural rubber and may cause allergic reactions in patients with allergies to latex.

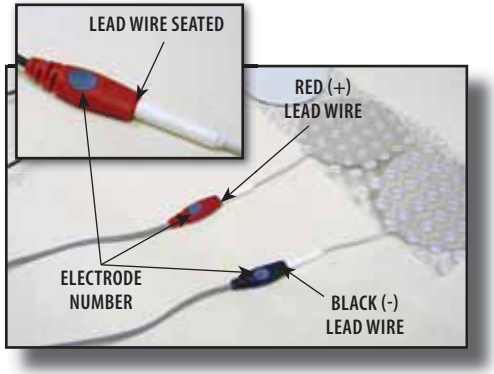
ELECTROTHERAPY PATIENT PREPARATION (continued)

DURA-STICK Electrode Instructions

Connecting Lead Wires

Insert the lead with the Red (+) electrode connector into one Dura-Stick Electrode. Insert the lead with the Black (-) electrode connector into the other electrode.

Make certain the lead wires are seated completely into the electrodes. Also, ensure that the numbers on the electrodes correspond to the appropriate color being used (i.e., the black electrode labeled number 1 should be used with the red electrode labeled number 1).



NOTE: Use of conductive medium or sponges is not required or recommended. Dura-Stick Electrodes are manufactured to ensure the optimum conductivity during therapy when properly applied.

Securing Electrodes

Remove the Dura-Stick Electrodes from the protective backing and apply to the treatment area as prescribed. Ensure the entire electrode surface is in contact with patient skin by pressing into place.

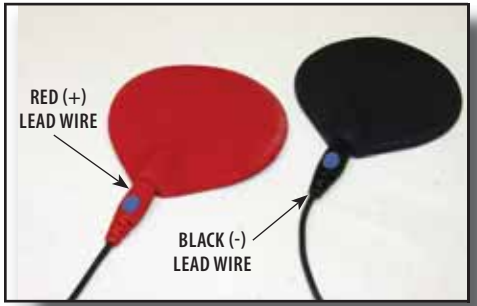
ELECTROTHERAPY PATIENT PREPARATION (continued)

Reusable Carbon Electrodes

Connecting Lead Wires

Insert the lead with the Red (+) electrode connector into Red electrode. Insert the lead with the Black (-) electrode connector into the Black electrode.

Make certain the lead wires are seated completely into the electrodes.

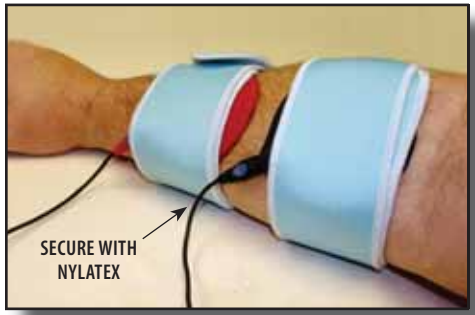


Conductive Medium

Liberally apply Conductor™ Transmission Gel to electrode prior to placement on patient.

Securing Electrodes

Use the Nylatex® Wrap to secure each electrode in position on the patient.



⚠ CAUTION

The Nylatex® Wraps contain dry natural rubber and may cause allergic reactions in patients with allergies to latex.

STARTING, STOPPING, AND INTERRUPTING THERAPY

The Operator Interface consists of buttons with a liquid crystal display (LCD). The operator is able to view parameter options on the display and make selections by pressing the buttons on the control panel. The LCD will provide continuous information during the treatments concerning power and elapsed time. Parameters are adjusted using control panel buttons on the front of the unit. The output can be stopped by pressing the "PAUSE" or "STOP" buttons located on the control panel.

⚠ WARNING

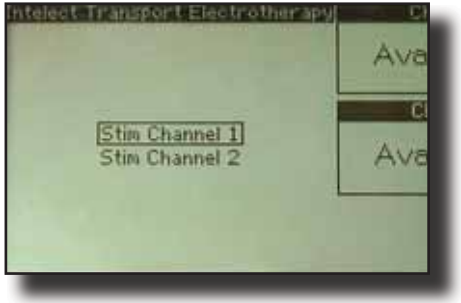
Do not turn the unit on or off while it is connected to the patient.

