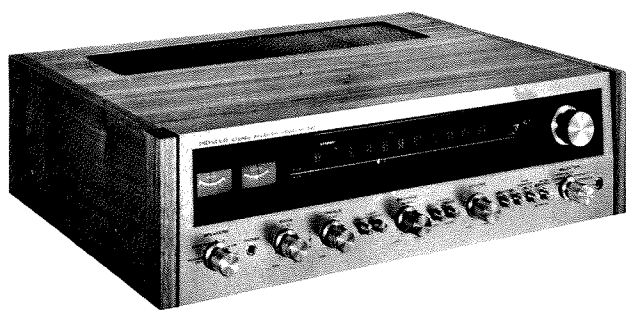


SOLID STATE AM/FM STEREO RECEIVER

SX-727

KCW
KUW
FVZW
FW



OPERATING INSTRUCTIONS

 **PIONEER**[®]

FEATURES

SENSITIVE & HIGHLY SELECTIVE FM STEREO TUNER

The tuner circuits are equipped with a two-stage RF amplifier, selected FET and transistor in the front end, resulting in very linear amplification irrespective of incoming signal strength. Therefore no cross-modulation or spurious radiation interference. Moreover, ceramic filters in the IF stage and a newly developed IC in the FM IF stretch give very high selectivity, capture ratio and limiting effect. Clean FM reception even in fringe or station-crowded areas. Antenna terminals for 300 Ω feeder and 75 Ω coaxial cable.

OCL (OUTPUT-CAPACITOR-LESS), PURE COMPLEMENTARY POWER AMPLIFIER

A revolutionary design principle using PNP and NPN silicon power transistors for highest sound purity and absence of distortions. Balanced (+) and (-) power supply and direct coupling of all amplifier stages, therefore extremely wide frequency response down to sub-audio range.

FULL CHOICE OF PROGRAM SOURCES

All standard program sources can be connected, including two turntables two tape decks and an auxiliary sound source as well as a microphone.

TAPE-TO-TAPE DUPLICATING POSSIBLE

With the two (open reel or cassette) tape decks, copies of tapes can be made easily.

UP TO THREE PAIRS OF LOUDSPEAKERS

For easy comparison of speaker systems, or for main/remote speaker installations, up to three pairs of speakers can be connected and operated individually or A+B, A+C.

FULLY EQUIPPED WITH VERSATILE CONTROLS

Click-stop tone controls, separate for each channel. Low and high noise filters, FM muting for noise-free tuning, audio muting switch for instant volume reductions, speaker selector and three pairs of speaker terminals permits speakers to be used separately or A+B A+C. Jacks include MIC IN, two phono inputs, two tape decks, headphones.

PRACTICAL AND AT THE SAME TIME ELEGANT DESIGN

With an exceptionally long dial for easy tuning. Easy, perfect tuning with signal strength meter and center zero meter. Slightly slanted front panel for easier dial reading. Plus the incomparable PIONEER elegance of harmoniously matched metal, black and natural wood.

LINE VOLTAGE AND FUSE

The SX-727 is available in two models: one model operates only on 120V, and the other operates on one of the five line voltages, 110V, 120V, 130V, 220V and 240V. If your SX-727 is the latter model, set the unit to the proper line voltage by following the procedure described below.

CHANGING LINE VOLTAGE SETTING AND FUSE

To remove the fuse, turn the fuse cap located on the line voltage selector in the direction of the 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 position of the selector is changed, check the rating of the fuse. A 1.5A fuse is to be used for either 220V or 240V operation and a 3A fuse for 110V, 120V or 130V operation. If the rating of the fuse is correct, replace cap.

FUSE REPLACEMENT

When the fuse blows, remove the fuse cap and replace the fuse with a new one. See Fig. 1.

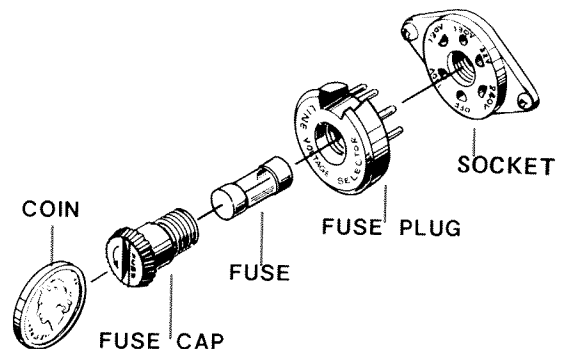


Fig. 1

ASSEMBLING A STEREO SYSTEM

- Model SX-727 is a Stereo Receiver, i.e. it combines an AM/FM stereo tuner, a preamplifier and a power amplifier in one unit. To obtain a complete stereo system, it can be combined with 2, 4 or even 6 speakers, 1 or 2 turntables, 1 or 2 tape decks, etc. See Fig. 2.
- By adding an electronic crossover network (Pioneer SF-500, SF-700, for example) and 1 or 2 additional power amplifiers, a 2-way or 3-way multi-amplifier system can be built. See Fig. 3.
- With the help of the Pioneer "4-channel decoder" Amplifier, model QL-600A and an additional pair of speaker systems, the SX-727 can serve as the heart of an ultra-modern 4-channel stereo system. See Fig. 4.

