PIONEER

# SOLID STATE
# AM-FM STEREO RECEIVER
# MODEL SX-770

## CAUTION

**Before connecting the line cord to the wall socket, carefully read and follow the instructions described below, to assure the safety of your unit.**

- This receiver is set for 240V operation when shipped.
  If this unit is used in a different line-voltage area, read and follow "LINE VOLTAGE SELECTION AND FUSE" on page 1.
  Be sure that the line voltage setting on your unit agrees with the line voltage in your area and that the fuse installed in your unit is a proper one.

## INSTALLATION, OPERATING AND SERVICE MANUAL

Including PARTS LIST, CIRCUIT DIAGRAMS AND MOUNTING TEMPLATE.

FVW

PIONEER ELECTRONIC CORPORATION

# FEATURES

### o LOW-NOISE FET IN FM SECTION

Coupled with the use of a low-noise FET, the FM section is designed for a high sensitivity to obtain a sufficient signal-to-noise ratio.

### o EXCELLENT SELECTIVITY

The IF amplifier stage uses a combination of a low-noise silicon transistor and a monolithic IC to attain an excellent selectivity characteristic.

### o MONOLITHIC IC FOR MPX SECTION

The MPX section is an IC for a stable, wide frequency band and a sharp channel separation. A sufficient measure is taken against SCA beat.

### o HIGHLY SENSITIVE AM TUNER

Due to the silicon transistor and ferrite antenna, the AM tuner has a high and stable sensitivity.

### o MICROPHONE TERMINAL FOR A VERSATILITY OF USE

Input terminals include a magnetic-cartridge record player terminal and a microphone terminal. Output terminals include a center channel terminal and a preamplifier terminal. Thus Model SX-770 can be used in various ways.

### o WELL DAMPED, CLEAR SOUND

The output stage is a quasi-complementary SEPP circuit using silicon transistors. Model SX-770 reproduces well-damped, clear stereo sound over a wide frequency range from bass to treble.

### o VARIETY OF ACCESSORY CIRCUITS

Accessory circuits include an FM AFC circuit, muting circuit, high-cut filter, tape monitor, loudness contour switch, etc.

### o NOVEL APPEARANCE

In addition to the black panel, the numeral indication is embossed on the dial plate according to the selected position. Also, the dial pointer glows.

# LINE VOLTAGE SELECTION AND FUSE

## SWITCHING LINE VOLTAGE SETTING AND FUSE

In order to remove the fuse, turn the fuse cap located on the line voltage selector switch in the direction indicated by an arrow. Then remove the fuse plug from the unit. Put the fuse plug back so that the proper line voltage marking can be seen through the cut in the edge of the plug. Whenever the set position of the selector switch is changed, check the rating of the fuse. A 1-ampere fuse is to be used for either 220V or 240V operation and a 2-ampere fuse for any of 110V, 117V, or 130V operation. If the rating of the fuse is proper, install the fuse in the fuse cap.

## REPLACING OF FUSE

When the fuse is blown, remove the fuse cap and replace the fuse with a new one.

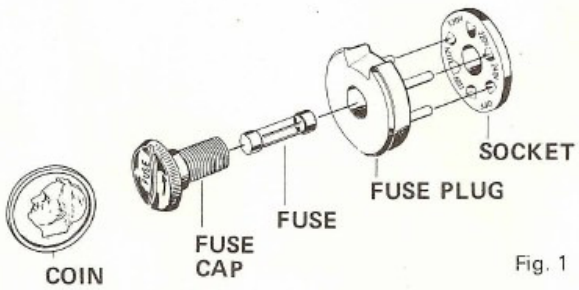
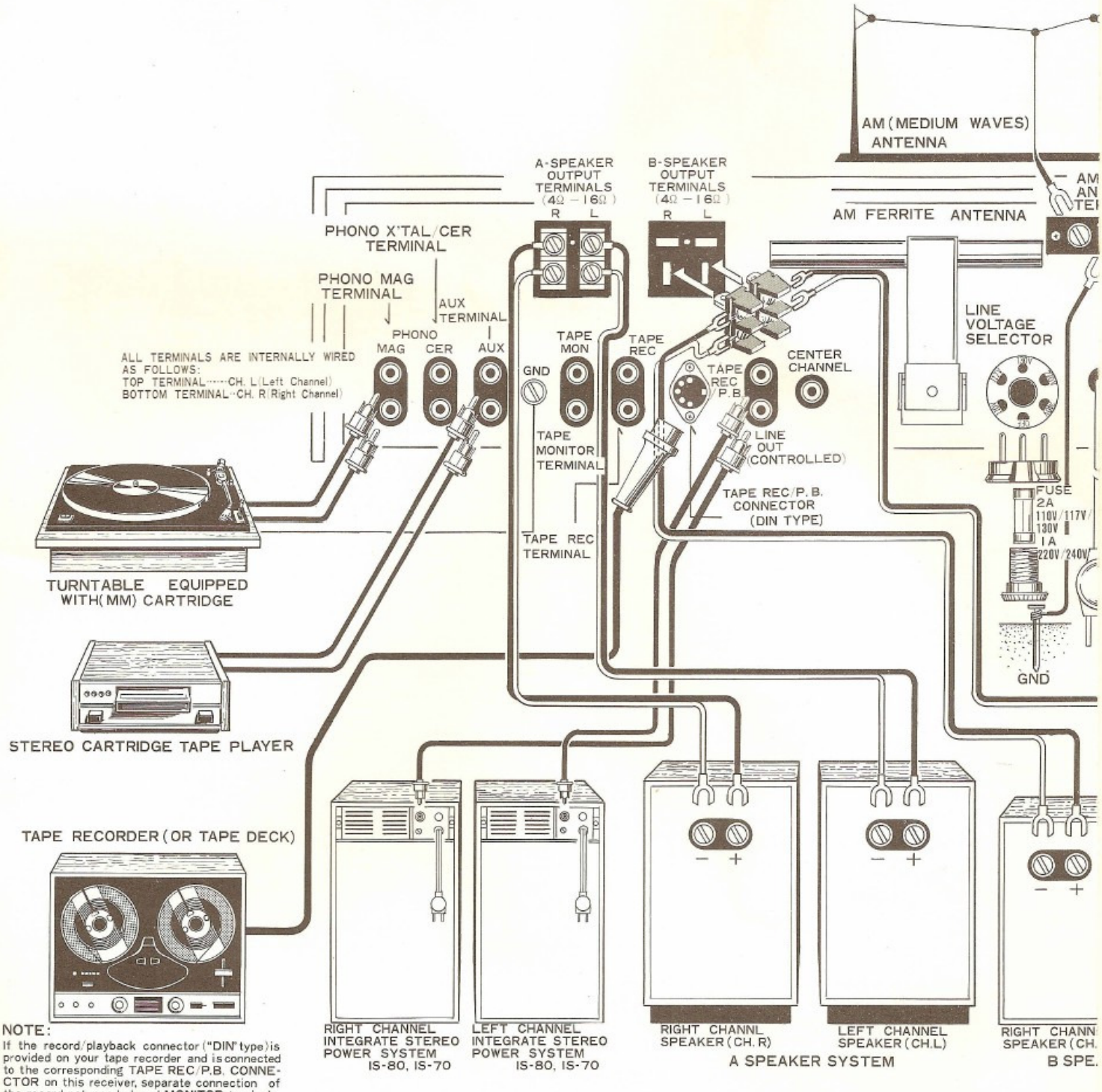


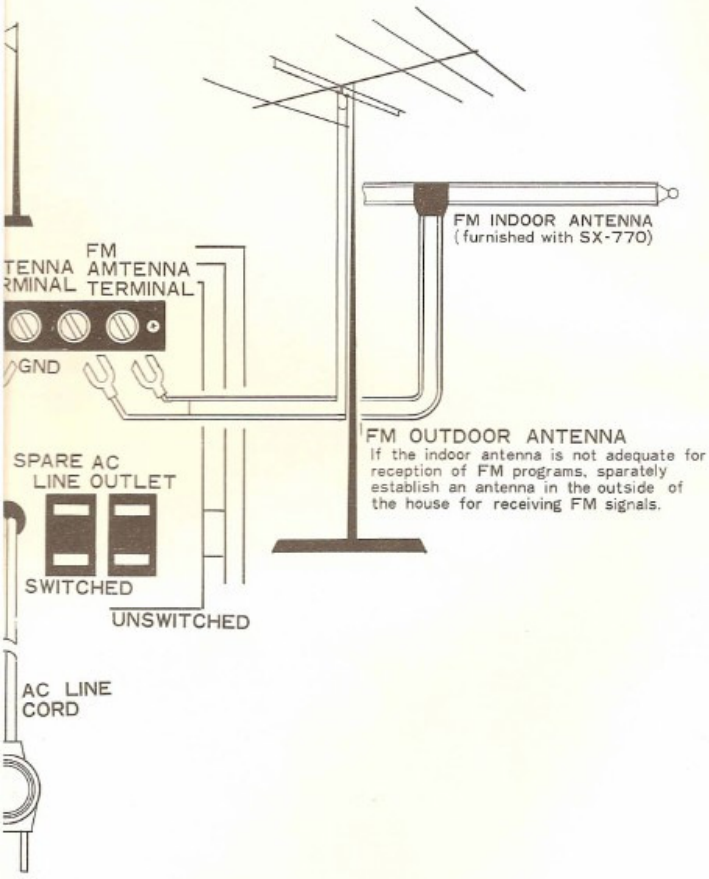

Fig. 1

Take off the fuse cap by turning it with a coin, etc. in the direction indicated by the arrow mark.

## REAR CONNECTIONS




NOTE:
If the record/playback connector ("DIN" type) is provided on your tape recorder and is connected to the corresponding TAPE REC/P.B. CONNECTOR on this receiver, separate connection of the record not needed. and MONITOR terminals and MONITOR terminals to the receiver is not needed.



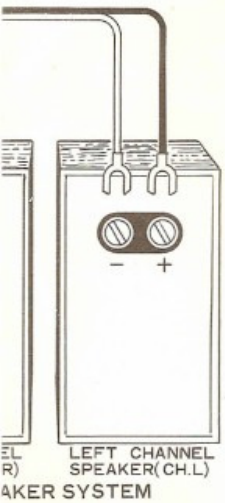




Fig. 2

## STEREO SYSTEM

This receiver is a general-purpose stereo amplifier. Connect to it the loudspeaker systems (two or four), record player, tape recorder, etc., which are separately available.

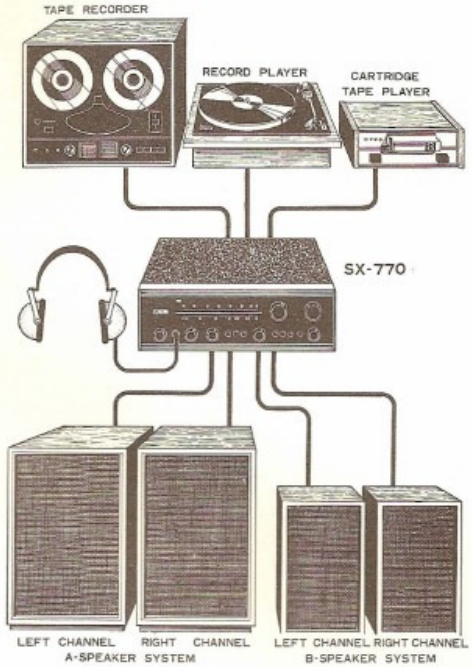



Fig. 3

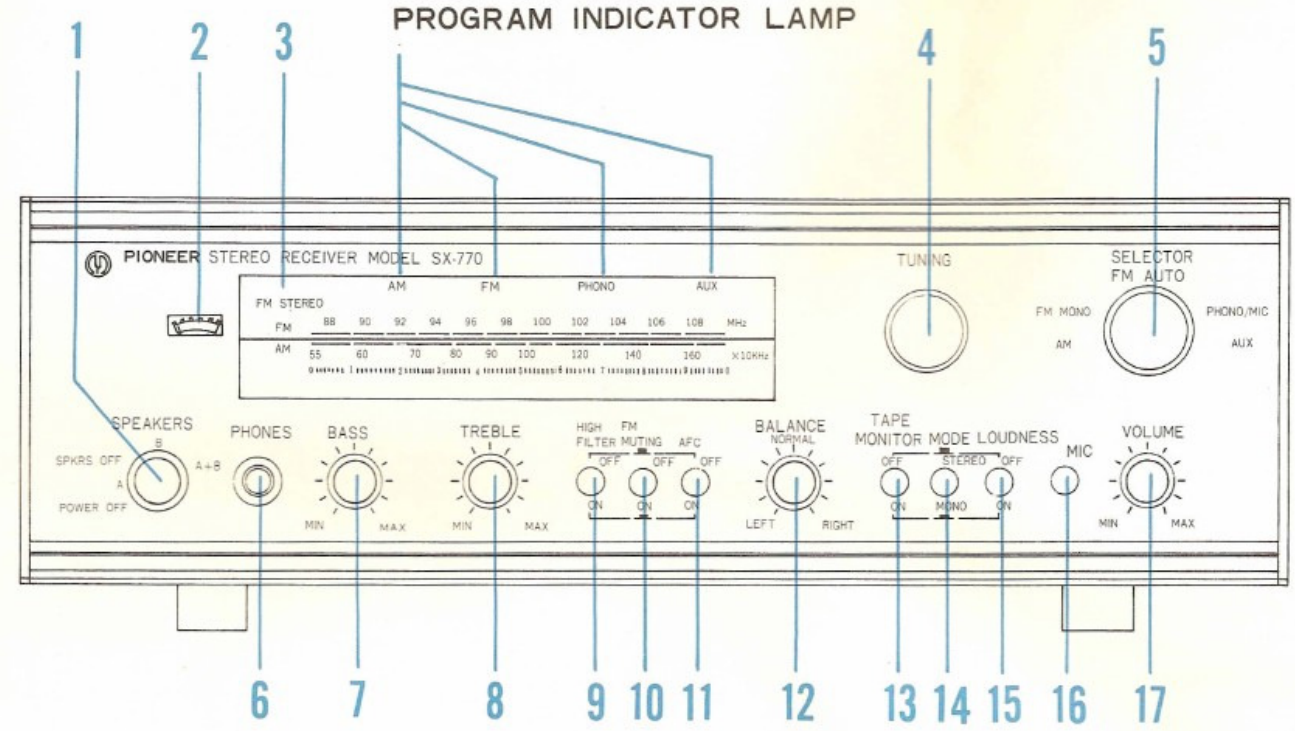
## INSTALLATION

For installation of the stereo system, select a place meeting the following.

