

intelect model 200TM

ultrasound



**CHATTANOOGA
CORPORATION**
Chattanooga, Tennessee 37405

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foreword

This manual has been prepared for the owners and operators of Intellect Model 200TM. It contains general instructions on operation, safety practices, maintenance and parts information. In order to obtain maximum life and efficiency from your Model 200TM and to aid in the safe operation of this unit, read and understand this manual thoroughly and become totally familiar with the controls on the panel and the applicator that comes with the unit before operating it. The specifications put forth in this manual were in effect at the time of publication. However, owing 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.

safety instruction

1. Read, understand and practice the safety and operating instructions. Know the limitations and hazards associated with Ultrasound. Observe the safety and operational decals placed on the unit.
2. 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 Electrical Code.
3. Intellect 200TM should not be connected to any other electrical device when in use.
4. **CAUTION:** Federal law restricts this device to sale by, or on the order of, a physician or licensed practitioner.
5. 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 ultrasonic power output in a stable manner. Also determine that the TREATMENT TIME control does actually terminate ultrasonic output power when the control is turned to zero time (off).
6. **"CAUTION** - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous exposure to ultrasonic energy."

full one year warranty

Chattanooga Corporation ("Company") warrants that Intellect Model 200TM ("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 this 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.

A. INDICATIONS FOR ULTRASOUND THERAPY ❖

Some indications for the use of ultrasound include adhesive capsulitis, bursitis with slight calcification, myositis, soft tissue injuries, shortened tendons due to past injury, healing scar tissue, and planter warts. Ultrasound is an efficient modality when used for the treatment of all types of joint contractures resulting from capsular tightness and scarring. Ultrasound is the modality of choice to obtain therapeutic levels of heating within body structures covered by thick layers of soft tissue. Neither shortwave nor microwave diathermy is able to heat these underlying structures to produce results comparable to ultrasound.

B. CONTRAINDICATIONS OF ULTRASOUND THERAPY ❖

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

C. OPERATING CONTROLS

TREATMENT TIMER - This control is both a power ON/OFF switch and timer (i.e. - a timed power switch). This control functions to apply and remove line input power to the generator circuitry. It electrically connects and disconnects both sides of the incoming power line.

DUTY CYCLE SELECTOR - This control determines the type of ultrasound output waveform. The three (3) types of output available are "100%" duty cycle, "50%" duty cycle, and "20%" duty cycle.

In the "100%" Mode, the ultrasound output is a continuous sinusoidal waveform at a frequency of 1MHz nominal.

In the "50%" Mode, the ultrasound output is pulsed at 100 PULSES/SECOND, with the MARK/SPACE ratio being 1. This produces an output pulse of 1 MHz ultrasound energy having a duration of 5 milliseconds, with an off-time of 5 milliseconds between pulses. The pulse shape is true-rectangular in nature, to allow precise measurement of ultrasound intensity.

In the "20%" Mode, the ultrasound output is again pulsed at 100 PPS, with the MARK/SPACE ratio being 4, to produce rectangular pulses of 2 milliseconds duration with an off-time of 8 milliseconds between pulses.

INTENSITY CONTROL - This control is continuously variable to produce the desired level of ultrasound power from 1 watt to 20 watts, corresponding to INTENSITIES of 0.12 WATT/CM² to 2.4 W/CM² as indicated on the OUTPUT meter.

OUTPUT METER - This control is an analog indicating meter to provide the user with accurate information pertaining to the level of ultrasound power available at the transducer at any given time during the treatment interval. The meter has one arc with dual calibrations of POWER IN WATTS and INTENSITY IN W/CM².

HEAD MAX. TEMP. CONTROL - This control is only an indicator, and included as an additional measure of patient safety.

It is well known by those familiar with ultrasound generators, that the transducer will become very hot if operated at some high power level when not properly coupled to a patients body or suitable loading medium.

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

Should this situation occur in actual use, a temperature monitoring and control system included in the generator circuit design will automatically terminate the output ultrasound energy. While the head temperature remains at 140° F. or above, the generator output remains completely off and the HEAD MAX. TEMP. indicator light will remain on. The OUTPUT meter indication will return to zero also, to clearly indicate the condition of zero output energy.

By allowing the transducer to cool approximately 5 degrees, or cooling by immersions in water, the temperature control system will turn the ultrasound output back on at the same level previously set, and the OUTPUT meter will indicate this power level again, as in normal operation.

FRONT PANEL CONTROLS

Treatment Timer; Duty Cycle Selector (selects either PULSED or CONTINUOUS ultrasound); Intensity Control.

ENCLOSURE BOTTOM PANEL

Oscillator Tuning Adjustment; for service adjustment only - must be calibrated using proper equipment as described in SECTION E.

CONTROL BOARD 200-B1 - INTENSITY CALIBRATION - P1; 100M. CALIBRATION - P3; 50M. CALIBRATION - P4; 20M. CALIBRATION - P6; 20% DUTY - CYCLE CALIBRATION - P7; TEMPERATURE CALIBRATION - P8.

(NOTE: For location of these calibration controls, refer page 13.)

D. OPERATING PROCEDURE

1. Set INTENSITY control fully counterclockwise to MIN. position. A normal, low output of approximately one watt is present, as indicated by the OUTPUT meter.

CAUTION: Do not attempt to adjust the OUTPUT meter mechanical zero when the unit is on.

2. Select desired mode of 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.
3. Turn TREATMENT TIME control to the desired preset time. For settings of 5 minutes or less, turn knob past 5 minutes and then return to the desired time.
4. 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 INTENSITY while continuously moving the applicator over the affected area. Do not maintain the applicator stationary over any given area for extended time periods. This may result in hazardous exposure to ultrasonic energy.
5. Continue procedure described in Step 4 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.
6. When treatment is complete, return setting of INTENSITY control to MIN., then store applicator in the holder or convenient front compartment as desired.

