

OM.SSS3200

ACOUSTIC STIMULATOR

SSS-3200

(WITH CIRCUIT DIAGRAM)

2076-000883C

MANUAL CHANGE INFORMATION

DATE: 18. Oct. 1993

MODEL	SERIAL NO.	Rev. No.
SSS-3200	from 20164	A2

1. Section 7 ACCESSORIES

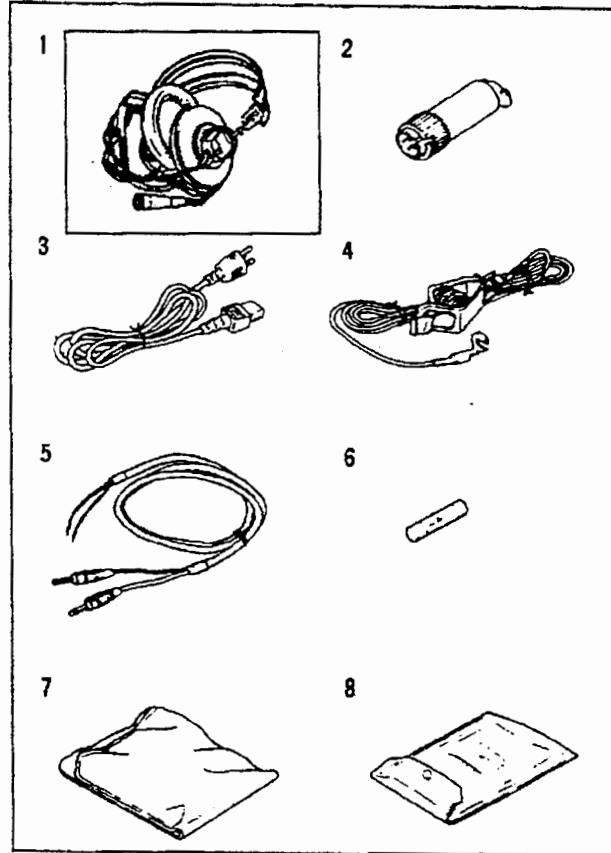
Page 16 : See Page2/2

Section 7

ACCESSORIES

Standard Accessories, Model SSS-3200

No.	Name	Q'ty	Model/Code No.
1.	Headphone	1	<u>DR-531-B-9</u>
2.	Connector for EXT. SPEAKER	1	5300033
3.	Power cord U or N or H	1 1 1	5500218 5500245 5500076
4.	Ground lead D	1	5540023
5.	Input/Output cord	2	5511634
6.	Slow blow fuse (1.5A) or (1A)	2 (2)	5620035 5620026
7.	Main unit cover	1	1133-001818
8.	Accessories bag	1	1133-000142A



MANUAL CHANGE INFORMATION

DATE: August 15, 1991

UNIT	MODEL	SERIAL NO.	Rev. No.
UP-2684 ACOUSTIC STIMULATOR NO. 1	SSS-3200	from 20145	A1

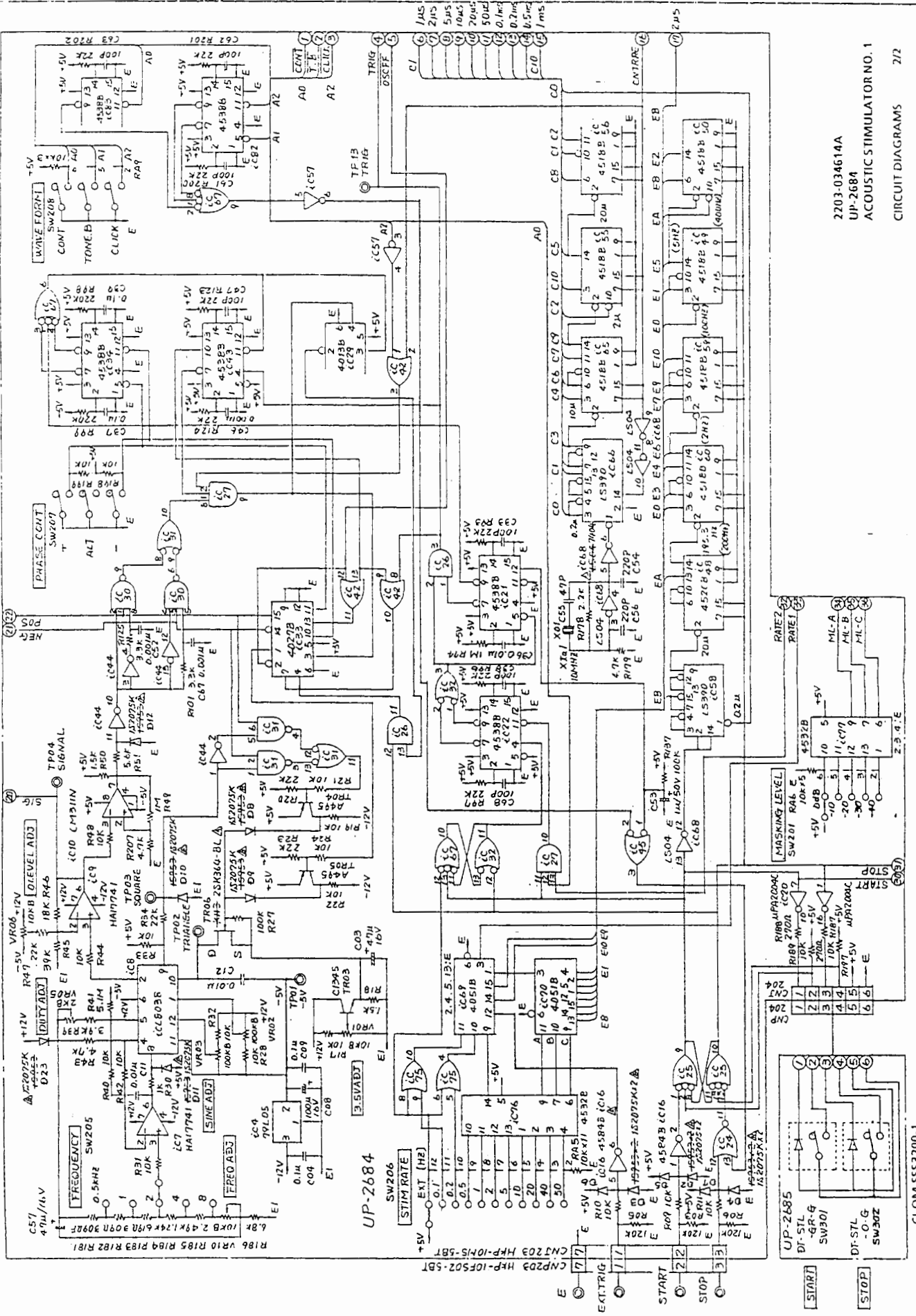
1. ACOUSTIC STIMULATOR

Model SSS-3200

- WITH CIRCUIT DIAGRAMS -

UP-2684 ACCOUSTIC STIMULATOR NO. 1

Page	From	To
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UP-2684

2203-034614A
 UP-2684
 ACOUSTIC STIMULATOR NO. 1
 CIRCUIT DIAGRAMS 2/2

169501
 6892-10541
 2193-008422C

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OM.SSS3200.

ACOUSTIC STIMULATOR

SSS-3200

(WITH CIRCUIT DIAGRAM)

2076-000883

GENERAL HANDLING PRECAUTIONS

This device is intended for use only by qualified medical personnel. Use only Nihon Kohden approved products with this device. Use of non approved products or in a non approved manner may affect the performance specifications of the device. This includes, but is not limited to, batteries, recording paper, pens and extension cables and cords for electrodes, input boxes and AC power.

Please read these precautions thoroughly before attempting to operate the instrument.

- 1. To safely and effectively use the instrument, its operation must be fully understood.**
- 2. When installing or storing the instrument, take the following precautions:**
 - (1) Avoid moisture or contact with water, extreme atmospheric pressure, excessive humidity and temperatures, poorly ventilated areas, and dusty saline or sulphuric air.
 - (2) Place the instrument on an even, level floor. Avoid vibration and mechanical shock even during moving.
 - (3) Avoid placing in an area where chemicals are stored or where there is danger of gas leakage.
 - (4) The power line source to be applied to the instrument must correspond in frequency and voltage to specifications, and have sufficient current capacity.
 - (5) Choose a room where a proper grounding facility is available.
- 3. Before Operation**
 - (1) Check that the instrument is in perfect operating order.
 - (2) Check that the instrument is grounded properly.
 - (3) Check that all cords are connected properly.
 - (4) Pay extra attention when the instrument is in combination with other instruments to avoid misdiagnosis or other problems.
- (5) All circuitry used for direct patient connection must be doubly checked.**
- (6) Check that battery voltage and battery condition are perfect when using battery-operated models.**
- 4. During Operation**
 - (1) Both the instrument and the patient must receive constant, careful attention.
 - (2) Turn power off or remove electrodes and/or transducers when necessary to assure the patient's safety.
 - (3) Avoid direct contact between the instrument and the patient.
- 5. To Shutdown After Use**
 - (1) Turn power off with all controls returned to their original positions.
 - (2) Remove the cords gently; do not use force to remove them.
 - (3) Clean the instrument together with all accessories to keep them ready for their next use.
- 6. The instrument must receive expert, professional attention for maintenance and repairs. When the instrument is not functioning properly, it should be clearly marked to avoid operation while it is out of order.**
- 7. The instrument must not be altered or modified in any way.**

8. Maintenance and Inspection:

- (1) The instrument and parts must undergo regular maintenance inspection at least every 6 months.
- (2) If stored for extended periods without being used, make sure prior to operation that the instrument is in perfect operating condition.
- (3) Technical information such as circuit diagrams, parts list, descriptions, calibration instructions or other information is available for qualified user technical personnel upon request from your Nihon Kohden distributor.

