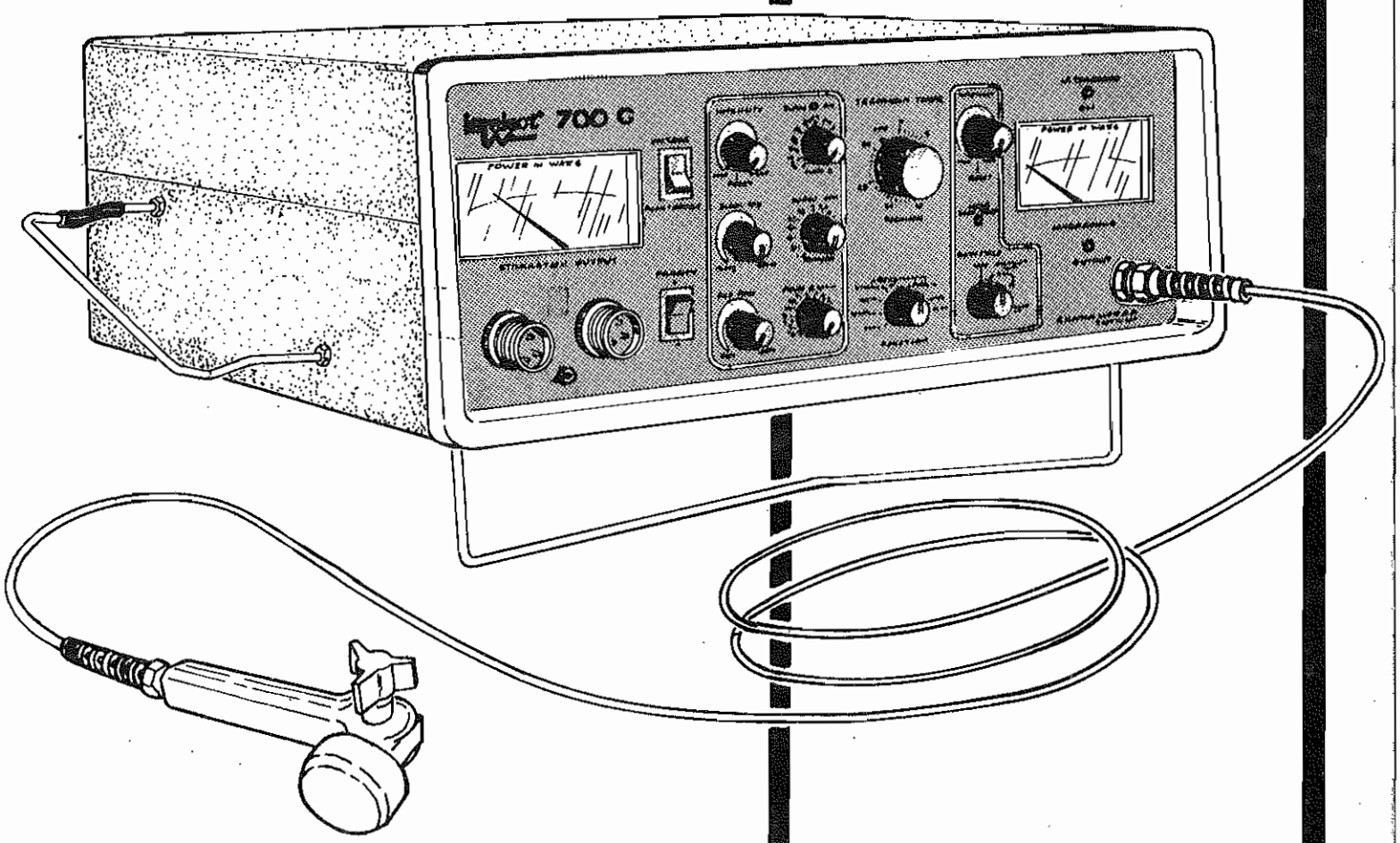
intelect® model 700-C



OPERATOR'S MANUAL

- INSTALLATION
- OPERATION
- MAINTENANCE
- PARTS

CHATTANOOGA
CORPORATION
101 MEMORIAL DR / P O BOX 4287 / CHATTANOOGA, TN 37405 / 615/870 2281

P.N. 74470 REV C

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foreword

This manual has been prepared for the owners and operators of Intelect ® Model 700 C™. It contains general instructions on operation, safety practices, maintenance and parts information. In order to obtain maximum life and efficiency from your Model 700 C™ and to aid in the safe operation of the unit, read and understand this manual thoroughly and become totally familiar with the controls on the panel and the various electrodes that come with the unit before operating it. The specifications put forth in this manual were in effect at the time of publication. However, due to Chattanooga Corporation's policy of continuous improvement, changes to these specifications may be made at any time without obligation on the part of Chattanooga Corporation.

full one year warranty

Chattanooga Corporation ("Company") warrants that Intelect® Model 700 C™ ("Product") is free of defects in material and workmanship.

This warranty shall remain in effect for one (1) year from the date of the original consumer purchase of this Product and extends to any owner of the Product during the warranty period. If this Product fails to function during the one year warranty period because of a defect in material and workmanship, Company or the selling dealer will replace or repair the Product without charge within a period of 30 days from the date on which the defective product is returned to the Company or the dealer. Company or the dealer will ship the replacement or the repaired product to the consumer's residence.

THIS WARRANTY DOES NOT COVER:

1. Replacement parts or labor furnished by anyone other than Company, the dealer or an approved Company service agent.
2. Defects or damage caused by labor furnished by someone other than Company, the dealer or an approved Company service agent.
3. Any malfunction or failure in the Product while it is in the possession of the owner during the warranty period if the malfunction or failure is not caused by a defect in material and workmanship or if the malfunction or failure is caused by the unreasonable use, including the failure to provide reasonable and necessary maintenance.

COMPANY SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES TO PROPERTY OR BUSINESS. Some states 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, the owner must do or abide by the following:

1. A written claim must be made within the warranty period to Company or the selling dealer. If the claim is made to Company, the written claim should be sent to P.O. Box 4287, 101 Memorial Dr., Chattanooga, Tennessee, 37405.
2. The Product must be returned to 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 state to state.
Company does not authorize any person or representative to create for it any other obligation or liability in connection with the sale of this Product. Any representative or agreement not contained in the warranty shall be void and of no effect.

safety instructions

1. **WARNING:** Explosion hazard if used in the presence of flammable anesthetics.
2. **WARNING:** For continued protection against fire hazard replace fuses only with ones of the same type and rating.
3. Read, understand and practice the safety and operating instrucions. Know the limitations and hazards associated with the Ultrasound. Observe the safety and operational decals placed on the unit.
4. Know stimulation characteristics, parameters, indications, and contraindications.
5. Grounding—Make certain that the unit is electrically grounded by plugging into an electrical outlet with a ground terminal receptacle (U-ground outlet). Follow the National Electric Code.
6. The Intelect® Model 700 C™ should not be connected to any device when in use.
7. **CAUTION:** Federal law restricts this device to sale by, or on the order of, a physician or licensed practitioner.
8. The generator should be routinely checked before each use to determine that all controls function normally; especially that the INTENSITY control does properly adjust the intensity of the ultrasonic power output in a stable manner. Also determine that the TREATMENT TIME control does actually terminate ultrasonic output power when the timer reaches zero.
9. **CAUTION:** Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous exposure to ultrasonic energy.
10. Be sure to use electrode pads that are clean and firmly attached to patient.
11. When changing parameters of stimulation such as Pulse Rate, Polairty, Surge On, Surge Off, Continuous Surge or Reciprocate, be sure to turn Intensity down first. After Function Selector switch is changed, the Intensity control must be reset.
12. Remember that most patients are totally unfamiliar with electrical stimulation and some of them will have anxieties during the initial sensations. If patient is overly fearful, either discontinue first treatment or set intensity at a level where patient just feels the current. Usually low amplitude stimulation results in gradually increased tolerance.

indications for therapy

The Intelect® 700 C™ is a combination ultrasound and electrical muscle stimulator designed to deliver therapeutic deep heat and muscle stimulation. These treatment modalities can be delivered simultaneously in the combination mode or separately in their respective modes.

indications for treatment- using high voltage therapy

This device is indicated for the following:

- For temporarily relaxing muscle spasms.
- For increasing localized circulation.
- For re-educating muscles that have atrophied from disuse.
- For preventing disuse atrophy in post-injury type conditions.
- For preventing post-surgical phlebo-thrombosis through stimulation of calf muscles.
- For reduction of acute and chronic pain.

contraindications of ultrasound therapy*

Ultrasound should not be used over the eyes or the reproductive organs.

Ultrasound should not be used over a pregnant uterus.

Other contraindications include acute infection or sepsis, deep vein thrombosis, or arterial disease, and over anesthetized areas or conditions that cause impairment of sensations, such as chemotherapy.

Ultrasound is not to be used over cancerous lesions.

contraindications of high voltage therapy

This device should not be used on patients with cardiac pacemakers.

This device should not be used over the carotid sinus area.

This device is not to be used transcerebrally.

This device should not be used to relieve pain syndromes until etiology has been established.

This device should not be used over a pregnant uterus.

This device should not be used over or near cancerous malignancy.

*Ref: Lehmann, J.F., Therapeutic Heat and Cold; 13: 367-378; 1972.

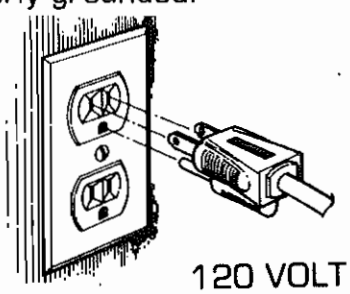
installation

Remove the Intelect® Model 700 C™ and any additional items ordered with the unit from the carton and inspect for damage that may have occurred during shipment.

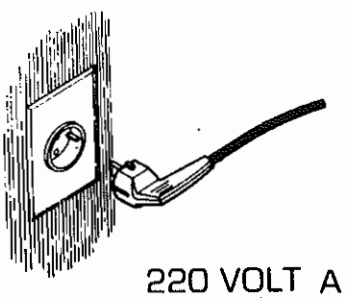
The following is a list of accessories that should be included with the unit as standard accessories:

Qty.	Description	Catalog No.
1	Hand-Held Probe	79001
1	Rectangular Applicator for Probe	79008
1	Sponge for Rectangular Electrode	79062
1	Spot Applicator for Probe	79005
1	Sponge for Spot Electrode	79059
1	Active Electrode Pad, 4" Red Round	72851
1	Active Electrode Pad, 4" Black Round	72850
1	Dispersive Electrode Pad, 8 x 10 inch	72854
1	Sponge Cover for Dispersive Pad	79061
1	Active Lead, Red and Black (72")	72951
1	Dispersive Lead (72")	72955
1	Active Lead, Red Bifurcated (18")	72849
1	Active Lead, Black Bifurcated (18")	72855
1	Active Lead, Green Bifurcated (18")	74087
2	Active Electrode Pads, 3" Red Round	72853
2	Active Electrode Pads, 3 " Black Round	72852
1	Active Lead, Red (18")	72953
1	Active Lead, Black (18")	72954
2	Short Nylatex Straps 2.5" x 24"	10648
1	Long Nylatex Strap 2.5" x 48"	10832
2	Weight Bags	79036
1	Instruction Booklet	74470
1	Ultrasound Gel	72201

Check the voltage rating on the serial plate located on the back of the unit. Plug the unit into a 120 Volt or 220 Volt A.C. outlet as required. DO NOT attempt to use direct current. Follow the procedures indicated in the safety instructions. DO NOT attempt to use the unit if it is not properly grounded.



120 VOLT A.C.
HOSPITAL GRADE



220 VOLT A.C.

Plug active lead into the 3-terminal connector receptacle. Plug dispersive into banana receptacle. Both of these receptacles are located at the front of the unit. Also, plug the hand-held probe into the 4-terminal receptacle. These connectors will not mate incorrectly.

The plugs located at the ends of the two active leads should be plugged into the 4-inch active electrodes. The other end of the dispersive lead should be plugged into the large dispersive electrode. The receptacle is located in the end of the black conducting surface.

By activating the timer, the functions of the stimulator can be checked out as per operating instructions in the following sections.

specifications, ultrasound

Frequency-1.0 MHz ± 5%
Duty Cycle- 100% (continuous mode)
50% ± 10% (pulse mode)
20% ± 10% (pulse mode)
Pulse Repetition Rate-100 Hz ± 20 %
Ultrasonic Power-Variable from 1 watt to 20 watts.
Output Meter Accuracy-± 20% (for any output above 10% of maximum)
Temporal Peak/ Average Intensity Ratio - 2:1 ± 20% for 50% D.C.
5:1 ± 20% for 20% D.C.

Output:
1. Continuous-1 MHz signal that is on as long as the timer is running.
2. Pulse-1MHz signal modulated 100% by the 100 Hz rectangular wave with the selected Duty Cycle.

Timer Accuracy:
1. Less than 0.5 seconds for settings less than 5 minutes
2. 10% for settings from 5 minutes to 10 minutes
3. 1 minute for settings greater than 10 minutes

Applicator:
1. Effective radiating area-8.5 cm^2 ± 1.5 cm^2
2. Maximum beam non-uniformity ratio-6.0:1
3. Beam type-Collimating
4. Input Power Requirements:
   (Domestic) 120V/60 Hz ± 10%, 1.0 Amps
   (Export) 220 V/50 Hz ± 10%,.8 Amps

mode of action - high voltage stimulation

Intelect® 700 C™ is designed to deliver a train of pulses of very short duration thereby causing muscle contractions through stimulation of the large motor fibers. By limiting the pulse duration of the stimulus, stinging and irritating effects are minimized at strong muscle contraction levels. By selecting the appropriate pulse rates and surge or reciprocate rates, muslces can be either twitched, tetanized, or surge tetanized at regular intervals. The proper selection of these parameters dictates the results obtained for various conditions.

The Intelect® 700 C™ unit comes with a selection of different size electrodes as well as a hand-held probe. The selection of the proper size electrode is an important parameter in the desired results and will be discussed in the operation section of this manual.

general operating instructions - high voltage stimulation

introduction

In considering the various stimulation parameters, one must note that the following forms of muscle contractions are obtainable by this unit:

- Tetanic contraction.
- Surge tetanic contraction.
- Twitch contractions.
- Reciprocate contractions of two or more muscles.

Also, the following types of pad placements can be used with this device:

- Monopolar placement.
- Bipolar placement.
- Specific point placement.
- Multiple electrode placement.