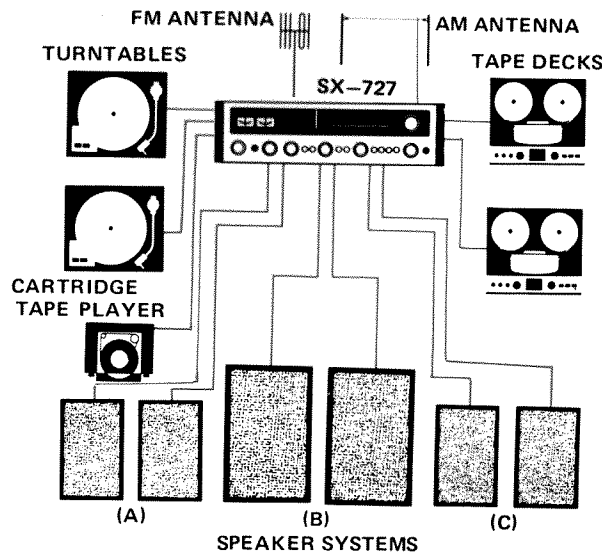


Fig. 2

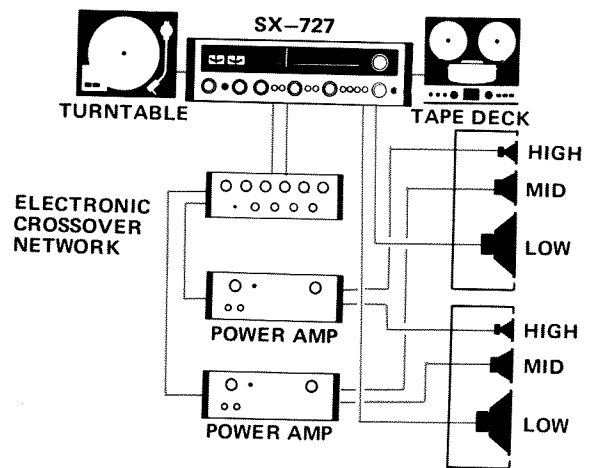


Fig. 3

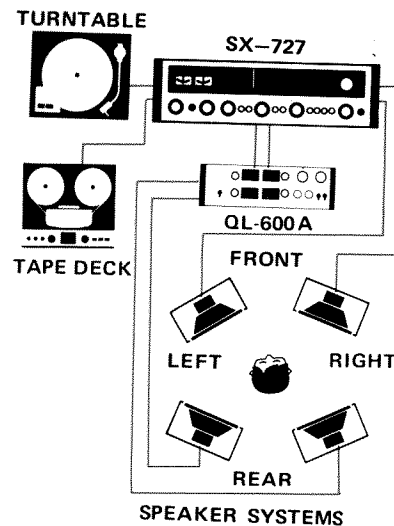


Fig. 4

INSTALLATION

Do not install the SX-727 in the following places:

- In direct sunlight or near heating units.
- In damp, dusty places or where air circulation is poor.
- In vibration-prone, unstable places.
- Do not put inflammables on the upper surface of the unit nor cover a ventilator with its function-preventives.

Prepare a shelf or a stand durable enough for the large-size, weighty SX-727 to be installed.

A WORD ABOUT ROOM ACOUSTICS

The quality of reproduced sound varies according to the size and shape of the room, the materials of walls, floor and ceiling and the amount and arrangement of furniture. Too "harsh" or "bright" a sound usually results from too many hard reflecting surfaces, and/or too low a ceiling. This condition is improved by having ample carpeted area or covering the wall (especially that facing the speakers) with a thick curtain. On the other hand, too many absorbing surfaces will tend to "soak up" the sound, resulting in a certain "deadness." Furniture may be rearranged to provide irregular reflection of the sound. In any event, the true stereo effect is lost if the two speaker systems are placed too far apart. This may be corrected by angling them slightly toward each other or reducing the distance between them.

SPEAKER CONNECTION AND INSTALLATION

CONNECTION

- As shown in Fig. 5, connect the lead wires of the speaker system to the supplied speaker plugs. Be sure to observe the correct polarity and to cause no short between \oplus and \ominus .
- For the main set of speakers, use the A speaker sockets. Connect the right-channel speaker to the socket marked R, and the left channel speaker to the socket marked L.
- For the second (third) pair of speakers, use the B(C) speaker sockets. Connect in the same way as for the first pair.

NOTE: When using two pairs of speakers simultaneously (with the SPEAKER switch set to A + B or A + C), make sure that the impedance of each unit is at least 8Ω .

INSTALLATION

Optimal stereo effect is obtained when the listener is at the vertex of a regular triangle whose base is the line connecting the left and right speakers (approx. 3ft. to 8ft. apart). Wherever possible, install the speakers at the same height; if the difference in height is too great, the stereo effect deteriorates.