- o Well ventilated, and free from moisture and dust.
- o Unexposed to direct sunlight.
- o Far from heat radiators (space heaters, etc.).
- o Stable without incurring vibrations.

## LISTENING ROOM

- o When the stereo system is installed, listen to music according to the connection and operation instructions described below.
- o The reproduced sound is very different depending on the size of the room, the furniture arrangement in the room, and the materials of walls, floor and ceiling.
  Generally, the reproduced sound fills the room if the room has a low ceiling and hard floor, or the room has a small length and a hard wall opposing loudspeakers. This undesirable acoustic condition can be much alleviated by laying a carpet on the floor for the former room and by covering the wall with a thick curtain for the latter room. It is also an effective solution to change the arrangement of furniture for irregular reflection of the loudspeaker sound.


PROGRAM INDICATOR LAMP
1
2
3
4
5
PIONEER STEREO RECEIVER MODEL SX-770
AM
FM
PHONO
AUX
FM STEREO
FM
AM
88 90 92 94 96 98 100 102 104 106 108 MHz
55 60 70 80 90 100 120 140 160 X10KHz
TUNING
SELECTOR
FM AUTO
FM MONO
AM
PHONO/MIC
AUX
SPEAKERS
SPKRS OFF
B
A
A+B
POWER OFF
PHONES
BASS
MIN
MAX
TREBLE
MIN
MAX
HIGH FILTER
FM MUTING
AFC
OFF
ON
BALANCE
NORMAL
LEFT
RIGHT
TAPE MONITOR
MODE
STEREO
MONO
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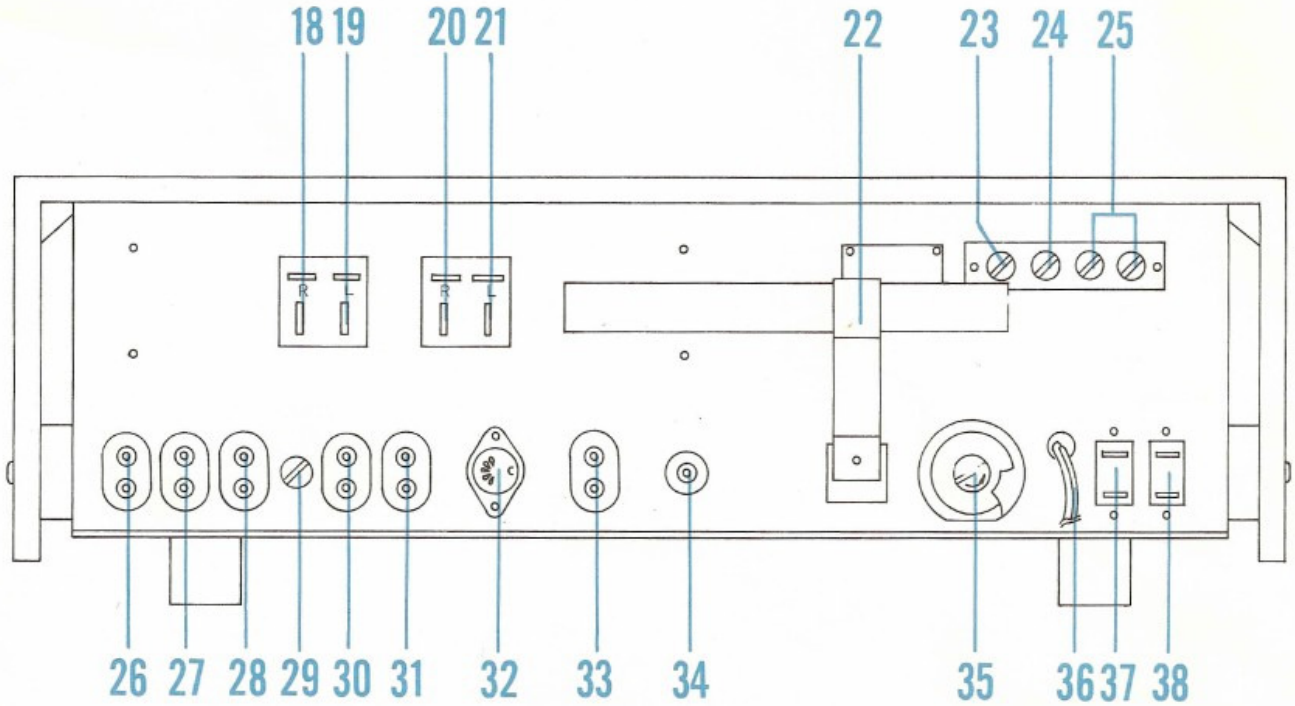

18 19 20 21
22
23 24 25
R
L
R
L
C
26 27 28 29 30 31 32 33 34
35
36 37 38

# KNOBS AND SWITCHES ON FRONT PANEL

## 1. SPEAKERS (POWER SUPPLY AND LOUDSPEAKER) SWITCH

This knob turns off the power supply, and selects the loudspeaker output terminals. The function at each position of the knob is as follows:

| | |
|---|---|
| POWER OFF | Model SX-770 is deenergized. |
| SPKR'S A | Loudspeaker output terminals A are operative. |
| SPKR'S OFF | Both loudspeaker output terminals A and B are inoperative. This position is selected when using a stereo headphones. |
| SPKR'S B | Loudspeaker output terminals B are operative. |
| SPKR'S A + B | Both loudspeaker output terminals A and B are operative. |

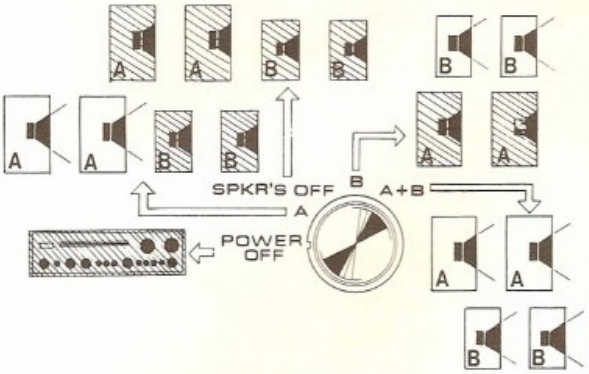



Fig. 4

## 2. TUNING INDICATOR

When tuning the radio receiver to an FM or AM broadcast station, the TUNING KNOB (4) is adjusted so that the pointer of this meter may deflect to the maximum.

## 3. FM STEREO INDICATOR

When the receiver receives an FM stereo program, this lamp lights.

## 4. TUNING KNOB

An AM or FM broadcasting station is tuned in. While observing the pointer of the TUNING INDICATOR (2), set the knob for the best receiving condition.

## 5. SELECTOR SWITCH

This switch is used to select a broadcast reception mode or the record playing mode:

| | |
|---|---|
| AM | For reception of an AM (medium wave) broadcast program. |
| FM MONO | For reception of a monaural FM broadcast program. |
| FM AUTO | For reception of an FM broadcast program, automatically switching the receiver for stereo or monaural mode. |
| PHONO/MIC | Sets the equipment for playing a disc record and microphone. |
| AUX | Sets the equipment for reproducing the auxiliary input signal. |

When the SELECTOR switch is operated, the program indicator lamp corresponding to the selected source lights.

## 6. PHONES

Cord plug of a stereo headphone is inserted here for enjoying stereo play without disturbing other people around. Loudspeakers stop emitting sound then. For the stereo headphone, PIONEER's Model SE-2P, SE-20, SE-30 or SE-50 is recommended.

- When a longer cord is required for the stereo headphones, use PIONEER's Model JB-23 extension cord separately available.
- When desiring to connect two stereo headphones, use PIONEER's Model JB-22 "Y" cord separately available.

## 7. BASS CONTROL

As this knob is turned clockwise, bass is boosted; as turned counterclockwise, attenuated. The control is designed to give a flat characteristic curve when the knob is set to the middle of the rotation range.

- This knob controls the tone quality of both right and left channels simultaneously.

## 8. TREBLE CONTROL

Use of this treble control knob is similar to that of the BASS CONTROL KNOB (7)

## 9. HIGH FILTER SWITCH

When this switch is turned on, high-frequency noise, such as scratch noise, will be cut off.

## 10. FM MUTING SWITCH

Turn on this switch when desiring to eliminate the noise between stations while tuning in an FM broadcast program. Keep this switch turned off when tuning in a remote station.

## 11. AFC SWITCH

Keep this switch turned on when listening to an FM broadcast program. To tune in the FM broadcast station more accurately, turn off this switch, tune in the station, then turn on the switch when the station has been tuned in.

## 12. BALANCE CONTROL

When the knob is turned toward RIGHT, the center of loudspeaker sound moves rightward; when turned toward LEFT, leftward.

## 13. TAPE MONITOR SWITCH

For ordinary record play or radio reception, keep this switch in the "OFF" position.

Set the switch to "ON" only when playing back a tape by using a tape recorder (or tape deck) or monitoring the recording condition of such equipment. If the switch is set to the "ON" position when conducting disk record play or radio reception, loudspeakers do not sound. Be careful in this respect.

## 14. MODE SWITCH

When playing a disk record or tape, or receiving a broadcast program, keep this switch in the "STEREO" position. Set the switch to "MONO" only when using a monaural record player or tape recorder, or reproducing a tape on which monaural recording is made.

## 15. LOUDNESS CONTOUR SWITCH

When the switch is set to the "ON" position while the receiver is operated at a low sound volume, both bass and treble are boosted for easy listening. When the equipment is operated at a high sound volume, it is recommended to keep the switch in the "OFF" position.

### 16. MIC JACK
When using a microphone, connect the microphone output to this jack. The loudspeakers stop emitting the sound from the turntable, when the microphone is connected to the jack.

NOTE: Set the VOLUME control (17) to the MIN position before inserting the microphone into the jack.

### 17. VOLUME CONTROL
The loudspeaker sound volume increases when this knob is turned clockwise; it decreases when the knob is rotated counterclockwise.

## TERMINALS AND CONNECTION ON REAR PANEL

### 18 & 19. SPEAKER SYSTEM A TERMINALS
Two speaker systems A and B can be connected to the receiver, and they can be selectively used by operating the switch (1). Connect the right channel loudspeaker of the first speaker systems to terminals (18) and the left channel loudspeaker to terminals (29).

### 20 & 21. SPEAKER SYSTEM B TERMINALS
When using two speaker systems, use these terminals (20) and (21) for the second systems. Connect the loudspeaker for the right channel to terminals (20) and those for the left channel to terminals (21).

NOTE: For connection of loudspeakers to these terminals, the plugs contained in the accessory bag must be used. For correct loudspeaker connection, refer to the article "CONNECTION OF LOUDSPEAKER SYSTEMS".

### 22. AM FERRITE ANTENNA
An AM broadcast receiving antenna accessory to the SX-770. When using the SX-770 where the field intensity is high, reception can be conducted simply by adjusting the direction of this antenna without connecting an external antenna to the AM ANTENNA TERMINAL (23).

### 23. AM ANTENNA TERMINAL
This terminal is provided for connecting an external AM broadcast receiving antenna.

### 24. GROUND TERMINAL 1
Connect a ground conductor to this terminal for grounding the receiver.

### 25. FM ANTENNA TERMINALS
An FM broadcast receiving antenna will be connected to these terminals.

NOTE: For the most suitable FM antenna, AM antenna and grounding, refer to the article "ANTENNA CONNECTION AND GROUNDING".

### 26. PHONO MAGNETIC TERMINALS
Connect here the output cords of a turntable equipped with a magnetic catridge. The upper jack is for the left channel; the lower jack, for the right channel. When connecting a monaural turntable, use the upper jack.

### 27. PHONO CER TERMINALS
Connect here the output cords of a turntable equipped with a ceramic cartridge. The upper jack is for the left channel; the lower jack, for the right channel. When connecting a monaural turntable, use the upper jack.

### 28. AUXILIARY TERMINALS
These jacks are used when connecting the output cords of a cartridge tape player. Also use these jacks for reproducing the audio output of a TV receiver. The upper jack is for the left channel; the lower jack, for the right channel.