9. When the instrument is used with an electrosurgical instrument, pay careful attention to the application and/or location of electrodes and/or transducers to avoid possible burn to the patient.

10. When the instrument is used with a defibrillator, make sure that the instrument is protected against defibrillator discharge. If not, remove patient cables and/or transducers from the instrument to avoid possible damage.

WARRANTY POLICY

Nihon Kohden Corporation (NKC) shall warrant its products against all defects in materials and workmanship for one year from the date of delivery. However, consumable materials such as recording paper, ink, stylus and battery are excluded from the warranty.

NKC or its authorized agents will repair or replace any products which prove to be defective during the warranty period, provided these products are used as prescribed by the operating instructions given in the operator's and service manuals.

No other party is authorized to make any warranty or assume liability for NKC's products. NKC will not recognize any other warranty, either implied or in writing. In addition, service performed by someone other than NKC or its authorized agents or technical modification or change of products without prior consent of NKC may be cause for voiding this warranty.


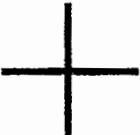





Defective products or parts must be returned to NKC or its authorized agents, along with an explanation of the failure. Shipping costs must be pre-paid.

This warranty does not apply to products that have been modified, disassembled, reinstalled or repaired without Nihon Kohden approval or which have been subjected to neglect or accident, damage due to accident, fire, lightning, vandalism, water or other casualty, improper installation or application, or on which the original identification marks have been removed.

In the USA and Canada other warranty policies may apply.

Explanation of the symbols in this manual/instrument

The following symbols found in this manual/instrument bear the respective descriptions as given.

 <p>Alternating current</p>	 <p>Plus: positive polarity</p>
 <p>Protective ground terminal</p>	 <p>Minus: negative polarity</p>
 <p>"In" position (Two-position push switch)</p>	 <p>84/539/EEC conformity mark (YY: Year manufactured)</p>
 <p>"Out" position (Two-position push switch)</p>	

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Section 1

INTRODUCTION

GENERAL

This unit is an acoustic stimulator for auditory evoked potential measurement and generates stimuli such as click, tone burst and continuous sound with switch button selection, then output either a headphone or optional speaker. Since the stimulus sound phase control (+, ALT, -) is prepared, a BSR and CM can be measured with this unit. Please read this operating manual thoroughly before operation. It will assure optimum performance and long service life of the instrument.

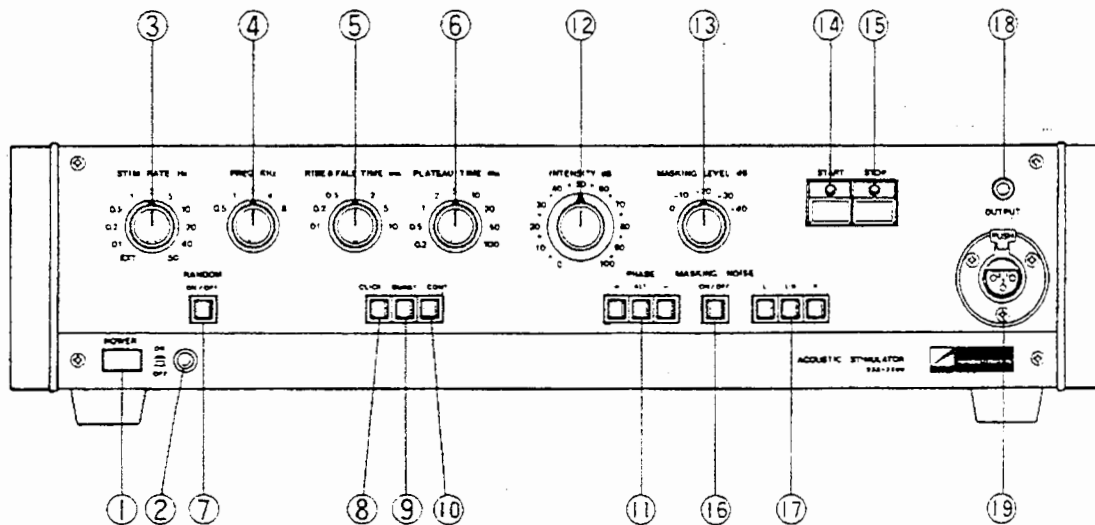
FEATURES

- 1. Provides click, tone burst and continuous sound outputs.** Various evoked potential measurement can be done easily with this unit since the click, tone burst or continuous sound can be selected with the simple push button.
- 2. Stimulus waveform setting is extremely simple.** Stimulus interval, rise and fall time and plateau time can be set easily by simple 1-2-5 series step stages.
- 3. Provides three stimulus phase selection.** By fixing the phase to + or -, Cochlear microphonics can be measured. As a large number of averaging time is required such as BSR measurement, select the phase to ALT to eliminate the artifact interference.
- 4. Eliminate AC interference using the averager.** If the stimulus interval is an integer multiple of the AC (50 or 60Hz), even a small AC signal will grow during averaging. This unit eliminates AC signal growing by shifting a little from an integer multiple of AC.
- 5. Permits compensation of the sound travel delay at the speaker operation.** The delay caused by the sound travel existing between the trigger pulse and the evoked response can be compensated with for the DISTANCE knob.
- 6. Stimulus START and STOP control can be done with the external instrument.** When the MEB-3102 and DAT-3202 are connected, START and STOP of this Unit can be controlled at the DAT-3202 side. And also the stimulus number can be preset on the DAT-3202.

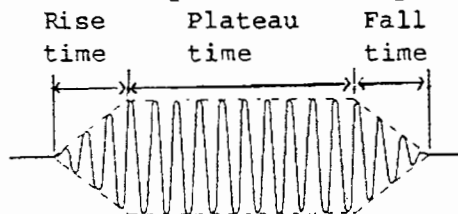
Section 2

EXPLANATIONS OF SWITCHES AND CONTROLS

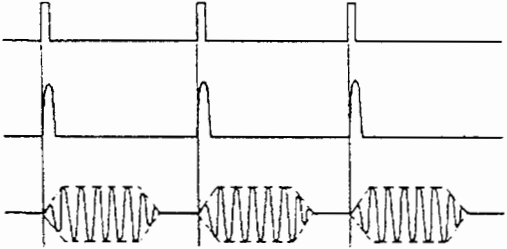
FRONT PANEL.



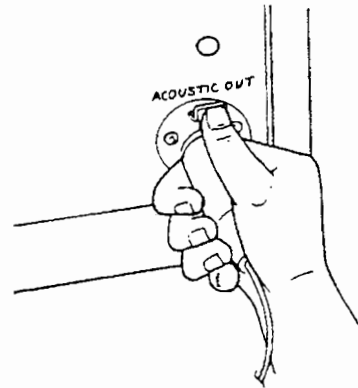
Items	Descriptions
(1) POWER	A power on/off switch. When this switch is pressed, the power lamp(2) lights to indicate that power is supplied to the instrument.
(2) Power Indication Lamp	Lights when power is supplied to the instruments.
(3) STIM RATE	Sets the stimulus interval. When the EXT position is selected, the unit generate a stimulus sound which is synchronized with a trigger pulse applied to the EXT TRIG(22) terminal.
(4) FREQ(FREQUENCY)	Sets the frequency of stimulus sound. In CLICK MODE, pulse width is fixed at 0.1sec.
(5) RISE & FALL TIME	When the BURST(8) switch is pressed, sets the rise and fall time of burst sound.
(6) PLATEAU TIME	When the BURST(8) switch is pressed, sets plateau of burst sound.