A Monopolar type treatment involves the use of a large dispersive pad and one or more small active pads. The large dispersive pad serves as the opposite pad where no stimulation is needed and where a splash-over effect and group muscle contractions are required from the active pads only.
The Bipolar treatment involves pads of equal size placed at each end of a muscle and is used where specific rather that group muscle contractions are required, such as in motor point stimulation or re-education of an individual muscle.
Specific Point placement involves using any one of several hand probe electrodes for stimulation of a specific motor point, trigger point, or other body point location. See Hand-Held Probe Accessories section for details of types and use of electrodes. Multiple Electrode placement involves the use of two or four smaller 3-inch diameter pads.
The surface area ratio of active electrodes to dispersive electrode should be no more than one to four. Because of this, the number of electrodes should be limited in certain modes of operation. For example: When using two 4'' diameter pads in the Continuous Mode or Surge Mode of treatment, both pads become the active surface area. In this case, the ratio of active to dispersive electrodes will be approximately one to three, and in certain pad placements the patient may feel stimulation through dispersive pad, particularly in the stomach area, when the active pads are placed over high threshold areas such as the low back. This slight stimulation through the dispersive pad is not detrimental to active pad stimulation but may be slightly annoying to the patient.

Clinical Applications Guideline for High Voltage Stimulation by Gad Alon, Ph.D., P.T.

The purpose of this summary table is to provide an initial approach to a systematic use of High Voltage Stimulation (HVS) in various treatment procedures. The information is based on the experience of selected clinicians who have been using the modality. The table should not serve as a "cook book" but rather as an initial guideline which may provide a better chance of getting the anticipated results.

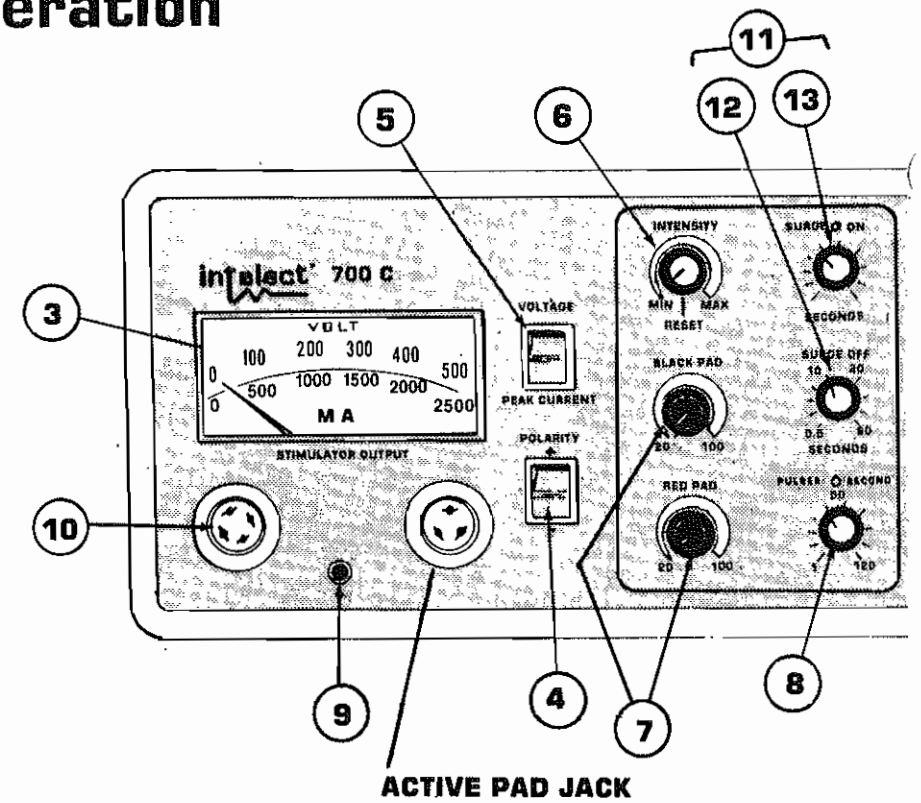
In each case do not exceed patient tolerance even if physiological effect has not been reached.

	CLINICAL PROBLEM	SELECTED EXAMPLES	PARAMETER SET-UP		ELECTRODE
1	**Acute Pain**	Post Operative Post Trauma Inflammatory Process. e.g. Tendonitis, Bursitis, Neuritis	PROTOCOL A Mode Continuous Polarity: + or − Pulse Rate: 50-120 Treatment Time: 30 mins or more	PROTOCOL B Mode Continuous Polarity: + or − Pulse Rate: 2-15 Treatment Time: 1-10 mins at each trigger point	PROTOCOL A Monopolar: Treatment electrode on painful area. Dispersive electrode on any convenient large surface area. Biopolar: Both treatment electrodes on painful area.
2	**Chronic Pain**	Lower Back Cervical Degenerative Joint Disease, e.g. Shoulder, Hip etc.	PROTOCOL A Mode Continuous Polarity: + or − Pulse Rate: 2-15 Treatment Time: 1-10 mins.	PROTOCOL B Mode Continuous Polarity: + or − Pulse Rate: 2-5 Treatment Time: 30-45 mins.	PROTOCOL A Monopolar: Probe, Spot or Acustim electrode on trigger point Dispersive electrode at any convenient area.
3	**Impaired Joint Range of Motion**	Capsulitis Post Surgical Immobilization Calcified Bursae Degenerative Joint Disease Joint Sprain or Strain	PROTOCOL A Mode Continuous Polarity: + or − Pulse Rate: 80-125 Treatment time 30 mins	PROTOCOL B Mode Surge (On for 2-10 secs. Off for 5-30 secs.) Polarity: + or − Pulse Rate. 35-50 Treatment time: 10 mins. 3 times a day.	PROTOCOL A Bipolar: Both treatment electrodes on affected joint.
4	**Protective Muscle Spasm**	Acute Joint Trauma Acute Muscle Trauma Abnormal Joint Motion Soft Tissue Inflammation	PROTOCOL A Mode Continuous Polarity + or − Pulse Rate 100-125 Treatment Time 30-60 mins	PROTOCOL B Mode Continuous Polarity. + or − Pulse Rate: 50-120 Treatment Time 30 mins. or more	PROTOCOL A Bipolar: Both treatment electrodes on muscles in spasm. Monopolar: Treatment electrode on muscle in spasm. Dispersive electrode at any convenient area.
5	**Muscle Disuse Atrophy**	Post Surgical Immobilization Post Trauma Rheumatoid Arthritis Degenerative Arthritis Amputees	PROTOCOL A Mode Surge (on for 2-10 sec Off for 5-40 secs) Polarity: + or − Pulse Rate: 35-50 Treatment Time: 10-20 reps.		PROTOCOL A Bipolar. Both treatment electrodes on target muscle group.
6	**Joint Swelling (Intra-Articular Effusion)**	Joint Sprains and Strains Soft Tissue Injuries Joint or Tissue Inflammation. e.g. Arthritis, Bursitis. Tendonitis	PROTOCOL A Mode Continuous Polarity + or − Pulse Rate 80-120 Treatment Time. 20-30 mins daily		PROTOCOL A Monopolar: Treatment electrode on swollen area. Non-treatment electrode on convenient large surface area. Biopolar: Sandwich joint with two treatment electrodes.
7	**Peripheral Circulatory Disorders**	Reflex Sympathetic Dystrophy Reynaude's Phenomenon Volkman's Syndrome Venous Insufficiency (See Protocol C)	PROTOCOL A Mode Continuous Polarity: + or − Pulse Rate: 50-100 Treatment Time: 20-30 mins. PROTOCOL C Mode Surge (On for 2-5 sec Off for 5-15 sec) Polarity: + or − Pulse Rate. 30-50 Treatment Time: 20-30 mins	PROTOCOL B Mode Continuous Polarity: − Pulse Rate: 2-5 Treatment Time: 30-45 mins. 2 times a day	PROTOCOL A Bipolar. Both treatment electrodes on affected area May bifurcate electrodes to cover large area. PROTOCOL C Biopolar: Both treatment electrodes on the plantar flexor (calf) muscles.

PLACEMENT	PHYSIOLOGICAL RESPONSE	COMMENTS
PROTOCOL B Monopolar: Probe, Spot or Acustim electrode on trigger point.	PROTOCOL A Intensity: Sensory Stimulation PROTOCOL B Intensity: Painful Stimulation	Adjust the intensity and treatment time to achieve longer lasting pain relief.
PROTOCOL B Bipolar: One treatment electrode on web space of either hand and the other on the ulnar aspect of the same hand.	PROTOCOL A Intensity: Painful Stimulation PROTOCOL B Intensity: Motor Stimulation (Twitch Contraction)	Protocol B may also be used to suppress acute pain. Related to circulatory deficiency.
PROTOCOL B Biopolar: Both treatment electrodes on the muscle group that can stretch out the shortened tissues around the joint.	PROTOCOL A Intensity: Sensory Stimulation PROTOCOL B Intensity: Motor Stimulation	Protocol A is a first choice when pain and swelling are the main cause of ROM limitation. Protocol B is a first choice when shortened soft tissues are the main cause of ROM limitation. Avoid muscle fatigue.
PROTOCOL B Monopolar: Treatment electrode on painful area. Dispersive electrode at any convenient area. Bipolar: Both treatment electrodes on painful area	PROTOCOL A Intensity: Motor Stimulation PROTOCOL B Intensity: Sensory Stimulation	Protocol A is designed to fatigue the muscle group in spasm, therby breaking the pain/spasm cycle. May require treatment twice a day. Protocol B is designed to reduce pain. thereby breaking the pain/spasm cycle. May require a few treatments a day.
	PROTOCOL A Intensity: Motor Stimulation	Protocol A may take several sessions to achieve good muscle contraction. Try to combine voluntary contractions with electrical stimulation. Avoid muscle fatigue.
	PROTOCOL A Intensity: Sensory Stimulation for both mono-and bipolar technique.	It is recommended to combine a cold bath or packs with treatment. For acute sprains: initiate treatment as soon as possible after trauma.
PROTOCOL B Bipolar: One small treatment electrode on web space of hand and the other treatment electrode on the ulnar aspect of same hand.	PROTOCOL A Intensity: Minimal Sensory Stimulation PROTOCOL B Intensity: Motor Stimulation (Twitch Contraction) PROTOCOL C Intensity: Painful Stimulation Intensity: Motor Stimulation (Interrupted Tetanic Contraction)	Vasodilation should occur within 1 to 3 treatments. If it is not observed, discontinue treatment. Adjust the intensity until patient barely feels the stimulation. Otherwise, too strong a stimulation may cause vasoconstriction Protocol C Continue treatment as long as patient is non-ambulatory.

NOTE: The use of the Surge Mode is only appropriate to a unit when the mode allows independent selection of On and Off stimulation times

control panel operation



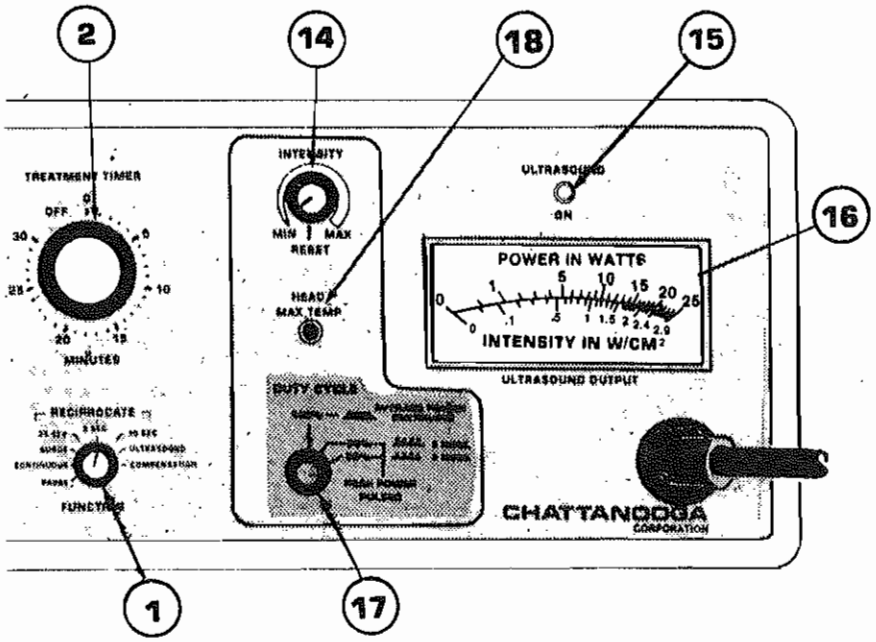
1. **FUNCTION SELECTOR SWITCH:** This control knob selects the means of treatment either with a hand-held probe or with active electrode pads. When the knob is in the probe position the output is on continuously and the intensity is controlled remotely at the probe only.

   In Continuous, Surge and Reciprocate positions the output is through the electrode pads and the intensity is controlled by the Intensity knob on the panel.

   In the Continuous position both pads or sets of pads are on continuously.

   In the Surge mode both pads or sets of pads are cycled on and off together at rates selected by the Surge On and Surge Off controls.

   The Reciprocate mode of operation consists of three positions: 2.5, 5, or 10 seconds. These three positions determine the time that one of the two active electrodes is on while the other is off. At each 2.5, 5, or 10 seconds, as selected, the electrode pad that is on will switch off and the off pad will switch on. This alternate switching continues throughout the total treatment period as set on the timer.
2. **TREATMENT TIMER/POWER SWITCH:** This is a 0—29 minute rotary timer. When the timer is on the function selector is in ultrasound psn, the green LED labeled Ultrasound On will be lit. When Timer is in the off position, power to the generator is off.
3. **INTENSITY STIMULATOR METER:** Intensities are indicated by the meter in either voltage mode or current mode. Voltage is read on the upper scale from 0 to 500 volts when selected and peak current is read on a lower scale 0 to 2500 milliamps when selected.
4. **POLARITY SWITCH:** Positive (+) or negative (−) polarity of active electrode pads or probe is selected by this switch.
5. **METER SELECTOR SWITCH:** This switch is used to select either voltage readout or peak current readout (in milliamperes).
6. **INTENSITY/RESET CONTROL:** Any time the Function Switch is operated, i.e. Surge to Continuous, the Intensity control must be reset by rotating counterclockwise until a click is heard (or felt) at the end of rotation. Output will remain at zero unless reset properly.
7. **PAD CONTROL:** Intensity of the applied voltage to the red or black pads can be adjusted independently. The adjustment can be set from 20% to 100% of the intensity indicated on the meter scale. For initial adjustments set intensity at 100%, adjust intensity at the main control knob; then adjust for maximum patient comfort.
8. **PULSES/SECONDS CONTROL:** Pulse rates of one pulse per second to maximum of 120 pulses per second are selected by this knob.
9. **DISPERSIVE PAD JACK:** Connect large dispersive pad at this connector.
10. **HAND HELD PROBE JACK:** Connect hand held probe at this connector.