E. TEST EQUIPMENT REQUIRED:

The following equipment must be available to perform service and calibration adjustments outlined below in Section F.

1. Power line monitor (expanded scale voltmeter for rated line voltage $\pm 10\%$), 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, Tektronix T922 or equivalent
5. Probe, voltage, $\times 10$, Scope, low capacitance
6. Probe, current, Hewlett Packard Model 1110 or equivalent
7. Voltmeter, Digital, 3-1/2 digits, Simpson Model 461 or equivalent
8. Probe, Temperature, Fluke Model 80T-150 or equivalent
9. Source of approximately 1/2 gallon of distilled de-oxygenated (<5 PPM) water at 30 degrees Celsius for use in UPM-30 power meter (Item 3)
10. Counter, frequency, 10MHz, Triplet 7000 or equivalent
11. Stopwatch, Siliconix Model 705 or equivalent

F. SERVICE & CALIBRATION INSTRUCTIONS

I. Instrument Preparation

- A. Make certain that all power is removed from the cabinet
- B. Disconnect the applicator cable from the front panel connector (UHF type)
- C. Remove the two #8 truss head screws at the top of the tray insert that fastens the tray to the front panel
- D. Remove the tray insert carefully
- E. Remove the two #8 hex nuts that hold down the bottom of the front panel
- F. Remove the two #8 truss head screws that hold down the top of the front panel
- G. Lift the front panel over the #8 threaded studs in the bottom front of the cabinet and slide the front panel forward to gain access to the internal adjustments.
- H. Reconnect the applicator cable to the front panel

II. Power Supply and Duty Cycle Adjustment

- A. Set the front panel controls:
INTENSITY - fully CW
DUTY CYCLE - 100% (continuous)
TREATMENT TIME - 0

- B. Pre-set the internal adjustments:

INTENSITY CAL. (P1) - fully CW)
50% D.C. CAL. (P7) - center of travel) Located on
20% D.C. CAL. (P7) - center of travel) Control Board,
100M CAL. (P3) - fully CCW) 200-B1
50M CAL. (P4) - fully CCW)
20M CAL. (P5) - fully CCW)
TEMP. CAL. (P8) - fully CW)

50% INT. CAL. (P9) - fully CCW) Located on
20% INT. CAL. (P10) - fully CCW) Intensity Cal.
	Board, 200-B3

C. Connect the test set-up of Figure 1.

1. Set AC input voltage with the autotransformer to 120(220)VAC on the line monitor
2. See OHMIC INSTRUMENTS clinical engineering notes AN-330 for operation of the UPM-30 U.S. Power Meter
3. Connect the digital voltmeter between COM, the + terminal of bridge rectifier BR1, and either side of resistor R6 to measure 0 - 70VDC.

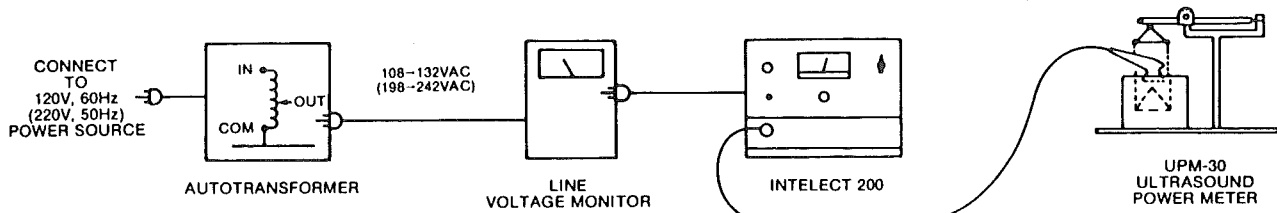


FIGURE 1

D. Set the TREATMENT TIME to either 30 minutes or lock down the dial knob so that the unit is on continuously.

1. Observe:

- (a) Meter on Intellect 200 moves up-scale from zero
- (b) Digital voltmeter indicates between -5VDC and -70VDC

E. Adjust INTENSITY CAL. (P1 on the control board) in the CCW direction until the digital voltmeter indicates a maximum voltage (approx. -70VDC) and starts to decline. Turn P1 in the CW direction past maximum voltage to the position where the voltmeter indicates 2 volts less than the maximum voltage reading.

F. Connect the voltage probe from the oscilloscope to pin #3 of U3 on the control board.

1. Observe:

- (a) Voltage displayed on the scope is less than +1 VDC

G. Set the DUTY CYCLE selector switch on the front panel to 50%.

1. Observe:

- (a) A rectangular wave $100 \text{ Hz} \pm 20\%$ signal operating between 1V and +12V approx.

H. Set the time base on the oscilloscope for 10.0 divisions horizontal display of one cycle of the 100 Hz signal.

1. Adjust 50% D.C. CAL. on the control board for 5.0 divisions horizontal display of the signal at the +12V level.

I. Set the DUTY CYCLE selector switch to 20%.

1. Observe:

- (a) Rectangular wave $100 \text{ Hz} \pm 20\%$ signal operating between 1V and +12V.

J. Repeat Step H above; preset time base only.

K. Adjust 20% D.C. CAL. on the control board for 8.0 divisions horizontal display of the signal at the +12V level.

L. Remove oscilloscope probe and voltmeter.

III. Oscillator Peaking and Output Power Adjustment

A. Set the front panel controls:

INTENSITY - fully CW

DUTY CYCLE - 100%

TREATMENT TIME - fully clockwise (ON)

- B. Connect the voltage probe from the oscilloscope to the OSC output (pin #3 of J6 on the OSC board).

NOTE:

The oscillator shield cover will have to be removed to make this connection.