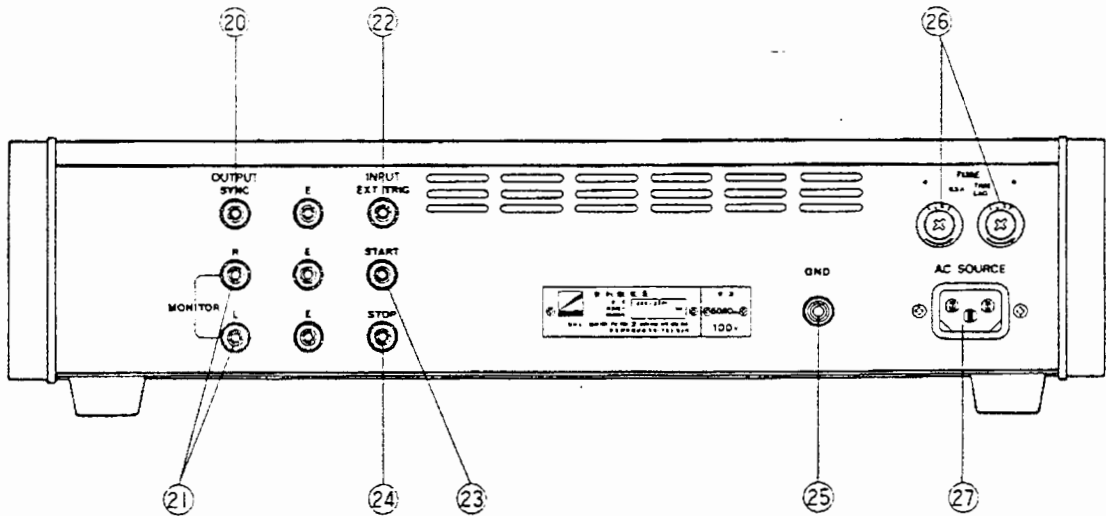
Tone burst

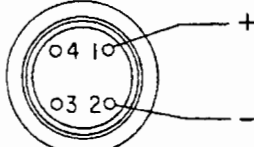
Items	Descriptions
(7) <u>RANDOM</u> STIM SELECTION SW	When the switch is depressed, a stimulation rate which is of 1-8 times of that selected by the (3) STIM RATE SWITCH, will be givedated.
(8) <u>CLICK</u>	Press this switch when stimulating with a click sound. The CLICK switch is pressed during the BURST(8) or CONT(9) mode, resets a stimulation as well as a STOP(13) switch is pressed.
(9) <u>BURST</u>	Press this switch when stimulating with a tone burst. Set the rise and fall time with the RISE & FALL TIME(5) and the duration with the PLATEAU TIME(6). If the BURST switch is pressed during the CLICK(7) or CONT(9) mode, it resets stimulation as well as when STOP(13) switch is pressed.
(10) <u>CONT(CONTINUANCE)</u>	Press this switch when stimulating with a continuous sound. The CONT switch is pressed during the CLICK(7) or BURST(8) mode, resets a stimulation as well as a STOP(13) switch is pressed.
	<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>Trigger pulse</p> <p>STIM RATE</p> <p>Click</p> <p>Tone burst</p> </div>  </div> <p style="text-align: center;">Click and tone burst</p>
(11) <u>PHASE +, ALT, -</u>	Select a phase of sound level when starting a stimulation. A stimulus sound starts from positive voltage when the "+" switch is selected, and starts from negative voltage when the "-" switch is selected.
(12) <u>INTENSITY</u>	Sets the sound pressure level. The sound pressure level can be adjusted from 0 to 110dB SPL with 5dB increments. With the speaker control is possible up to 95 dB SPL.
(13) <u>MASKING NOISE</u>	Sets the masking level. Sound prssure level can be adjusted from 0 to -40 dB with the (12) INTENCITY SWITCH'S. in steps 10 dB.
(14) <u>START</u>	When the switch is pressed, the lamp lights and a stimulus sound is generated with the interval set by the STIM RATE(3).
(15) <u>STOP</u>	Press this switch to stop stimulation.
(16) <u>MASKING NOISE</u>	Press this switch to output the masking noise from either one of the earpieces headphon while the other is for the stim noise.

Items	Descriptions
(17) HEADPHONE	Select one of L(left), L.R, or R(right) side ear for examination.
(18) Stimulus indication lamp	The lamp lights in synchronization with stimuli.
(19) OUTPUT	Connect the attached headphone. When disconnecting the connector, press the lever and pull out.



Rear panel



Items	Descriptions
(19) SPEAKER	<p>A four pins connector to connect the external speaker (optional).</p> 
(20) SYNC	<p>A synchronized signal output terminal. Stimulus synchronized pulse is generated when the attached headphone is used and, the delayed pulse adjusted by DISTANCE(16) Knob is generated when the optional speaker is used.</p> <p>Output pulse Amplitude-----Approx. 10 V Pulse width-----Approx. 20 usec Output impedance-----Less than 500 ohm</p>
(21) MONITOR	<p>A monitor terminal for stimulus output by either the headphone or optional speaker. Output voltage is larger than 5 Vp-p and the impedance is less than 1.5 kohm.</p>
(22) EXT TRIG	<p>An external trigger signal input terminal. Set the STIM RATE(3) to EXT and then apply a trigger signal when controlling the stimulus interval. Trigger signal should be larger than 4 V and maximum input is <u>+50 V</u>.</p>
(23) START	<p>An external stimulus start signal input terminal. The lamp of the START(12) switch will light and start when a pulse larger than 4 V and wider than 10 usec is applied to this terminal.</p>
(24) STOP	<p>An external stimulus stop signal input terminal. The lamp of the STOP(13) switch will light and stop when a pulse larger than 4 V and wider than 10 usec is applied to this terminal.</p>

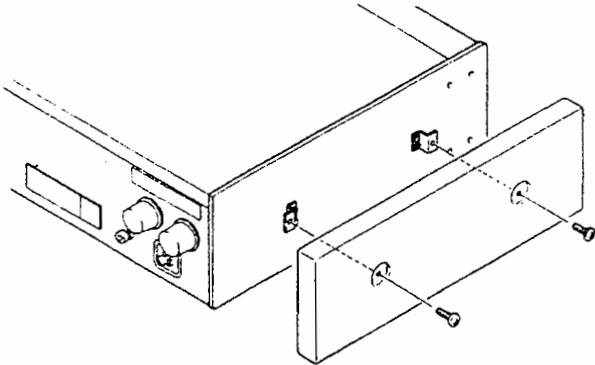
Items	Descriptions
(25) GND	A grounding post. Connects the unit to the power line system ground.
(26) Fuse holder.	Power line fuse to prevent excessive current flow to the unit.
(27) AC SOURCE	A 3-pin male receptacle for power connection.
(28) SPL/SL	<p>Select the sound level unit, SPL or SL.</p> <p>SPL: Sound pressure level. The 0 dB SPL is defined as 2×10^{-4} ubar at any frequency.</p> <p>SL : Sensation level. The minimum hearing level of normal person is defined as 0 dBSL.</p> <p>Above sound level unit are defined using a pure tone (sine wave) therefore actual click sound is heard smaller than selected level.</p>

Section 3

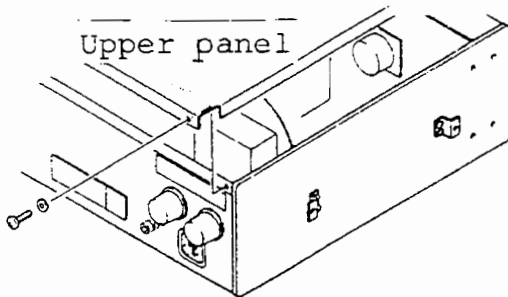
PREPARATION FOR MEASUREMENT

MOUNTING THE ACOUSTIC STIMULATOR ON THE CART.

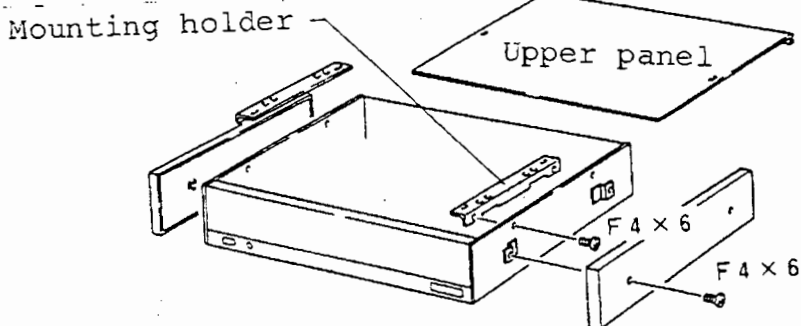
1. Remove the two screws on the side panel and remove the side panel.