### 29. GROUND TERMINAL 2
If the turntable or other equipment to be used with the receiver has a ground conductor, connect it to this terminal.

### 30. TAPE MONITOR TERMINALS
Connect to these jacks the playback output terminals (line output) or monitor terminals of the tape recorder (or tape deck) used with the receiver.

### 31. TAPE RECORDING TERMINALS
Connect to these jacks the recording input terminals (line input) of the tape recorder (or tape deck). The signals outgoing from these terminals cannot be adjusted with the VOLUME (17). BASS (7) or TREBLE (8) controls.

NOTE: For correct connection to the TAPE MONITOR (30) and TAPE RECORDING (31) jacks, refer to the article "CONNECTION OF TAPE RECORDER".

### 32. TAPE RECORDING / PLAYBACK CONNECTOR (DIN TYPE)
Provided that the tape recorder (or tape deck) to be used has a DIN-type tape recording/playback connector, connection for recording and playback (and monitor) can be completed simply by linking the tape recorder with the receiver through the recording/playback cord that is separately available. When this connector is used, terminals (30) and (31) are not used.

### 33. LINE OUTPUT TERMINALS (CONTROLLED)
These are the preamplifier output terminals. They are used when using a power system (Model IS-80 or IS-70) of PIONEER's integrate stereo equipment. Also, a high-power stereo system can be composed by connecting other high-power amplifier to these terminals.

### 34. OUTPUT TERMINAL
This is the output terminal of right and left channels mixed together. To this terminal, a center channel loudspeaker or the monaural power amplifier for a 3D system will be connected.

### 35. LINE VOLTAGE SELECTOR AND FUSE HOLDER
This selector is used for setting the receiver to suit the line voltage to be supplied. It also serves as a fuse holder. For the selector setting and fuse replacement procedures, refer to the article "LINE VOLTAGE SELECTION AND FUSE". (Page 1)

### 36. AC CORD
After correctly setting the LINE VOLTAGE SELECTOR (35), connect this cord to an outlet of the commercial power line.

### 37. AC OUTLET (SWITCHED)
The power obtained from this AC outlet is turned ON and OFF interlinked with the operation of SPEAKER SWITCH (1). A maximum of 120VA can be supplied to the turntable or other equipment connected.

### 38. AC OUTLET (UNSWITCHED)
An AC outlet having a capacity of 200 VA. This power outlet is not interlinked with the operation of SPEAKER SWITCH (1).

# CONNECTION OF LOUDSPEAKER SYSTEMS

- When connecting loudspeakers, extract speaker connector plug from the accessory bag and connect the speaker wire leads to the plugs as illustrated below. Be sure to connect the positive of the leads to the positive terminal of the plug.
- When the loudspeakers are connected to the plugs, insert the right channel speaker plug into the speaker system A terminal socket (18) and the left channel speaker plug into the speaker system A terminal socket (19). (Refer to the connection diagram shown in page 2).
- When using two speaker systems, connect the wire leads of the second speaker system to speaker plugs as described above, and insert the right channel speaker plug of this speaker system into the speaker system B terminal socket (20) and the left channel speaker plug into the speaker system B terminal socket (21).

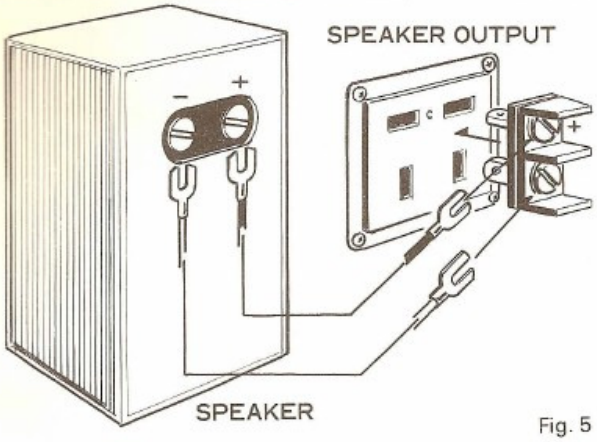



Fig. 5

# ANTENNA CONNECTION AND GROUNDING

## FM BROADCAST RECEIVING ANTENNA:

The field strength of FM broadcast is much attenuated behind mountains and buildings, and in ferroconcrete buildings. This requires to use an FM antenna of different type depending on the area and place where the receiver will be used. Use the most suitable antenna, referring to the following:

* Employ the T-type indoor antenna accessory to the receiver when using the receiver within a wooden building near the FM radio station. Connect the end of the vertical section of the T-type antenna. to the FM ANTENNA TERMINALS (25) as shown in Fig. 6, and expand the horizontal section of the T-type antenna. While actually receiving broadcast, determine the direction of the horizontal section for the best radio reception and fix it on a wall or other place. Refer to the article "RECEPTION OF FM BROADCAST" regarding the determination of the antenna direction.
* When using the receiver far from the broadcasting station. behind a mountain or within a ferroconcrete building, install an FM radio antenna (or FM/TV common antenna) outdoors and connect it to the FM antenna terminals (25). The FM antenna is various in type, having 3 to 7 elements. Select the most suitable antenna by consulting a nearby radio antenna sales store.

  NOTE: The installation procedure of FM radio antenna is similar to that of TV antennas. For details, follow the instructions accompanying the FM radio antenna purchased.

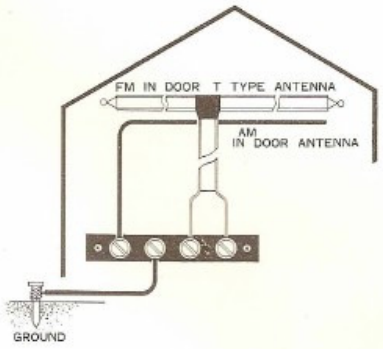



Fig. 6

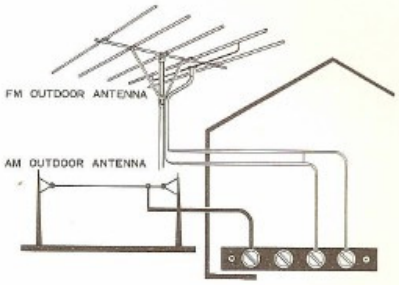



Fig. 7

## AM BROADCAST RECEIVING ANTENNA:

* When using the SX-770 near the broadcasting station or inside a wooden building, it is unnecessary to install an AM antenna. In such an area, set the direction of the AM FERRITE ANTENNA for the best radio reception while actually listening to broadcasts. Refer to the article "RECEPTION OF AM BROADCAST"
* If good reception cannot be attained even by properly adjusting the direction of the AM FERRITE ANTENNA, use the accessory AM lead wire antenna. Connect one end of the antenna to the AM ANTENNA TERMINAL (23) and expand the wire along a wall of the room.
* If good reception cannot be attained even when the accessory lead wire antenna is used, install an AM antenna outdoors. Connect the lead-in wire of the outdoor antenna to the AM ANTENNA TERMINAL (23).

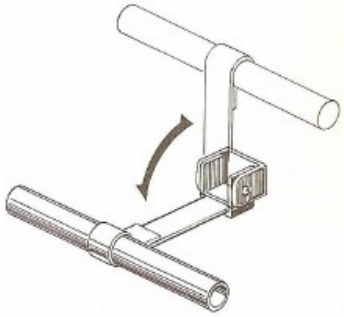


Fig. 8

NOTE:
For the outdoor antenna, a standard AM broadcast antenna can be formed by purchasing PVC wire from an electric appliance shop and installing it 25 feet (7.5m) above the ground for a horizontal length of 50 feet (15m), with a feeder line 30 feet (10m) long. These wire lengths may not be so precise and may be as long as allowed by the place of installation. However, the height of the horizontal section of the antenna should not be too low to attain a good antenna effect.

### GROUNDING:

* Grounding or non-grounding the GROUND TERMINAL 1 (24) does not much affect the performance of the receiver. However, it is desirable to ground the terminal from the viewpoint of safety.
* Connect to the GROUND TERMINAL 1 (24) the ground conductor leading to the earth.

## CONNECTION OF TURNTABLE

* If the turntable to be used with the receiver has a magnetic cartidge, connect the output cords of the turn table to the PHONO MAGNETIC TERMINALS (26); if the turntable has a crystal or ceramic cartridge, connect the output cords to the PHONO CER TERMINALS (27). Insert the output cord plug for the left channel into the upper terminal jack, and that for the right channel into the lower terminal jack.
  When using a monaural turntable , connect its output cord to the upper (left channel) terminal.

  NOTE:
  If the output cord plug of the turntable to be connected does not fit the input terminal jack of the receiver, replace the plug with the pin plug contained in the accessory bag.

## CONNECTION OF TAPE RECORDER (OR TAPE DECK)

* The tape recorder to be used with the receiver should have an output terminal (line output) for connection to external amplifier, or a tape monitor terminal.
* When using a tape deck, the tape deck should have a recording/playback preamplifier built in. PIONEER's Model T-500 separately available can be used with the receiver without any problems.

### CONNECTION FOR RECORDING:

Connect the recording input terminals (line input) of the tape recorder (or tape deck) to the TAPE RECORDING TERMINALS (31) of the receiver. For this connection, use the cords which are normally accessory to the tape recorder. The upper one of the recording input terminals (line input) is for the left channel: the lower one, for the right channel. When the tape recorder is monaural, connect its input terminal to the upper TAPE RECORDING TERMINAL (31):

### CONNECTION FOR PLAYBACK (OR TAPE RECORDING MONITOR):

Connect the playback output terminals (line output or tape monitor terminals) of the tape recorder (or tape deck) to the TAPE MONITOR TERMINALS (30). The connecting procedure is similar to that of the above "CONNECTION FOR RECORDING".

### o USE OF TAPE REC/P.B. CONNECTOR:

If the tape recorder (or tape deck) to be connected to the receiver has a recording/playback connector of DIN type, connect it to the TAPE REC/P.B. CONNECTOR (32) of the receiver. Disregard "CONNECTION FOR RECORDING" and "CONNECTION FOR PLAYBACK".

# CONNECTION OF CARTRIDGE TAPE PLAYER

When using the cartridge tape player (PIONEER's Model H-60E), connect its output to the AUXILIARY TERMINALS (28). The connecting procedure is similar to that for turn table connection.

# RECEPTION OF BROADCAST

## BEFORE TURNING ON THE SPEAKER SWITCH OF THE RECEIVER, CHECK THE FOLLOWING:

VOLUME CONTROL KNOB (17) is set to "MIN".
TAPE MONITOR SWITCH (13) is set to "OFF".
MODE SWITCH (14) set to "STEREO".

## RECEPTION OF FM BROADCAST:

1. Set the SELECTOR knob (5) to the "FM AUTO" position.
2. Set the AFC swich (11) to the OFF position.
3. While observing the pointer deflection of the TUNING INDICATOR (2), tune the receiver to the desired station by using the TUNING knob (4). The best reception is attained when the pointer of the TUNING INDICATOR (2) largely deflects rightward. If the tuned station is broadcasting a stereo program, the STEREO INDICATOR (3) lights. With the SELECTOR knob (5) in this position, monaural programs can also be received.
4. Set the AFC switch (11) to the ON position.
5. When the desired station is tuned in, gently turn the VOLUME CONTROL knob (17) clockwise. Adjust the BASS CONTROL (7) and TREBLE CONTROL (8) for the desired tone quality.
   * When the receiver is used very far from the broadcasting station, or external noise is intensive, the noise is suppressed and better reception is attained by setting the SELECTOR knob (5) to the "FM MONO" position. When the knob is in this position, however, stereo programs are received as monaural programs.
6. When good radio reception cannot be attained by the above operating procedures 1 to 5, re-consider the antenna, referring to the article "ANTENNA CONNECTION AND GROUNDING".

## RECEPTION OF AM BROADCAST:

1. Set the SELECTOR knob (5) to the AM position.
2. While observing the pointer deflection of the TUNING INDICATOR (2), tune the receiver to the desired station by using the TUNING knob (4). The best reception is attained when the pointer of the TUNING INDICATOR (2) largely deflects rightward.
3. When the desired station is tuned in, adjust the VOLUME CONTROL (17), BASS CONTROL (7) and TREBLE CONTROL (8) for desired sound volume and tone quality.
4. When good radio reception cannot be attained, such as speaker sound is noisy or inferior in tone quality by the above operating procedsures 1 to 3, re-consider the antenna, referring to the article "ANTENNA CONNECTION AND GROUNDING". When the receiver is used very near the broadcasting station, the field intensity is sometimes too strong, resulting in low tone quality. If this occurs, shorten or remove the antenna connected to the AM antenna for the best radio reception.

# PLAY OF DISK RECORD

1. Set the SELECTOR knob (5) to the "PHONO" position.
2. When using a monaural turntable, set the MODE SWITCH (14) to the "MONO" position.
3. Adjust the VOLUME, BASS and TREBLE CONTROLS for desired sound volume and tone quality.

# PLAY OF CARTRIDGE TAPE

1. Set the SELECTOR knob (5) to the "AUX" position.
2. The succeeding procedure is similar to its counterpart of the disk turntable operation.

# RECORDING AND PLAYBACK WITH TAPE RECORDER (OR TAPE DECK)

The same signals as those emitted from loudspeakers can always be taken out from the TAPE RECORDING TERMINALS (31) of the receiver. Operate the SELECTOR knob (5) and MODE SWITCH (14) according to the program source to be recorded, following the instructions described in articles "RECEPTION OF BROADCAST" and "PLAY OF DISK RECORD".