- C. Connect the current probe from the scope around the yellow and orange wires connecting J7 (external output connector) to the oscillator board.

1. Observe:

- (a) With the scope set for dual channel display, the voltage and current waveforms should not be more than 90° out of phase. If the phase displacement is more than 90°, reverse the current probe connection to invert Channel 2 display on the scope. The displacement should now be less than 90°.

- D. Align the U.S. applicator in the UPM-30 per the power meter mfg. notes, AN-330.

- E. Adjust OSC TUNING ADJUSTMENT (tuning slug in transformer T4) through access in bottom of the oscillator enclosure for a peak power indication on the UPM-30.

1. Observe:

- (a) The voltage and current waveforms on the scope should now be in phase.
(b) The peak power reading should be 23 watts or greater.

- F. Connect the frequency counter to the oscillator output (pin #3 of J6 on the OSC board) and measure the oscillator frequency.

1. Observe:

- (a) The frequency should be 1.0 MHz \pm 5%.

- G. Set the DUTY CYCLE selector on the front panel to 50% and vary the INTENSITY control on the front panel from fully CCW to fully CW.

1. Observe:

- (a) The voltage and current waveforms on the scope remain in phase over the full intensity range.
(b) A modulation envelope of the 1 MHz output modulated 100% by the 100 Hz rectangular wave signal with 50% duty cycle.

- H. Set the DUTY CYCLE selector on the front panel to 20% and vary the INTENSITY control on the front panel from fully CCW to fully CW.

1. Observe:

- (a) The voltage and current waveforms on the scope remain in phase over the full intensity range.
(b) A modulation envelope of the 1 MHz output modulated 100% by the 100 Hz rectangular wave signal with 20% duty cycle.

- I. Disconnect the voltage probe, current probe and frequency counter from the ultrasound output. Replace the oscillator shield cover.

- J. Set the DUTY CYCLE selector to 100% and the INTENSITY control fully CW.

- K. Check the peak power on the UPM-30 and readjust the OSC TUNING ADJUSTMENT (tuning slug in transformer T4) if necessary for a maximum power indication.

- L. Set the INTENSITY control on the front panel for a power indication of 20 watts on the UPM-30 power meter.

1. Adjust 100 M CAL (P3 on the control board) for a 20 W indication on the I-200 output meter on the front panel.

- M. Rotate the INTENSITY control fully CW.
1. Adjust INTENSITY CAL (P1 on the control board) for an indication of 23 watts on the I-200 output power meter.
- N. Increase the AC input voltage to the INTELECT 200 from 120(220) VAC to 132(242) VAC.
1. Observe:
 - (a) The power indicated on the UPM-30 powermeter should be no more than 28.5 watts.
- O. Check the accuracy of the I-200 output meter by comparing its indication to the power indicated on the UPM-30 with the line voltage at 108(198) VAC, 120(220) VAC, and 132(242) VAC.
1. Observe:
 - (a) The following readings at all line voltages.

I-200 Meter Reading	UPM-30 Indication	
	Minimum	Maximum
2.0 watts	1.72 watts	2.28 watts
5.0 watts	4.3 watts	5.7 watts
10.0 watts	8.6 watts	11.4 watts
15.0 watts	12.9 watts	17.1 watts
20.0 watts	17.2 watts	22.8 watts

- P. Return the line voltage to 120(220) VAC and set the DUTY CYCLE selector on the front panel to 50%.
- Q. Set the INTENSITY control on the front panel for a power indication of 10 watts on the UPM-30 power meter.
1. Adjust 50 M CAL (P5 on the control board) for a 20 watt reading on the I-200 output power meter.

NOTE:

UPM-30 meter indication = DUTY CYCLE (50%) x I-200 reading.
Average power is indicated on the UPM-30 and peak power is indicated on the I-200 meter in either of the pulse modes (50% or 20% D.C.)

- R. Rotate the INTENSITY control fully clockwise.
1. Adjust the 50% INT. CAL. (P9 on the pulse int. cal. board, located on the back of the meter) for a reading of 23 watts on the I-200 output meter.
- S. Check the accuracy of the I-200 output meter by comparing its indication to the power indicated on the UPM-30 with the line voltage at 108 (198) VAC, 120(220) VAC and 132(242) VAC.
1. Observe:
 - (a) The following readings at all line voltages.

I-200 Meter Reading	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

- T. Return the line voltage to 120(220) VAC and set the DUTY CYCLE on the front panel to 20%.
- U. Set the INTENSITY control on the front panel for a power indication of 4 watts on the UPM-30 power meter.
 1. Adjust the 20 M CAL (P5 on the control board) for a 20 W reading on the I-200 output meter.

NOTE:

UPM-30 indication = DUTY CYCLE (20%) x I-200 reading.

- V. Rotate the INTENSITY control on the front panel fully clockwise.
 1. Adjust the 20% INT CAL (P10 on the PULSE INT CAL board, located on the back of the meter) for a reading of 23 watts on the I-200 output meter.
- W. Check the accuracy of the I-200 output meter by comparing its indication to the power indicated on the UPM-30 with the line voltage at 108(198) VAC, 120(220) VAC and 132(242) VAC.
 1. Observe:
 - (a) The following readings at all line voltages:

1-200 Meter Reading 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

- X. Disconnect the test setup.
- IV. Adjustment of Head Maximum Temperature Trip.
 - A. Connect the I-200 line cord to a 120(220) VAC power source.
 - B. Place the applicator in a 140° F. water bath and monitor the temperature with the temperature probe or a thermometer that will accurately indicate 140° F.
 - C. Set the front panel controls on the I-200 in the following positions:
 - TREATMENT TIME - 30 minutes
 - DUTY CYCLE - 100%
 - INTENSITY - 10 W indication on the output meter
 - D. Allow at least 5 minutes warm-up time after the front panel controls are set and power is applied.
 - E. Adjust the TEMP. CAL. (P8 on the control board) in the CCW direction until the HEAD MAX. TEMP. light on the front panel just turns on.
 - F. Remove the applicator from the bath and allow the head to cool until the HEAD MAX. TEMP. light turns off.
 - G. Replace the applicator in the water bath at 140° F. for 5 minutes. If the HEAD MAX. TEMP. light does not turn on, repeat Step E.
 - H. Remove applicator from the water bath and disconnect all equipment.
- V. Timer Accuracy Check
 - A. Connect the Intellect 200 to a 120(220) VAC power source.
 - B. Set the timer to 2.5 minutes and start the test stopwatch as the timer knob is released. (Turn past 5 and set to 2.5)

1. Observe:
 - (a) Time indicated on the stopwatch when the timer interrupts power to the unit is between 2.0 minutes and 3.0 minutes.
- C. Set the timer to 5.0 minutes and start the stopwatch as the timer knob is released.
 1. Observe:
 - (a) Time indicated on the stopwatch when the timer interrupts power to the unit is between 4.5 and 5.5 minutes.
- D. Set the timer to 10.0 minutes and start the stopwatch as the timer knob is released.
 1. Observe:
 - (a) Time on the stopwatch when the timer interrupts power to the unit is between 9.0 and 11.0 minutes.
- E. Set the timer to 30.0 minutes and start the stopwatch as the timer knob is released.
 1. Observe:
 - (a) Time on the stopwatch when the timer interrupts power to the unit is between 29.0 and 31.0 minutes.
- F. Disconnect power from the unit.

G. SPECIFICATIONS:

Frequency - 1.0 MHz \pm 5%

Duty Cycle - 100% (continuous mode)

50% \pm 10% (pulse mode)

20% \pm 10% (pulse mode)

Pulse Repetition Rate - 100 Hz \pm 20%

Ultrasonic Power - variable from 1 watt to 20 watts

Output Meter Accuracy - \pm 20% (for any output above 10% of maximum)

Temporal Peak/Average Intensity Ratio - 2:1 \pm 20% for 50% D.C.; 5:1 \pm 20% for 20% D.C.

Output:

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

Timer Accuracy:

1. Less than 0.5 minutes 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 cm² \pm 1.5 cm²
2. Maximum beam non-uniformity ratio - 6.0:1
3. Beam type - collimating

* Input Power Requirements:

(Domestic) 120V /60Hz \pm 10%, 1.25 Amps

(Export) 220V /50Hz \pm 10%, .8 Amps

* Voltages in parentheses in the procedure are for 220VAC units - e.g., 108(198) VAC indicates 108VAC for 120V unit and 198VAC for a 220VAC unit.

H. DESCRIPTION OF ULTRASONIC FIELD

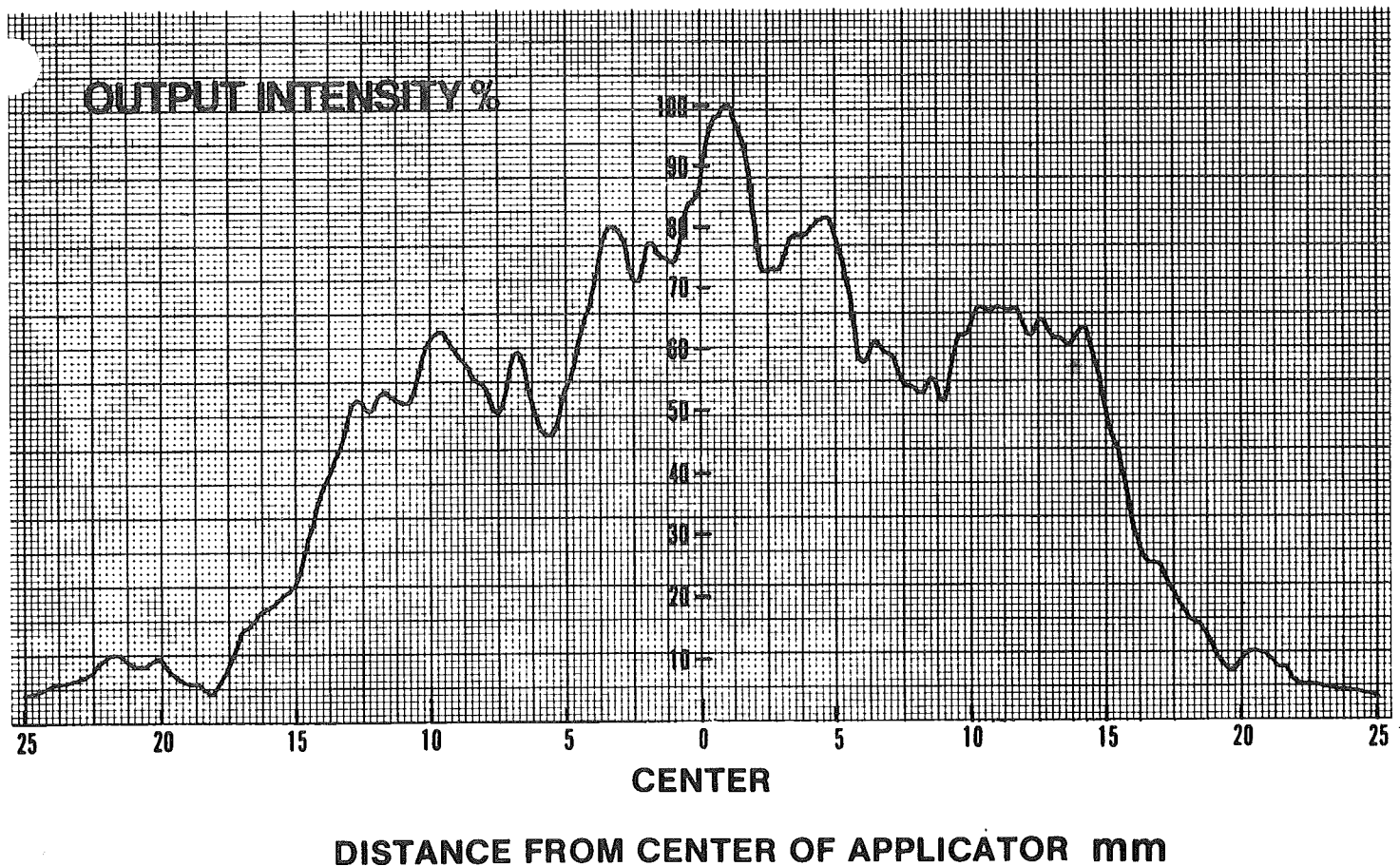
The spatial distribution of the radiated field is essentially a collimated beam of ultrasonic energy having a cross-sectional area of 8.5 CM² when measured at a point 5 millimeters from the transducer face.