To apply electrotherapy, do the following:

1. Turn system power "ON" by pressing the Power On/Off button.
   The message "Initializing System" displays. The unit will go through self diagnostics, and the home screen displays on the LCD.
2. Connect the Lead Wires to the appropriate electrodes.
   To see a list of recommended electrodes and their preparation, see **pages 29-32**.
   NOTE: Do not use unnecessary force to connect the electrodes to the lead wires.
3. Place the self adhesive electrodes on the sites prescribed by a qualified practitioner. Make sure you press them firmly on the patient's skin to ensure good conductivity.

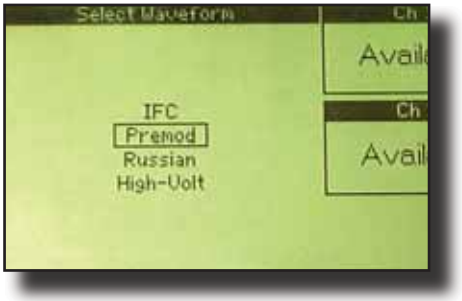
STARTING, STOPPING, AND INTERRUPTING THERAPY (continued)

4. Depending on the type of waveform you intend to use and the number of patients you intend to treat, insert the Lead Wire into Channel 1, Channel 2, or both Lead Wire Connections on the Accessory Panel.

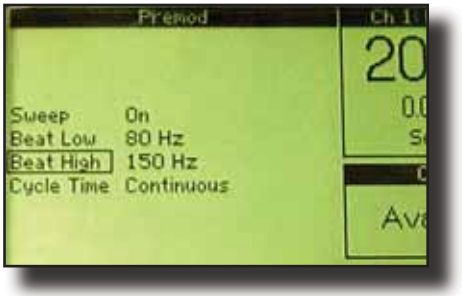


5. Use the Up and Down Arrow buttons to highlight the appropriate channel.
6. Press the Enter button.
   The Waveform screen displays.

STARTING, STOPPING, AND INTERRUPTING THERAPY (continued)



7. Use the Up and Down Arrow buttons to highlight the appropriate waveform.
8. Press the Enter button.
   The Parameter screen displays.



9. On the parameter screen, use the Up and Down Arrow buttons to highlight the parameter you want to change and adjust it accordingly, making sure to press the Enter button after each adjustment.
10. Press Enter to accept the parameters.
    The Parameter screen refreshes and the new parameters are displayed.

STARTING, STOPPING, AND INTERRUPTING THERAPY (continued)

11. To begin electrotherapy, press the START button.

    The timer counts down, the output power ramps up, and "Running" displays below the timer.

    NOTE: When the therapy time has expired, the unit beeps three times.

    During therapy, you can press the TIME button to raise or lower treatment time (in one minute increments) using the up and down arrows.

    During therapy, you can press the INTENSITY button to raise or lower the output using the up and down arrows.

    Therapy can be interrupted at any time by pressing the STOP or PAUSE buttons.

    When the STOP button is pressed, the unit stops emitting output, and the unit returns to the home screen. To resume therapy, repeat **steps 5-11**.

    During treatment, the following occurs whenever the PAUSE button is pressed:

    • the timer pauses
    • the unit beeps quickly 5 times
    • "Paused" displays below the timer
    • the unit stops emitting output

    To resume therapy, press the PAUSE button or the START button.

12. When you have completed treatment, remove all electrodes from the patient.

13. Turn system power "OFF" by pressing the Power On/Off button.

    The unit beeps once and the blue light on the Power On/Off button flashes intermittently.