11. **SURGE MODE:** The independently timed Surge On and Surge Off functions allow for greater flexibility in application of high voltage stimulation. By setting the Surge On time to a longer or shorter period than the Surge Off the user can achieve various degrees of muscle fatigue. NOTE: Surge On and Surge Off control knobs work only when the Function Selector Switch is in the Surge position. The Surge controls are inoperative when the Function Selector Switch is in the Probe, Continuous and Reciprocate positions, 2.5, 5, and 10 seconds.
12. **SURGE ON:** Both electrode pads or sets of pads are activated for a time as indicated around the knob from 0.5 seconds to 60 seconds. An "on surge ramp" up is included on this control and the duration of the ramp is a 1 to 3 ratio of surge on time selected. Example: A surge time of 10 seconds on creates a 3.3 second ramp from 0 intensity to maximum intensity.
13. **SURGE OFF:** The rest period between surges is independently selected by this control with a range of times between 0.5 and 60 seconds.
14. **ULTRASOUND INTENSITY/RESET CONTROL:** Rotating this control knob clockwise increases the amount of ultrasound power being delivered. Anytime the function switch is operated, the intensity control must be reset.
15. **ULTRASOUND ON LED:** This Green LED is on when ultrasound power is being transmitted from the transducer (sound head).
16. **ULTRASOUND OUTPUT DISPLAY:** This display shows the amount of ultrasound power and intensity available at the transducer (sound head). The upper scale is calibrated in Watts and the lower scale in W/CM². In continuous (100%) mode average power is displayed. In pulsed mode (50%, 20%) peak power is displayed.
17. **DUTY CYCLE SELECTOR:**
    100% CONTINUOUS: In this position the operator can select an ultrasound output that is a continuous sinusodial waveform at a frequency of 1 MHz nominal.
    50% PULSED: In this position, the operator can select an ultrasound output of 1 MHz that is pulsed at 100 pulses per second. This produces rectangular pulses of 5 milliseconds duration, with an off time of 5 milliseconds between pulses.
    20% PULSED: In this position, the operator can select an ultrasound output of 1 MHz that is pulsed at 10 pulses per second. This produces rectangular pulses of 2 milliseconds duration, with an off time of 8 milliseconds between pulses.
    of 2 milliseconds duration, with an off time of 8 milliseconds between pulses.
18. **HEAD MAX TEMP LED:** This Red LED comes on when the temperature of the ultrasound head (transducer) reaches approximately 140 degrees F. At the time the LED comes on, the unit will stop producing ultrasound, the Ultrasound On LED will go out, and the Treatment Timer will continue to run. When the transducer cools to approximately 120F, the LED will go off and the ultrasound power will be restored.

hand-held probe application

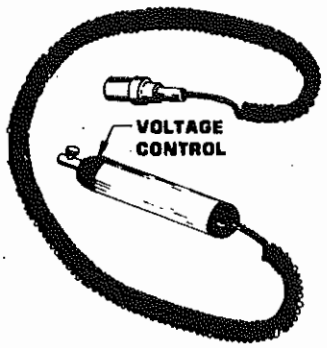
The probe is a hand-held electrode, with a self-contained intensity control, designed for treating localized areas or for locating painful trigger point areas. The intensity control knob is built into the handle to provide the operator with intensity control at the treatment site. Intensity level is monitored on the panel meter.

The user should become familiar with the intensity control by turning the knob with the thumb and forefinger of the same hand that is holding the probe.

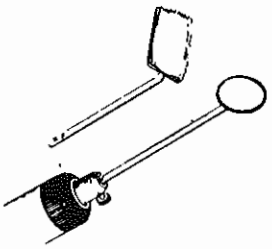
The probe comes with a disconnect mechanism on the shaft which allows for various electrodes to be used. The electrodes to be used can be secured by a thumbscrew. The electrodes are prevented from rotating about their axis by aligning the flat surface of the shaft so that it is perpendicular to the thumbscrew before twisting the screw clockwise to tighten.

accessories for hand-held probe

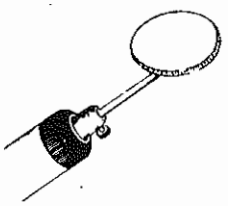
The following are pictures and descriptions of the various electrodes that are available to be used with the Intelect® 700-C™



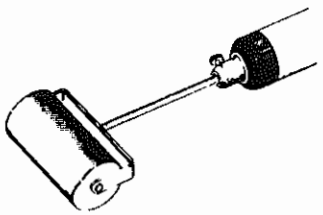
Hand-held Probe
Catalog No. 72504 includes removable electrode connector.



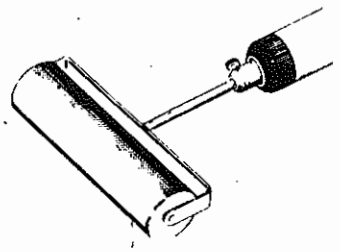
Small Spot Electrode
Catalog No. 79005, 5/8" diameter disc used for locating motor and trigger points. Sponge cover Catalog No. 79059. Standard accessories included with unit.



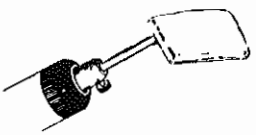
Large Spot Electrode
Catalog No. 79006, 2" diameter disc with crowned edge for use with gel or lotion.



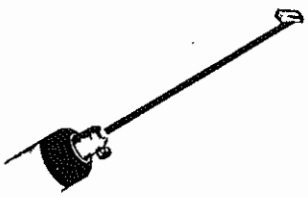
Small Roller Electrodes
Catalog No. 79003 used for applying stimulation to muscles in a roll-on type massage action.



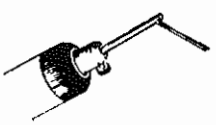
Large Roller Electrodes
Catalog No. 79004 used for applying stimulation to muscles in a roll-on type massage action.



Rectangular Electrode
Catalog No. 79008 and moist sponge cover Catalog No. 79062 are standard accessories included with unit.



Insulated Shaft Electrode
Catalog No. 79002 small crowned 3/16" x 3/4" rectangular head with electrically insulated shaft.



Acustim Electrode
Catalog No. 79007 used for very accurate selection and stimulation of points on the body.

progression of electrode pad control settings

The suggested progression of control settings, including the determination of patient's tolerance to treatment, is as follows:

1. Dial the Function Switch to the desired setting: either Probe, Continuous, Surge, Reciprocate 2.5 secs, Reciprocate 5 secs, or Reciprocate 10 secs.
2. If selection of first control is Surge, then the Surge On and Surge Off should be set next. NOTE: The Surge On has a built-in ramp equal to one-third the time setting of the on time. At 10 seconds the intensity will build from 0 to maximum in 3.3 secs and, therefore, the total time of the muscle contraction from start to release may be longer than 10 secs depending on intensity threshold of contraction.
3. Set the polarity switch to Positive (+) or Negative (−).
4. Dial the Pulses/Sec to the determined rate.
5. Set pad controls to 100%.
6. Set the Treatment Time to the determined total time of the treatment. Turning the treatment timer past 0 applies power to the unit.
7. Turn Intensity control counterclockwise to below Min to the Reset position where a click will take place. After this slowly turn clockwise until patient feels sensation, and continue to desired level of tolerance.
8. If patient has more sensory perception of electrical stimulation in one active electrode pad or pads over the others, or if a stronger muscle contraction occurs under one electrode pad or pads and not the other, then the Pad Control can be used to readjust relative strengths. The active pads are color-coded for easy identification. The pad control will adjust the intensity of each pad individually. Knobs are color coded for identification.

   Different portions of the body have higher sensory and motor thresholds than others. For example, extensor muscles require higher intensities than their flexor counterparts. Also, thresholds differ with types of tissue underlying the electrode pad. For example, medial parts of the knee, point of the shoulder, and the heel have relatively higher threshold because of their relatively high portion of osseous and collagenous tissue over muscle tissue.

   Adipose tissue is a relatively poor conductor of electricity and, therefore, those areas of the body require much higher intensities. Fat insulates pain receptors in the skin and, therefore, high voltage stimulation may be advantageous in contracting muscles of obese people because of its relatively greater degree of penetration.

operating procedure

This section is divided into three sections: high voltage, ultrasound and combination.

a. HIGH VOLTAGE OPERATION

The controls for this mode are located on the left side of the front panel.

1. Dial the Function Selector Switch in the center of the panel to the desired setting: either Probe, Continuous, Surge, Reciprocate 2.5 secs., Reciprocate 5 secs., or Reciprocate 10 secs.
2. Set the polarity switch to Positive (+) or Negative (−).
3. Dial the Pulses/ Sec to the determined rate.
4. Attach the dispersive pad to the patient.
5. Attach the active pad or pads to the patient unless you are going to use the probe with the roller electrodes. If you are using the roller electrodes use a conductive gel on the area of the patient where high voltage is going to be used.
6. Turn Treatment Time Knob to the determined total time of the treatment. Intensity will remain at zero if treatment timer is not turned on.
7. Set pad controls to 100%.
8. Turn Intensity control counterclockwise to below Min to the Reset position where a click will take place. After this, slowly turn clockwise until patient feels sensation, and continue to desired level of tolerance.
9. If patient has more sensory perception of electrical stimulation in one active electrode pad or pads over the others, or if a stronger muscle contraction occurs under one electrode pad or pads and not the other, then the Pad Controls can be used to readjust relative strengths. The active pads are color coded for easy identification. The Pad Controls will adjust the relative intensity of each pad individually.
10. When the treatment is complete, remove pads or pad, return probe (if used) to its holder and return intensity control to reset.

b. ULTRASOUND OPERATION

1. Plug the unit into a properly grounded outlet of the proper voltage and line frequency. Refer to the Nameplate on the rear of the unit.
2. Operator should adjust the applicator handle to the desired position. Tighten the thumbscrew securely.
3. Set the Treatment Timer (2) at the 0 (Off) position, and the Intensity control (14) at the fully counter clockwise position.
4. At this point you may begin the treatment by applying Intelect Ultrasound Gel to the area of the patient to be treated.
5. Turn the Treatment Timer knob (2) to the desired treatment time by turning the knob beyond the desired time and then backing up to the desired time.
6. Select the operating made by rotating the mode switch (17) to the desired duty cycle (pulsed-20% and 50% or continuous-100%).
7. You should then place the applicator in contact with the patient's body with a firm uniform pressure. You must keep the applicator moving during the treatment. Failure to keep the applicator moving may result in hazardous exposure to the ultrasound energy.
8. Adjust the Ultrasound Output by turning the Intensity control (14) until you reach the desired output on the meter (16). Use the Upper scale for Watts and Lower scale for W/Cm^2.

9. If you need to interrupt the treatment for any reason, turn the Treatment Timer to the off position (Bell will ring). To resume treatment repeat steps 4-8.
10. At the end of the treatment, the bell will sound and the unit will shut off.

c. COMBINATION OPERATION

1. Set the function selector switch (1) to the combination position.
2. Attach the dispersive pad to the patient.
3. Set the polarity switch to Positive (+) or Negative (−).
4. Dial the Pulses/Sec to the determined rate.
5. Turn Pad Controls to 100% position.
6. Select desired mode to ultrasound output. PULSED ultrasound in the 20% or 50% DUTY CYCLE position, or CONTINUOUS ultrasound in the 100% DUTY CYCLE position of the selector switch.
7. Turn TREATMENT TIMER knob (2) to the desired time by turning the knob beyond the desired time and then backing up to the desired time.
8. Begin normal treatment by applying INTELECT ULTRASOUND GEL to the treatment area of patient's body. Contact the applicator to the patient's body with firm, uniform pressure. Adjust the desired treatment INTENSITIES; first the Ultrasound and then the High Voltage, while continuously moving the applicator over the affected area. Do not maintain the applicator stationary over any given area for extended periods. This may result in hazardous exposure to ultrasonic energy.
   CAUTION: It is possible that high voltage stimulation may have significant pain reduction effect, to the point where the patient may have no appreciable response to an over-dosage condition of the ultrasound energy. Therefore, it is suggested to apply the ultrasound first, then the stimulation.
9. Continue procedure described in Step 8 above for duration of treatment time. Insure adequate coupling by adding sufficient gel as required. Inadequate coupling is apparent by noting variations in the intensity meter indication while moving the applicator.
10. When treatment is complete, return setting of INTENSITY controls to RESET, then store applicator in the holder.

maintenance and service instructions

1. To fully maintain compliance with Federal Regulation Title 21 (21 CFR) this unit must be recalibrated annually. It is recommended that all Chattanooga Corporation Ultrasound Products be returned to the factory or an authorized servicing dealer for repairs or recalibrations. It is also recommended after the replacement or repair of any major component. (See Section for Calibration Procedures.)

2. The following items should be checked at least monthly to insure proper operation of this unit:
    1. Power cord and plug. Check to make sure the cord is not frayed, kinked or has torn or cut insulation.
    2. Transducer (applicator) Cable. Check to make sure the cable is flexible, free of kinks, not frayed and that insulation is intact.
    3. Transducer (applicator) Handle. Check to make sure that it is not cracked or broken.
    4. Transducer (applicator) Face. Check to see that there is no build-up of gel or foreign material on the stainless steel face.
    5. LED's. Check each function to see if the LED is on when you are using that function.

trouble shooting

Call ERS 1800-479-2987

CAUTION: There is an electrical shock hazard present with cover removed. Refer Servicing to a Qualified Service Technician.

The following problems and solutions are presented to assist you in solving some of the problems that could possibly happen to your Intelect® 700 C™.

Problem	Possible Malfunction	Remedy
No power to unit	Unit not plugged in.	Plug in unit.
	No power to the receptacle.	Check for tripped circuit breaker or blown fuse on the facility circuit.
	Fuse blown.	Change the 1 amp. slo-blo fuse located in the power entry receptacle on the back of the unit. (0.8 amp for 220 V units.) Remove Power cord prior to changing the fuse.
Unit has power but no Ultrasound output.	Internal fuse blown.	Check ¾ amp fuse on rear panel. Check the 3 amp and ½ amp picofuses on the power supply board. This should be done only by a Qualified Service Technician.
	Loose connection inside unit.	Check internal connections for proper seating of plugs in receptacles and for broken wires.
U.S. output meter only indicated about half-scale or less when INTENSITY is set at maximum.	Applicator cable loose.	Replug cable into the shield box.
	Applicator cable broken.	Replace cable only with the same type of cable.
	Oscillator detuned.	Recalibrate.
	Crystal damaged.	Replace transducer head in the applicator and recalibrate.
When unit is energized HEAD MAX. TEMP LED (Red) lights and beeper sounds.	Shorted applicator cable	Check the cable with an ohmmeter. If the cable is shorted, re-place the cable with the same type.
	Water in applicator head.	Remove the transducer head and dry out the inside of the applicator. If the O-ring is defective, replace it. Consult the factory.
Timer will not set	Timer knob loose	Remove cap on the knob and tighten the collet. Rotate the timer fully clock-wise and then loosen the collet so that the knob is free. Align the white line on the knob with the 29 min. mark on the timer scale and re-tighten the knob collet. Perform section 4 of calibration procedure.