The energy distribution within the radiated field is 2.4 W/CM² maximum, and takes a generally conic shape having decreasing intensity at progressively increasing distance from the face of the transducer.

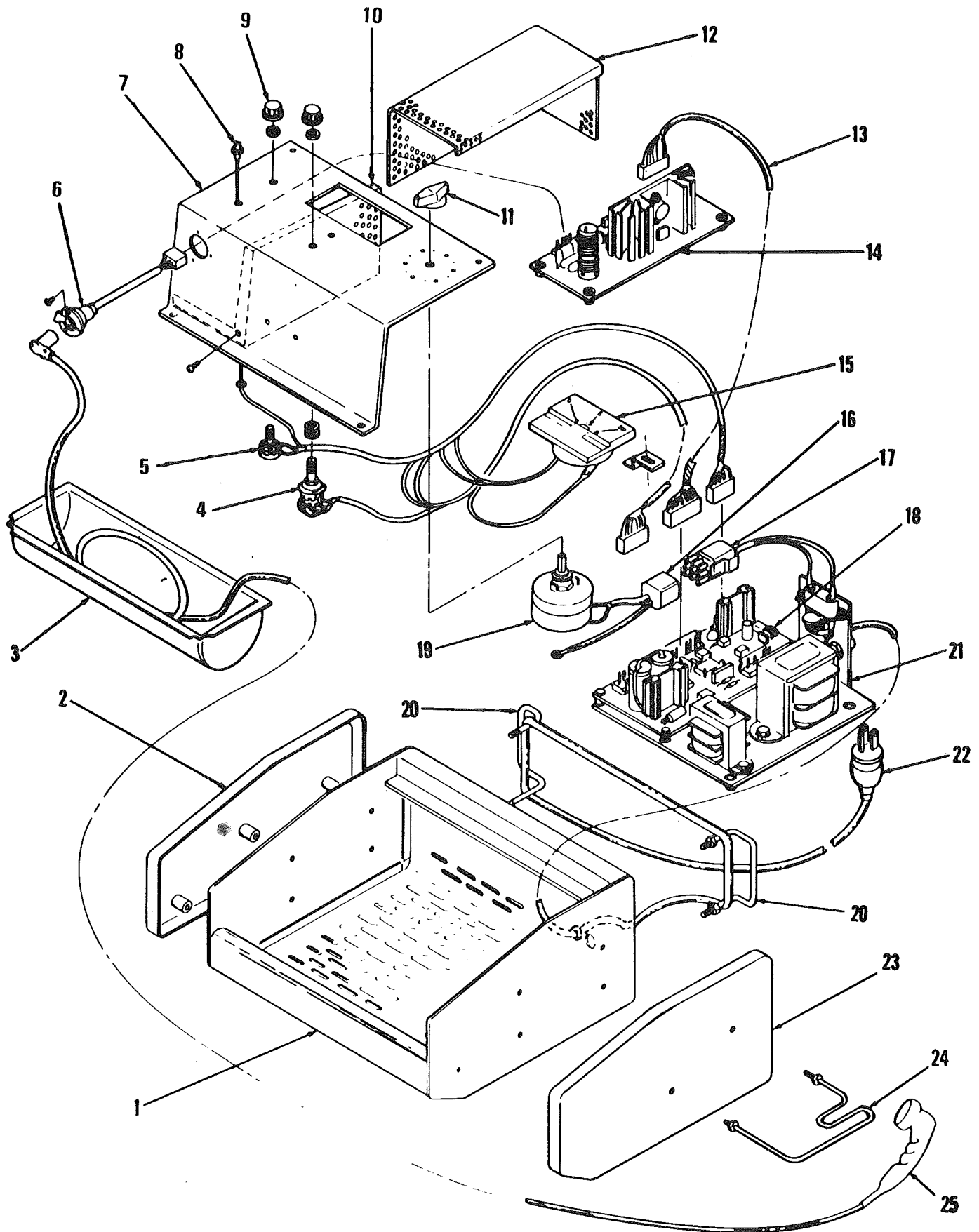
This field distribution applies for the radiation emitted into the equivalent of an infinite medium of distilled degassed water at 30° C. and with line voltage variations in the range of \pm 10 percent of 120 VOLTS RMS.