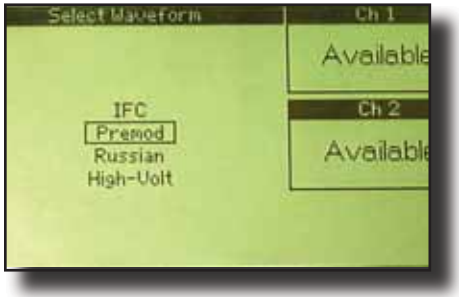
CREATING A USER PROTOCOL

This is a library you create. You may store up to 15 protocols in the User Protocol Library. To create User Protocols, do the following:

1. On the home screen, press the Enter button.

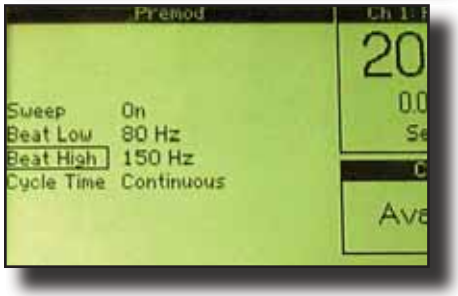
   NOTE: User protocols can be used on either channel. It does not matter on which channel they are created.

   The Waveform screen displays.



2. Use the Up and Down Arrow buttons to highlight the appropriate waveform.
3. Press the Enter button.

   The Parameter screen displays.



4. On the parameter screen, use the Up and Down Arrow buttons to highlight the parameter you want to change and adjust it accordingly, making sure to press the Enter button after each adjustment.
5. Press Enter to accept the parameters.

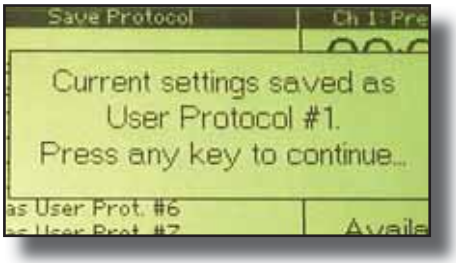
   The Parameter screen refreshes and the new parameters are displayed.
6. Press the Clinical Resources button.

   The Save Protocol screen displays.

OPERATION

CREATING A USER PROTOCOL (continued)

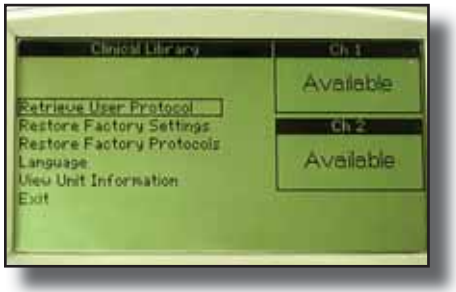
7. Use the Up Arrow and Down Arrow buttons to highlight any unused user protocol.
   If you select the Save as Default protocol, this will become the protocol displayed when the waveform is selected on the Waveform screen.
8. Press the Enter button to accept the highlighted selection and save your custom protocol.
   The User Protocol Confirmation window displays to indicate that the protocol is now saved as the number you specified.



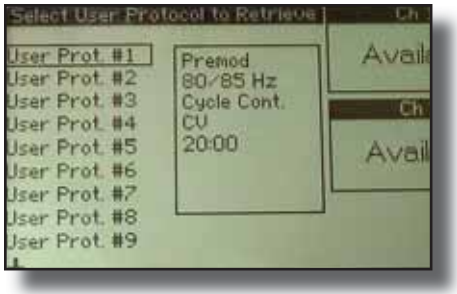
9. Press any button on the Operator Interface.
   The Parameter screen displays and your new protocol is now saved.

USING PROTOCOLS

To utilize a user protocol, do the following:



1. On the home screen, press the Clinical Resources button.
   The Clinical Library screen displays.
2. Using the Up Arrow and Down Arrow buttons, highlight the Retrieve User Protocol option.
3. Press the Enter button to accept the highlighted selection.
   A list of user-defined protocols displays.



4. Use the Down Arrow button to highlight the appropriate protocol.
   As you highlight each protocol, a description of the protocol's parameters displays to the right.
5. Press the Enter button to select the highlighted protocol.
   The Parameters screen displays the parameters of the protocol you selected.
6. Verify the parameters of this program, and use the appropriate buttons on the Operator Interface to adjust any setting, if necessary. For example, to adjust the time, press the up and down arrows on the TIME button.