Problem	Possible malfunctions	remedy
No stimulation out of both electrode pads	Intensity control has not been reset after Function Selector was changed. Also Intensity must be reset after timer has timed out or each time unit is started.	Operate reset switch.
	Dispersive wire is broken	Replace.
	Both wires to active electrode pads broken	Same as above.
	Malfunction on circuit board	Replace circuit board or return it to factory for repair.
	Internal fuse blown.	Check ¾ amp fuse on rear panel.
No stimulation out of one pad	Broken wire.	Replace.
	Pad control at minimum.	Check control setting.
	Poor patient contact.	
Too much stimulation out of dispersive pad	Small area only of 8 x 10 black surface is conducting stimulation	Move dispersive pad on patient so that entire surface is in contact with patient (back, abdomen or thigh)
	Dirty dispersive pad	Clean with soap and water or replace pad.
	Too much active pad surface	Use smaller active electrodes; or use one-half the number of electrodes; or use unit on Reciprocate instead of Continuous or Surge.
No stimulation out of hand-held probe	Dispersive pad is not on patient	Place dispersive pad on patient.
	Dispersive wire is broken.	Repair or replace.
	Dry sponge on probe electrode.	Moisten sponge.
	Probe is defective.	Repair or replace.
	Voltage control on probe is turned down	Adjust voltage control on probe
Treatment timer malfunction	Timer broken internally.	Replace timer.
No meter readout	Intensity control not reset.	Reset, then continue.
	Broken wire to meter.	Resolder wire.
	Malfunction of circuit board.	Replace circuit board or return to factory for repair.
	Treatment timer not on.	Turn on timer.
	Broken meter.	Replace meter.
Yellow Pad Indicator lamps don't light.	Defective lamp.	Replace lamp.
Improper meter readings in voltage or peak current.	Defective circuitry on P.C. board.	Replace circuit board or return unit to factory for repair.

ultrasonic generator calibration

CAUTION: An Electrical Shock Hazard is present during several portions of the calibration procedure. Calibration should be performed by a Qualified Service Technician.

1. TEST EQUIPMENT REQUIRED
    1. Power line monitor (expanded scale voltmeter for rated line voltage ± 10%), VIZ model WV-120B or equivalent for 120VAC line.
    2. Autotransformer, adjustable from 90% to 110% of rated line voltage, 150 watts or greater.
    3. Ultrasound Power Meter, Ohmic Instruments Model UPM-30 or equivalent.
    4. Oscilloscope, Hameg Hm 204-2 or equivalent.
    5. Probe, voltage, X10, Scope, low capacitance.
    6. Probe, current, Textronix P6021 AC current probe or equivalent.
    7. Voltmeter, Digital, 3-½ digits, Simpson Model 461 or equivalent.
    8. Probe, temperature, Fluke Model 80T-150 or equivalent.
    9. Source of approximately ½ gallon of distilled de-oxygenated (<5 PPM) water at 30 degrees Celsuis for use in UPM-30 power meter (item# 3).
    10. Counter, frequency, 10 MHz, Triplett 7000 or equivalent.
    11. Stopwatch, Siliconix Model 705 or equivalent.
    12. Applicator current transformer adapter (see Fig. 1).
2. INSTRUMENT PREPARATION
    1. Remove the top cover of the unit by removing the six #6 truss head screws (three on each side) and lift the cover off the cabinet.
    2. Remove 5 #6 truss head screws on back panel. The back panel can now be tilted outward for inserting current probe adapter.
    adjustments on the control board.
    3. Insert a RF current probe adaptor between the ultrasound applicator cable and the RF phono receptacle on the shield box located on the rear panel. The adaptor construction is shown in Fig. 1.

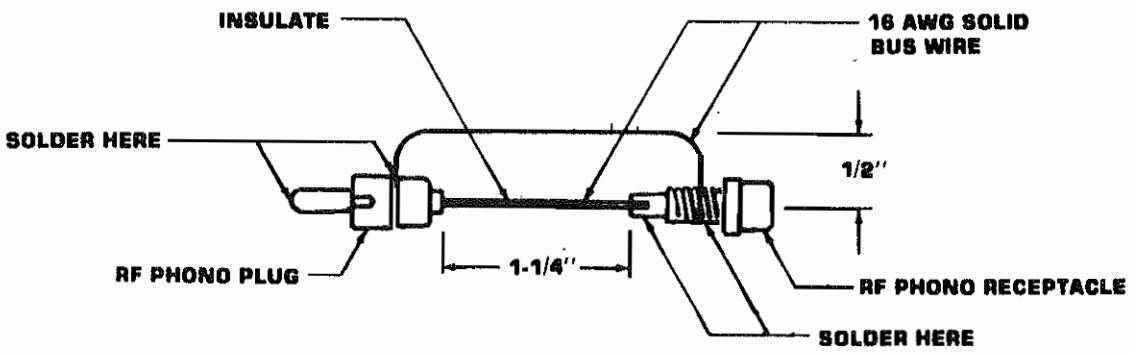


FIGURE 1

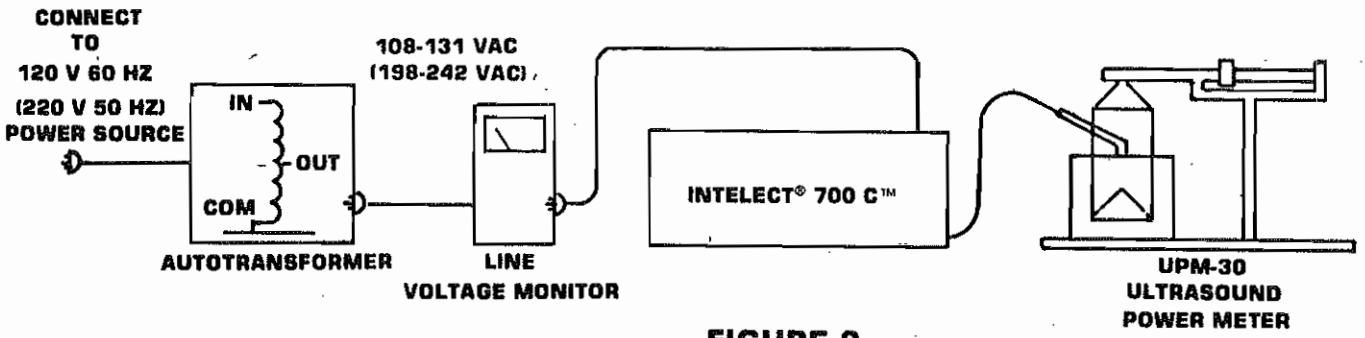


FIGURE 2

3. TEST SET-UP
   1. Connect the test set-up as shown in Fig. 2.
   2. Set AC input voltage with the autotransformer to 120 (220) VAC line monitor.
   3. See OHMIC INSTRUCTIONS clinical engineering notes AN-330 for operation of the UPM-30 US. Power Meter.
4. TIMER TEST AND ADJUSTMENT
   1. Using a stopwatch, check the accuracy of the timer with time settings of 1 min., 5 min., 10 min., 20 min., and 29 min. See specifications on page 4 for required timer accuracy.
   2. If the timer accuracy is out of specification, rotate the timer knob fully clockwise and adjust the collet on the knob so that the white line on the knob is aligned with the 29 minute mark on the timer scale.
   3. Repeat steps 4.1 and check also that the white line on the knob is aligned with the "0" position on the scale after the timer times out.
5. CHECK POWER SUPPLY
   1. Rotate INTENSITY knob fully counterclockwise and the timer to its fully clockwise position.
   2. Connect the DC digital voltmeter to the pins 1 (+) and 2 (−) on connector J1 which connects to the control board and measure the 12VDC output. It should be between 11.5 VDC and 12.5 VDC.
6. ADJUST THE DUTY CYCLE AND CHECK PULSE FREQUENCY.
   1. Select 20% DUTY CYCLE and connect the oscilloscope voltage probe to pin #3 (signal) and ground clip to pin # 2 (com.).
   2. Adjust the time base of the oscilloscope to 1 msec/div and measure the period of the 100 Hz signal. It should be between 8.0 msec and 12 msec.

3. Adjust the scope time base for 10 divisions of one cycle of the signal. On the control board, adjust R5 for a pulse width of 7.9 divisions
4. Select 50% DUTY CYCLE and adjust R4 on the control board for a pulse width of 4.7 divisions.
5. Select 100% DUTY CYCLE and observe that the signal is a DC level less than .5V.

7. CHECK AND ADJUST THE R.F. OSCILLATOR
   1. Connect the scope current probe around the center conductor of the current probe adaptor and connect the voltage probe to the outside conductor.
   2. Rotate the INTENSITY control clockwise as you observe the voltage and current waveforms on the dual channel scope. The waveforms should be within 5 degrees of being in phase and oscillation should be stable.
   3. Repeat step 7.2 with 50% duty cycle and then with 20% duty cycle selected.
   4. Adjust C4 through the access hole on the rear panel (see fig. 3 for location, remove hole caps) for phase correction and C7 through its rear panel access hole for oscillation stability in the pulse modes (20% and 50%).
   6. Replace stainless hole caps on rear panel.

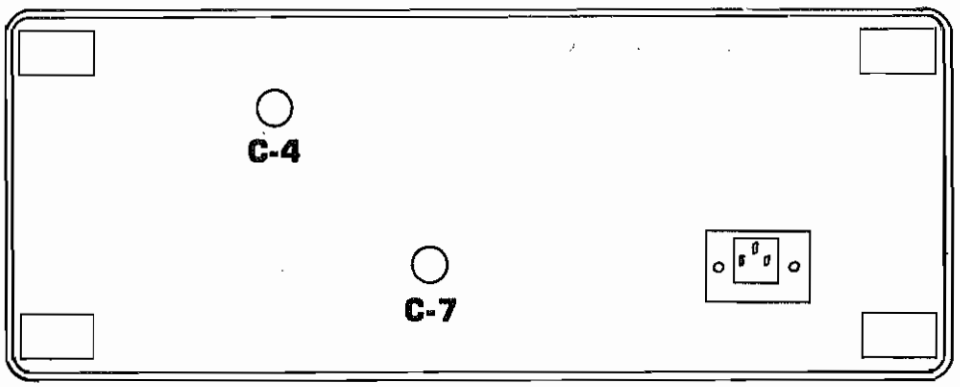


FIGURE 3

8. CHECK AND ADJUST MODULATED RF DUTY CYCLE
   1. Select 20% DUTY CYCLE and observe the duty cycle of the 100 Hz modulated RF waveform. Re-adjust R5 as necessary to obtain 21% duty cycle.
   2. Select 50% DUTY CYCLE and again observe the modulated RF waveform. Readjust R4 as necessary to obtain 53% duty cycle.
9. OUTPUT METER CALIBRATION
   1. With electrical power removed, adjust the mechanical zero adjustment, located on the front panel under the meter, to align the meter pointer with 0 on the meter dial.
   2. Re-apply electrical power to the unit and select 100% duty cycle.
   3. Adjust the INTENSITY control on the front panel to obtain 20 watts output power on the UPM-30.
   4. Adjust the meter calibration potentiometer, R18, for an indication of 20 watts on the front panel output meter.
   5. Check the accuracy of the output meter by comparing its indication to the power indicated on the UPM-30 at the power levels listed

U.S. Meter	UPM-30 Indication	
	Minimum	Maximum
2.0 W	1.72 W	2.28 W
5.0 W	4.3 W	5.7 W
10.0 W	8.6 W	11.4 W
15.0 W	12.9 W	17.1 W
20.0 W	17.2 W	22.8 W

6. Vary the line voltage from 108 VAC (198 VAC) to 132 VAC(242VAC) and check that the output power remains within the limits listed above.
7. Select 50% DUTY CYCLE and check the peak output meter accuracy by comparing its indication to the average power indication on the UPM-30.

$$\text{POWER} = (\%\ \text{Duty Cycle})\ (\text{Power}_{\text{peak}})$$

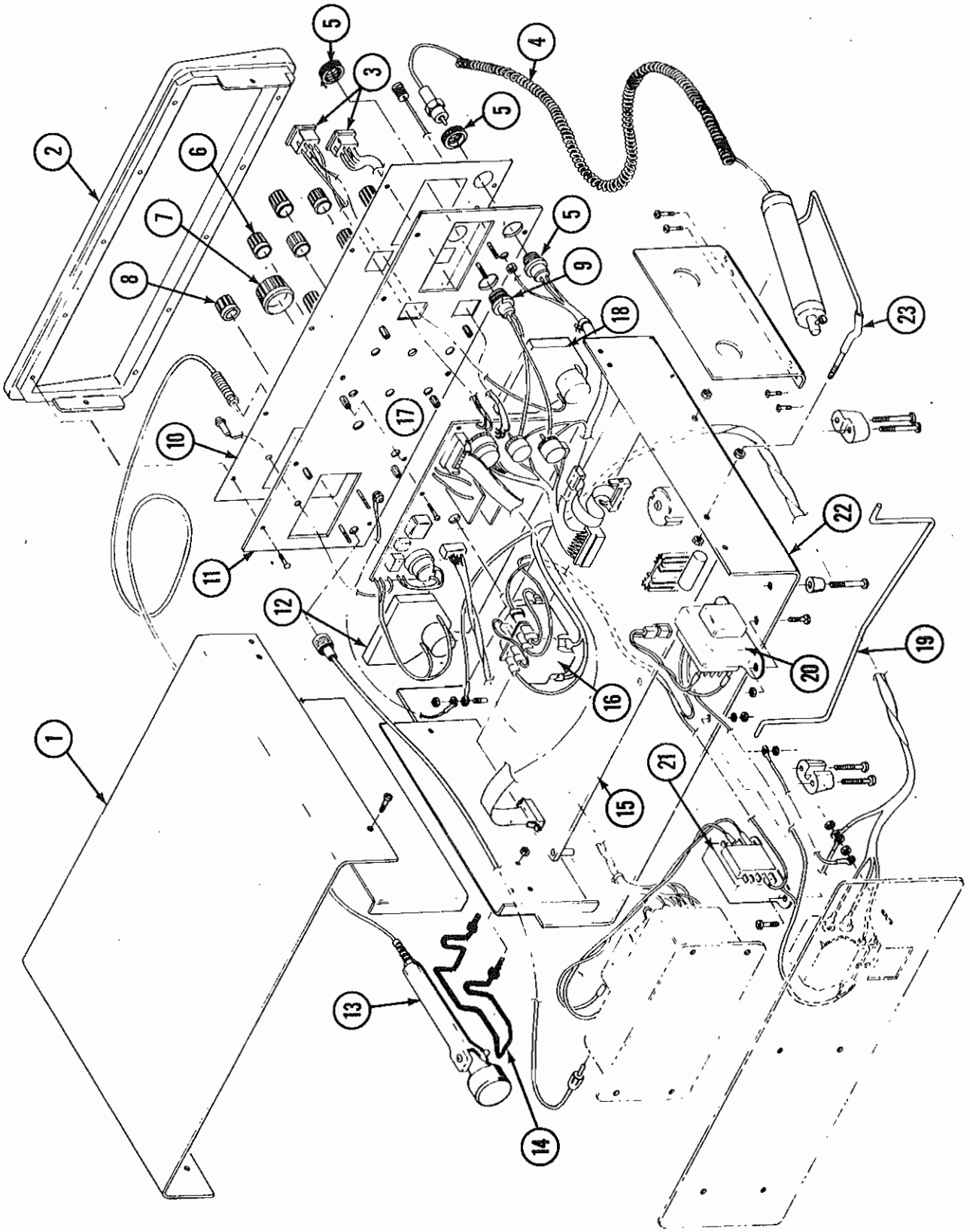
U.S. Meter Peak Power	UPM.-30 Indication Average Power Minimum	Maximum
2.0 W	.86 W	1.14 W
5.0 W	2.15 W	2.85 W
10.0 W	4.3 W	5.7 W
15.0 W	6.5 W	8.5 W
20.0 W	8.6 W	11.4 W

8. Select 20% Duty Cycle and check the accuracy of the output meter by comparing its indication to the UPM-30 indications as listed below.