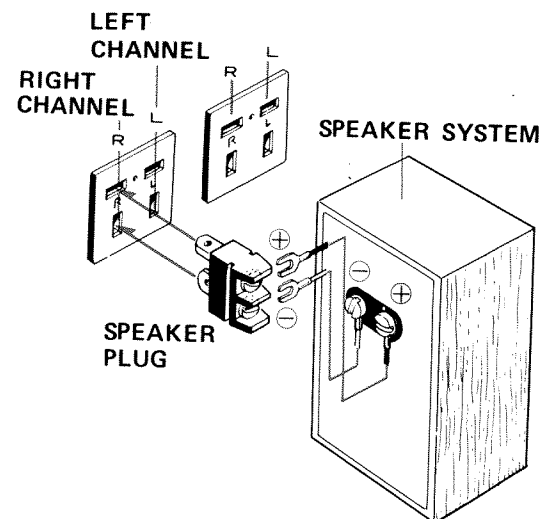


Fig. 5

ANTENNA AND GROUND CONNECTIONS

FM ANTENNA

FM broadcast signals are obstructed somewhat by mountains, buildings, and other obstacles. Therefore, even if a station is nearby, a high-gain antenna may be required. Select the antenna in accordance with the following rules:

- If the receiver is to be located in a wooden building and stations are nearby, use the T-type antenna which comes with the SX-727. As shown in Fig. 6, connect the feeder terminals of the antenna to the FM antenna terminals. Stretch out the antenna proper and secure it to the ceiling or a wall in such a manner that pickup is optimum, as determined by listening to the station to be received. Refer to FM RECEPTION on page 9.
- If orientation of the T-type antenna does not eliminate background noise, connect an outdoor antenna to the antenna terminals shown in Fig. 7. Instead of an FM antenna, a combination FM/TV antenna may be used.

- NOTES:**
1. A variety of FM antennas are available. Consult your dealer for selection.
 2. In locations adjacent to heavily traveled streets, around factories, or near high-voltage power transmission lines, use of an FM antenna may not give the desired noise attenuation. In such cases, consult your dealer concerning a coaxial cable feeder (75Ω) for the FM antenna. When coaxial cable is used, make connections to the receiver as shown in Fig. 8.

AM ANTENNA

- Refer to AM RECEPTION on page 9. With an AM station tuned in, position the ferrite antenna for optimum pickup. See Fig. 9.
- If positioning of the ferrite antenna does not give satisfying results, stretch out the AM lead antenna (vinyl-insulated wire) and connect it to the AM antenna terminal. Keep the other end of the antenna lead as high as possible.
- If the lead antenna does not give satisfying results, erect an outdoor antenna and connect it as shown in Fig. 7. Special construction is not required; vinyl-insulated wire may be stretched between two masts or other supports.

GROUNDING

- A ground lead is not necessary for reception. Still, from the viewpoint of safety and elimination of noise, one should be used.

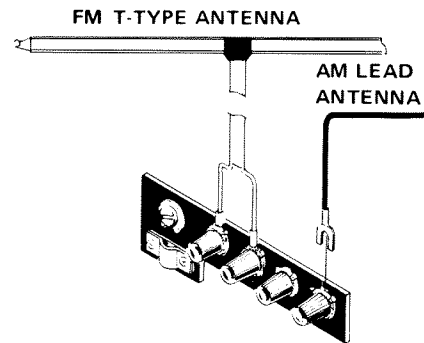


Fig. 6

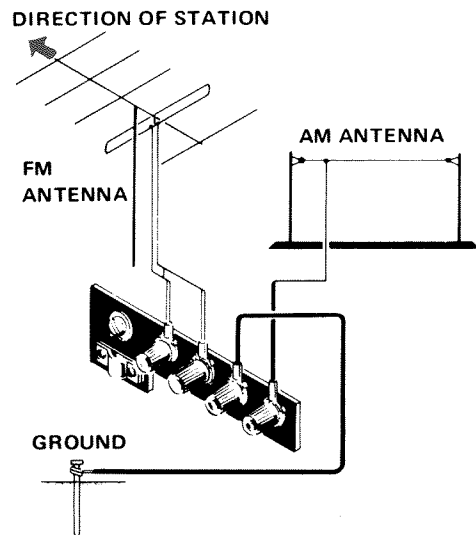


Fig. 7

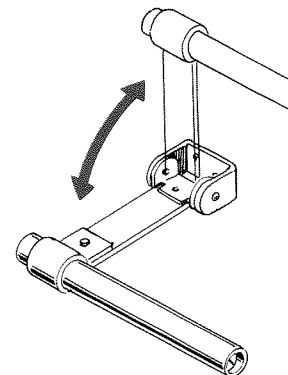
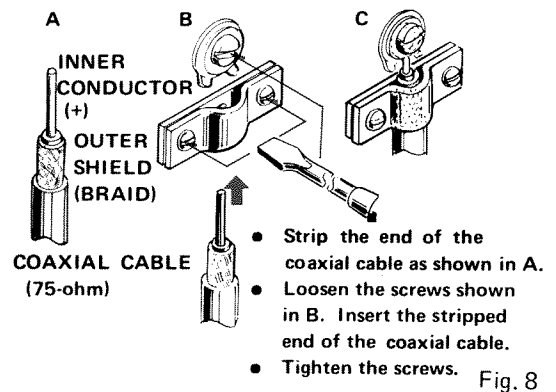


Fig. 9

CONNECTION OF TURNTABLE

- Plug the output from the turntable equipped with moving-magnet phono cartridge into PHONO 1 input jacks. The upper jack is for the left channel, and the lower jack for the right channel.
- When two turntables are used, plug the second turntable into PHONO 2 input jacks.
- When a turntable equipped with a ceramic or crystal phono cartridge is used, plug the output from the turntable into the AUX input jacks.