2. Remove the two screws on the upper panel and remove it.

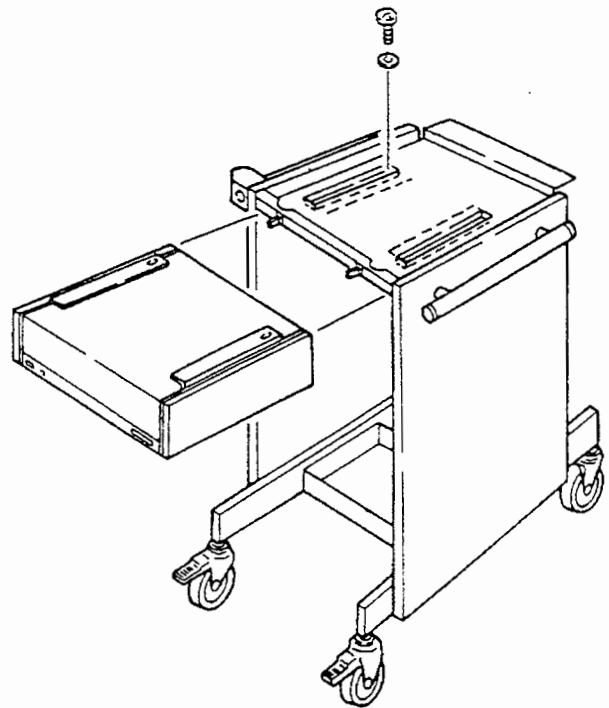


3. Fix the mounting holder (optional, DI-601J) on the side frame with the screws.

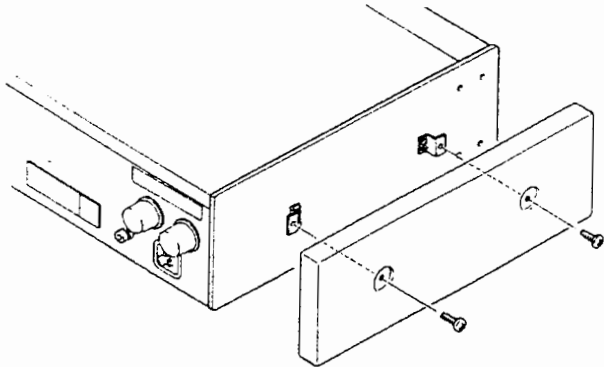


4. Fix the upper panel of the mount kit on to main frame. Discard the old one or retain it for future use.

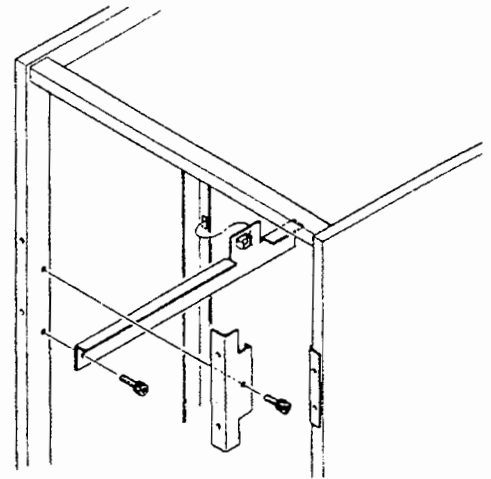
5. Fix the SSS-3200 on the cart with the screws provided.



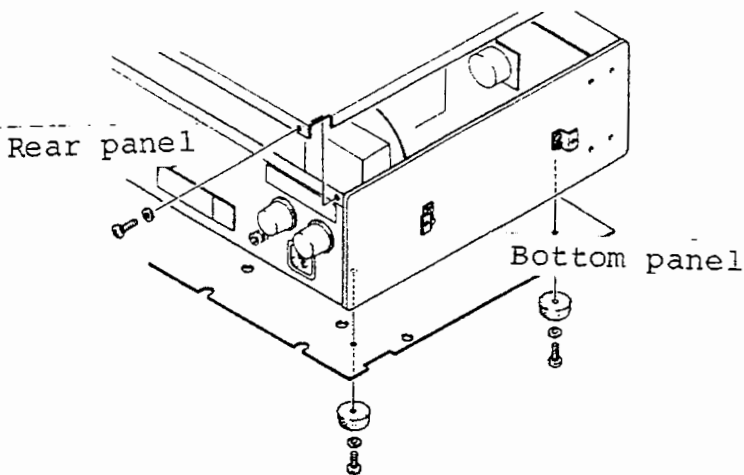
1. Remove the two screws on the side panel and remove the side panel.



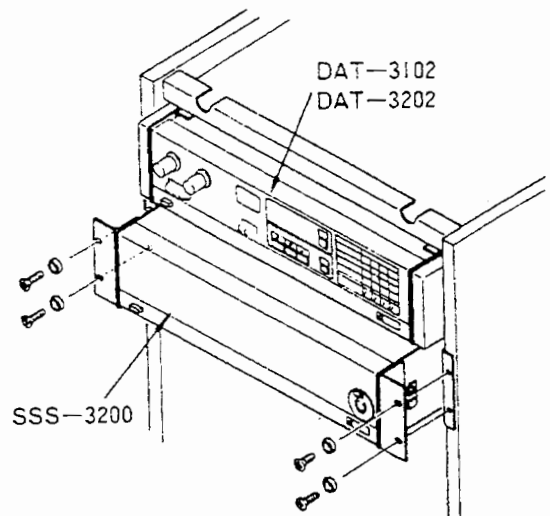
4. Fix the mounting holder and mounting rail on the right and left frames.



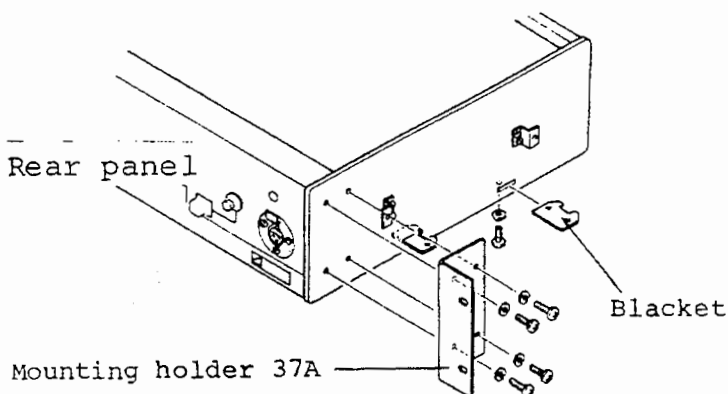
2. Remove the two screws on the upper panel and remove it. Take off the four rubber feet from the bottom plate and remove the bottom plate.



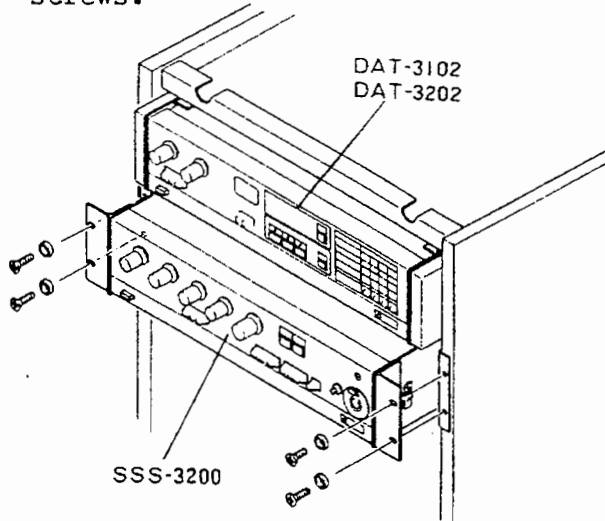
5. Fix the SSS-3200 on the cart with the screws provided.



3. Fix the mounting holder 37A (optional, DI-601J) on the side frame with the screws. Insert the blacket into the slit and fix it with the screw.



- Set the upper and bottom plates on the acoustic stimulator and put into the cart and then of fix with the screws.

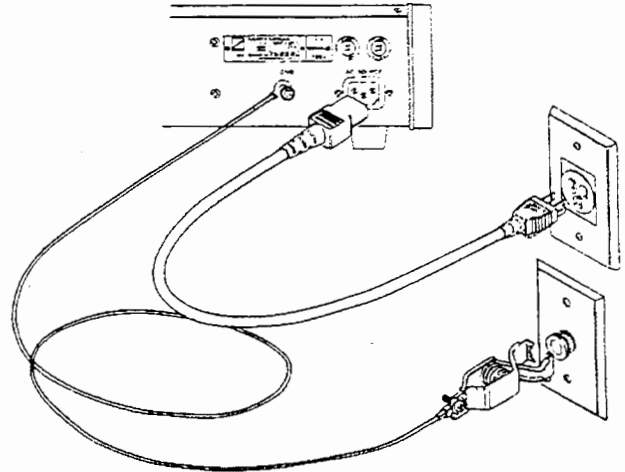


GROUNDING

Ground the instrument securely and perfectly before operating in order to provide safety for the patient and to reduce AC interference. Connect a ground lead to the ground post of the instrument and connect the lead to a good ground. Do not connect the ground lead to a water pipe since the metal water pipe may not necessarily be connected to a ground. Avoid using a gas tube for grounding, since it is dangerous.

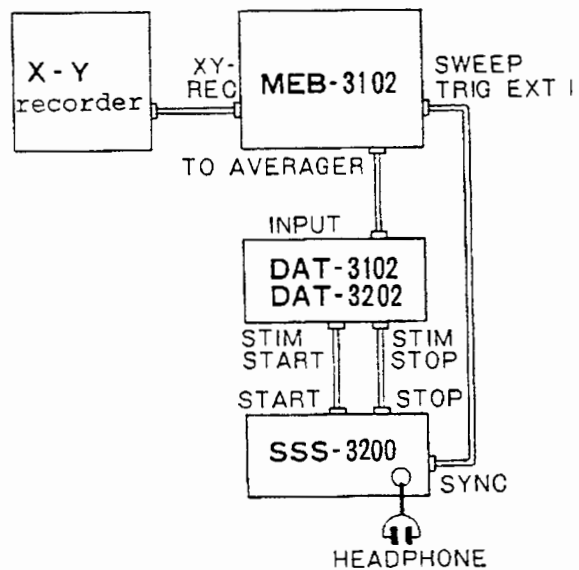
CONNECTION OF POWER CORD

After confirming that the Power switch is turned OFF, connect the power cord to the AC SOURCE.