H. 1.

PLOT OF ULTRASONIC FIELD SPATIAL DISTRIBUTION

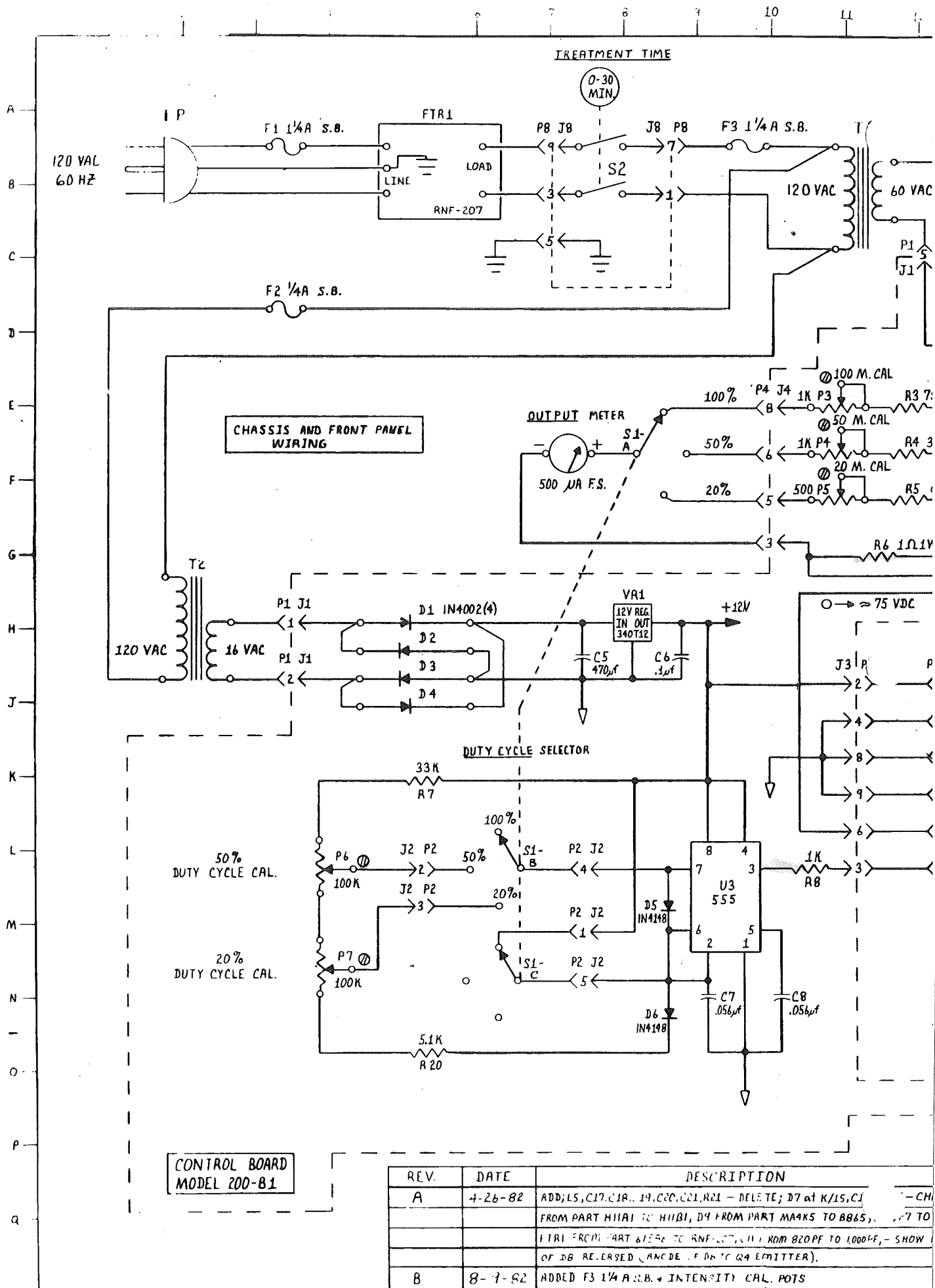


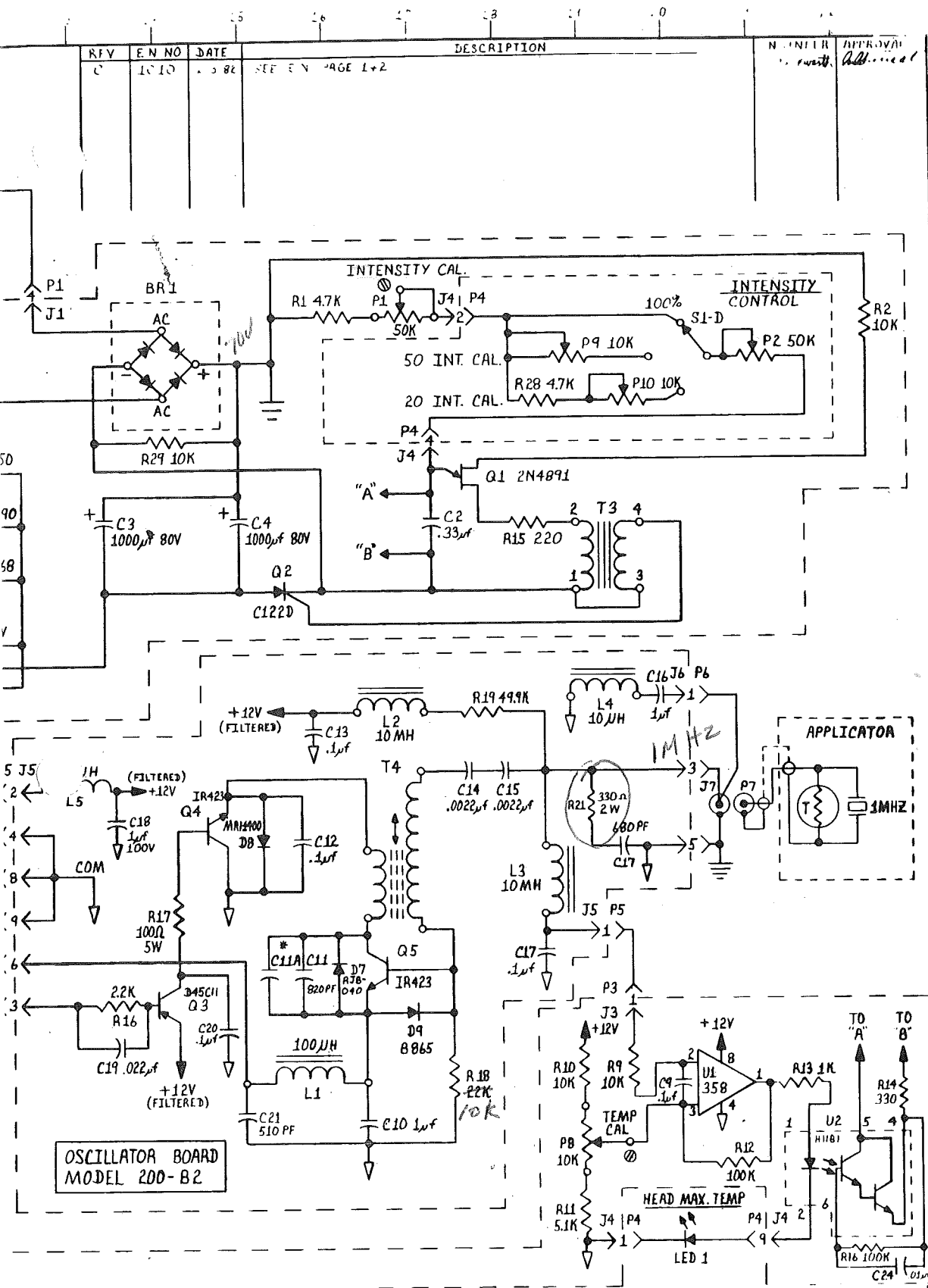
SECTION I.