NOTE: If the plugs of the output cord of the turntable do not fit into the PHONO input jack, replace them with pin plugs, separately available.

CONNECTION OF TAPE DECK

RECORDING

- Connect the recording input terminals (LINE INPUT) of the tape deck to the TAPE 1 REC jacks of the SX-727. The upper jack is for the left channel, the lower jack for the right channel. Use the connecting cords supplied with the tape deck.

PLAYBACK

- Connect the playback output terminals (LINE OUTPUT or TAPE MONITOR) of the tape deck to the TAPE 1 MON jacks of the SX-727.
- With a monophonic tape deck, plug in either the upper or lower jack and set MODE switch to MONO position.

- NOTES:**
1. If the tape deck is provided with a DIN-type REC/P.B. connector, connecting this to the REC/P.B. connector of the SX-727 by means of a separately available cord (Pioneer PP-101) completes both connections.
 2. For using two tape decks, plug the second into the TAPE 2 REC and TAPE 2 MON jacks. Connection is the same as that for the TAPE 1 jacks.

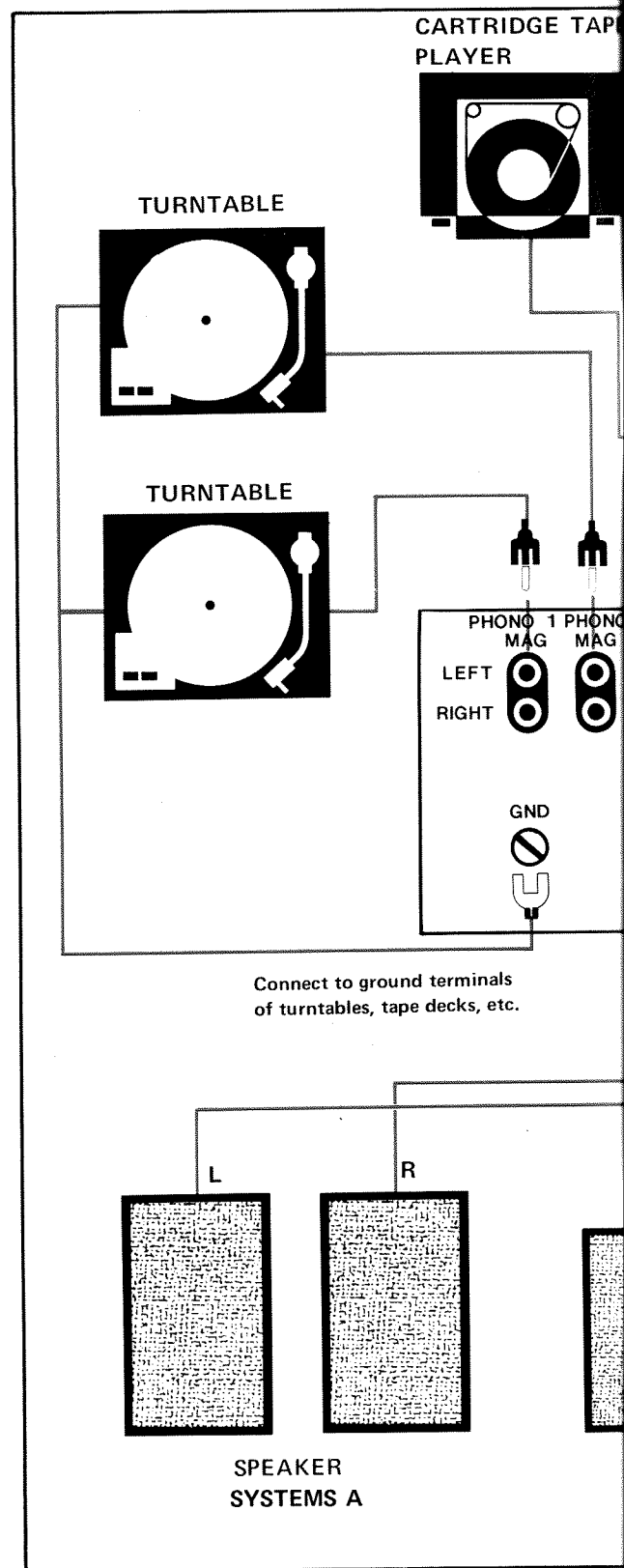
CONNECTION FOR DUPLICATION OR EDITING

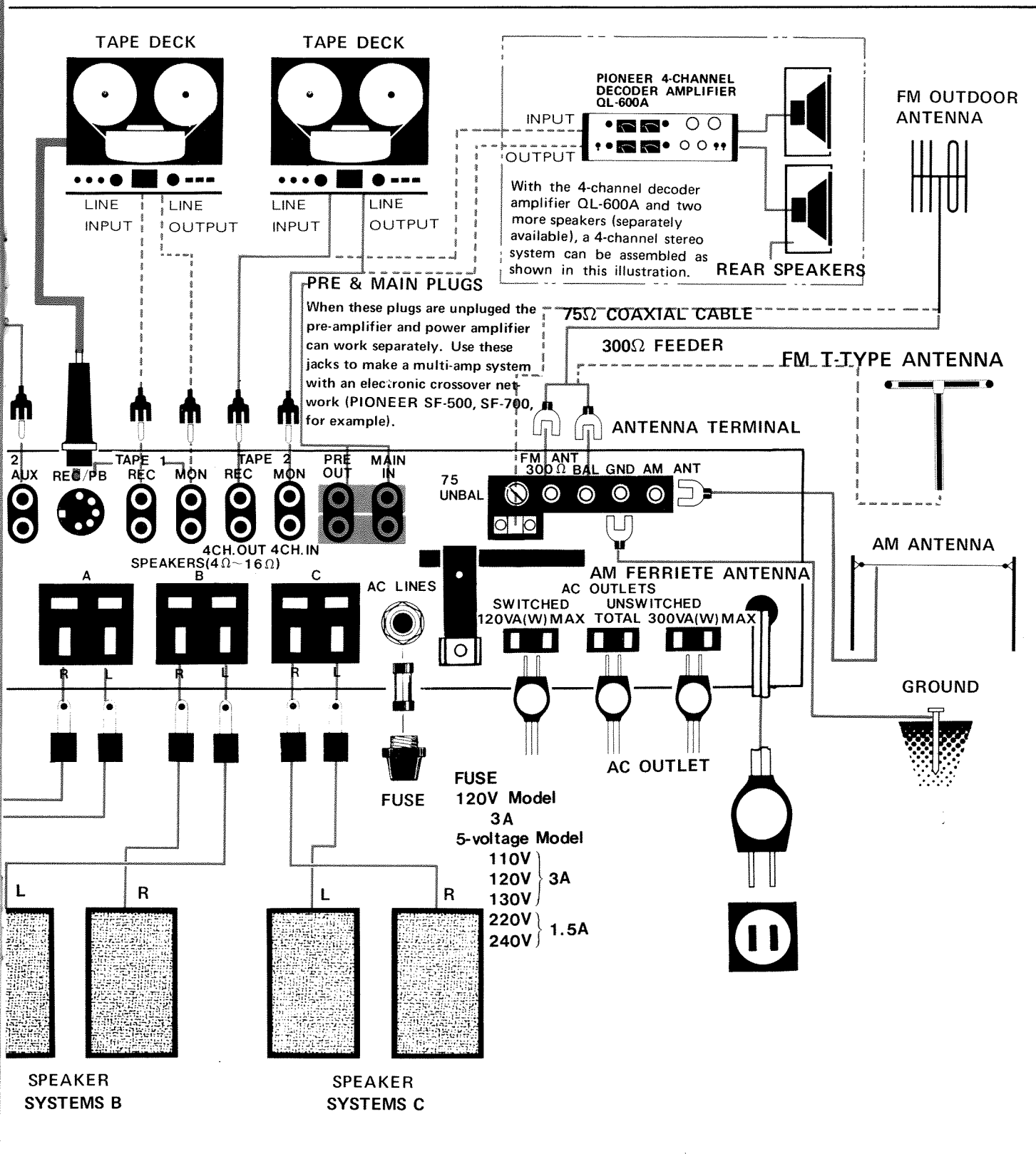
- Connect the two tape decks as explained in the RECORDING and PLAYBACK sections above.

USING THE AUX INPUT JACKS

These jacks are used for making connections with the output leads from a cartridge or cassette tape player, a turntable equipped with a ceramic or crystal phono cartridge, a television set, etc.

CONNECTION DIAGRAM





FRONT PANEL FACILITIES

SPEAKERS SWITCH

A combination of the power ON/OFF switch and the speaker system selector switch.

POWER OFF . . . The equipment is off.