USING PROTOCOLS (continued)

7. To begin therapy, perform all the procedures outlined in the section entitled "**Patient Preparation**" on **page 29**. Then continue with **step 11** of the section entitled "**Starting, Stopping, and Interrupting Therapy**" on **page 36**.

SYSTEM UTILITIES

Audible Tones

Audible tones will be heard in the following conditions:

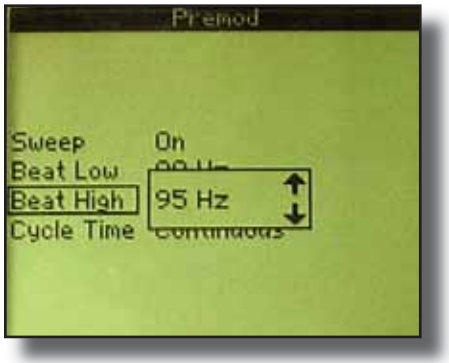
- Any button is pressed.
- The rechargeable battery's power is low (in which case the Low Battery icon will display).
- Any error message is displayed.
- Therapy begins.
- The therapy time reaches 0:00.

Changing Protocol Parameters

You may change any parameter prior to or during therapy. To make Intensity and Treatment Time changes, touch the respective buttons and use the up or down arrows to advance to the desired settings.

To change other parameters during therapy, do the following:

1. On the home screen, use the Up and Down Arrow buttons to highlight the channel on which therapy is currently running.
2. Press the Enter button to select the highlighted option.
   The parameters of the current therapy session display.



3. Using the Up Arrow and Down Arrow buttons, highlight the appropriate parameter and make the necessary changes, making sure to press the Enter button after each adjustment.

Changing Default Protocols

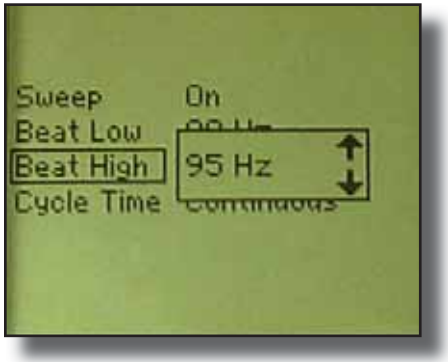
To change the power up presets of the waveforms, do the following:

1. On the home screen, press the Enter button.
   The Waveform screen displays.

SYSTEM UTILITIES (continued)

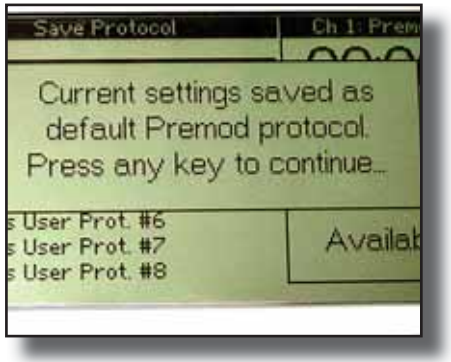
2. Use the Up and Down Arrow buttons to highlight the appropriate waveform.

3. Press the Enter button.
   The Parameter screen displays.



4. On the parameter screen, use the Up and Down Arrow buttons to highlight the parameter you want to change and adjust it accordingly.
5. Press Enter to accept the parameters.
   The Parameter screen refreshes and the new parameters are displayed.
6. Press the Clinical Resources button.
   The Save Protocol screen displays.
7. Use the Up Arrow and Down Arrow buttons to highlight Save as Default protocol.
   This will become the protocol displayed when the waveform is selected on the Waveform screen.

SYSTEM UTILITIES (continued)



8. Press the Enter button to accept the highlighted selection.
   The Default Protocol Confirmation window displays.
9. Press any key to confirm the settings.
   You are returned to the Clinical Resources menu.