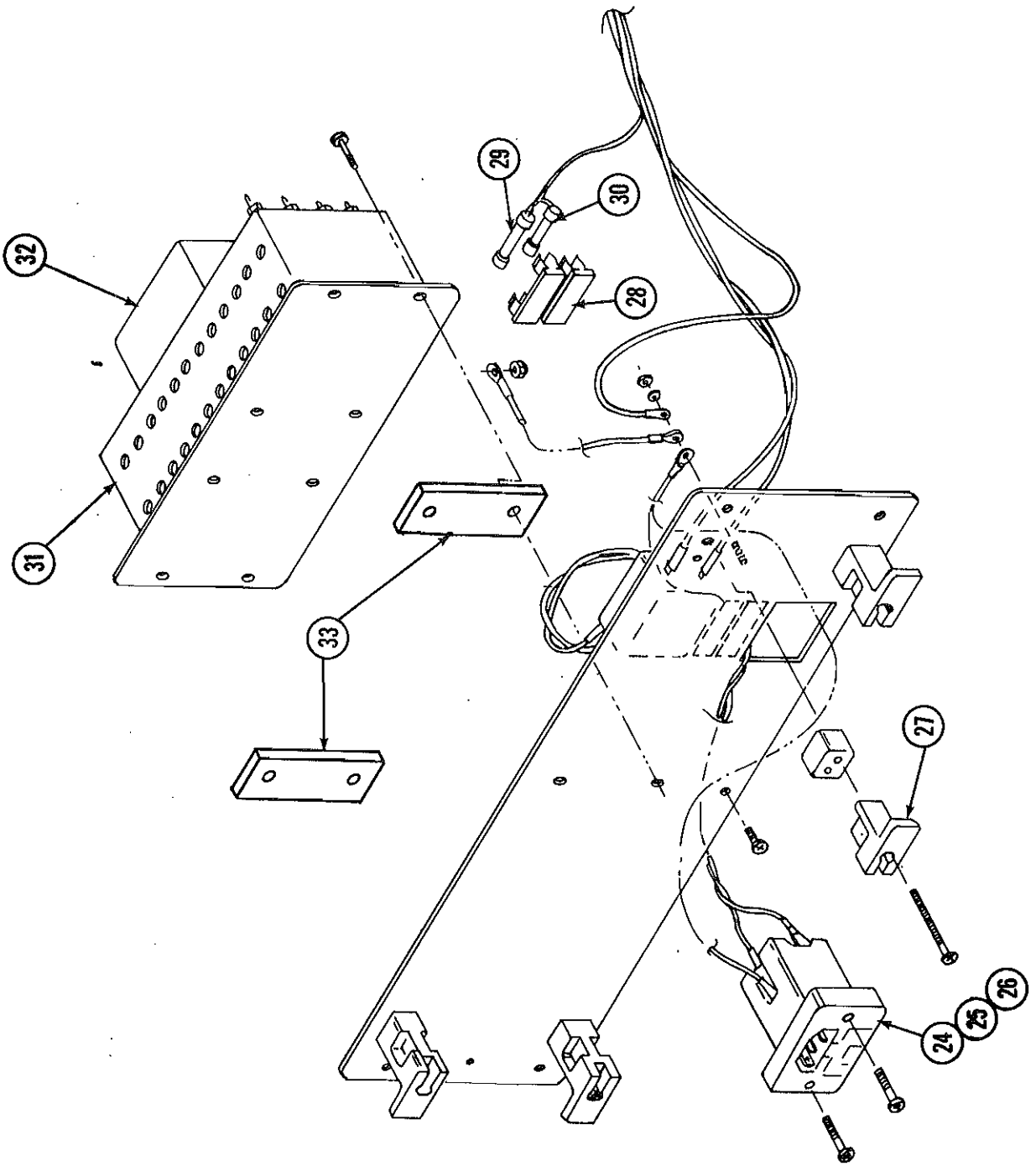
U.S. Meter Peak Power	UPM-30 Indication Average Power Minimum	Maximum
2.0 W	.34 W	.46 W
5.0 W	.86 W	1.14 W
10.0 W	1.72 W	2.28 W
15.0 W	2.58 W	3.42 W
20.0 W	3.44 W	4.56 W

10. CHECK HEAD MAXIMUM TEMP TRIP
    1. Apply maximum power at 100% duty cycle to the ultrasound applicator with it coupled to the air.
    2. Allow the applicator to heat until the HEAD MAX TEMP LED lights, the beeper sounds and the ultrasound energy is removed from the head (the output meter indication will go to zero).
    3. After the head cools, power will be re-applied to the head (LED goes off and meter indication returns to maximum).
    4. Let the head max. temp control cycle on and off 5 times and then with the temperature probe check the surface temperature of the stainless steel head immediately after the HEAD MAX. TEMP LED lights. The temperature must be between 133 degrees F. and 147 degrees F.

parts lists intelect 700 C
cabinet assy.

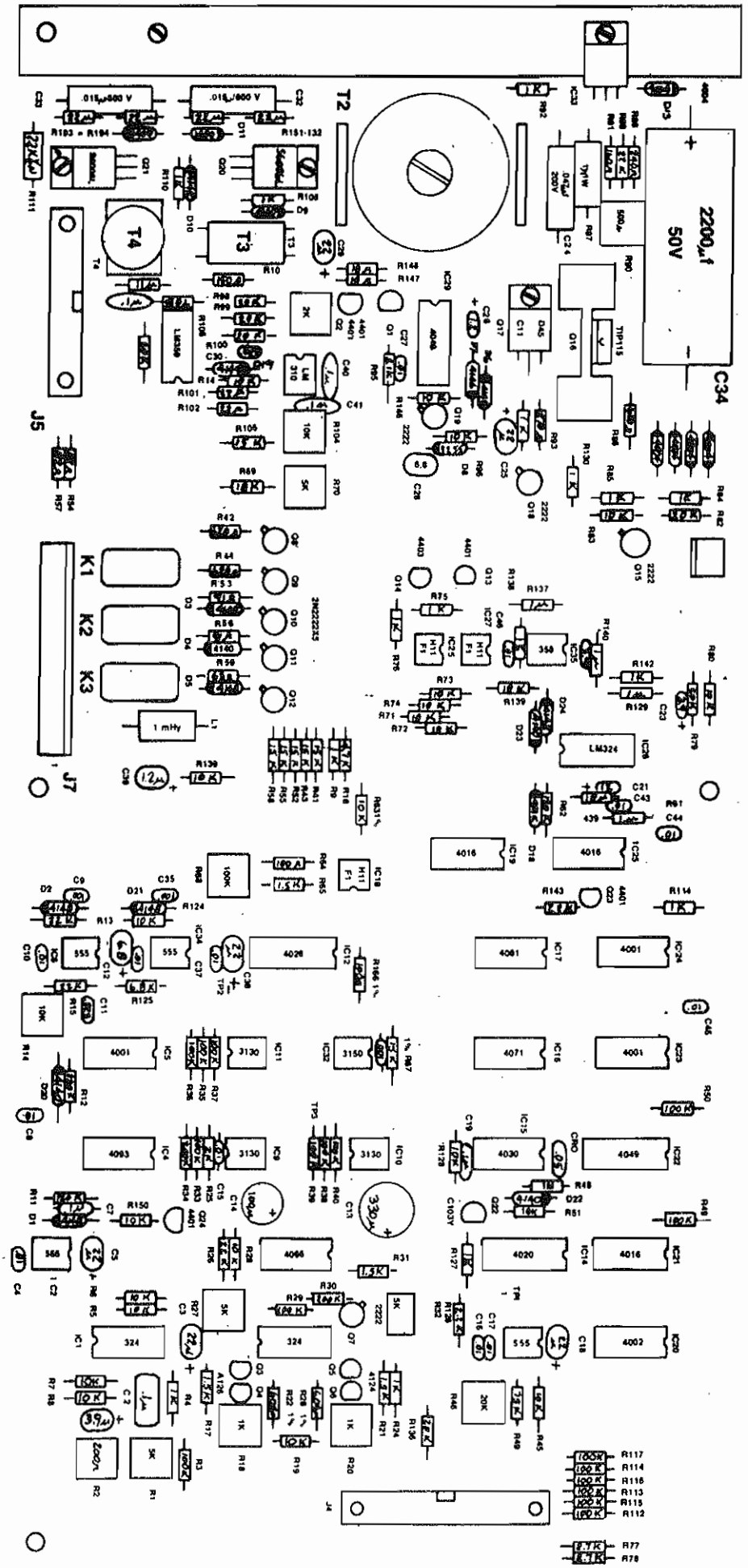


parts list intelect 700 C
back panel assy.