The volume, BASS and TREBLE controls of the receiver cannot be used for the tape recording. The recording level should be adjusted by the control of the tape recorder (or tape deck).

NOTE:

When using a monaural tape recorder, signals of either left or right channel only can be recorded.

## PLAYBACK

Set the TAPE MONITOR SWITCH (13) to the "ON" position. Adjust the VOLUME, BASS and TREBLE CONTROLS for desired sound volume and tone quality.

* When the TAPE MONITOR SWITCH (13) is in the "ON" position, the position of the SELECTOR knob (5) is unrelated to the playback operation.

## TAPE MONITOR:

If the tape recorder used with the receiver is provided with a monitor circuit, monitor can be effected regardless of the tape recorder being two-head or three-head type. Connect the tape recorder to the receiver recording and playback terminals. By setting the TAPE MONITOR (13) from "OFF" to "ON" while making recording, the signals applied to the recording head can be monitored if the tape recorder is of the two head system. If a three-head tape recorder is used, recorded signals can be monitored immediately after recording.

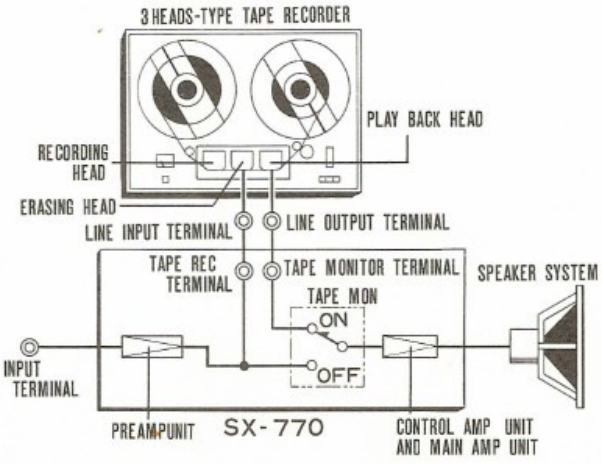



Fig. 9

# MODEL SX-770 IS ALSO USABLE AS FOLLOWS

## By using the center channel output terminal:

### 1. For prevention of the hole effect:

When employing a three-speaker system to prevent the hole effect which is apt to be caused to the stereo play in a large room, connect an additional power amplifier to this terminal.

### 2. For bass compensation:

A bass-compensated system can be composed by cutting off the part higher than 250 Hz of the center channel output with a high-cut filter.

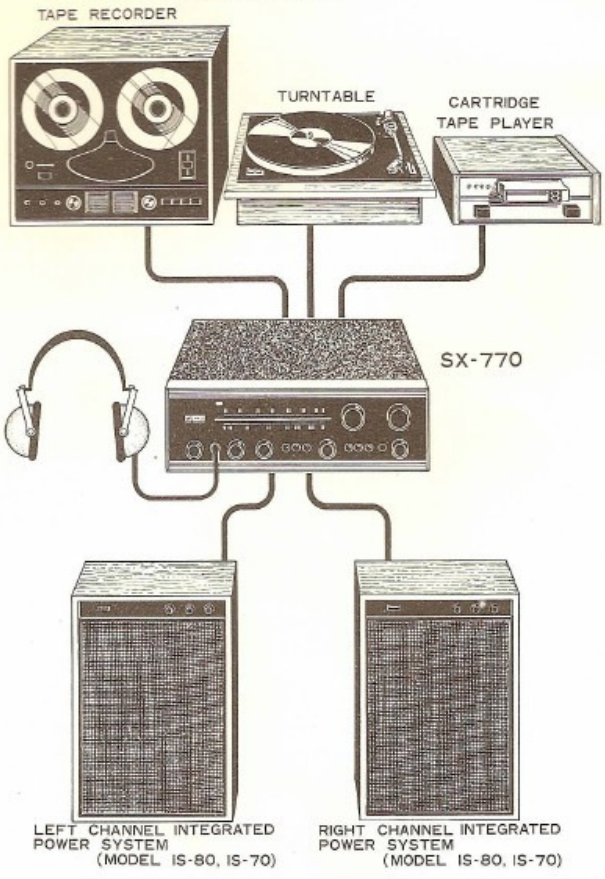



Fig. 10

## By Connecting a microphone:

The output of a microphone can be connected to the microphone jack located on the front panel. The microphone can be used simply after setting the SELECTOR Knob to the PHONO/MIC position. When the microphone is connected to the jack, however, the record player output is disconnected from Model SX-770.

NOTE:

1. The microphone to be used should have a high impedance.
2. Other output cannot be supplied to the loudspeaker terminals simultaneously with the microphone output.

## By using the LINE OUT terminal:

Model SX-770 can be used as an preamplifier by connecting Model IS-80 or IS-70 Power System of PIONEER's integrate stereo equipment to this terminal.

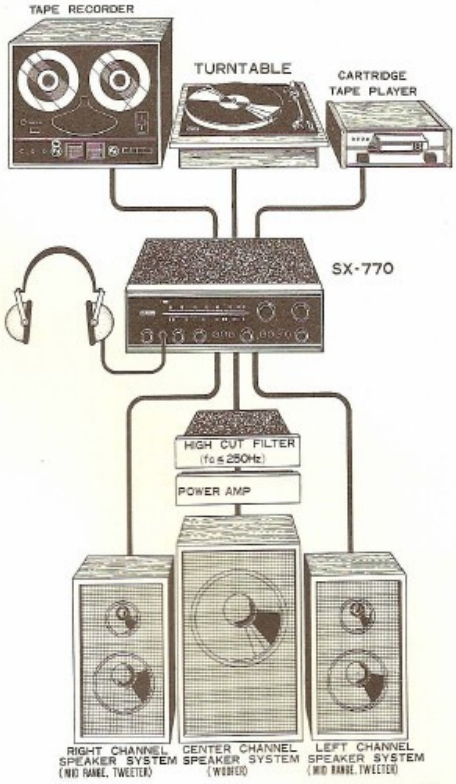



Fig. 11

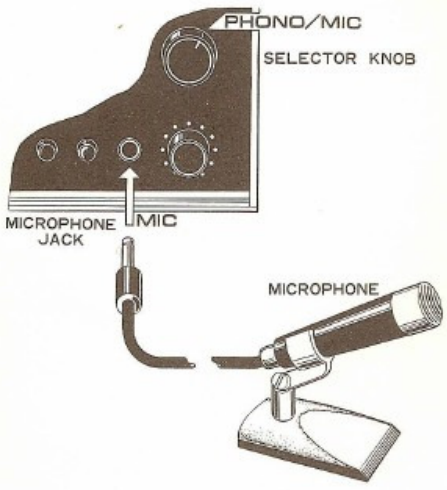



Fig. 12

# ALIGNMENT

## ALIGNMENT OF FM SECTION

Disconnect output terminal of frontend (3, 4) from (3) terminal of Tuner Unit and $C_{32}$(4.7$\mu$F) at terminal (17).

Position of Switch: Selector ..... FM MONO
AFC ..... OFF
Muting ..... OFF

Volume Control Setting: Fully counterclockwise

| STEPS | Input | | | Dial Setting | Output Equipment Connections | Alignment | |
|---|---|---|---|---|---|---|---|
| | Equipment Connections | Frequency | Level | | | Adjust | Remarks |
| 1 | Sweep Generator<br>3 | 10.7MHz | 40 dB | | Oscilloscope<br>12 | $T_1$<br>$T_2$<br>$T_3$ | Adjust for maximum sensitivity and symmetrical characteristics. |
| 2 | "<br>" | " | 80 dB | | "<br>" | | Check symmetry of characteristic curve |
| 3 | "<br>"<br>" | " | 40 dB | | "<br>16 | $T_4$ | Adjust the primary core of $T_4$ so that of straight portion of "S" curve will become the steepest and adjust the secondary core so that the center of "S" curve will coincide with the center of the marker. |
| 4 | Connect output terminal of frontend (3, 4) to (3) terminal of Tuner Unit and $C_{32}$(4.7 $\mu$F) at terminal (17). | | | | | | |
| 5 | Signal Generator<br>FM antenna terminal | 90MHz | 20 dB (400Hz 30 %) | 90MHz | VTVM Oscilloscope<br>16 | $L_3$ (F.E) | Adjust for maximum deflection. |
| 6 | "<br>" | 106MHz | " | 106MHz | "<br>" | $CT_3$ (F.E) | " |
| 7 | Repeat STEPS 5 and 6 several times. | | | | | | |
| 8 | "<br>" | 90MHz | 10dB (400Hz 30 %) | 90MHz | "<br>" | $T_1$, $T_2$<br>$L_1$, $L_2$<br>(F.E) | " |
| 9 | "<br>" | 106MHz | " | 106MHz | "<br>" | $CT_1$<br>$CT_2$<br>(F.E) | " |
| 10 | Repeat STEPS 8 and 9 several times | | | | | | |

## ALIGNMENT OF MPX SECTION

Position of Switch: SELECTOR FM AUTO
MUTING OFF
Volume Control Setting: Fully Counterclockwise
Input Signal: Main (L + R) 40.5 KHz Deviation (60%)
19KHz Pilot 7.5KHz Deviation (10%)

| STEPS | Circuit to be adjusted | Input | | Connect VTVM | Alignment | |
|---|---|---|---|---|---|---|
| | | Connections | Signal | | Adjust | Remarks |
| 1 | Separation | MPX SG to FM Antenna terminal | Sub (L-R) | AC VTVM REC terminal L or R | $L_1$ | Adjust for maximum deflection. |
| 2 | | | L or R | | $VR_1$ | Adjust for minimum deflection of the other channel. |

## ALIGNMENT OF AM SECTION

Position of Switch : Selector ..... AM
Volume Control Setting: Fully Counterclockwise

| STEPS | Input | | | Dial Setting | Output Equipment Connections | Alignment | |
|---|---|---|---|---|---|---|---|
| | Equipment Connectors | Fregaency | Level | | | Adjust | Remarks |
| 1 | Sweep Generator Antenna terminal through dummy | 455kHz | 50 dB | Point of no interference as near as 525kHz | VTVM Oscilloscope<br>10 | $T_5$ $T_6$ $T_7$ | Adjust for maximum sensitivity and symmetrical characteristics. |
| 2 | Signal Generator Antenna terminal through dummy | 600kHz | 30 dB | 600kHz | " " | $T_8$ | Adjust for maximum deflection |
| 3 | " " | 1,400kHz | " | 1,400kHz | " " | $CT_2$ | " |
| 4 | Repeat STEPS 2 and 3 several times | | | | | | |
| 5 | " " | 600kHz | " | 600kHz | " " | $L_1$ (Adjusting core) | " |
| 6 | " " | 1,400kHz | " | 1,400kHz | " " | $CT_1$ | " |
| 7 | Repeat STEPS 5 and 6 several times. | | | | | | |

# SPECIFICATIONS

## ★ SEMICONDUCTORS

| | | | |
|---|---|---|---|
| Tuner Section | | Audio section | |
| F E T | 1 | Transistors | 21 |
| I C | 3 | Diodes , etc. | 7 |
| Transistors | 9 | | |
| Diodes | 12 | | |

## ★ AUDIO SECTION

| | |
|---|---|
| Circuitry | Single ended Push Pull |
| Music Power Output | 4Ω 70 watts total (IHF rating)<br>8Ω 52 watts total (IHF rating) |
| RMS Rated Power Output (both channel driven) | 4Ω 17 + 17 watts<br>8Ω 15 + 15 watts |
| RMS Rated Power Output (each channel driven) | 8Ω 20 w/20watts |
| Harmonic Distortion | Less than 0.8% (at 1kHz rated output) |
| Frequency Response | ±3dB, from 20 Hz to 40 kHz (Over-all) |
| Power Bandwidth | 15 Hz to 35kHz (AUX) |
| Damping Factor | 35/8Ω (at 1kHz) |
| Hum & Noise (at rated output) | MAG: better than 80dB<br>AUX: better than 95 dB |
| Input Impedance and Audio Sensitivity (for rated output) | MAGnetic PHONO: 2.5 mv. 50kΩ (1kHz)<br>CERamic PHONO: 58 mv. 100kΩ<br>MICrophone: 5mV. 100kΩ (1kHz)<br>TAPE MONITOR: 200mv. 100 kΩ (1kHz)<br>AUXiliary: 200mv. 100kΩ (1kHz) |
| Output Terminals and Jacks | Speakers: Impedance 4 to 16 ohms,Stereo headphones jack. Simultaneous tape Recording jacks, equipped with TAPE MONITOR switch.Tape recording/playback jack (DIN type) |
| Equalization Curves | PHONO: RIAA |
| Tone Controls (each channel) | BASS: boost 13dB, cut 14dB (at 50 Hz)<br>TREBLE: boost 10 dB, cut 9dB (at 10kHz) |
| Filters | HIGH: cut 9dB (at 10kHz) |
| Loudness Contour | ON-OFF<br>boost 12 dB at 50 Hz,<br>Boost 7.5 dB at 10kHz,<br>with VOLUME control set at -40 dB |

## ★ FM SECTION

| | |
|---|---|
| Circuitry | Front end using F.E.T. |
| Frequency Range | 87.5 - 108 MHz |
| IHF Usable Sensitivity | 1.8 μv |
| Image Rejection | 60 dB (at 98 MHz) |
| Signal to Noise Ratio | 70 dB (IHF rating) |
| Antenna Input | 300 ohms (balanced) |

## ★ MULTIPLEX SECTION

| | |
|---|---|
| Circuitry | Time-switching type demodulator FM Mono Stereo Automatic selection |
| Channel Separation | 40 dB (at 1 kHz) |

## ★ AM SECTION

| | |
|---|---|
| Circuitry | Superheterodyne |
| Frequency Range | 525 - 1605 kHz |
| IHF Usable Sensitivity | 10μv |
| Image Rejection | 55 dB (at 1000 kHz) |
| Antenna Input | Built in Ferrite Loopstick Antenna |

## ★ MISCELLANEOUS

| | |
|---|---|
| Line Requirements | 110, 117, 130, 220, 240 volts, (switchable), 50 - 60 Hz, 117VA, 108 watts (Max) |
| Dimensions | (overall) 16"15/16 430mm ..... (width)<br>5" 11/16 145mm (height)<br>13"3/4 349mm (depth) |
| Weight | without package<br>21 lbs 2oz/9.6kg<br>with package<br>24 lbs 7oz/11.1 kg |

● These specifications are subject modification for improvement with out notice.