SECTION J.

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	72148	Cabinet Ultrasound 120V	1
2	70403	Cover, End; Left Intelect 200	1
3	70431	Insert; Molded; Intelect 200	1
4	71815	Switch	1
5	70435	Pot, 50K; Clarostat	1
6	70457	Cable OSC. Output Intelect 200	1
7	70469	Panel Control Ultrasound	1
8	70348	L.E.D. Panel Lamp	1
9	70334	Knob	2
10	72151	Enclosure, Shield Box	1
11	70335	Knob Timer	1
12	72150	Shield Cover	1
13	70459	Harness B1 to B2 Intelect 200	1
14	70468	P.C. Board 200 B2 Assembled	1
15	70436	Meter; Ultrasound	1
16	70460	Harness Timer Intelect 200	1
17	70461	Harness Power Input Intelect 200	1
18	70467	P.C. Board 200 B-1 Assembled	1
19	72139	Timer Rhodes Bell 30 Min.	1
20	79102	Holder Cord	2
21	70464	Brkt. Power Supply 120V Assembled	1
22	60157	Cord Set 18-3 SJT 10'	1
23	70404	Cover, End; Right Intelect 200	1
24	90678	Applicator Holder Ultrasound	1
25	70430	Applicator Ultrasound Assy.	1
(Misc. Items Not Shown in Pictorial)			
	70471	Bracket, Wall Mount	1
	23276	Screw, 10 x 3/8 SM Truss HD PLTD (Wall Bracket)	2
	72201	Gel, Ultrasound - 90 ml. Tube	Ea.
	70843	Fuse; MDL - 1 1/4; 1 1/4 AMP/250V/SLO-BLO	
	60901	Fuse Holder, Complete; 031-1653	
	60900	Fuse Carrier; Replacement, 031-1666	