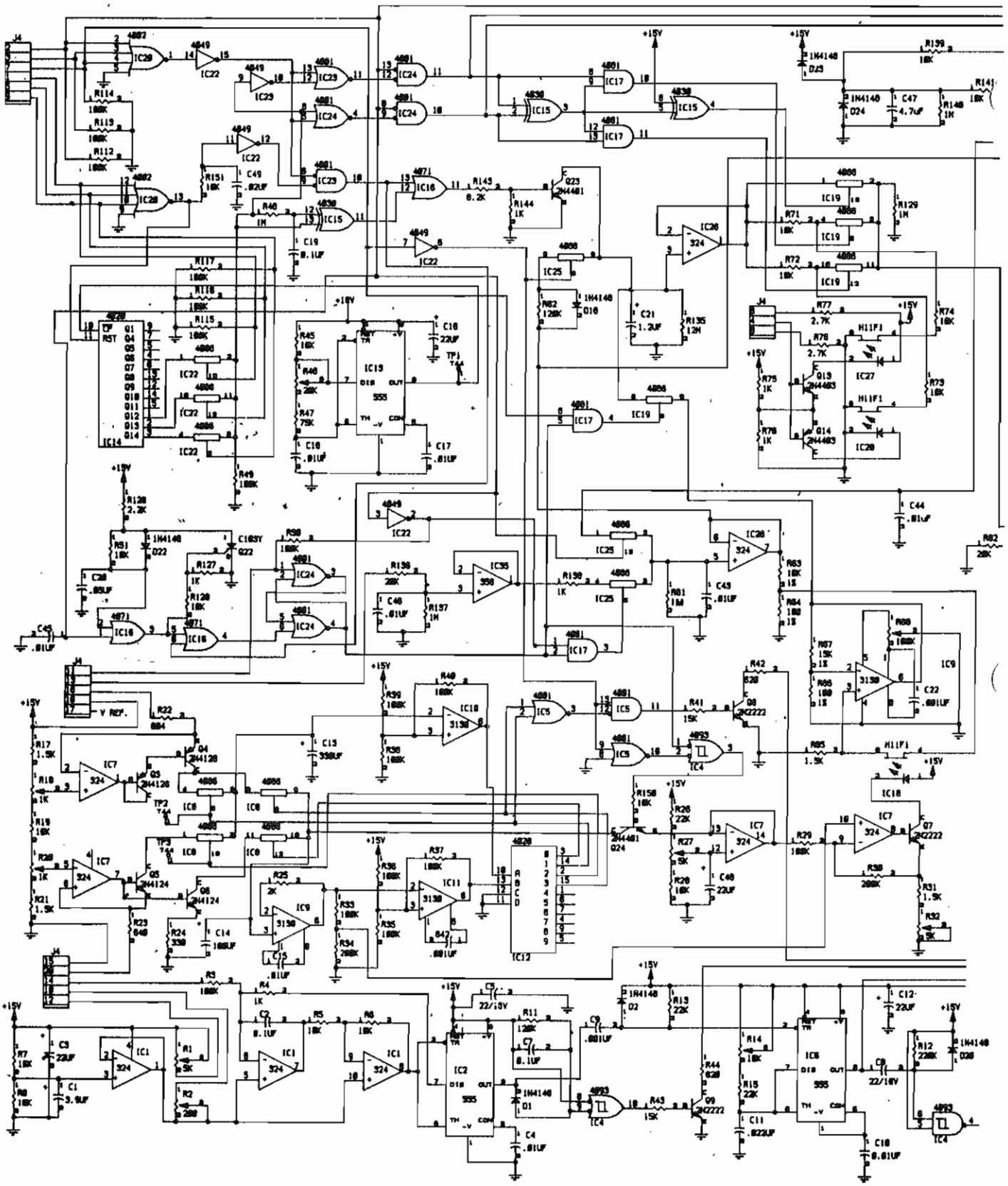


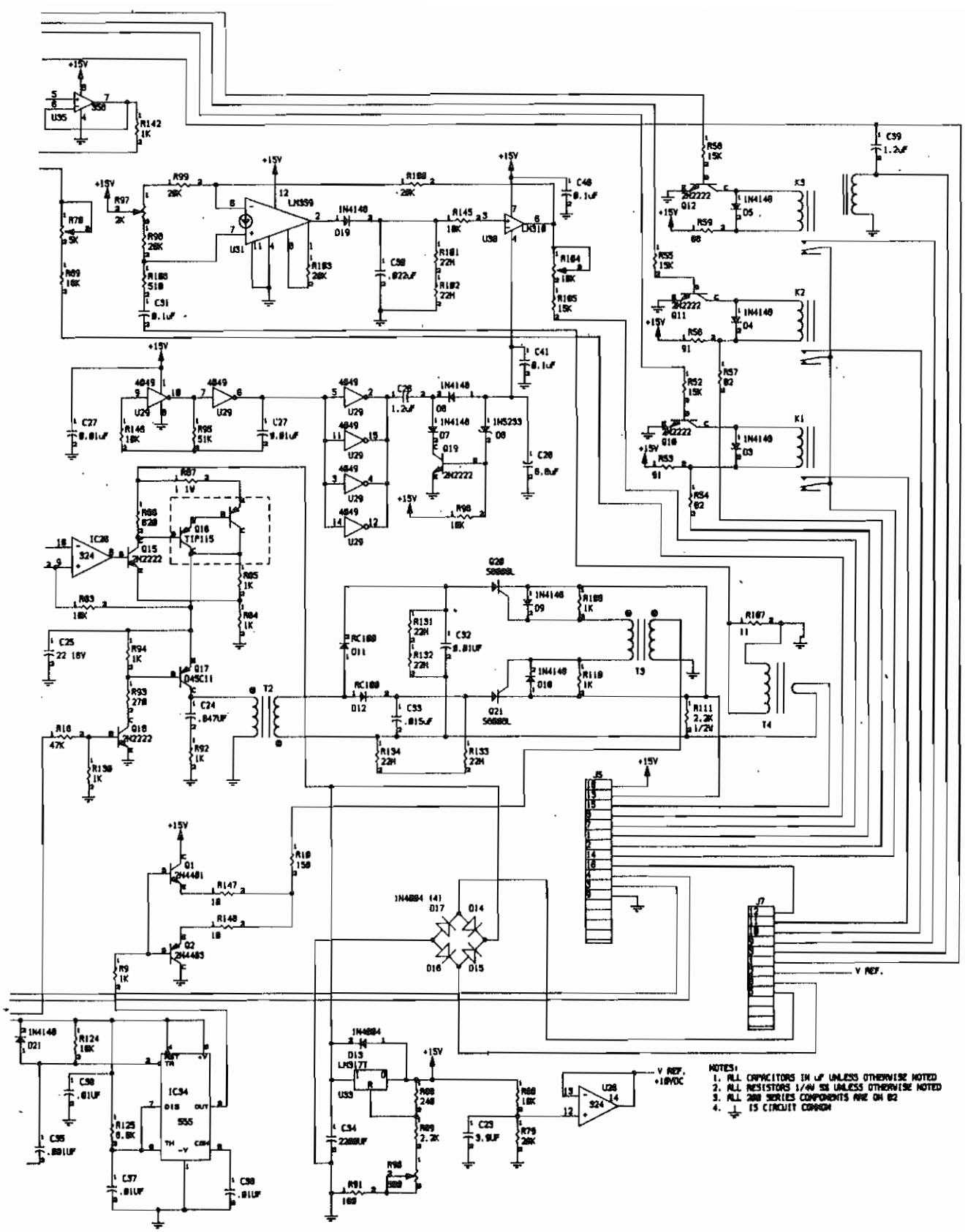
parts lists intelect 700 C

1	74284	Pnl Top Cover I-700 C PNT
2	74293	Bezel 17x5 ¾ ABS
3	74077	Switch MML34HB2AC01K
4	79001	Probe Int-500
5	72520	Conn 4 Pin W/Wire Micro
6	73606	Knob #023-3525 Elma
7	73230	Knob #023-S425 with #0482100
8	74162	Knob Elma 021-3525 Blk w/o rng
9	72521	Conn 3 Pin W/Wire Micro
10	74355	Decal Fnt Pnl Ovlay I-700 C 115
11	74287	Pnl Front I-700 C S/M/C
12	73664	Meter In 230P Moutec 930368-106
13	74582	Applicator US 10 CM
14	74968	Holder Appl Right
15	72518	PCB In 500 W/IC's
16	73317	Timer Diehl 30 Min Bell
17	74354	PCB In 700C Interface Assy
18	74200	Meter I-500 S
19	74382	Stand Tilt MP40008-5 15.5 In
20	74203	Trnsfmr A41-25-20
21	74322	Trnsfmr A41-80-36
22	74281	Pnl Bottom I-700 C Pnt
23	74303	Holder Probe In-500 S
24	73422	Rec SGLFuse Pnlcmp 83010250
25	70511	Fuse MDA 1 Amp 250 V SLOBLO
26	73425	Fuse Carrier Pnlemp 83010140
27	73604	Holder Cord PP-40055
28	70094	Fuse Holder Little fuse 357001
29	70179	Fuse MDA ¾ Amp 250V SLOBLO
30	71766	Fuse MDA ¼ Amp 250V SLOBLO
31	74375	Cover Shield In 700 C Assy
32	70484	Filter Line 3A/250V
33	74325	Spacer I 700 C Delrin Oscillator

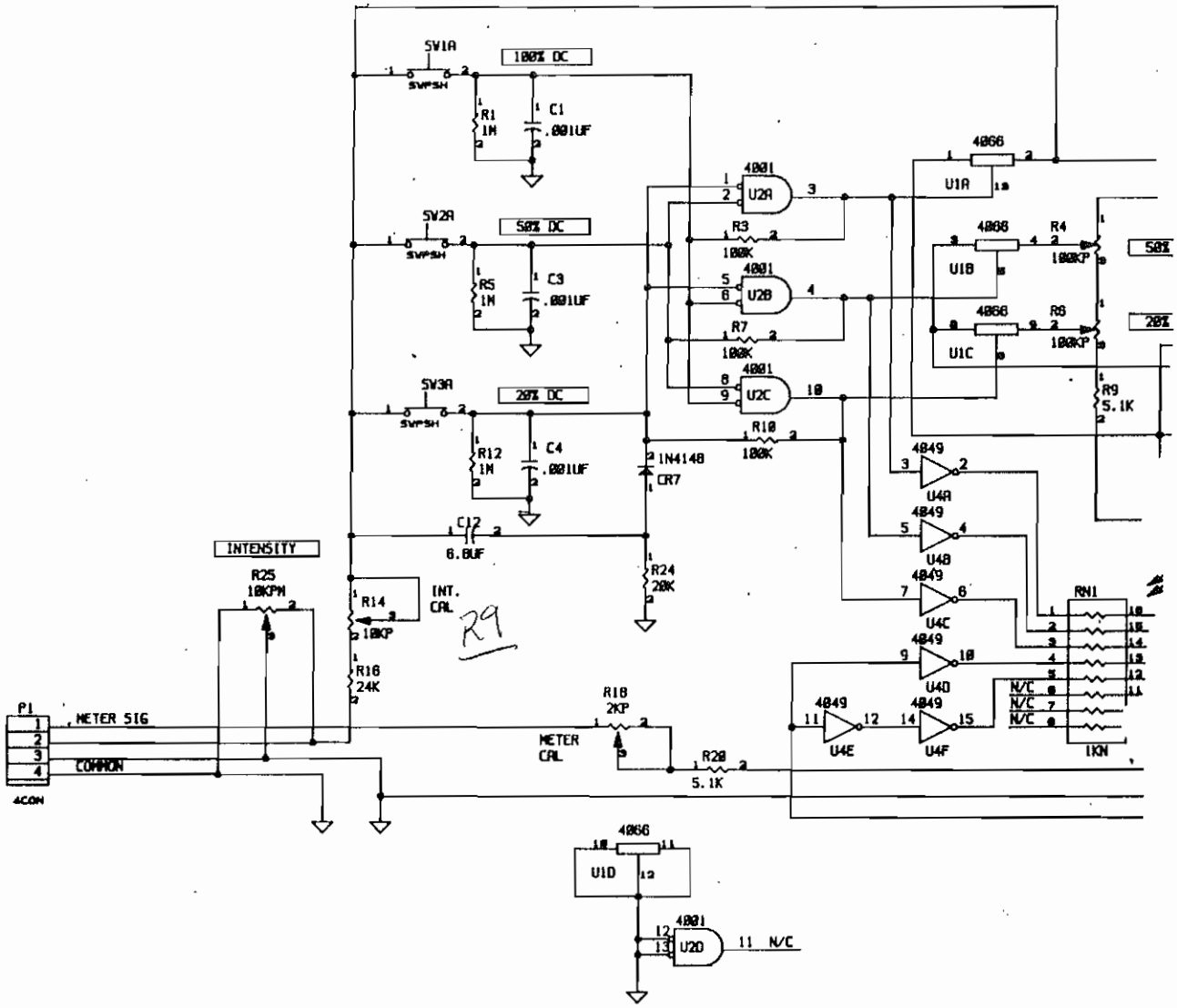


BOARD, P.C.
INTELECT® 700 C™
72502





ELECTRICAL SCHEMATIC
INTELECT® 700C ™
E.S. 72542A


SV1A
100% DC
SVPSH
R1
1M
C1
.001UF
4001
U2A
4066
U1A
SV2A
50% DC
R3
100K
U1B
R4
100KP
50%
R5
1M
C3
.001UF
U2B
R7
100K
U1C
R6
100KP
20%
SV3A
20% DC
R9
5.1K
U2C
R10
100K
R12
1M
C4
.001UF
1N4148
CR7
4849
U4A
U4B
U4C
U4D
U4E
U4F
C12
6.8UF
INTENSITY
R25
10KPM
R14
10KP
INT.
CAL
R24
20K
RN1
10K
R16
24K
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CAL
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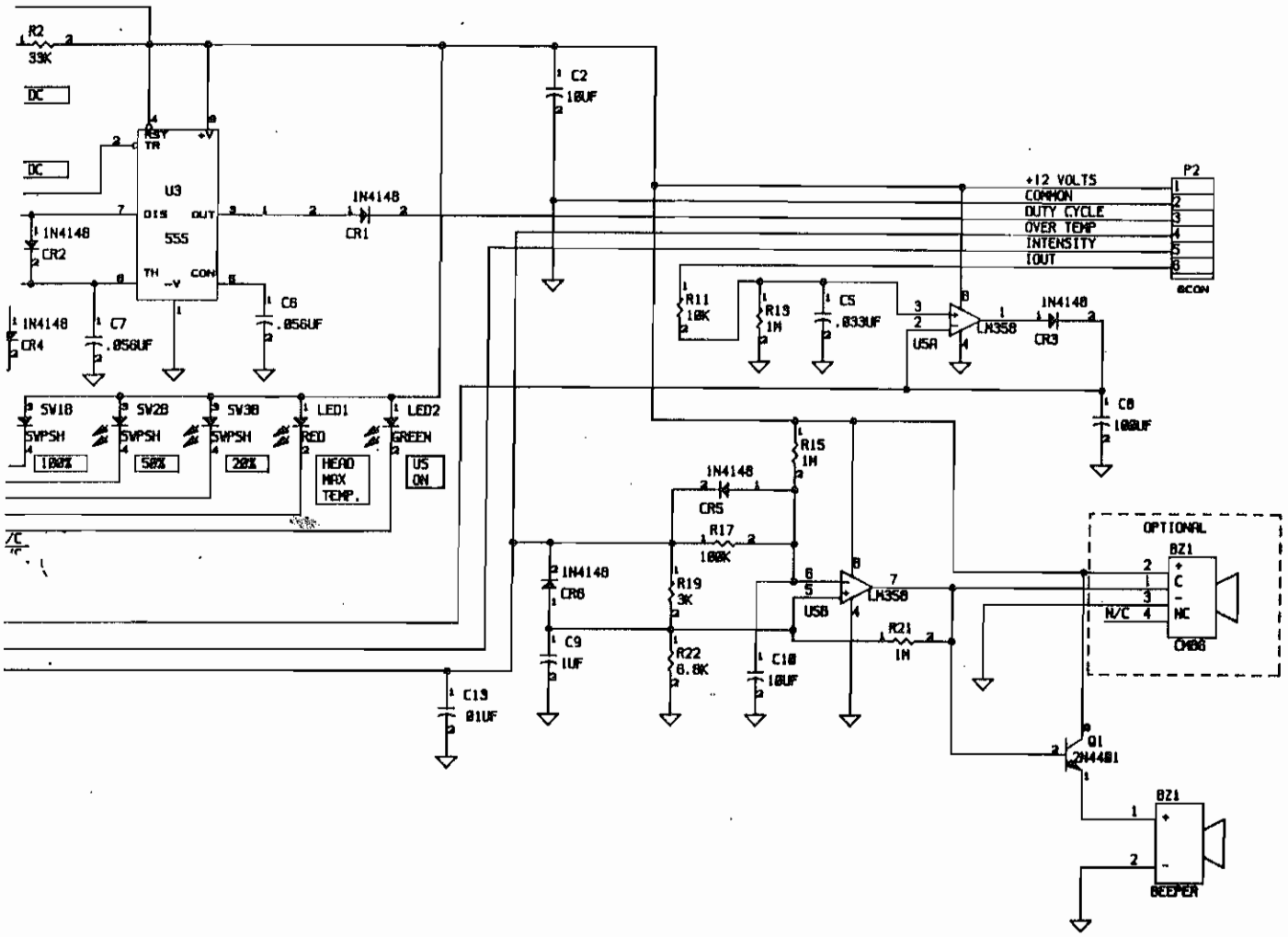
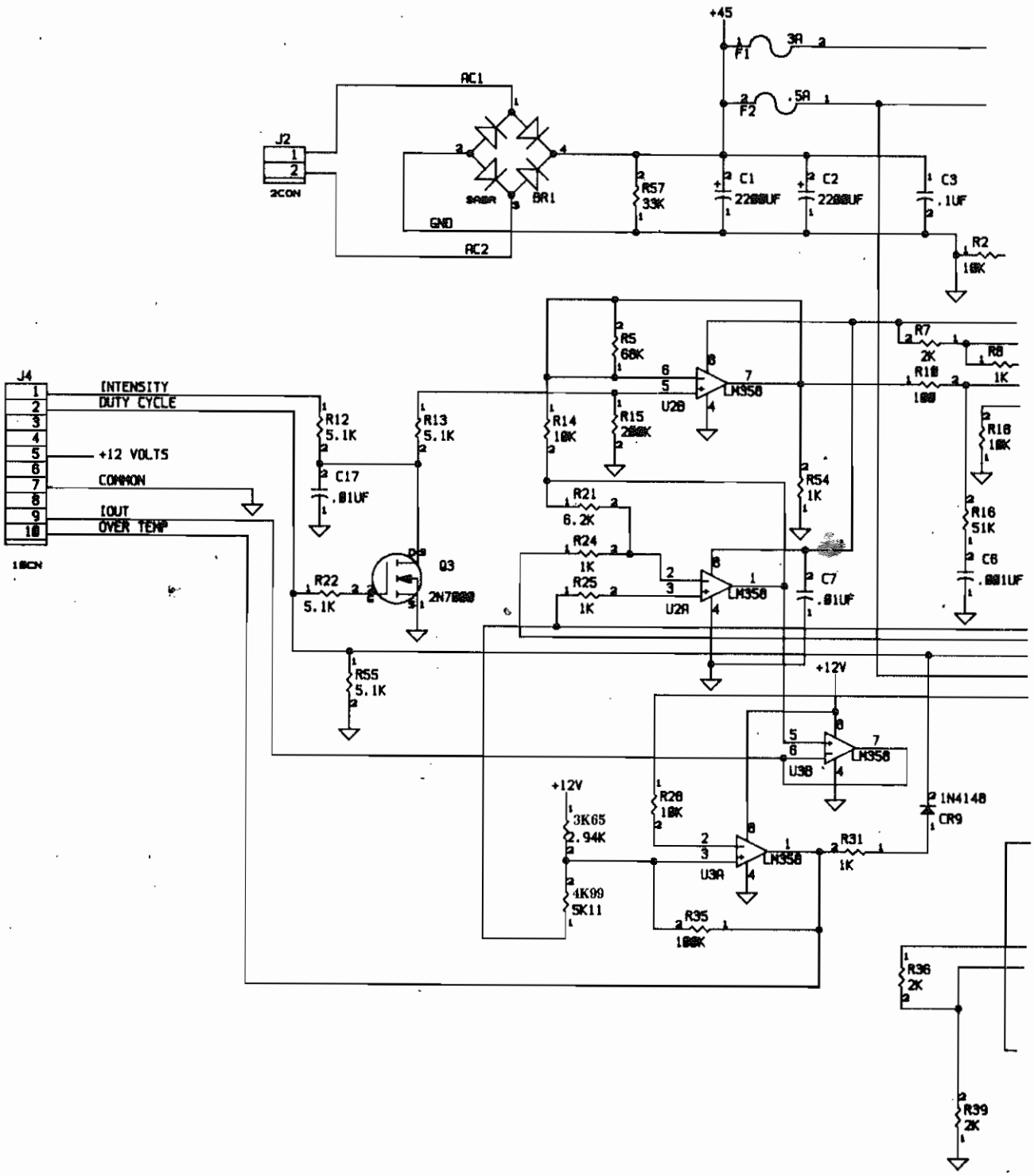
U2D
11 N/C