A The speaker systems plugged into the A speaker sockets is in operation.

SPKR OFF. . . . All speaker systems off.
Useful for listening through headphones.

B The speaker systems plugged into the B speaker sockets is in operation.

C The speaker systems plugged into the C speaker sockets is in operation.

A + B Both speaker systems A and B are energized.

A + C Both speaker systems A and C are energized.

PHONES JACK

Use this to plug in stereo headphones.

A full selection of high-performance headphones is available from Pioneer.

BASS & TREBLE CONTROLS

Used for adjusting bass and treble.

Clockwise (counterclockwise) turning of these controls from the FLAT position will boost (diminish) tone. Also, only the left (right) channel can be adjusted by turning the front (rear) part while the other part is being held.

Adjustment of both channels or only the left channel is made by click-stops. For normal listening, set it to the FLAT position.

FILTER SWITCHES

LOW: Setting this switch to ON will eliminate low noises such as record rumble, hum, or other interference. The switch is normally set to OFF unless the filter is required.

HIGH: Setting this switch to ON will eliminate high noises, such as record scratch, static noise from fluorescent lamps, or other interference. The switch is normally set to OFF unless the filter is required.

Note that the switches are ON when pushed.

BALANCE CONTROL

This knob is used for adjusting the stereo balance. When the volume of the right channel speaker is smaller, turn the knob clockwise toward RIGHT: when left channel volume is smaller, turn the knob counterclockwise toward LEFT. For normal listening, set it to the NORM position.