# CONDITIONS FREQUENTLY MISTAKEN FOR MALFUNCTION

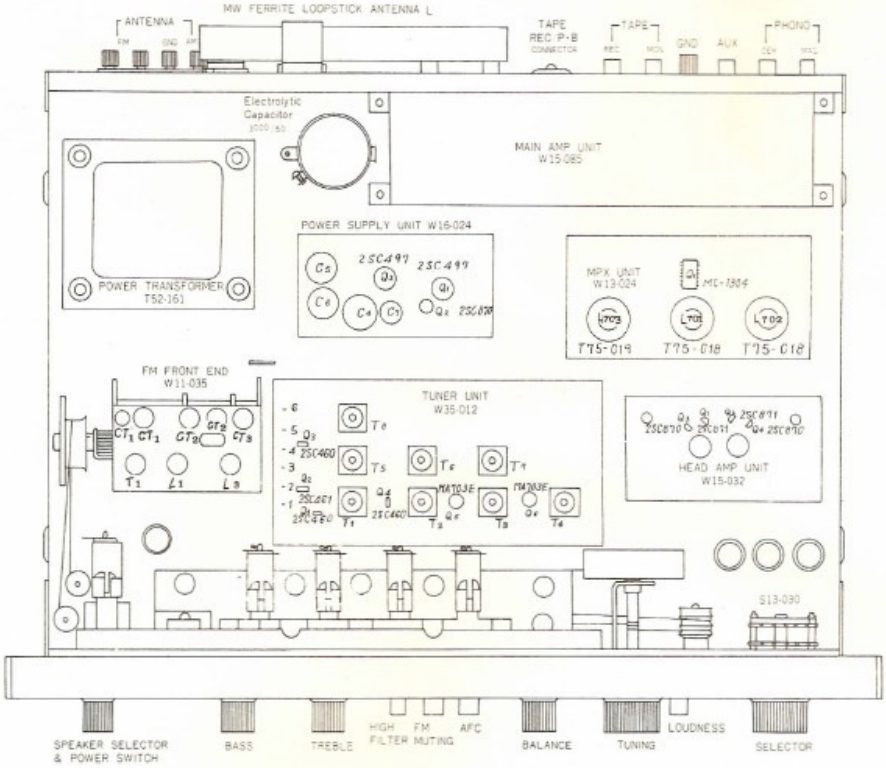
Noise: There are a variety of noises relating to the operation of a hi-fi unit. These are generally divided into two types; (1) the unit is faulty (a transistor or part has deteriorated) and (2) an external source of noise is adding noise to the unit.
When a hi-fi unit produces an unpleasant noise, it is often assumed that the unit is faulty, but statistical records indicate that the majority of noises produced in hi-fi acoustic units result from external sources of noise. Due to the inherent high sensitivity and the high fidelity in reproduction, the unit amplifies and reproduces extraneous noises, into definite output noise. If your receiver produces a noise, check according to the following table and trace out the source of noise for the appropriate corrective action.

| | Symptom | Suspected Source of Noise | Diagnosis and Remedy |
|---|---|---|---|
| When Listening to Broadcast | Continuous or intermittent noise like jjjjjj or zzzzzz. | • Static (lightning)<br>• Fluorescent lamp, motor, or thermostat may be in use in house or in the vicinity of the house. | In many cases, it is very difficult to remove the source of noise. In order to make the radio input larger than the noise level, set up a good outdoor antenna and make a complete grounding. |
| | When a station is tuned in, hum is mixed in the program. | • Poor fluorescent lamp, motor, or electric heater may be in use in house or near the house. | Reversing the line plug may occasionally alleviate this noise problem. Usually it is very difficult to eliminate the noise. |
| | Hissing sound noise in AM (medium wave) reception. | • The frequency of an adjacent station is interfering with that of the station being tuned in (10kHz beat interference).<br>• TV set is on in the same house with the receiver. | Impossible to remove such interference. If the cause of such noise is in the TV set, increase the distance between the TV set and receiver. |
| | Static noise (in particular, when automobiles run close to the house). | • White noise generated from automobile engines.<br>• Radio frequency sewing machine or welding machine being used near your house. | In an area surrounded by hills or high buildings, the FM input signals are very weak. Thus the noise limiter in the circuit loses its function. Set up an outdoor FM antenna having many reflector elements. |
| | Reception of FM stereo program contains more noise than FM mono program. | • Note that the service area covered by an FM stereo broadcast is about 50% of that of a regular mono broadcast. | Increasing FM input signal may alleviate this problem. Use an exclusive FM outdoor antenna instead of the indoor T-type antenna. |
| When Playing Records | Hum or buzz. When switched to radio reception, the noise disappears. | • Poor connection of shielded wire (a).<br>• Jack connection is loose. (b)<br>• Line cord or fluorescent lamp is near the shielded wire. (c)<br>• Poor grounding. (d)<br>• HAM transmitting station or TV transmitting station is near your house. (e) | Correct the conditions stated in (a), (b), (c) or (d). In case of (e), report it to an official activity. |
| | Output tone quality is poor and mixed with noise. Treble is not clear. | • Stylus is worn out. (a)<br>• Record is worn out. (b)<br>• Dust adheres to stylus. (c)<br>• Stylus is improperly mounted. (d)<br>• Stylus pressure is not proper. (e)<br>• The TREBLE level is too high. | Check (a) through (e) and correct the condition.<br><br>Lower the TREBLE level. |

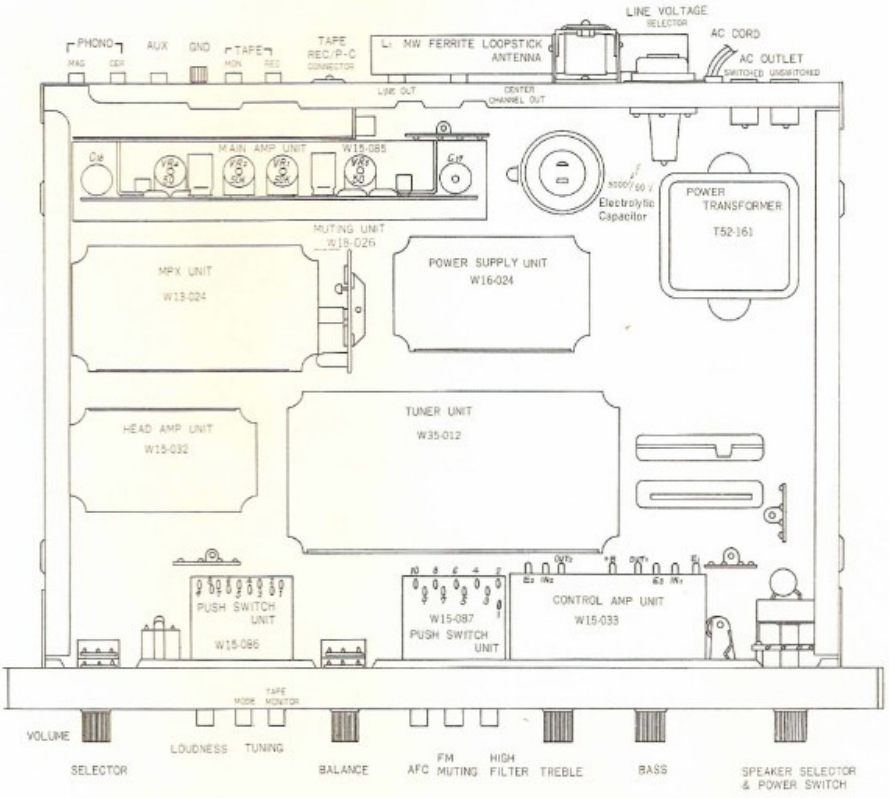
Watch for the following conditions; these are also apt to be mistaken for malfunction.

| | Symptom | Suspected Source of Noise | Diagnosis and Remedy |
|---|---|---|---|
| | Power is not turned on although the power switch is set to ON. | • Fuse blows. (a)<br>• Line plug is loose. (b) | Check (a) and (b) and correct the condition. |
| | In playing a record, increasing the volume causes howling. | • Distance between the turntable and the speakers is too short.<br>• The place on which the turntable or speakers are set is unstable. | Change the distance or rearrange the installation increase of the unit and speakers. (Installing the turntable on a firm, solid stand may alleviate this problem.)<br>Do not enhance the BASS sound level excessively. |

## PARTS LAYOUT (TOP VIEW)




## PARTS LAYOUT (BOTTOM VIEW)



# PARTS LIST

## CAPACITORS

IN μF, 10% TOLERANCE UNLESS OTHERWISE NOTED P:μμF

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| C1 | Ceramic | 47p | | 50V | |
| C2 | 〃 | 〃 | | 〃 | |
| C9 | Mylar | 0.003 | | 〃 | |
| C10 | Ceramic | 220p | | 〃 | |
| C11 | 〃 | 〃 | | 〃 | |
| C12 | Electrolytic | 220 | | 3V | |
| C15 | 〃 | 3000 | | 50V | |
| C16 | Oil paper | 0.01 | | | C15-001-0 |
| C17 | Ceramic | 〃 | +80% −20% | DC.1.4KV | C43-003-0 |
| C18 | 〃 | 〃 | 〃 | 〃 | 〃 |
| C19 | Mylar | 0.0018 | | 50V | |
| C20 | 〃 | 〃 | | 〃 | |

## RESISTORS

IN Ω, 10% TOLERANCE, 1/4 WATT UNLESS OTHERWISE NOTED K: KΩ, M: MΩ, W: WATT

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| R1 | Carbon film | 1M | | | |
| R2 | 〃 | 〃 | | | |
| R3 | 〃 | 100K | | | |
| R4 | 〃 | 〃 | | | |
| R5 | 〃 | 68K | | | |
| R6 | 〃 | 〃 | | | |
| R7 | Compound part for REC terminal | | | | W52-004-0 |
| R8 | | | | | |
| R9 | | | | | |
| R10 | | | | | |
| R11 | Carbon film | 33K | | ½W | |
| R12 | 〃 | 〃 | | 〃 | |
| R15 | 〃 | 3.9K | | 〃 | |
| R16 | 〃 | 〃 | | 〃 | |
| R17 | 〃 | 1K | | 〃 | |
| R18 | 〃 | 〃 | | 〃 | |
| R19 | 〃 | 39K | | 〃 | |
| R20 | 〃 | 〃 | | 〃 | |
| R21 | 〃 | 150 | | 3W | |
| R22 | 〃 | 〃 | | 〃 | |
| R23 | 〃 | 1K | | ½W | |
| R24 | 〃 | 1M | | 〃 | |

## COILS AND TRANSFORMERS

| Symbol | Description | Part No. |
|---|---|---|
| L1 | AM Ferrite Loopstick Antenna | T42-025-0 |
| L2 | Choke Coil | T24-030-0 |
| T1 | POWER Transformer | T52-161-C |

## SWITCHES

| Symbol | Description | Part No. |
|---|---|---|
| S1 | Input Selector | S13-030-0 |
| S2 | Output Selector | S11-022-A |