Brightening or Dimming the LCD

To brighten or dim the LCD, turn the contrast control dial until the display contrast is optimal.

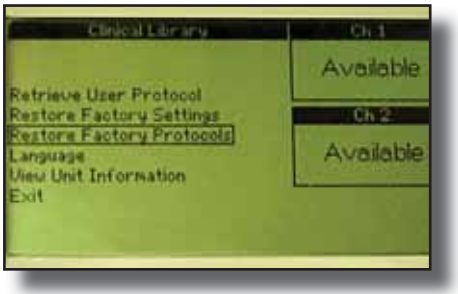
SYSTEM UTILITIES (continued)

Restoring Factory Protocols

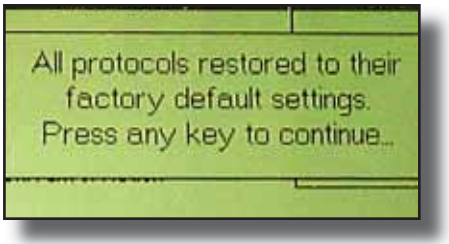
If necessary, you can choose to restore the unit's original (default) waveform parameters when it was shipped to you.

NOTE: This procedure will erase all user-defined protocols.

To restore the unit's original waveform parameters, do the following:



1. Press the Clinical Resources button.
   The Clinical Library window displays.
2. Press the Up Arrow or Down Arrow buttons to highlight the Restore Factory Protocols option.
3. Press the Enter button to accept the highlighted selection.
   The unit displays the message "Restoring Protocols Please wait."
   The user-defined protocols are erased and the waveforms are restored to the original parameters. Then the Restore Factory Protocols Confirmation window displays.



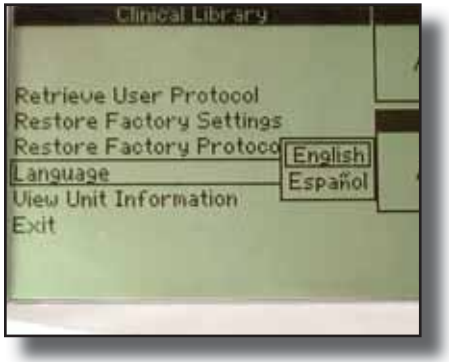
4. Press any button on the Operator Interface.
   You are returned to the Clinical Library window.

SYSTEM UTILITIES (continued)

Changing Languages

You may change the language displayed by the Intelect® Transport 2-Channel Electrotherapy unit to either English or Spanish.

To change the language displayed on the LCD, do the following:

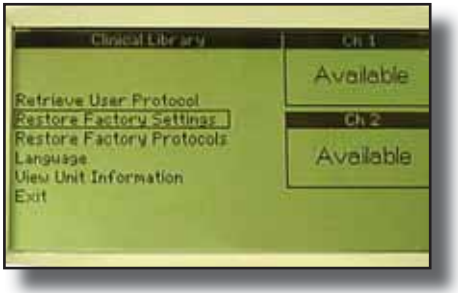


1. Press the Clinical Resources button.
   The Clinical Resources screen displays.
2. Use the Down Arrow and Up Arrow buttons to highlight the Language option.
3. Press the Enter button to accept the highlighted selection.
   The Language submenu displays.
4. Press the Down Arrow and Up Arrow buttons to highlight the appropriate language.
5. Press the Enter button to accept the highlighted selection.
   Your unit now displays the language you selected.

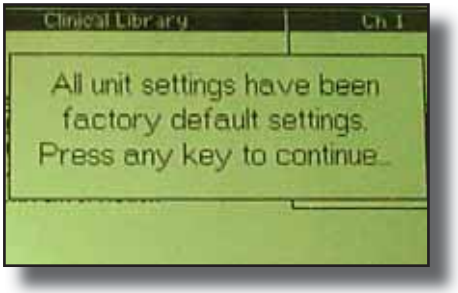
SYSTEM UTILITIES (continued)

Restoring Factory Settings

To restore the original language on the unit, do the following:



1. On the main window, press the Clinical Resources button.
   The Clinical Library screen displays.
2. Press the Up Arrow or Down Arrow buttons to highlight the Restore Factory Settings option.
3. Press the Enter button to accept the highlighted selection.
   The Restore Factory Settings Confirmation screen displays.