FM MUTING SWITCH

This switch is used to suppress noise between FM stations. In a fringe area, however, this switch should be kept OFF because it may suppress the desired station signal at the same time. Note that this switch is OFF when it is pushed, and ON when released.

AUDIO MUTING SWITCH

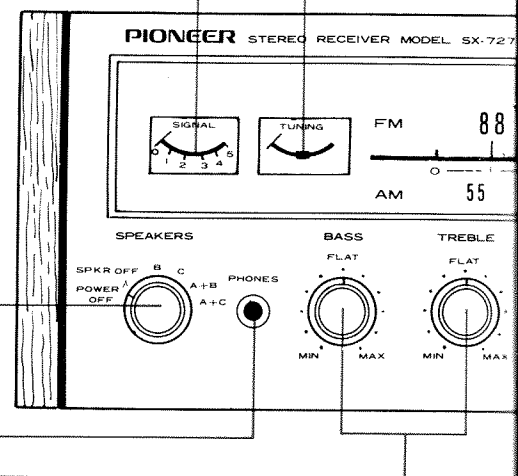
In position ON (switch pushed), the volume will be attenuated by 20dB. Push once again to restore the volume to its former level.

SIGNAL METER

This meter indicates the optimum tuning.
When the needle deflects all the way to the right, the station is properly tuned in.

FM TUNING METER

When tuning in an FM mono or FM stereo station, the FM TUNING METER can be used to make the tuning perfect. Turn the TUNING KNOB properly tuned in with the SIGNAL METER. Turn the TUNING KNOB so that the needle comes to the center of the scale.



VOLUME CONTROL

The volume increases when this knob is turned clockwise.

LOUDNESS SWITCH

When listening at low volume level, the LOUDNESS SWITCH emphasizes the extreme ends of the natural sound contour.

TAPE MONITOR SWITCHES

These switches are set to ON for monitoring of recorded tapes with the TAPE MONITOR JACKS. Note that the switches are ON when pushed.

1—This switch is set to ON for using TAPE MONITOR JACK 1 and TAPE 1 REC JACK.

2—This switch is set to ON for using TAPE MONITOR JACK 2 and TAPE 2 REC JACK.

NOTE: For phonograph records, or other sources, the LOUDNESS SWITCH should be in the FLAT position. If the switches are set to ON, the volume will be attenuated by 20dB.

uning point for AM and FM stations.
y to the right, the station has been

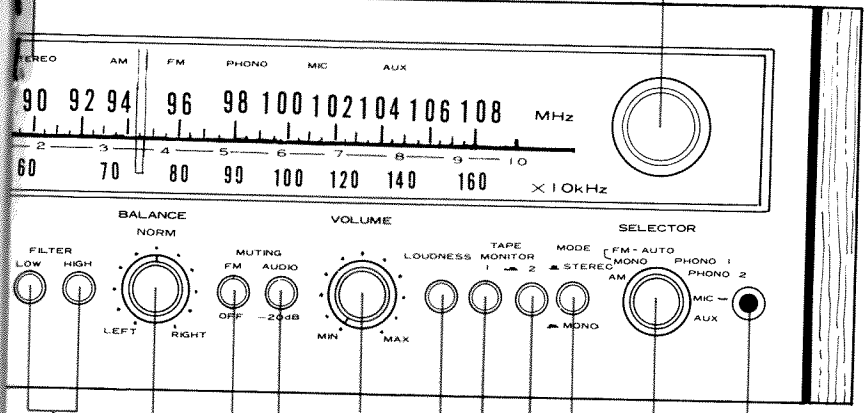
stereo broadcast, this meter should
After the desired station has been
AL METER, adjust the TUNING
he center.

FM STEREO INDICATOR

This lamp will light when an FM stereo broadcast is tuned in.

TUNING KNOB

Used to tune in the desired station.



MIC JACK

Accepts the plug of the microphone. Use a suitable microphone with a 1/4 in. (6mm) standard plug.

SELECTOR SWITCH

Choose the program source.

AM AM reception.

FM MONO FM monophonic reception only.

FM AUTO FM reception with automatic switching for either stereo or monophonic programs.

PHONO 1 For playing records on a turntable plugged into the PHONO 1 jacks.

PHONO 2 Same as above, for PHONO 2 jacks.

MIC Microphone sound can be reproduced.

AUX For playing signals fed to the AUX jacks.

MODE SWITCH

STEREO Normal stereo when the switch is not pushed.

MONO Monophonic play with left and right channel input signals mixed and reproduced from both channel speakers.

is turned clockwise.

, set this switch ON position. This
he sound spectrum, giving a more

1 and 2)

onitoring of a recording in progress
pe decks.

pushed.

g a tape deck plugged into TAPE 1
ks or TAPE REC/P.B. connector.

g a tape deck plugged into TAPE 2

s.

broadcasts, leave these switches in OFF
t to ON, no sound will be heard.

BEFORE SWITCHING THE POWER ON

Set the **SPEAKERS** switch to the position **A** after checking the following:

1. **VOLUME** control is at **MIN.**
2. **MODE** switch is at **STEREO** (not pushed).
3. **BASS, TREBLE** controls are at **FLAT.**
4. **BALANCE** control is at **NORM.**
5. The **AUDIO MUTING** switch must be **OFF** (not pushed).
6. The **TAPE MONITOR** switches (1, 2) must be **OFF** (not pushed) except for the tape playback or monitoring.