## POTENTIOMETERS

| Symbol | Description | Part No. |
|---|---|---|
| VR1 | 250kΩ dual, Volume | C82-038-0 |
| VR2 | 50kΩ dual, Balance | C85-052-0 |

| Symbol | Description | Part No |
|---|---|---|
| | FM FRONT END | W11-035-0 |
| | TUNER Unit | W35-012-E |
| | MPX Unit | W13-026-D |
| | HEAD AMP Unit | W15-032-B |
| | CONTROL AMP Unit | W15-033-0 |
| | MAIN AMP Unit | W15-085-C |
| | PUSH SWITCH Unit (A) | W15-086-0 |
| | PUSH SWITCH Unit (B) | W15-087-0 |
| | POWER SUPPLY Unit | W16-024-0 |
| | MUTING Unit | W18-026-B |
| | Front Panel | M21-303-0 |
| | Plastics Panel | M21-309-A |
| | Wooden Case | M52-112-A |
| | Dial Pulley | M49-009-B |
| | Dial Pulley (for Tuning Capacitor) | M42-041-E |
| | Dial Glass | A 33-088-C |
| | Dial Pointer | A 31-093-C |
| | Knob, Selector | A 12-136-A |
| | Knob, Tuning | A 12-139-A |
| | Knob, Volume, Balance, Bass, Treble, Output Selector | A 12-131-A |
| | Tuning Meter | A 91-009-D |
| | Pilot Lamp (for Dial Glass) | E 22-017-0 |
| | Pilot Lamp (for Tuning Meter) | E 22-020-0 |
| | Pilot Lamp (for Tuning Meter) | E 22-021-0 |
| | Pilot Lamp (for FM Stereo) | E 22-015-A |
| | Pilot Lamp Socket | K42-003-0 |
| | Bracket for FM Stereo | A62-045-0 |
| | Fuse 1A | E21-004-0 |
| | Fuse 2A | E21-005-0 |
| | Line Voltage Selector | S11-018-0 |
| | Microphone Jack | K72-020-0 |
| | Headphone Jack | K72-021-B |
| | Connector 5P | K93-003-B |
| | Jack for Speaker | K73-003-A |
| | Spare A.C Outlet | K82-012-0 |
| | Terminal 6p | K22-013-C |
| | Terminal 4p | K22-010-A |
| | Terminal 2p | K21-009-C |
| | Terminal 1p | K21-005-C |

## FM FRONTEND (W11-035)

### CAPACITORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| C1 | Ceramic | 15p | | 50V | |
| C2 | 〃 | 100p | | 〃 | |
| C3 | 〃 | 3p | ±0.25p | 〃 | |
| C4 | 〃 | 0.02 | +80% −20% | 〃 | |
| C5 | 〃 | 〃 | 〃 | 〃 | |
| C6 | 〃 | 18p | ±5% | 〃 | |
| C7 | 〃 | 2p | ±0.25p | 〃 | |
| C8 | 〃 | 10p | ±1p | 〃 | |
| C9 | 〃 | 0.001 | ±20% | 〃 | |
| C10 | 〃 | 0.02 | +80% −20% | 〃 | |
| C11 | 〃 | 100p | | 〃 | |
| C12 | 〃 | 0.02 | +80% −20% | 〃 | |
| C13 | 〃 | 〃 | 〃 | 〃 | |
| C14 | 〃 | 6p | ±0.5p | 〃 | |
| C15 | 〃 | 1p | ±0.25p | 〃 | |
| C16 | 〃 | 10p | ±1p | 〃 | |
| C17 | 〃 | 5p | ±0.5p | 〃 | |
| C18 | 〃 | 15p | | 〃 | |
| C19 | 〃 | 10p | ±1p | 〃 | |
| C20 | 〃 | 0.02 | +80% −20% | 〃 | |
| C21 | 〃 | 0.001 | ±20% | 〃 | |

### RESISTORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| R1 | Carbon film | 100K | | | |
| R2 | 〃 | 1M | | | |
| R4 | 〃 | 47 | | | |
| R5 | 〃 | 4.7K | | | |
| R6 | 〃 | 15K | | | |
| R7 | 〃 | 1K | | | |
| R8 | 〃 | 1M | | | |
| R9 | 〃 | 10K | | | |
| R10 | 〃 | 3.3K | | | |
| R11 | 〃 | 10K | | | |
| R12 | 〃 | 100 | | | |
| R13 | 〃 | 150K | | | |

### DIODE AND TRANSISTORS

| Symbol | Description | Part No. |
|---|---|---|
| D1 | 1S351R Vari-Cap. Diode | |
| Q1 | 2SK-19 F E T | |
| Q2 | SE3001 Transistor | |
| Q3 | 〃 | |

### COILS AND TRANSFORMER

| Symbol | Description | Part No. |
|---|---|---|
| L1 | R.F Coil | |
| L2 | R.F Choke Coil | |
| L3 | OSC. Coil | |
| L4 | RF Coil | |
| T1 | ANT Coil | |
| T2 | IF Transformer | |

## MUTING UNIT (W18-026)

### CAPACITORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| C1 | Electrolytic | 4.7 | | 16V | |
| C2 | 〃 | 2.2 | | 35V | |
| C3 | Mylar | 0.0056 | ±20% | 50V | |

### RESISTORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| R1 | Carbon film | 33K | | | |
| R2 | 〃 | 33K | | | |
| R3 | 〃 | 33O | | | |
| R4 | 〃 | 10K | | | |
| R5 | 〃 | 1.8K | | | |
| R6 | 〃 | 10K | | | |
| R7 | 〃 | 68K | | | |
| R8 | 〃 | 39K | | | |
| R9 | 〃 | 4.7K | | | |
| R10 | 〃 | 2.7K | | | |
| R11 | 〃 | 22K | | | |

### TRANSISTORS

| Symbol | Description | Part No. |
|---|---|---|
| Q1 | 2SC870 | |
| Q2 | 〃 | |
| Q3 | 〃 | |

### POTENTIOMETER

| Symbol | Description | Part No. |
|---|---|---|
| VR1 | 2KΩ Semi fixed, Muting level control | C92-057-0 |

## MPX UNIT (W13-026)

### CAPACITORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| $C_1$ | Electrolytic | 2.2 | | 50V | CEMX 2R2MF 50V |
| $C_2$ | Electrolytic | 10 | | 10V | CEMX 10MF 10V |
| $C_3$ | Styrol | 3300p | ±5% | | C15-011-0 |
| $C_4$ | Electrolytic | 3.3 | | 25V | CEMX 3R3MF 25V |
| $C_5$ | Mylar | 0.15 | | 50V | CQMA 154K 50 |
| $C_6$ | Mylar | 2200p | | 50V | CQMA 222K 50 |
| $C_7$ | Mylar | 2200p | | 50V | CQMA 222K 50 |
| $C_8$ | Electrolytic | 0.47 | | 50V | CEMX R47MF 50V |
| $C_9$ | Electrolytic | 0.47 | | 50V | CEMX R47MF 50V |
| $C_{10}$ | Mylar | 1500p | | 50V | CQMA 152K 50 |
| $C_{11}$ | Mylar | 1500p | | 50V | CQMA 152K 50 |
| $C_{12}$ | Ceramic | 300p | | 50V | CCDSL 301K 50 |

### RESISTORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| $R_1$ | Carbon film | 6.8k | | | RF¼PS 6R8K-K |
| $R_2$ | Carbon film | 4.7k | | | RF¼PS 4R7K-K |
| $R_3$ | Carbon film | 39k | | | RF¼PS 39K-K |
| $R_4$ | Carbon film | 4.7k | | | RF¼PS 4R7K-K |
| $R_5$ | Carbon film | 47k | | | RF¼PS 47K-K |
| $R_6$ | Carbon film | 47 | | | RF¼PS 47-K |
| $R_7$ | Carbon film | 2.2k | | | RF¼PS 2R2K-K |
| $R_8$ | Carbon film | 15k | | | RF¼PS 15K-K |
| $R_9$ | Carbon film | 100 | | | RF¼PS 100-K |
| $R_{10}$ | Carbon film | 330 | | | RF¼PS 330-K |
| $R_{11}$ | Carbon film | 33k | | | RF¼PS 33K-K |
| $R_{12}$ | Carbon film | 10k | | | RF¼PS 10K-K |
| $R_{13}$ | Carbon film | 10k | | | RF¼PS 10K-K |
| $R_{14}$ | Carbon film | 150 | | | RF¼PS 150-K |
| $R_{15}$ | Carbon film | 33k | | | RF¼PS 33K-K |
| $R_{16}$ | Carbon film | 2.7K | | | RF¼PS 2R7K-K |
| $R_{17}$ | Carbon film | 1.2k | | | RF¼PS 1R2K-K |
| $R_{18}$ | Carbon film | 2.7k | | | RF¼PS 2R7K-K |
| $R_{19}$ | Carbon film | 1.2k | | | RF¼PS 1R2K-K |
| $R_{20}$ | Carbon film | 10k | | | RF¼PS 10K-K |
| $R_{21}$ | Carbon film | 10k | | | RF¼PS 10K-K |
| $R_{22}$ | Carbon film | 1k | | | RF¼PS 1K-K |
| $R_{23}$ | Carbon film | 15k | | | RF¼PS 15K-K |
| $R_{24}$ | Carbon film | 15k | | | RF¼PS 15K-K |
| $R_{26}$ | Carbon film | 330 | | | RF¼PS 330-K |
| $R_{27}$ | Carbon film | 1k | | | RF¼PS 1K-K |
| $R_{28}$ | Carbon film | 33k | | | RF¼PS 33K-K |
| $R_{29}$ | Carbon film | 33k | | | RF¼PS 33K-K |

### COILS AND TRANSFORMER

| Symbol | Description | Part No. |
|---|---|---|
| $L_1$ | 19kHz Coil | T75-023-0 |
| $LPF_1$ | 38kHz Coil | T75-015-A |
| $LPF_2$ | 38kHz Coil | T75-015-A |
| $T_1$ | MPX Transformer | T75-026-0 |

### DIODES AND TRANSISTORS

| Symbol | Description | Part No. |
|---|---|---|
| $D_1$ | 1S188·FM-1 Diode | |
| $D_2$ | 1S188 FM-1 Diode | |
| $Q_1$ | 2SC870 (F or E) Transistor | |
| $Q_2$ | 2SC711-F or E Transistor | |
| $Q_3$ | 2SC711-F or E Transistor | |
| $Q_4$ | 2SC711-F or E Transistor | |
| $Q_5$ | 2SC711-F or E Transistor | |
| $Q_6$ | CA3054 IC | |

## TUNER UNIT (W35-012)

### CAPACITORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| $C_1$ | Ceramic | 0.01 | +100% 0 | 25V | |
| $C_2$ | 〃 | 〃 | 〃 | 〃 | |
| $C_3$ | 〃 | 5p | ±0.5p | 50V | |
| $C_4$ | 〃 | 0.01 | +100% 0 | 25V | |
| $C_5$ | 〃 | 〃 | 〃 | 〃 | |
| $C_6$ | 〃 | 0.04 | 〃 | 〃 | |
| $C_7$ | 〃 | 〃 | 〃 | 〃 | |
| $C_8$ | Electrolytic | 10 | | 10V | |
| $C_9$ | Ceramic | 0.04 | +100% 0 | 25V | |
| $C_{10}$ | 〃 | 〃 | 〃 | 〃 | |
| $C_{11}$ | 〃 | 〃 | 〃 | 〃 | |
| $C_{12}$ | Mylar | 0.01 | | 50V | |
| $C_{13}$ | Styrol | 450p | | 〃 | |
| $C_{14}$ | Ceramic | 0.04 | +100% 0 | 25V | |
| $C_{15}$ | 〃 | 27p | | 50V | |
| $C_{16}$ | 〃 | 12p | | 〃 | |
| $C_{17}$ | 〃 | 560p | | 〃 | |
| $C_{18}$ | 〃 | 0.04 | +100% 0 | 25V | |
| $C_{19}$ | Electrolytic | 4.7 | | 16V | |
| $C_{20}$ | Ceramic | 0.04 | +100% 0 | 25V | |
| $C_{21}$ | 〃 | 〃 | 〃 | 〃 | |
| $C_{22}$ | 〃 | 3p | ±0.25p | 50V | |
| $C_{23}$ | 〃 | 68p | | 〃 | |
| $C_{24}$ | 〃 | 0.01 | +100% 0 | 25V | |
| $C_{25}$ | Mylar | 0.1 | | 50V | |
| $C_{26}$ | Ceramic | 0.01 | +100% 0 | 25V | |
| $C_{27}$ | 〃 | 〃 | 〃 | 〃 | |
| $C_{28}$ | Mylar | 4700p | | 50V | |
| $C_{29}$ | 〃 | 2200p | | 〃 | |
| $C_{30}$ | Electrolytic | 0.47 | | 〃 | |
| $C_{31}$ | Ceramic | 180p | | 〃 | |
| $C_{32}$ | Electrolytic | 4.7 | | 16V | |
| $C_{33}$ | 〃 | 1 | | 25V | |
| $C_{34}$ | Ceramic | 0.04 | +100% 0 | 〃 | |
| $C_{35}$ | Electrolytic | 100 | | 25V | |
| $C_{36}$ | Ceramic | 1p | ±0.1p | 50V | |
| $C_{37}$ | 〃 | 0.01 | +100% 0 | 25V | |
| $C_{38}$ | 〃 | 0.04 | 〃 | 〃 | |
| $C_{39}$ | 〃 | 100p | | 50V | |
| $C_{40}$ | 〃 | 0.04 | +100% 0 | 25V | |

## RESISTORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| R1 | Carbon film | 56K | | | |
| R2 | " | 100 | | | |
| R3 | " | 8.2K | | | |
| R4 | " | 1.8K | | | |
| R5 | " | 470 | | | |
| R6 | " | " | | | |
| R7 | " | 4.7K | | | |
| R8 | " | 15K | | | |
| R9 | " | 2.2K | | | |
| R10 | " | 470 | | | |
| R11 | " | 1.5K | | | |
| R12 | " | " | | | |
| R13 | " | 22K | | | |
| R14 | " | 470 | | | |
| R15 | " | 680 | | | |
| R16 | " | 2.7K | | | |
| R17 | " | 39K | | | |
| R18 | " | 33K | | | |
| R19 | " | 100 | | | |
| R20 | " | 5.6K | | | |
| R21 | " | 2.7K | | | |
| R22 | " | 4.7K | | | |
| R23 | " | 100 | | | |
| R24 | " | 220K | | | |
| R25 | " | " | | | |
| R26 | " | 22K | | | |
| R27 | " | 10K | | | |
| R28 | " | 47 | | | |
| R29 | " | 820 | | | |
| R30 | " | 22 | | | |
| R31 | " | 100K | | | |
| R32 | " | 100 | | | |
| R33 | " | 33k | | | |