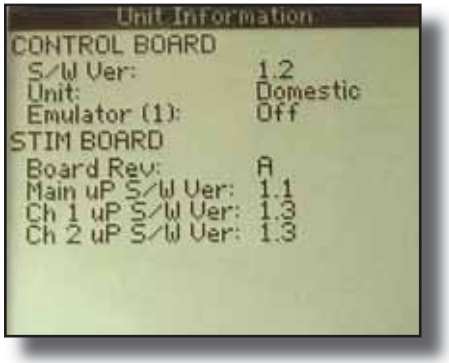
4. Press any button on the Operator Interface.
   The default power up settings are restored and you are returned to the Clinical Library screen.

SYSTEM UTILITIES (continued)

Viewing Unit Version Information

Use this utility to determine the unit's software version. To do this, do the following:

1. Press the Clinical Resources button.
   The Clinical Library screen displays.
2. Use the Up Arrow and Down Arrow buttons to highlight the View Unit Information option.
3. Press the Enter button to accept the highlighted selection.
   The Unit Version Information window displays.
4. Press any key to return to the Clinical Library window.



ERROR CODES

The Intelect Transport 2-Channel Electrotherapy unit incorporates error messages and warnings to inform the user of problems or potential problems with the unit, modality, or accessories. These are numbered so the user can possibly correct the problem without the aid of service personnel. Use the following Troubleshooting Charts to define the error codes, and locate the probable cause and possible remedies before contacting the dealer or factory for technical service.

Code Number	Probable Cause	Possible Remedies
104	User attempted to perform a therapy session, but both channels are already in use.	**A.** Wait until the previous therapy session finishes. **B.** Press the STOP button to end the therapy session on either channel.
105	User selected a two channel treatment, but at least one channel is already in use.	**A.** Wait until the previous therapy session finishes. **B.** Press the STOP button to end the therapy session on either channel.
106	Overcurrent	**A.** Check Electrodes and Lead Wires. Make certain Lead Wires are not damaged and are properly connected to the system. Make certain Lead Wires are properly connected to the Electrodes and that electrodes are not damaged and are making proper contact with treatment area. **B.** Replace Lead Wires and Electrodes.
107	Bad Contact Quality	**A.** Make certain Electrodes are making proper contact with the treatment area. **B.** Make certain Lead Wires are properly connected to Electrodes. **C.** Replace Electrodes and Lead Wires.
108	Shorted Lead Wires	**A.** Check Electrodes and Lead Wires. Make certain Lead Wires are not damaged and are properly connected to the system. Make certain Lead Wires are properly connected to the Electrodes and that electrodes are not damaged and are making proper contact with treatment area. **B.** Replace Lead Wires and Electrodes.

ERROR CODES (continued)

⚠ WARNING

In the event that an Error message or Warning appears on the LCD beginning with a 2 or 3, immediately stop all use of the unit and contact the dealer or Chattanooga Group for service. Errors and Warnings in these categories indicate an internal problem with the unit that must be tested by Chattanooga Group or a Field Service Technician certified by Chattanooga Group before any further operation or use of the system.

Use of a unit that indicates an Error or Warning in these categories may pose a risk of injury to the patient, user, or extensive internal damage to the system.

ACCESSORIES

Standard Accessories

Ref.	Description	Qty
27376	Electrotherapy Accessory Kit- Includes the following:	1
27312	Channel 1 Lead Wire	1
27313	Channel 2 Lead Wire	1
10648	Nylatex® Wrap	2
72852	3 in (8 cm) Round Carbon Electrodes-Black	2
72853	3 in (8 cm) Round Carbon Electrodes-Red	2
42044	2.75 in (7 cm) Round Disposable Electrodes (4 per pack)	1
27939	User Manual (CD-ROM)	1

Optional Accessories

Ref.	Description
27478	NiMH Battery Pack
27467	Intelect Transport 2 Channel Electrotherapy Carrying Bag

MAINTAINING THE UNIT

Cleaning the Unit and the Accessories

With the unit disconnected from the power source, clean the unit with a clean, lint free cloth moistened with water and mild antibacterial soap. If a more sterile cleaning is needed, use a cloth moistened with an antimicrobial cleaner.