FM RECEPTION

1. Set the **SELECTOR** switch to the **FM AUTO** position.
2. Set the **FM MUTING** switch to the **ON** position. (Keep the switch **OFF** if the station is weak.)
3. While observing the meters, tune in the desired station by turning the **TUNING** knob. Best reception is attained when the needle of the **SIGNAL METER** deflects to the right, and the needle of the **FM TUNING METER** is at the center. When the station is broadcasting a stereo program, the **FM STEREO INDICATOR** lights, and model **SX-727** operates automatically for stereo broadcast reception.
4. When the desired station has been tuned in, turn the **VOLUME** control gradually clockwise for the desired volume. Adjust the **BASS** and **TREBLE** controls as desired.

AM RECEPTION

1. Set the **SELECTOR** switch to **AM.**
2. While observing the **SIGNAL METER**, tune in the desired station by turning the **TUNING** knob. Best reception is attained when the needle of the signal meter deflects to the right.
3. When the desired station has been tuned in, adjust the **VOLUME, BASS, TREBLE** controls for desired volume and tone.

RECORD PLAYING

1. Set the **SELECTOR** switch to **PHONO 1** or **PHONO 2.**
2. Start the turntable.
3. Adjust the volume and tone with the **VOLUME, BASS** and **TREBLE** controls.

NOTES:

1. In a fringe area or where reception is noisy, turning the **SELECTOR** switch to "**FM MONO**" will usually eliminate the noise. In this case, however, stereo broadcasts will be reproduced as monophonic.
2. In some countries, model **SX-727** is delivered with a selector switch for adjusting the **FM de-emphasis** to set either of 50 and 75 μ sec. If your unit is equipped with such a switch at the inside of the right-sided chassis, and if the high range of sound gives an impression of sharpness or hissing, move the de-emphasis switch to its other position.

NOTE:

If good reception cannot be attained by steps 1 through 3 in **AM RECEPTION** the antenna may be the cause. Refer to "**ANTENNA AND GROUND CONNECTION**" on page 4. When the station is very near, sound distortions may result from the high field strength. If this occurs, shorten or remove the **AM** antenna.

NOTE:

Set to **PHONO 1** for using the turntable plugged into the **PHONO 1** jacks, and to **PHONO 2** for using the turntable plugged into the **PHONO 2** jacks.

USING A TAPE DECK

Three different types in tape deck are available on the market; open-reel type, cassette type and cartridge type. If your tape deck is equipped with pre-amplifiers used for recording and playback, the tape deck can be connected directly to the SX-727.

RECORDING

As shown in Fig. 10, during playing the signal is always present at the TAPE 1 REC and TAPE 2 REC jacks. Operate the SX-727 as explained in the sections FM and AM RECEPTION and RECORD PLAYING on page 9.

NOTE. Adjusting the VOLUME, BASS and TREBLE controls on the SX-727 does not affect the signal present at the TAPE 1 REC and TAPE 2 REC jacks. Recording level must be adjusted on the tape deck itself.

• TAPE MONITOR

If the tape deck is of the 3-head type or is fitted with a tape monitor circuit, the recording can be monitored by setting the TAPE MONITOR switches (1 or 2) to ON. The recording and playback connections must both be left attached.

PLAYBACK

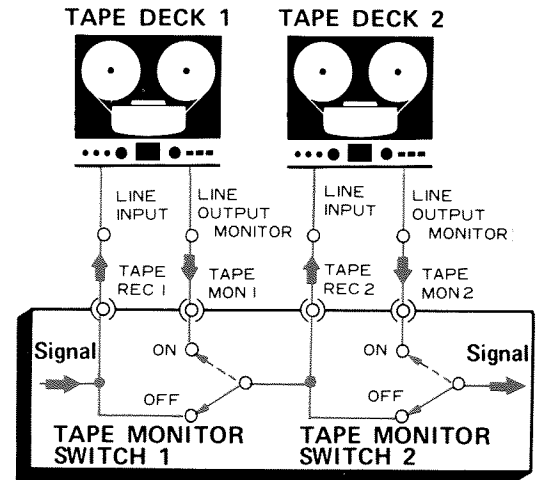
As shown in Fig. 10, setting the TAPE MONITOR switch 1 to ON permits playback of the tape on tape deck 1, and setting TAPE MONITOR switch 2 to ON permits playback of the tape on tape deck 2. During playback, volume and tone can be adjusted by the VOLUME, BASS and TREBLE controls on the SX-727. Playback is possible regardless of which the SELECTOR switch is positioned.

DUPLICATING OR EDITING RECORDING TAPES

With the SX-727, it is possible to record, say, an FM stereo broadcast and then re-tape the parts of the broadcast one wishes to keep onto a separate tape.