ELECTRICAL SCHEMATIC, PCB. CNTRL INT PORT. US 10CM²
73445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F1
3A
F2
.5A
AC1
J2
2CON
BR1
GND
AC2
R57
33K
C1
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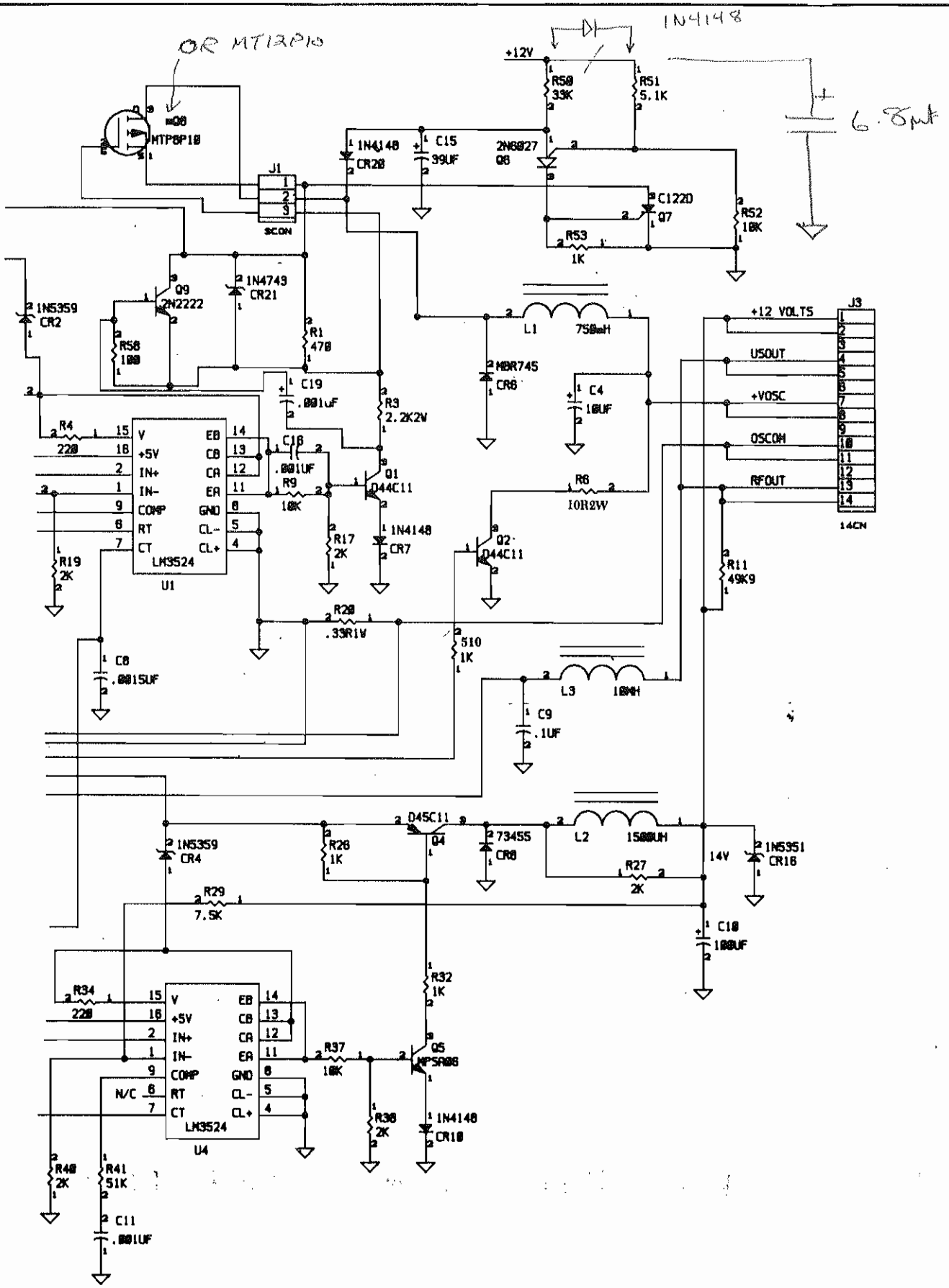
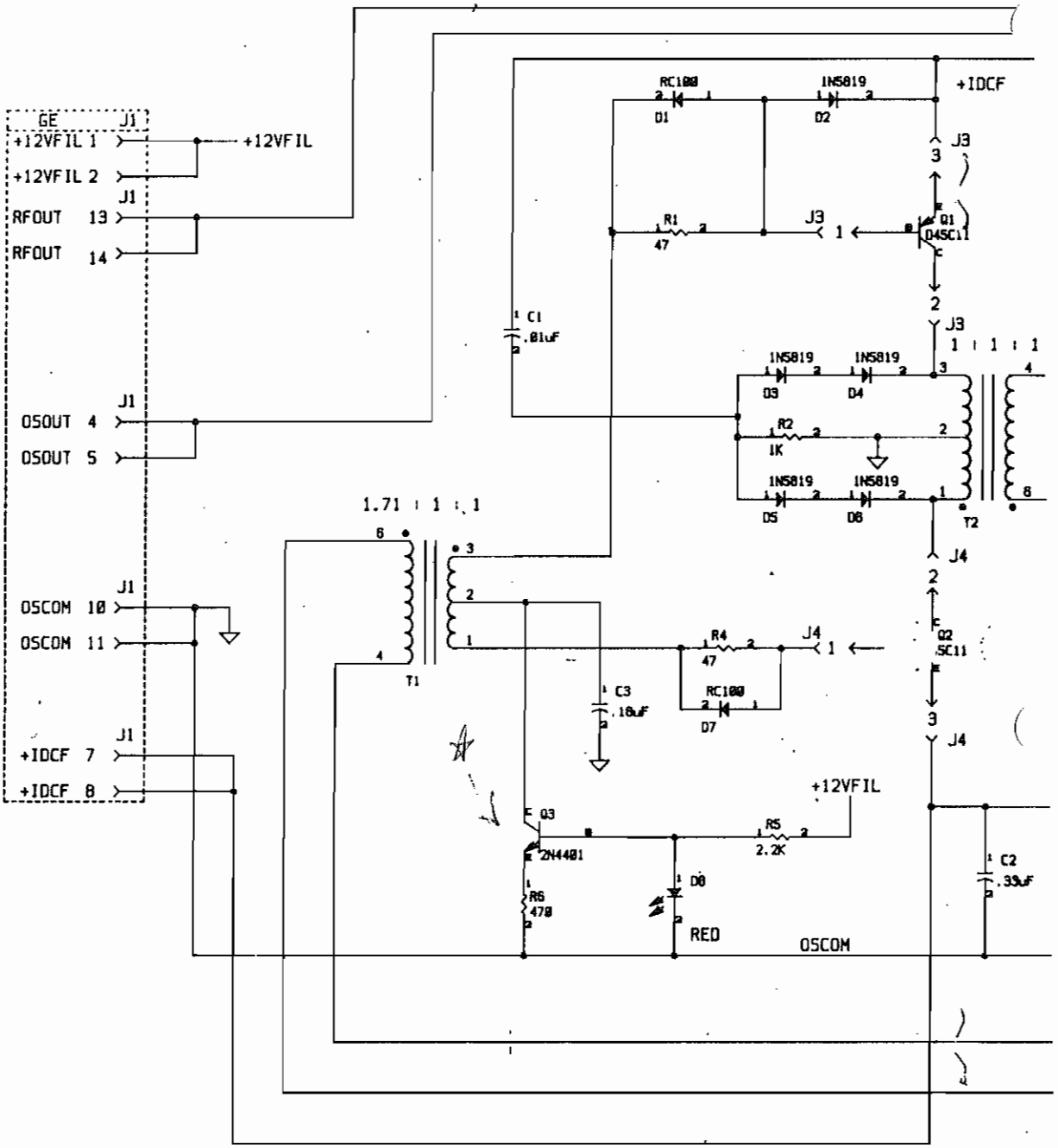
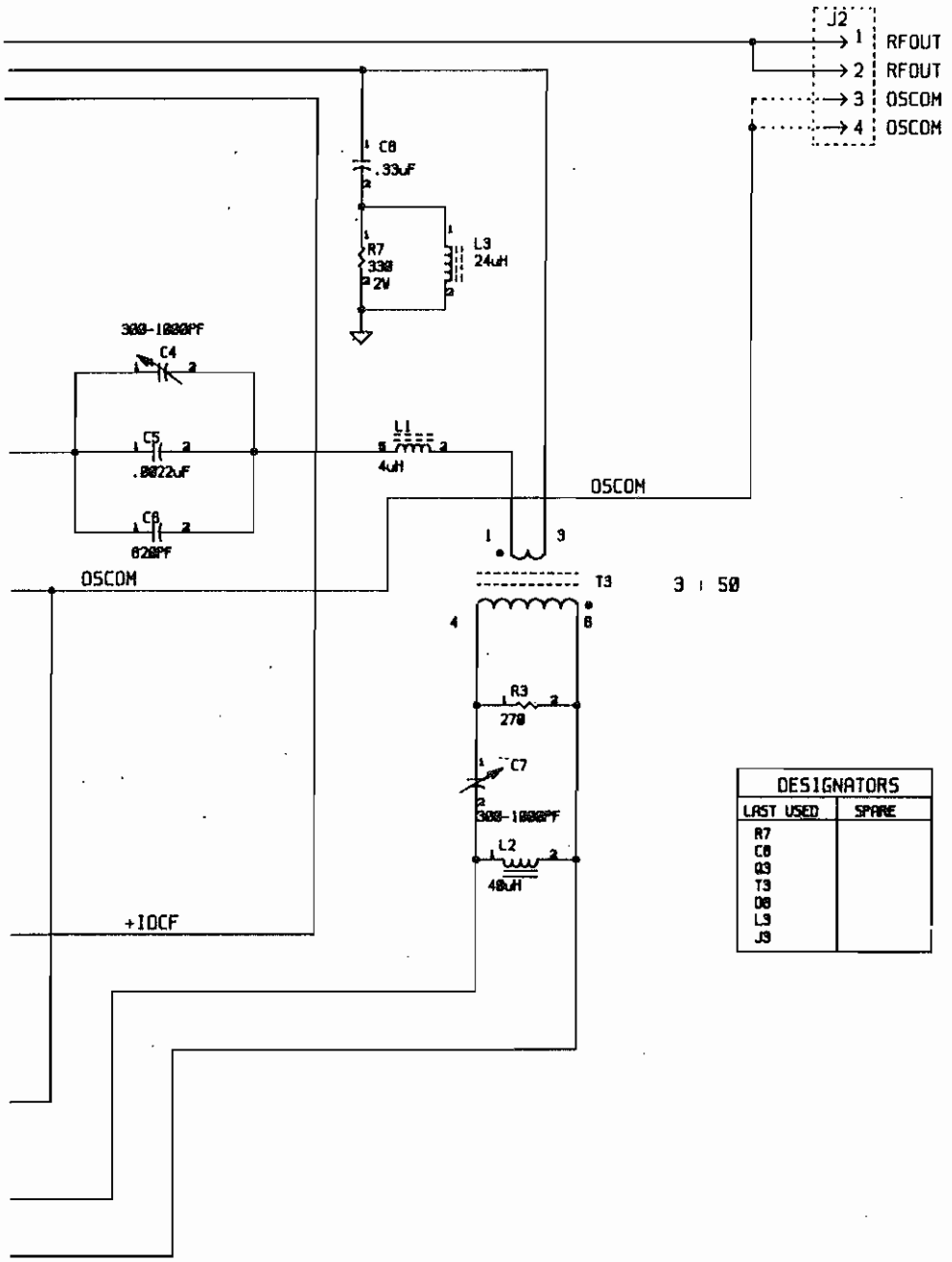
C2
2200UF
C3
.1UF
R2
10K
R5
68K
U2B
LM358
R7
2K
R8
1K
R10
100
R18
10K
J4
INTENSITY
DUTY CYCLE
+12 VOLTS
COMMON
IOUT
OVER TEMP
10CN
R12
5.1K
R13
5.1K
C17
.01UF
R14
10K
R15
20K
R21
6.2K
R24
1K
R25
1K
U2A
R54
1K
R16
51K
C6
.001UF
C7
.01UF
Q3
2N7000
R22
5.1K
R55
5.1K
+12V
U3B
+12V
3K65
2.94K
4K99
5K11
R20
10K
U3A
R31
1K
1N4148
CR9
R35
100K
R36
2K
R39
2K