CONNECTION AMONG THE UNITS.

The following illustration shows the connections among the X-Y RECORDER, MEB-3102, DAT-3202 and SSS-3200. Stimulus start and stop control is linked with the DAT-3202 control switches.

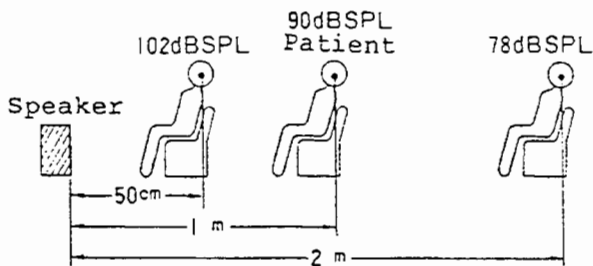


Section 4

OPERATION

PRECAUTION.

1. Do not exceed the stimulus interval when setting the stimulus waveform including PLATEAU, RISE, and FALL TIME settings. If the waveform exceeds the stimulus interval, the stimulator does not operate.
2. Stimulus sound INTENSITY display is the sound level at 1 meter distance from the speaker. If the distance is changed, the correction of the actual sound level is required. Half distance increases the sound level to 12 dB while twice the distance decreases 12 dB.

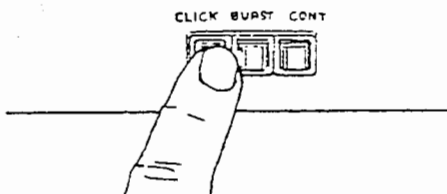
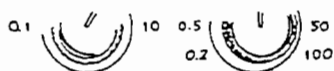


3. Do not press two buttons at the same time when selecting the HEADPHONE, PHASE and waveform.

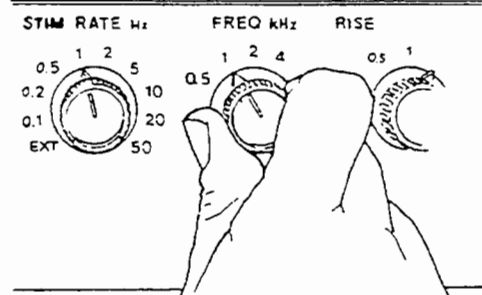
STIMULUS WAVEFORM SETTING.

CLICK SOUND

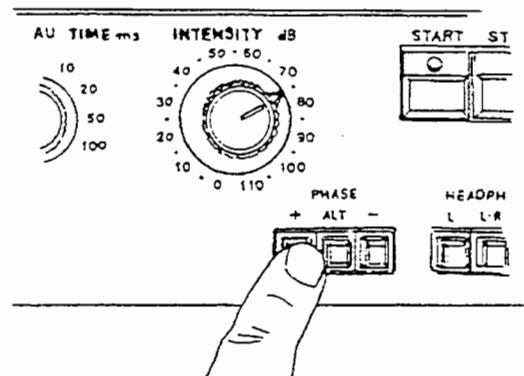
1. Press the CLICK switch(7) of the waveform selector. Stimulus waveform is a half cycle sinusoidal wave.



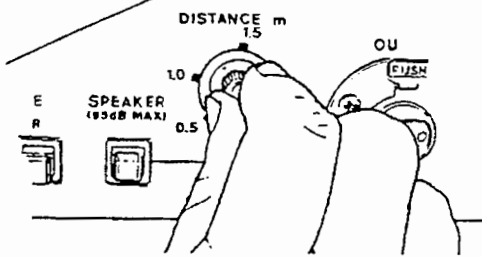
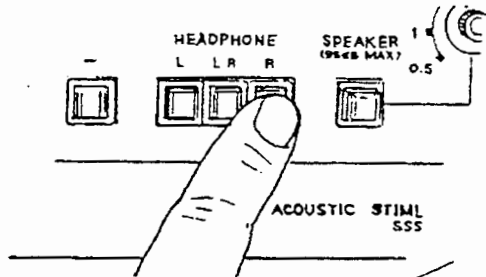
2. Select the stimulus interval with the STIM RATE(7) Knob and Stimulus Frequency with the FREQ(8) Knob.



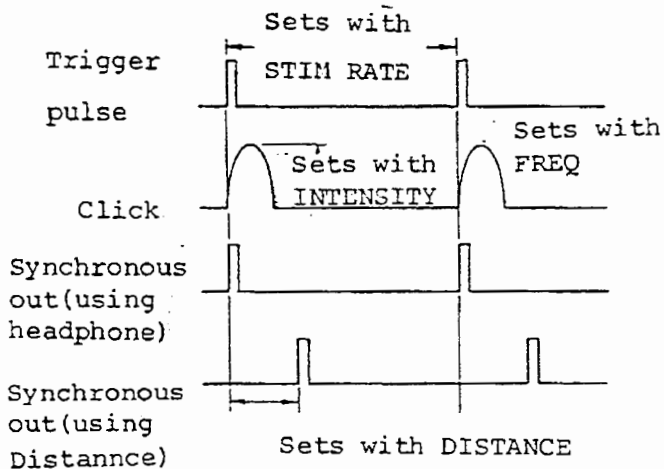
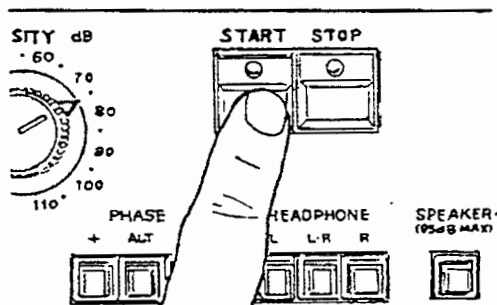
3. Select the stimulus sound intensity with the INTENSITY(11) Knob and stimulus phase with the PHASE selector switch.



- Select the ear side to be examined with the HEADPHONE(14) switch or the SPEAKER(15) and adjust distance.



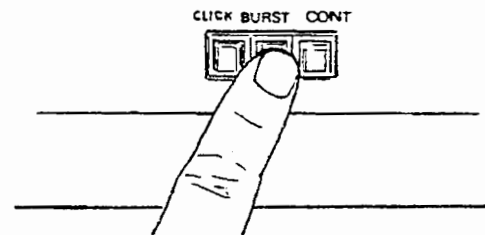
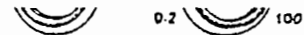
- Press the START(12) switch to start stimulation. In the click mode, RISE & FALL and PLATEAU TIME settings are malfunction.



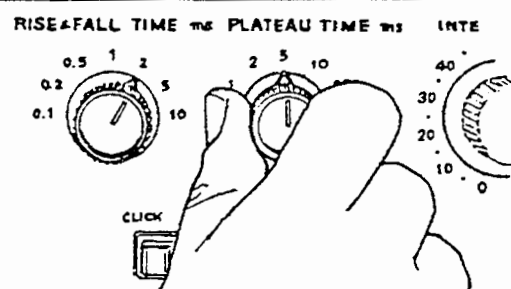
tone BURST and TONE PIP

Both the tone burst and tone pip are composed of the following rise, plateau and fall time period. The main difference between the tone burst and tone pip is the time. When the plateau time is longer than rise or fall time is defined as a tone burst and the opposite is tone pip. The tone pip should include four to six sinusoidal waves.

- Press the BURST(8) switch of the waveform selector.

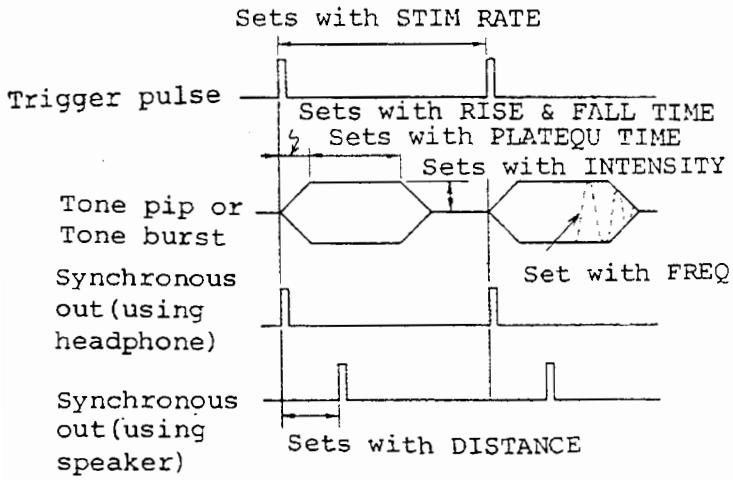


- Select the rise and fall time with the RISE & FALL TIME(5) knob and the plateau time with the PLATEAU TIME(6) knob.