## DIODES AND TRANSISTORS

| Symbol | Description | Part No. |
|---|---|---|
| D1 | IS188 Diode | |
| D2 | " | |
| D3 | " | |
| D4 | " | |
| D5 | " | |
| D6 | " | |
| D7 | " | |
| D8 | " | |
| D9 | " | |
| D10 | " | |
| D11 | " | |
| Q1 | 2SC460-A Transistor | |
| Q2 | 2SC461-A Transistor | |
| Q3 | 2SC460-A Transistor | |
| Q4 | " | |
| Q5 | LM703L I.C | |
| Q6 | " | |

## COIL AND TRANSFORMERS

| Symbol | Description | Part No. |
|---|---|---|
| T1 | FM IF Transformer | T73-030-0 |
| T2 | " | T73-031-0 |
| T3 | " | T73-032-0 |
| T4 | " | T74-009-0 |
| T5 | AM IF Transformer | T71-026-0 |
| T6 | " | " |
| T7 | " | T72-019-0 |
| T8 | MW OSC Coil | T43-009-A |

## HEAD AMP UNIT (W15-032) (PROVO KIT)

### CAPACITORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| C1 | Electrolytic | 10 | | 10V | |
| C2 | " | " | | " | |
| C3 | Ceramic | 30p | | 50V | |
| C4 | " | " | | " | |
| C5 | " | 100p | | " | |
| C6 | " | " | | " | |
| C7 | Electrolytic | 0.47 | | 25V | |
| C8 | " | " | | " | |
| C9 | " | 33 | | 6V | |
| C10 | " | " | | " | |
| C11 | Mylar | 0.01 | ±20% | 50V | |
| C12 | " | " | " | " | |
| C13 | " | 0.003 | " | " | |
| C14 | " | " | " | " | |
| C15 | Electrolytic | 100 | | 35V | |
| C16 | " | " | | " | |

### RESISTORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| R1 | Carbon film | 1K | | | |
| R2 | " | " | | | |
| R3 | " | 150K | | | |
| R4 | " | " | | | |
| R5 | " | 180K | | | |
| R6 | " | " | | | |
| R7 | " | 120K | | | |
| R8 | " | " | | | |
| R9 | " | 390 | | | |
| R10 | " | " | | | |
| R11 | " | 470K | | | |
| R12 | " | " | | | |
| R13 | " | 15K | | | |
| R14 | " | " | | | |
| R15 | " | 2.7K | | | |
| R16 | " | " | | | |
| R17 | " | 330K | | | |
| R18 | " | " | | | |
| R19 | " | 27K | | | |
| R20 | " | " | | | |
| R21 | " | 56K | | | |
| R22 | " | " | | | |
| R23 | " | 2.2K | | | |
| R24 | " | " | | | |

### TRANSISTORS

| Symbol | Description | Part No. |
|---|---|---|
| Q1 | 2SC871 GR or BL Transistor | |
| Q2 | " | |
| Q3 | 2SC870 Transistor | |
| Q4 | " | |

## CONTROL AMP UNIT (W15-033)

### CAPACITORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| C1 | Electrolytic | 0.47 | | 25V | |
| C2 | 〃 | 〃 | | 〃 | |
| C3 | Ceramic | 10p | | 〃 | |
| C4 | 〃 | 〃 | | 〃 | |
| C5 | Electrolytic | 100 | | 3V | |
| C6 | 〃 | 〃 | | 〃 | |
| C7 | 〃 | 2.2 | | 25V | |
| C8 | 〃 | 〃 | | 〃 | |
| C9 | Mylar | 0.003 | ±20% | 50V | |
| C10 | 〃 | 〃 | 〃 | 〃 | |
| C11 | 〃 | 0.01 | 〃 | 〃 | |
| C12 | 〃 | 〃 | 〃 | 〃 | |
| C13 | 〃 | 〃 | 〃 | 〃 | |
| C14 | 〃 | 〃 | 〃 | 〃 | |
| C15 | 〃 | 0.1 | 〃 | 〃 | |
| C16 | 〃 | 〃 | 〃 | 〃 | |
| C17 | Electrolytic | 47 | | 35V | |
| C18 | 〃 | 〃 | | 〃 | |

### RESISTORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| R1 | Carbon film | 470K | | | |
| R2 | 〃 | 〃 | | | |
| R3 | 〃 | 220K | | | |
| R4 | 〃 | 〃 | | | |
| R5 | 〃 | 22K | | | |
| R6 | 〃 | 〃 | | | |
| R7 | 〃 | 68K | | | |
| R8 | 〃 | 〃 | | | |
| R9 | 〃 | 8.2K | | | |
| R10 | 〃 | 〃 | | | |
| R11 | 〃 | 1K | | | |
| R12 | 〃 | 〃 | | | |
| R13 | 〃 | 100K | | | |
| R14 | 〃 | 〃 | | | |
| R15 | 〃 | 10K | | | |
| R16 | 〃 | 〃 | | | |
| R17 | 〃 | 2.7K | | | |
| R18 | 〃 | 〃 | | | |
| R19 | 〃 | 4.7K | | | |
| R20 | 〃 | 〃 | | | |
| R21 | 〃 | 1.5K | | | |
| R22 | 〃 | 〃 | | | |

### TRANSISTORS

| Symbol | Description | Part No. |
|---|---|---|
| Q1 | 2SC870 Transistor | |
| Q2 | 〃 | |

### POTENTIOMETERS

| Symbol | Description | Part No. |
|---|---|---|
| VR1 | 100kΩ dual, TREBLE Control | C82-040-0 |
| VR2 | 100kΩ dual, BASS Control | 〃 |

## MAIN AMP UNIT (W15-085)

### CAPACITORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| C1 | Electrolytic | 100 | | 25V | |
| C2 | 〃 | 〃 | | 〃 | |
| C3 | 〃 | 10 | | 10V | |
| C4 | 〃 | 〃 | | 〃 | |
| C5 | 〃 | 22 | | 25V | |
| C6 | 〃 | 〃 | | 〃 | |
| C7 | 〃 | 47 | | 3V | |
| C8 | 〃 | 〃 | | 〃 | |
| C9 | Ceramic | 150p | | 50V | |
| C10 | 〃 | 〃 | | 〃 | |
| C11 | Electrolytic | 47 | | 3V | |
| C12 | 〃 | 〃 | | 〃 | |
| C13 | 〃 | 100 | | 25V | |
| C14 | 〃 | 〃 | | 〃 | |
| C15 | Mylar | 0.05 | ±20% | 50V | |
| C16 | 〃 | 〃 | 〃 | 〃 | |
| C17 | Electrolytic | 1000 | | 25V | |
| C18 | 〃 | 〃 | | 〃 | |
| C19 | Ceramic | 100p | | 50V | |
| C20 | 〃 | 〃 | | 〃 | |
| C21 | 〃 | 30p | | 50V | |
| C22 | 〃 | 〃 | | 〃 | |
| C23 | 〃 | 220p | | 〃 | |
| C24 | 〃 | 〃 | | 〃 | |

### RESISTORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| R1 | Carbon film | 150K | | | |
| R2 | 〃 | 〃 | | | |
| R3 | 〃 | 8.2K | | | |
| R4 | 〃 | 〃 | | | |
| R5 | 〃 | 220K | | | |
| R6 | 〃 | 〃 | | | |
| R7 | 〃 | 22K | | | |
| R8 | 〃 | 〃 | | | |
| R9 | 〃 | 4.7K | | | |
| R10 | 〃 | 〃 | | | |
| R11 | 〃 | 470 | | | |
| R12 | 〃 | 〃 | | | |
| R13 | | 150 | | | |
| R14 | | 〃 | | | |
| R15 | | 82K | | | |
| R16 | | 〃 | | | |
| R17 | | 6.8K | | | |
| R18 | | 〃 | | | |
| R19 | | 150 | | | |
| R20 | | 〃 | | | |
| R21 | | 1K | | | |
| R22 | | 〃 | | | |
| R23 | | 3.3K | | | |
| R24 | | 〃 | | | |
| R25 | | 220 | | | |
| R26 | | 〃 | | | |
| R27 | | 22 | | | |
| R28 | | 〃 | | | |
| R29 | | 220 | | | |
| R30 | | 〃 | | | |

| | | | | | |
|---|---|---|---|---|---|
| R31 | Wire wound | 0.5 | | 2W | |
| R32 | 〃 | 〃 | | 〃 | |
| R33 | 〃 | 〃 | | 〃 | |
| R34 | 〃 | 〃 | | 〃 | |
| R35 | | 68 | | | |
| R36 | | 〃 | | | |
| R37 | | 27K | | | |
| R38 | | 〃 | | | |
| R39 | | 33K | | | |
| R40 | | 〃 | | | |
| R41 | Carbon film | 470 | | | |
| R42 | 〃 | 〃 | | | |

### VARISTORS AND TRANSISTORS

| Symbol | Description | Part NO. |
|---|---|---|
| D1 | STV-3 Varistor | |
| D2 | 〃 | |
| Q1 | 2SC870 Transistor | |
| Q2 | 〃 | |
| Q3 | 2SC734-Y Transistor | |
| Q4 | 〃 | |
| Q5 | 2SC904 Transistor | |
| Q6 | 〃 | |
| Q7 | 2SA569 Transistor | |
| Q8 | 〃 | |
| Q9 | 2SD91 Transistor | |
| Q10 | 〃 | |
| Q11 | 〃 | |
| Q12 | 〃 | |

### POTENTIOMETERS

| Symbol | Description | Part No. |
|---|---|---|
| VR1 | 50kΩ Semi fixed, Bias Control | C92-044-0 |
| VR2 | 〃 | 〃 |
| VR3 | 50Ω Semi fixed, Bias Control | C92-043-0 |
| VR4 | 〃 | 〃 |

## PUSH SWITCH UNIT A (W15-086)

### CAPACITORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| C3 | Ceramic | 220p | | 50V | |
| C4 | 〃 | 〃 | | 〃 | |
| C5 | Mylar | 0.03 | | 〃 | |
| C6 | 〃 | 〃 | | 〃 | |

### RESISTORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| R13 | Carbon film | 12K | | | |
| R14 | 〃 | 〃 | | | |

### SWITCHES

| Symbol | Description | Part No. |
|---|---|---|
| S3 | TAPE Monitor Switch (Push type) | S31-022-0 |
| S4 | Mode Switch ( 〃 ) | 〃 |
| S5 | Loudness Switch ( 〃 ) | 〃 |

## PUSH SWITCH UNIT B (W15-087)

### CAPACITORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| C7 | Mylar | 0.01 | | 50V | |
| C8 | 〃 | 〃 | | 〃 | |
| C13 | Electrolytic | 0.47 | | 25V | |

### RESISTOR

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| R26 | Carbon film | 220K | | | |

### SWITCHES

| Symbol | Description | Part No. |
|---|---|---|
| S6 | High Cut Filter Switch (Push type) | S31-022-0 |
| S7 | AFC Switch ( 〃 ) | 〃 |
| S8 | Muting Switch ( 〃 ) | 〃 |

## POWER SUPPLY UNIT (W16-024)

### CAPACITORS

| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| C1 | Ceramic | 0.01 | | 500V | |
| C2 | 〃 | 〃 | | 〃 | |
| C3 | 〃 | 100p | | 50V | |
| C4 | Electrolytic | 100 | | 〃 | |
| C5 | 〃 | 220 | | 25V | |
| C6 | 〃 | 〃 | | 〃 | |
| C7 | 〃 | 100 | | 16V | |
| C8 | Ceramic | 0.01 | | 50V | |

### RESISTORS

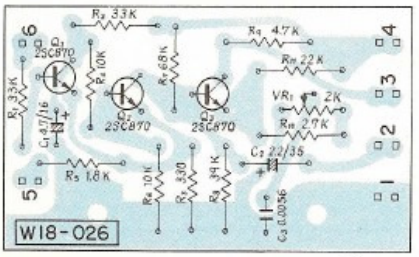
| Symbol | Description | | | | Part No. |
|---|---|---|---|---|---|
| R1 | Carbon film | 3.3K | | | |
| R2 | 〃 | 22 | | 1/2W | |
| R3 | 〃 | 33K | | | |
| R4 | 〃 | 39K | | | |
| R5 | 〃 | 2.7K | | | |
| R6 | 〃 | 560 | | 1/2W | |
| R7 | 〃 | 22 | | 〃 | |
| R8 | 〃 | 〃 | | 〃 | |