ELECTRICAL SCHEMATIC, PCB
PWR SUPPLY INT. SMP 50W 10CM
S73436-D

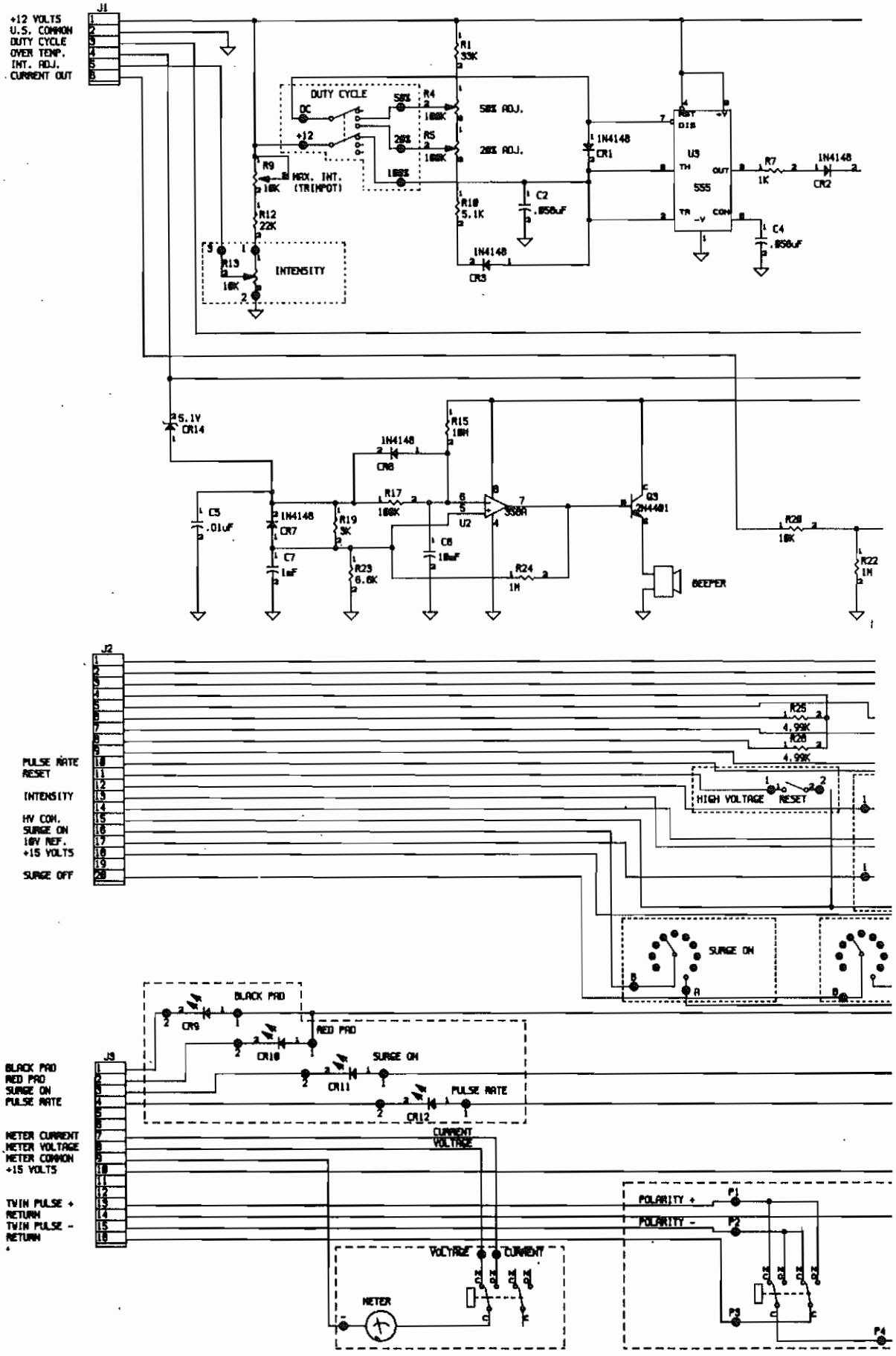


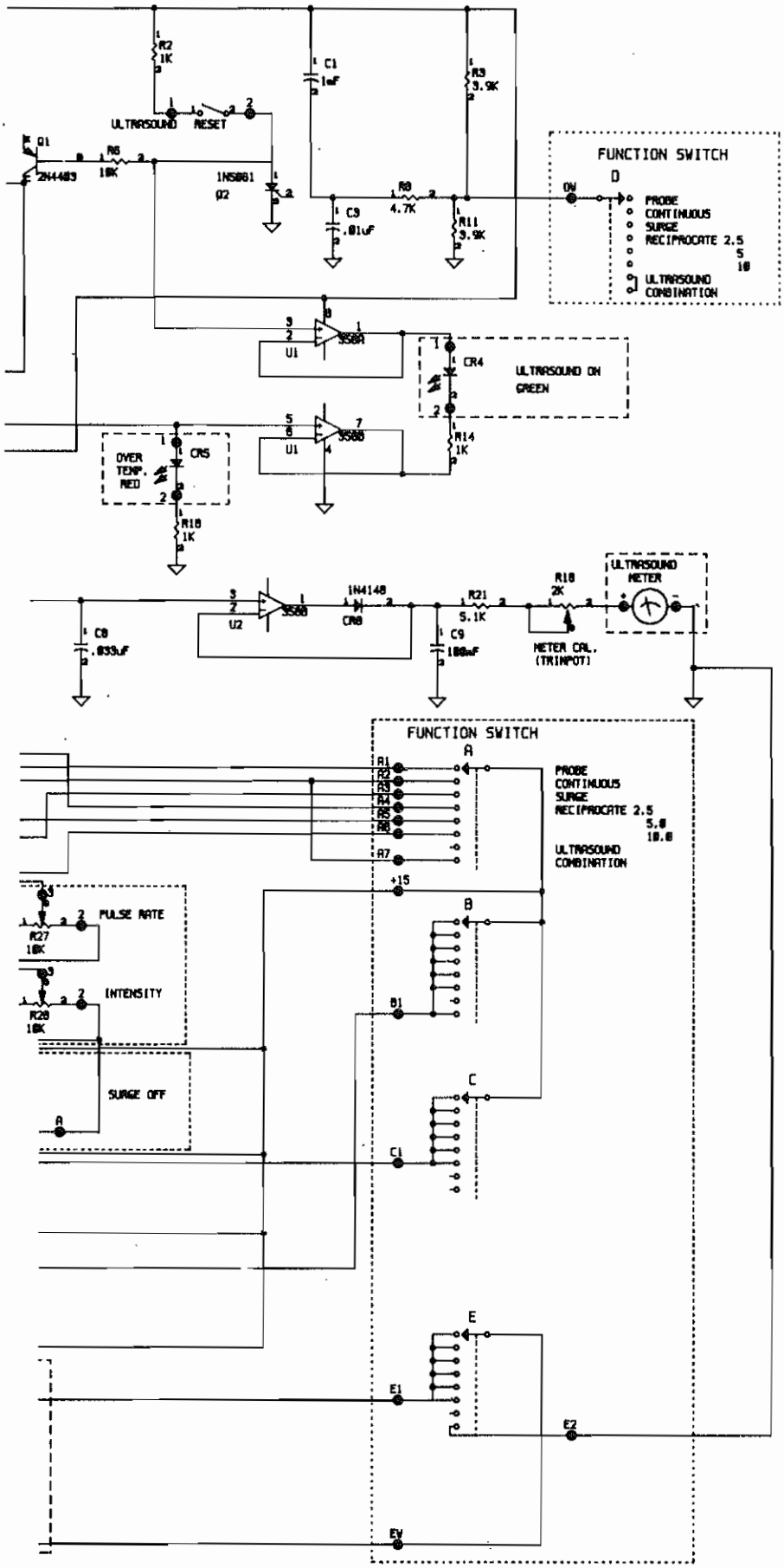
NO OS OUT PUT 3A pico Blows CHeck D2 - D6
Also Q3.



DESIGNATORS	
LAST USED	SPARE
R7	
C8	
Q3	
T3	
D8	
L3	
J3	

ELECTRICAL SCHEMATIC
P.C. BOARD ASSY. OSC. POWER 10CM²
71407


+12 VOLTS
U.S. COMMON
DUTY CYCLE
OVER TEMP.
INT. ADJ.
CURRENT OUT
J1
DUTY CYCLE
DC
+12
50%
20%
100%
R4
100K
R5
100K
50% ADJ.
20% ADJ.
R1
33K
R9
10K
MAX. INT.
(TRIMPOT)
R12
22K
R13
10K
INTENSITY
R10
5.1K
C2
.056uF
1N4148
CR1
1N4148
CR3
U3
555
RST
DIS
+V
TH
OUT
TR
-V
CON
R7
1K
1N4148
CR2
C4
.056uF
5.1V
CR14
1N4148
CR8
R15
10M
R17
100K
U2
558A
C5
.01uF
1N4148
CR7
R19
3K
C7
1uF
R23
6.8K
C8
10uF
R24
1M
Q3
2N4401
BEEPER
R28
10K
R22
1M
J2
PULSE RATE
RESET
INTENSITY
HV COM.
SURGE ON
10V REF.
+15 VOLTS
SURGE OFF
R25
4.99K
R26
4.99K
HIGH VOLTAGE
RESET
SURGE ON
BLACK PAD
CR9
RED PAD
CR10
SURGE ON
CR11
PULSE RATE
CR12
J3
BLACK PAD
RED PAD
SURGE ON
PULSE RATE
METER CURRENT
METER VOLTAGE
METER COMMON
+15 VOLTS
TWIN PULSE +
RETURN
TWIN PULSE -
RETURN
CURRENT
VOLTAGE
VOLTAGE
CURRENT
METER
POLARITY +
POLARITY -
P1
P2
P3
P4



ELECTRICAL SCHEMATIC
FRONT PANEL PCB 700 C
S74354-A

panel designations

intelect® **MODEL 700 C** **THERAPEUTIC ULTRASOUND COMBINATION SYSTEM** **POWER:** 120V 50/60 HZ 1.0 AMP MAX.

S.N. [ ]

FCC ID SWUSUKU 700 C — UNITED STATES of AMERICA

DANGER: EXPLOSION HAZARD. DO NOT USE IN PRESENCE OF FLAMMABLE ANESTHETSICS.
DANGER: RISQUE D'EXPLOSION. NE PAS EMPLOYER EN PRESENCE D'ANESTHETIQUES INFLAMMABLES.
CAUTION: FEDERAL LAW RESTRICTS THIS DEVICE TO SALE BY OR ON THE ORDER OF A LICENSED PHYSICIAN OR PRACTITIONER.
CAUTION: RISK OF BURNS OR FIRE. DO NOT USE NEAR CONDUCTIVE MATERIALS SUCH AS METAL BED PARTS, INNERSPRING MATTRESSES AND THE LIKE. RENEW ELECTRODE CABLES UPON EVIDENCE OF DETERIORATION.
CAUTION: ELECTRICAL SHOCK HAZARD. DO NOT REMOVE COVER. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
WARNING: GROUNDING RELIABILTY CAN BE ACHIEVED WHEN THIS EQUIPMENT IS CONNECTED TO EQUIVALENT RECEPTACLE MARKED "HOSPITAL GRADE."

THIS DEVICE COMPLIES WITH REQUIRMENTS SET FORTH IN 21CFR 1050.10 FCC TYPE APPROVED.

MEDICAL EQUIPMENT LR - 52372
RISK CLASS 2 CSA STANDARD C22 2 NO 125

OSC. FREQ: 1.0MHZ; PULSE REP 100 HZ

DUTY CYCLE	TEMPORAL PEAK AVG INTENSITY RATIO	
20%	100 PPS	5
50%	100 PPS	2
100%	CONT	1

APPLICATOR DATA
MODEL: 73579
FREQ.: 1.0 MHZ
BNR: 6.0:1
TYPE: COLL.
AREA: 8.5 CM²

MEDICAL EQUIPMENT

CHATTANOOGA CORPORATION
2
CHATTANOOGA, TN 37405

U.S. PATENTS PENDING, EUROPEAN PATENT NO. 82300033.6
CANADIAN PATENT NO. 1.189.148 PATENTED 1985

740168 D

intelect® **MODEL 700 C** **THERAPEUTIC ULTRASOUND COMBINATION SYSTEM** **POWER:** 220V 50HZ .63 AMP MAX.

S.N. [ ]

FCC ID SWUSUKU 700 C — UNITED STATES of AMERICA

DANGER: EXPLOSION HAZARD. DO NOT USE IN PRESENCE OF FLAMMABLE ANESTHETSICS.
DANGER: RISQUE D'EXPLOSION. NE PAS EMPLOYER EN PRESENCE D'ANESTHETIQUES INFLAMMABLES.
CAUTION: FEDERAL LAW RESTRICTS THIS DEVICE TO SALE BY OR ON THE ORDER OF A LICENSED PHYSICIAN OR PRACTITIONER.
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RISK CLASS 2 CSA STANDARD C22 2 NO 125

OSC. FREQ: 1.0MHZ; PULSE REP 100 HZ

DUTY CYCLE	TEMPORAL PEAK AVG INTENSITY RATIO	
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50%	100 PPS	2
100%	CONT	1

APPLICATOR DATA
MODEL: 73579
FREQ.: 1.0 MHZ.
BNR: 6.0:1
TYPE: COLL.
AREA: 8.5 CM²

MEDICAL EQUIPMENT

CHATTANOOGA CORPORATION
2
CHATTANOOGA, TN 37405

U.S. PATENTS PENDING, EUROPEAN PATENT NO. 82300033.6
CANADIAN PATENT NO. 1.189.148 PATENTED 1985

740178 E

CHATTANOOGA CORPORATION
101 MEMORIAL DR /P O BOX 4287/CHATTANOOGA, TN 37405 / 615/870-2281