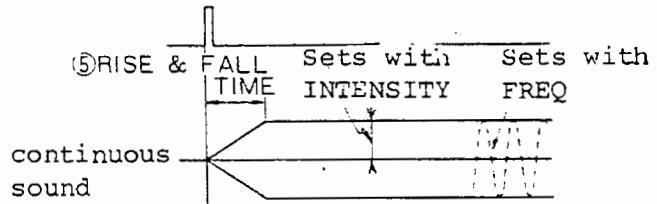
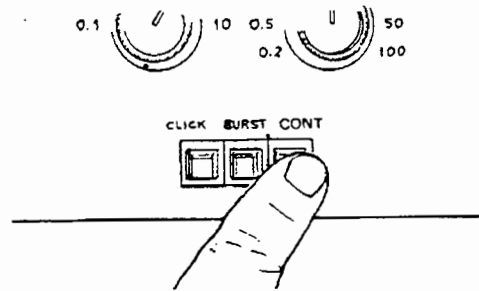
- Select the stimulus interval with the STIM RATE(7) Knob. and stimulus frequency with the FREQ(8) knob.
- Select the stimulus sound intensity with the INTENSITY(11) knob and stimulus phase with the PHASE selector switch.
- Select the ear side to be examined with the HEADPHONE(14) switch or the SPEAKER(15) and adjust distance.

6. Press the START(12) switch to start stimulation.



CONTINUOUS SOUND

The waveform is a continuous sinusoidal. To do a continuous sound stimulation, press the CONT(9) switch, then select the stimulus interval and intensity, ear side to be examined as described in "CLOCK SOUND" or "TONE BURST and TONE PIP". Press the START(12) switch to start stimulation.



SOUND PRESSURE LEVEL

Stimulus sound is displayed as either the sound pressure level(SPL) or sensation level(SL).
 The unit of sound level can be selected by the SPL/SL(28) switch
 Click, tone pip and tone burst sound pressure are displayed with the same amplitude sinusoidal continuous wave.

Section 5

MEASUREMENT

With the physiological response recorder, MEB-3102, various auditory evoked potentials can be measured since this unit generate a click, tone burst and continuous stimulus sound.

BSR MEASUREMENT

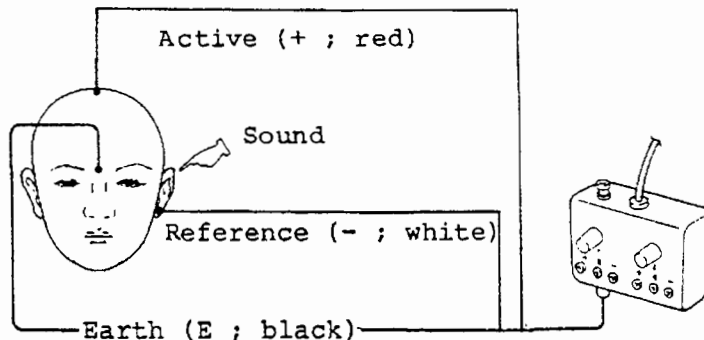
A. Electrode placement

Use the EEG electrode or BSR electrode with electrode cream.

Active --- : Place it on the vertex electrode and fix it with surgical tape.

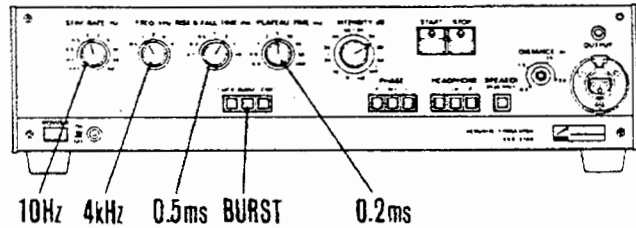
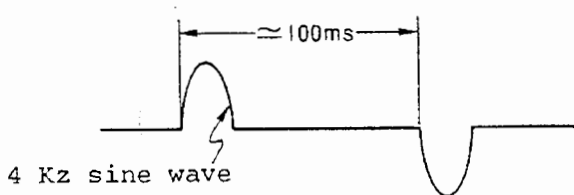
Reference- : Place it on the ear lobe electrode and fix it with surgical tape.

Earth ---- : Place it on the glabella and fix it with surgical tape.



B. Setting the controls and switches

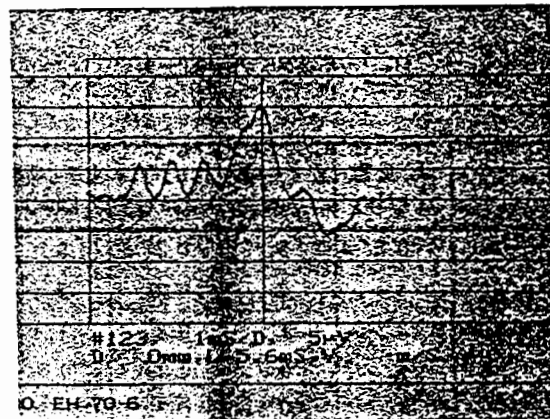
Stimulus waveform ----- CLICK
 STIM RATE ----- 10 Hz
 FREQ ----- 4 kHz
 PHASE ----- ALT



Set the sound pressure level and select the headphone or speaker. When the speaker is selected, the sound pressure level on the panel is at the 1 meter distance level. If the distance is not 1 meter, the correction of the actual sound pressure level is required.

Amplifying, averaging and Recording

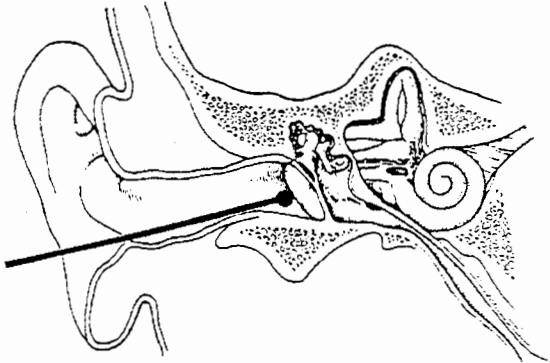
For the setting of the amplifier, averager and recorder refer to the operator's manual of the physiological response recorder.



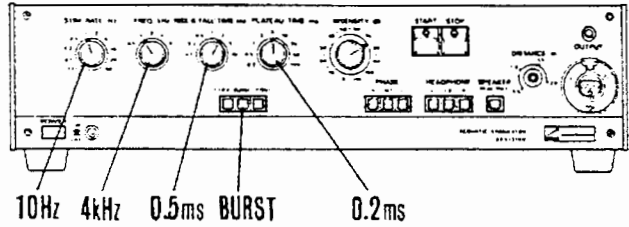
EcochG MESUREMENT

A. Electrode placement.

Use the silver round tip electrode with electrode cream. Attach the tip of electrode to the drum membrane and fix it on the external ear with a substance such as collodion.



- Active : place it on the drum electrode membrane and fix it on the external ear with a substance such as collodion.
- Reference : Place it on the ear lob electrode and fix it with surgical tape.
- Earth ---- : Place it on the glabella and fix it with surgical tape.



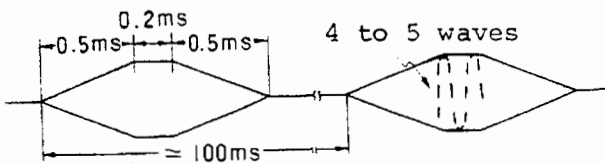
Stimulus phase is fixed during the cochlear microphonics (CM) measurement since the phase of the CM is varied with the phase of the stimulus sound. Stimulus phase is set to "ALT" during the Action potential (AP) measurement since the phase of the AP is not varied and to protect against artifact.

Amplifying, Averaging and Recording.

For the setting of the amplifier, averager and recorder refer to the operator's manual of the physiological response recorder.

B. Setting the controls and switches

- Stimulus waveform ----- BURST
- STIM RATE ----- 10 Hz
- FREQ ----- 4 kHz
- RISE & FALL TIME ----- 0.5 msec
- PLATEAU TIME ----- 0.2 msec
- PHASE (CM) ----- "+" or "-"
- PHASE (AP) ----- ALT



Section 6

SPECIFICATION

WAVEFORM SETTING

STIMULUS RATE ----- 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50 Hz within +3 % +5 %
STIMULUS FREQUENCY ----- 0.5, 1, 2, 4, and 8 kHz. Within +5 %
RISE & FALL TIME ----- 0.1, 0.2, 0.5, 1, 2, 5 and 10 ms. Within +10 %
PLATEAU TIME ----- 0.2 0.5 1, 2, 5, 10, 20, 50 and 100 ms. Within +10 %
Stimulus waveform ----- Click, tone burst and continuous sound.
Stimulus wave phase ----- +, ALT, -
OUTPUT UNIT INTENSITY ----- 0 to 110 dB SPL or dB SL with 5dB step.
Output selector ----- Headphone(L, LR, R) and Speaker
DISTANCE ----- Provides the distance adjustment from 0.5 m to 2.2 m
(1.5 to 6.5 msec)
MONITOR OUT ----- More than 5 Vp-p amplitude
Less than 1.5 kohm impedance

SYNCHRONOUS INPUT/OUTPUT

EXT TRIG INPUT ----- More than 4 V and 10 usec width pulse.
Maximum input is +50 V.
Input impedance is more than 100 kohm.
START INPUT ----- More than 4 V and 10 usec width pulse.
Maximum input is +50 V.
Input impedance is more than 100 kohm.
STOP INPUT ----- More than 4 V and 10 usec width pulse.
Maximum input is +50 V.
Input impedance is more than 100 kohm.
SYNCHRONOUS OUT ----- Approx. 10 V and 10 usec width pulse
Output impedance is less than 500 ohm.