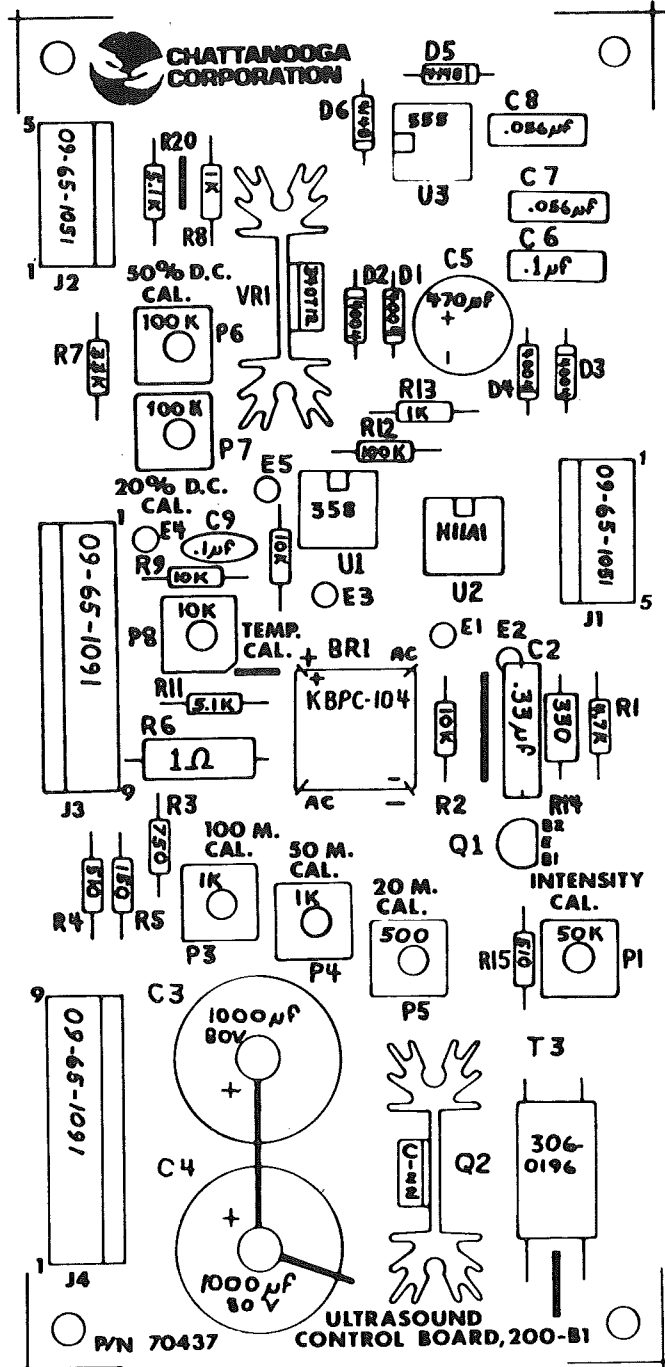




INITIALS	DATE	DESCRIPTION	REVISION	APPROVAL
J.S.M.	11-11-81	SCHEMATIC, INTELLECT 200 ULTRASOUND	70480	L.S.

<p>1 - SREWDRIWER-ADJUST CALIBRATION CONTROL</p> <p>UNDERLINED ITEMS ARE FRONT PANEL CONTROLS</p> <p>* SELECTED AT CALIBRATION</p>	<p>CHATTANOOGA CORPORATION</p> <p>CHATTANOOGA, TN 37401</p>
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SECTION K.



CONTROL BOARD LAYOUT
200-B1

notes


rear panel designations

infectTM MODEL 200 ULTRASOUND GENERATOR S/N

OSC. FREQ.: 1.0 MHz;

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

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

 **CHATTANOOGA CORPORATION** CHATTANOOGA, TN. 37405 70422

GROUNDING RELIABILITY CAN ONLY BE ACHIEVED WHEN THIS EQUIPMENT IS CONNECTED TO AN EQUIVALENT RECEPTACLE MARKED "HOSPITAL GRADE".

DANGER - HIGH VOLTAGE: REFER SERVICING ONLY TO QUALIFIED PERSONNEL.

FCC ID: BWUBUKU200
UNITED STATES OF AMERICA



CHATTANOOGA, TN. 37405

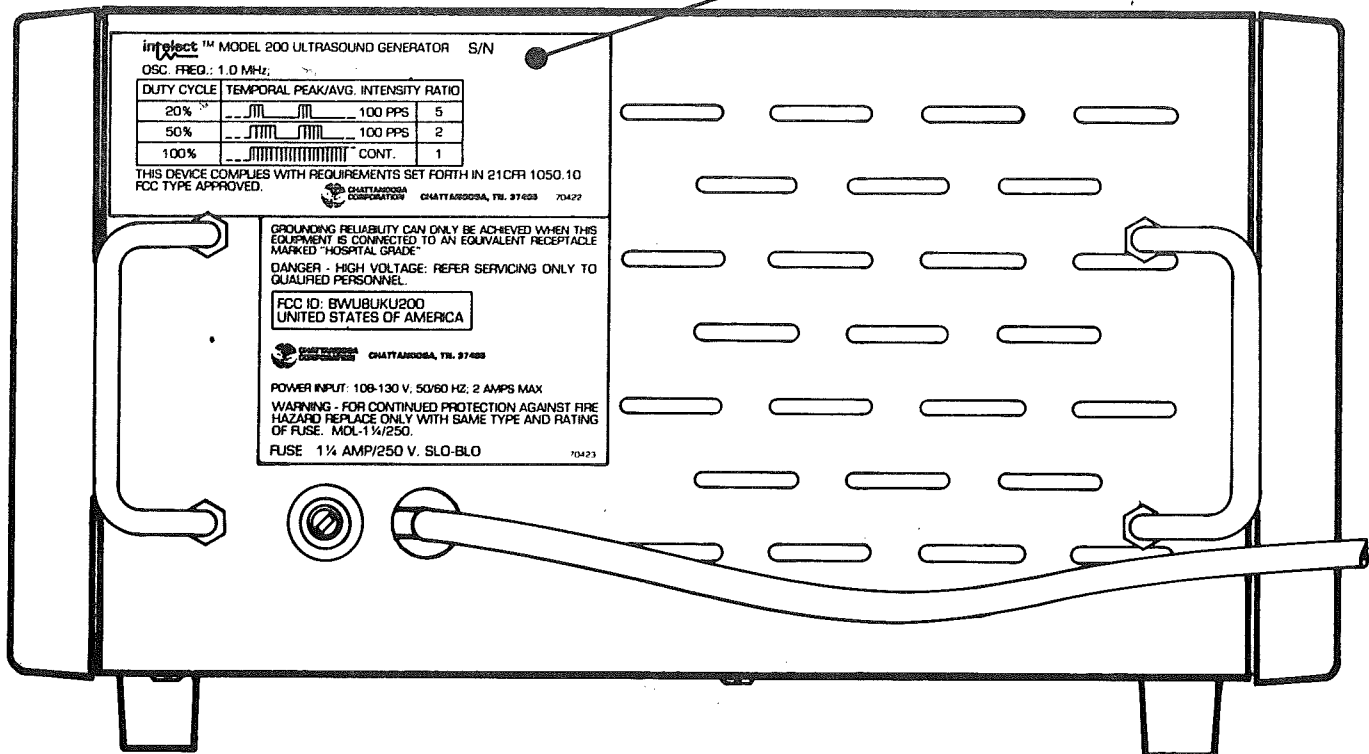
POWER INPUT: 108-130 V. 50/60 HZ: 2 AMPS MAX

WARNING - FOR CONTINUED PROTECTION AGAINST FIRE HAZARD REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE. MDL-1 1/4/250.

FUSE - 1 1/4 AMP/250 V. SLO-BLO

70423

This is the actual serial number of your Intelect 200 T.M.



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Chattanooga, Tennessee 37405

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