### DIODES AND TRANSISTORS

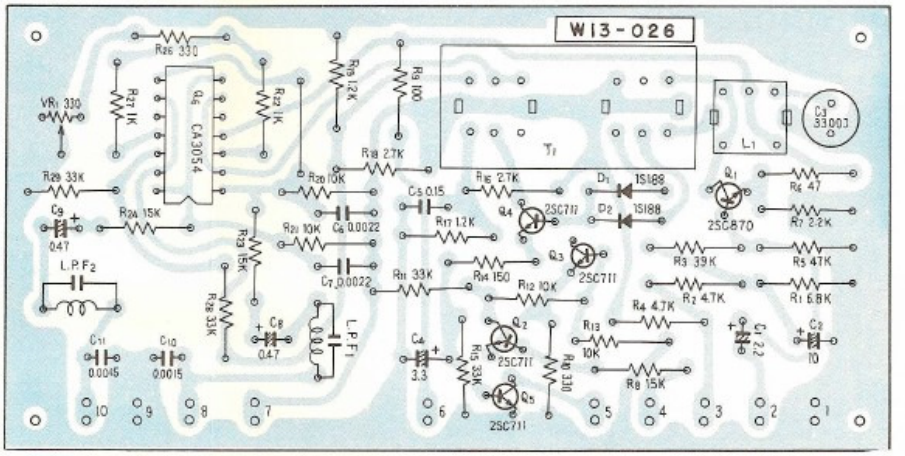
| Symbol | Description | Part No. |
|---|---|---|
| D1 | SW-1-02 Diode | |
| D2 | 〃 | |
| D3 | SD-1Z Diode | |
| D4 | 〃 | |
| D5 | 1S338Q zener diode | |
| Q1 | 2SC497 Transistor | |
| Q2 | 2SC870 Transistor | |
| Q3 | 2SC497 Transistor | |

# PRINTED CIRCUIT BOARD

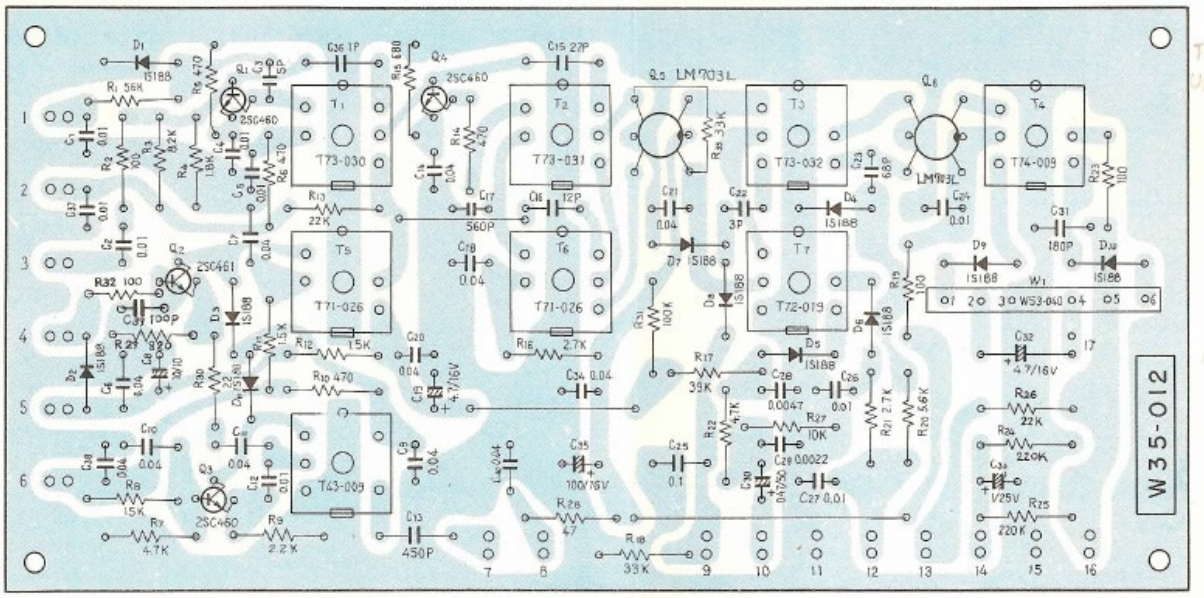
MUTING UNIT



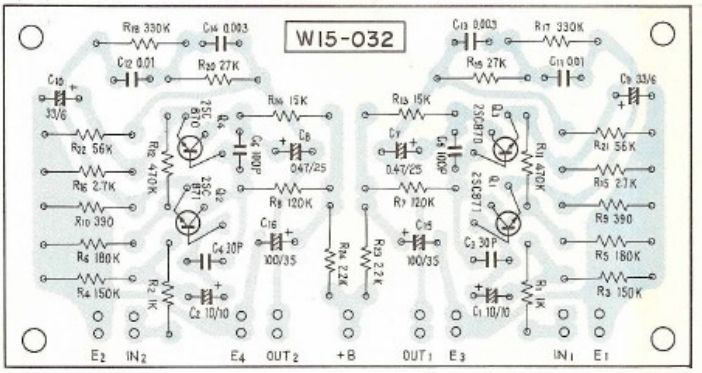

MPX UNIT

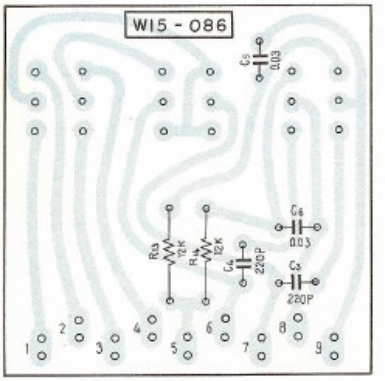



TUNER UNIT



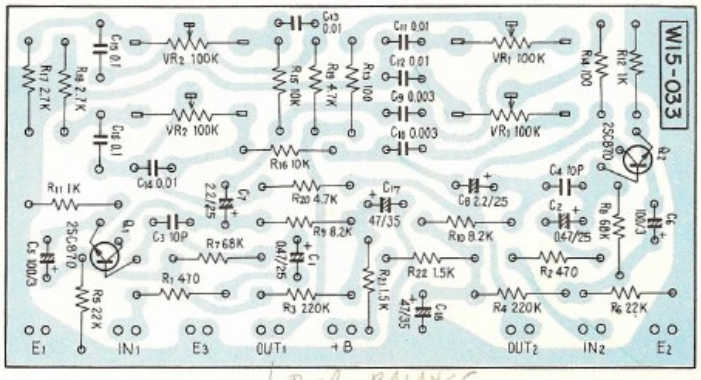

HEAD AMP UNIT (PHONO RIAA)

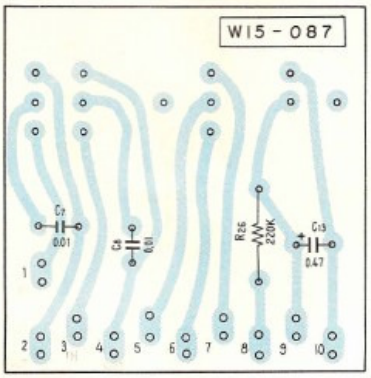


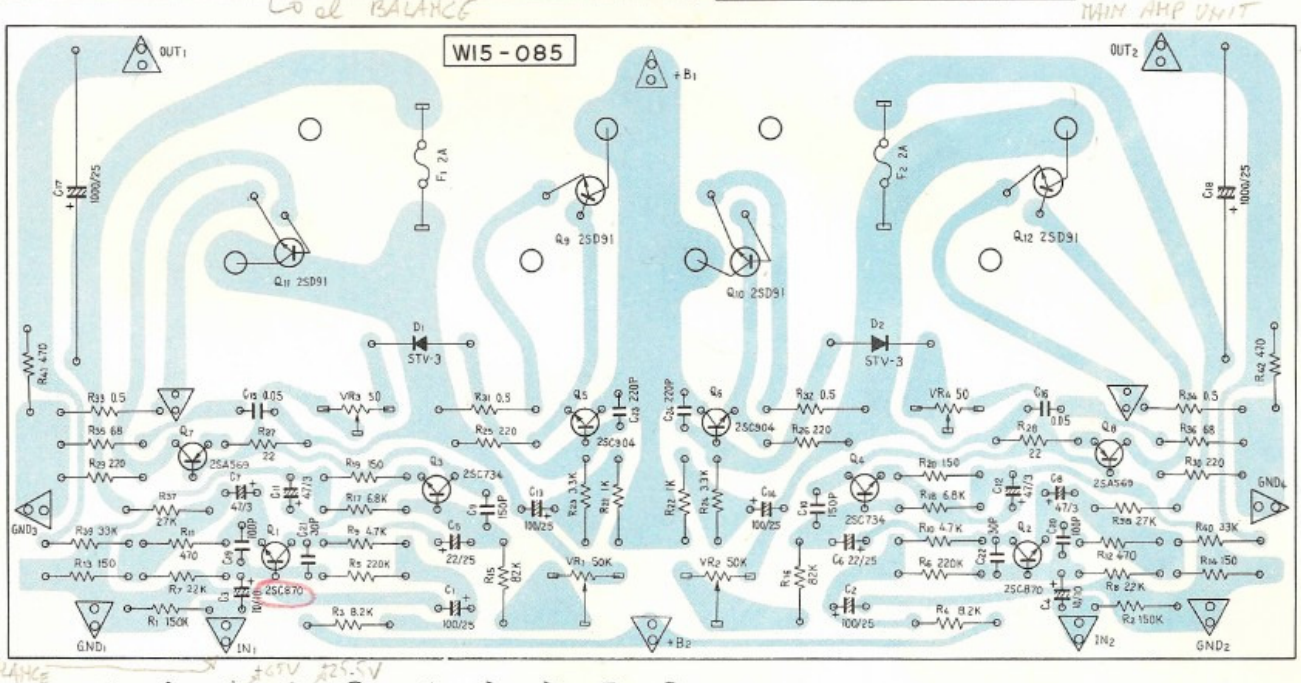



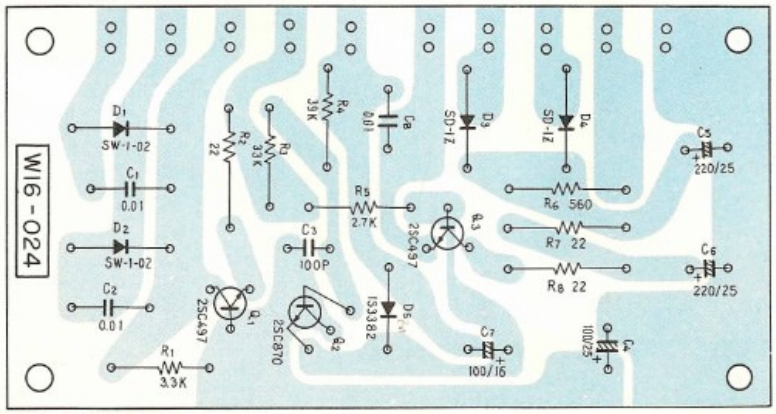

Lo +B2 =+25.5V

1 = LEFT CH.
2 = RIGHT CH.




CONTROL AMP UNIT

Lo al BALANCE

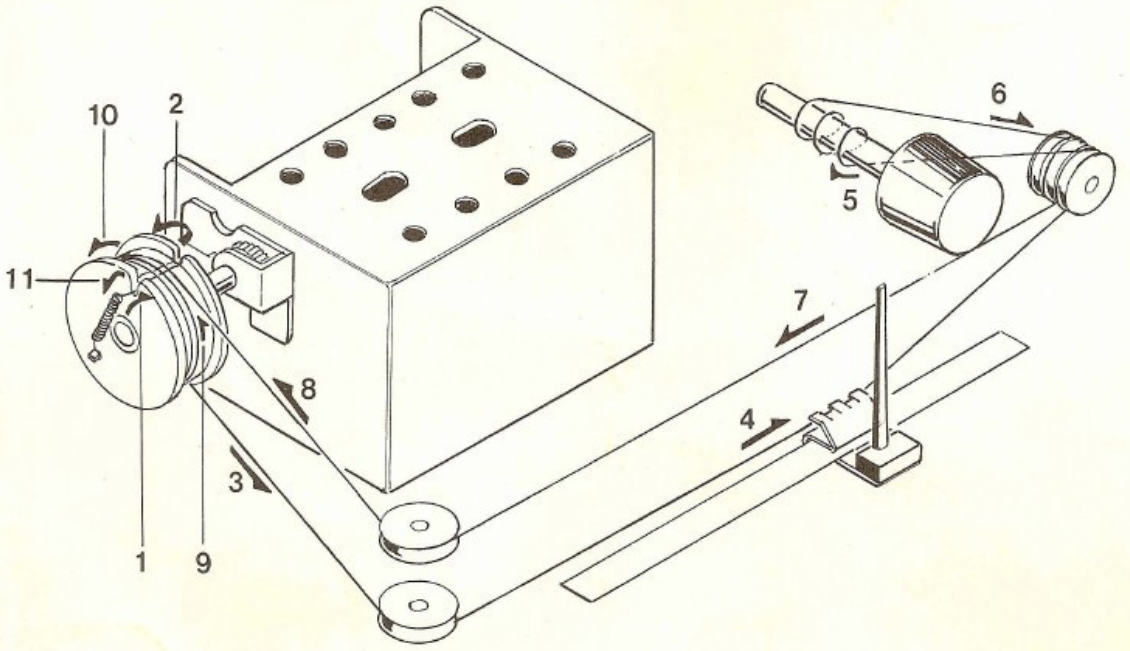
MAIN AMP UNIT

POWER SUPPLY UNIT

TUTTE LE TENSIONI SONO RIFERITE A MASSA (TELAIO)

PIONEER

## DIAL CORD STRINGING

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