SAFETY OF THE INSTRUMENT

Withstand voltage ----- AC 1500 volts, 1 minute.
Chassis leakage current ----- 100 uArms or less.
Insulation resistance ----- 50 Mohm or over(DC 500 volts)

AMBIENT CONDITIONS AND OTHERS

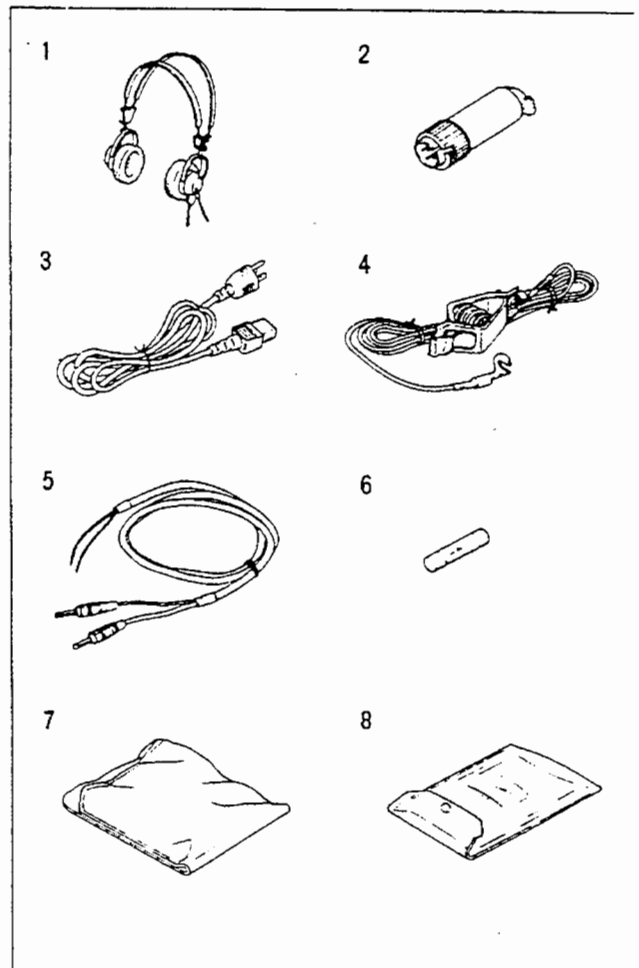
Ambient temperature ----- 0 to 40 °C
Relative humidity ----- 45 to 90 %
Power source ----- AC line voltage. As specified by customer. Line
frequency 50 or 60 Hz.
Power consumption ----- Approx. 60 VA
Dimensions and Weight ----- 440W x 100H x 340D (mm)
Approx. 7 kg.

Section 7

ACCESSORIES

Standard accessories, Model SSS-3200

NO	Items	Q'ty	NK code NO
1.	Headphone	1	
2.	Connector for EXT. SPEAKER	1	5300033
3.	Power cord U	1	5500218
	or N	1	5500245
	or H	1	5500076
4.	Ground lead D	1	5540023
5.	Input/Output cord	2	5511634
6.	Slow blow fuse(1.5A)	2	5620035
	or (1A)	(2)	5620026
7.	Main unit cover	1	1133-001818
8.	Accessories bag	1	1133-000142A



Section 8

OPTIONALS

RACK MOUNTING KIT

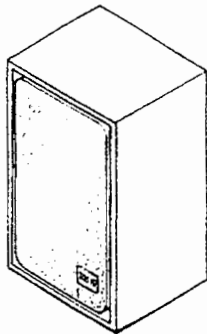
Model DI-601J

SPEAKER BOX

Model G-103

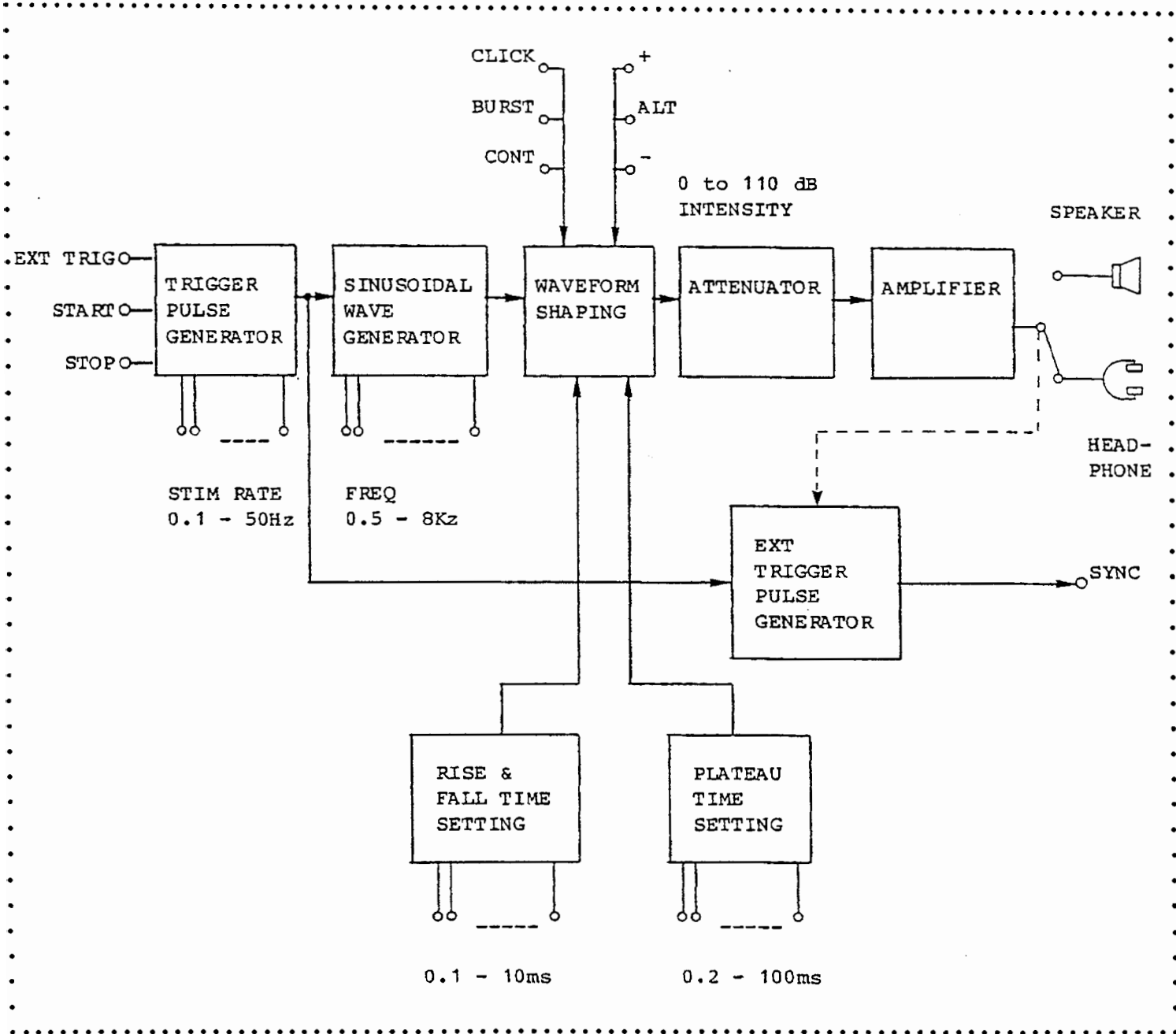
When the speaker is required to stimulate instead of attached headphone, the following speaker can be connected.