Do not submerse the unit in liquids. Should the unit accidentally become submersed, contact the dealer or Chattanooga Group Service Department immediately. Do not attempt to use a unit that has been wet inside until inspected and tested by a Service Technician Certified by Chattanooga Group.

To clean the Lead Wires, disconnect them from the unit and wipe them down with a clean, lint free cloth moistened with water and mild antibacterial soap.

To clean the reusable carbon electrodes, remove them from the Lead Wires and wipe them down with isopropyl alcohol. Repeat this procedure for the sponges as well.

FACTORY SERVICE

When the Intelect Transport 2-Channel Electrotherapy unit requires factory service, contact the selling dealer or Chattanooga Group Service Department.

WARRANTY REPAIR/OUT OF WARRANTY REPAIR

All units returned to the factory for service must include the following:

1. Written statement containing the following information:
   - RA (Return Authorization) Number- Obtain from Factory
   - Model Number
   - Serial Number
   - Contact Person with Phone and Fax Numbers
   - Billing Address (for Out of Warranty Repair)
   - Shipping Address (Where to Ship Unit after Repair)
   - Detailed Description of Problem or Symptoms
2. Copy of original invoice issued at purchase.
3. Ship the unit to address specified by an authorized service technician.

Service to these units should be performed only by Service Technicians certified by Chattanooga Group.

WARRANTY

Chattanooga Group ("Company") warrants that the Intelect Transport 2-Channel Electrotherapy unit ("Product") is free of defects in material and workmanship. This warranty shall remain in effect for two years (24 months) from the date of original consumer purchase. If this Product fails to function during the two year warranty period due to a defect in material or workmanship, Company or the selling dealer will repair or replace this Product without charge within a period of thirty (30) days from the date on which the Product is returned to the Company or the dealer.

All repairs to the Product must be performed by a service center authorized by the Company. Any modifications or repairs performed by unauthorized centers or groups will void this warranty.

The warranty period for accessories is 90 days. Accessories include Lead Wires, Electrodes, and Nylatex®.

This warranty does not cover:

Replacement parts or labor furnished by anyone other than the Company, the selling dealer, or a service technician certified by the Company.

Defects or damage caused by labor furnished by someone other than Company, the selling dealer, or a certified Company service technician.

Any malfunction or failure in the Product caused by product misuse, including, but not limited to, the failure to provide reasonable and required maintenance or any use that is inconsistent with the Product User's Manual.

COMPANY SHALL NOT BE LIABLE IN ANY EVENT FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some locations do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

To obtain service from Company or the selling dealer under this warranty:

1. A written claim must be made within the warranty period to the Company or the selling dealer. Written claims made to the Company should be sent to:

   Chattanooga Group
   4717 Adams Road
   Hixson, TN 37343 USA
   Phone: +1-423-870-2281
   FAX: +1-423-875-5497

   and

2. The Product must be returned to the Company or the selling dealer by the owner.

This warranty gives you specific legal rights and you may also have other rights which vary from location to location.

The Company does not authorize any person or representative to create for it any other obligation or liability in connection with the sale of the Product.

Any representation or agreement not contained in the warranty shall be void and of no effect.

THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Leading Therapy
in a New Direction

CHATTANOOGA GROUP
A DIVISION OF encore MEDICAL

ISO 13485 Certified

4717 Adams Road
P.O. Box 489
Hixson, TN 37343 U.S.A.
(800) 592-7329 - U.S.A.
(800) 361-6661 - Canada
(800) 242-8329 FAX
www.chattgroup.com

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