- Impedance ----- 8 ohm
- Playback frequency band ----- 70 - 18.000 Hz
- Input ----- 15 W
- Built-in speaker ----- 100 (mm)
- Dimension ----- 200W x 300H x 174D (mm)
- Weight ----- 3.6 kg

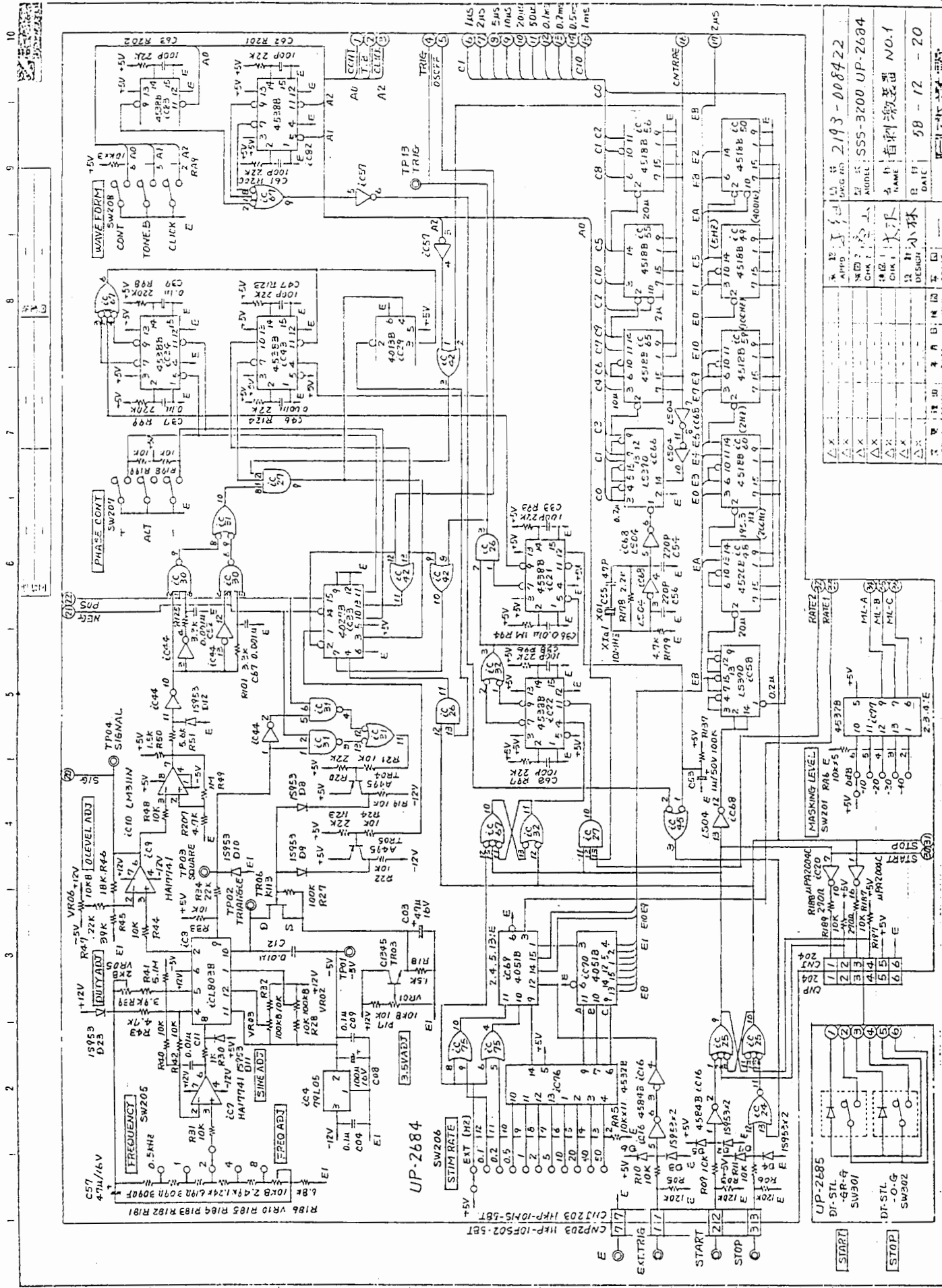


Section 9

BLOCK DIAGRAM



UP-2684 103491



REV	DATE	CHK	TRAC
1	88-12-20		
2			
3			
4			
5			
6			
7			
8			
9			
10			

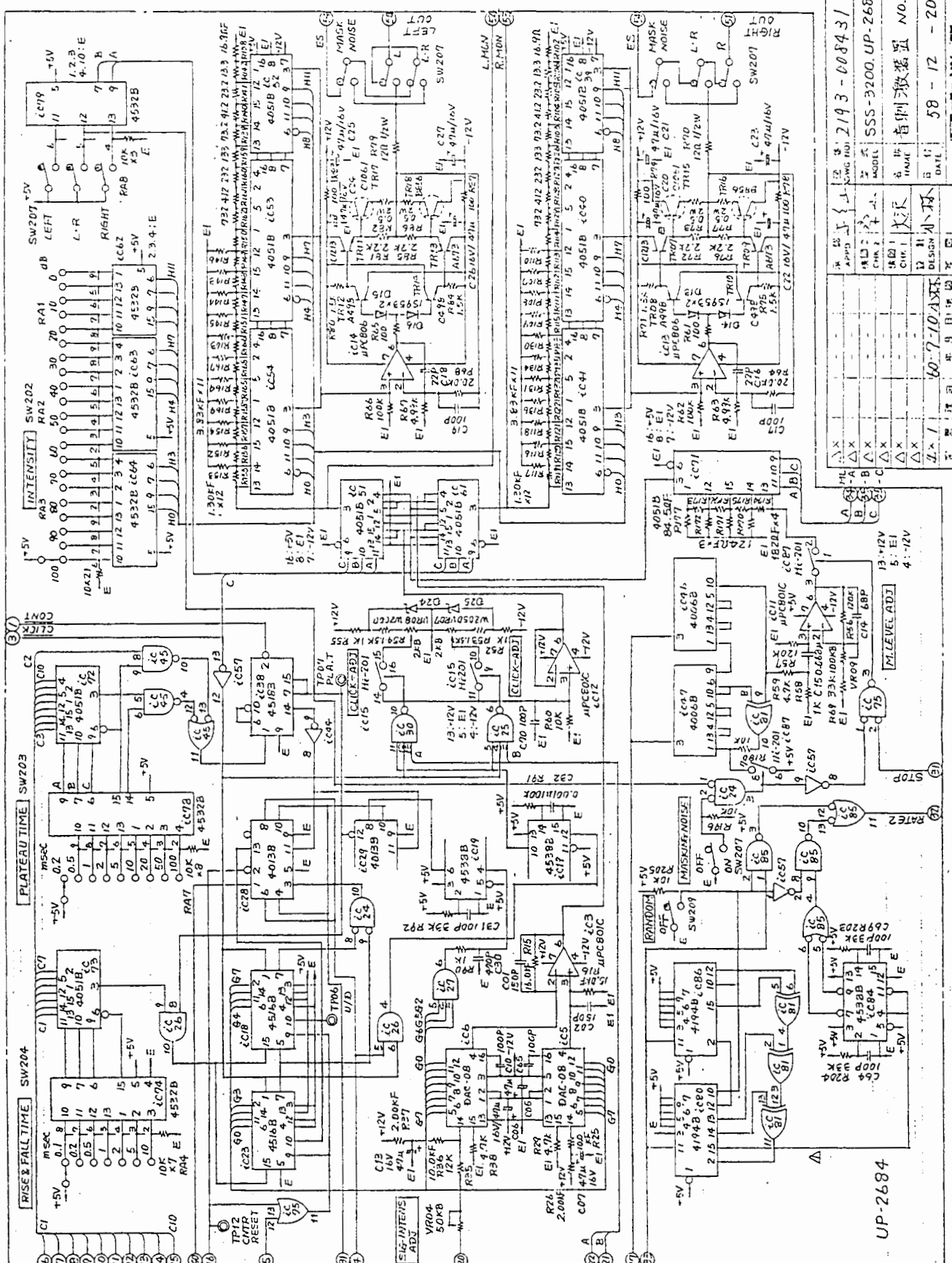
REV	DATE	CHK	TRAC
1	88-12-20		
2			
3			
4			
5			
6			
7			
8			
9			
10			

REV	DATE	CHK	TRAC
1	88-12-20		
2			
3			
4			
5			
6			
7			
8			
9			
10			

REV	DATE	CHK	TRAC
1	88-12-20		
2			
3			
4			
5			
6			
7			
8			
9			
10			

60.10.07

CA3



UP-2684
10K922A

60.10.10.7
A3

APPD	DESIGN	DATE	REV
CHK 1	DATE	CHK	DATE
CHK 2	DATE	CHK	DATE
CHK 3	DATE	CHK	DATE
CHK 4	DATE	CHK	DATE
CHK 5	DATE	CHK	DATE
CHK 6	DATE	CHK	DATE
CHK 7	DATE	CHK	DATE
CHK 8	DATE	CHK	DATE
CHK 9	DATE	CHK	DATE
CHK 10	DATE	CHK	DATE
CHK 11	DATE	CHK	DATE
CHK 12	DATE	CHK	DATE
CHK 13	DATE	CHK	DATE
CHK 14	DATE	CHK	DATE
CHK 15	DATE	CHK	DATE
CHK 16	DATE	CHK	DATE
CHK 17	DATE	CHK	DATE
CHK 18	DATE	CHK	DATE
CHK 19	DATE	CHK	DATE
CHK 20	DATE	CHK	DATE

UP-2684
DESIGN NO. 2193-008431
MODEL SSS-3200 UP-2684
NAME 音調調整 NO.2
DATE 58-12-20
REV 58-12-20

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24125 Bergamo, Italy

Telephone: +39 35-219543

Fax: +39 35-232546

The model and serial number of your instrument are identified on the rear or bottom of the unit. Write the model and serial number in the spaces provided below. Whenever you call your distributor concerning this instrument, these two pieces of information should be mentioned for quick and accurate service.

Model _____

Serial number _____

YOUR DISTRIBUTOR