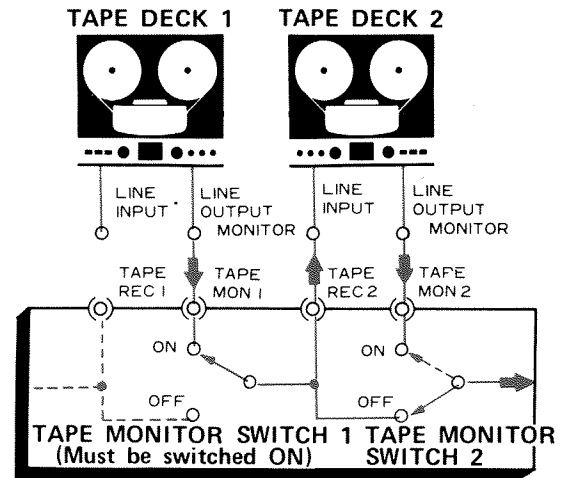
1. Connect two tape decks as shown in Fig. 11.
2. Turn the TAPE MONITOR switch 1 to ON.
3. Play back the recorded tape on tape deck 1 and record it onto the tape deck 2.
4. You can monitor the tape during recording by setting the TAPE MONITOR switch 2 to ON. In this case, setting the TAPE MONITOR switch 2 to OFF will produce the sound from the TAPE DECK 1.

NOTE: Duplicating and editing can be carried out very easily by using a tape deck equipped with a PAUSE switch for the recording side.



SX-727

Fig. 10



SX-727

Fig. 11

USING A MICROPHONE

1. Plug the microphone into the MIC jack.
2. Set the SELECTOR switch to MIC.
3. Adjust the volume by slowly turning up the VOLUME control to the right. The BASS and TREBLE controls should normally be at FLAT.

NOTE:

1. While using the microphone, only monophonic sound is heard from the left and right speaker systems.
2. Howling may occur if the VOLUME control is turned too high while the microphone is close to the speakers.

USING A CARTRIDGE TAPE PLAYER

1. Set the SELECTOR switch to AUX.
2. Start the cartridge tape player.
3. Adjust the volume and tone controls as required.

ASSEMBLING A MULTI-AMP SYSTEM

A 2-way or 3-way multi-amplifier system can be assembled by incorporating a separately available electronic crossover network (Pioneer SF-500, SF-700, for example) and one or two power amplifiers (Fig. 12).

1. Remove the plugs on the rear panel of the SX-727 (Fig. 13).
2. Connect the input terminals of the electronic crossover network to the PRE-OUT jacks of the SX-727.
3. Connect the LOW range output terminals of the electronic crossover network to the MAIN-IN jacks of the SX-727.
4. Connect the MID range output terminals of the electronic crossover network to the input terminals of the power amplifier for mid-range, and the HIGH range output terminals to the input terminals of the power amplifier for high-range.

NOTE: A fine selection of high-performance electronic crossover networks, power amplifiers and multi-amp speaker systems are available from Pioneer.

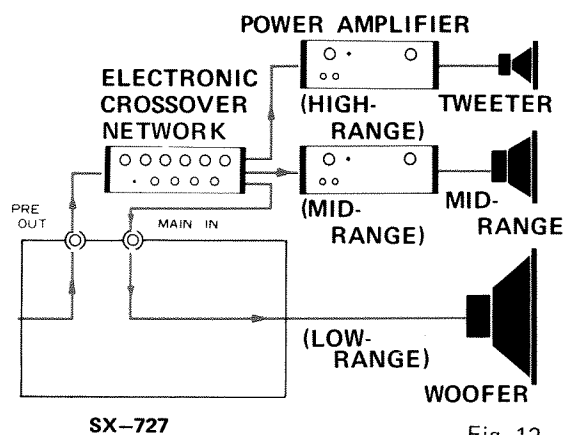


Fig. 12

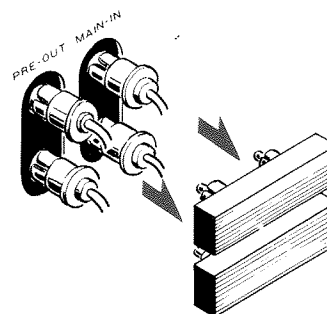


Fig. 13

4-CHANNEL STEREO SYSTEM

Conventional 2-channel stereo systems are designed so that instrumental and vocal music can be reproduced in stereo through left and right speakers placed in front of the listener. In contrast, the newly developed 4-channel stereo system features a high degree of reproduction of full dimensional sound including the atmosphere and applause in a concert hall in addition to stereo sound from singers and instruments. Consequently, you can get magnificently lifelike 4-channel sound far superior to that of 2-channel stereo.

The Pioneer 4-channel Decoder Amplifier, model QL-600A combined with your SX-727, and two additional speakers gives you 4-channel sound. See Fig. 14.

HOW TO USE THE 4-CHANNEL DECODER AMPLIFIER QL-600A

To obtain 4-channel sound, combine the Pioneer QL-600A with your SX-727. The QL-600A has a matrix decoder circuit for converting a 2-channel stereo signal into a 4-channel stereo signal plus amplifiers for driving the two rear speaker systems. As shown in Fig. 15, the QL-600A can be plugged into the TAPE 2 REC and TAPE 2 MON jacks of your SX-727, giving you 4-channel sound of the REGULAR or SQ MATRIX type. With the MATRIX system, matrix recordings or FM stereo broadcasts are reproduced to perfection. What's more, with a 4-channel stereo tape deck (Pioneer QT-6600, for example) connected to the QL-600A as shown in Fig. 15, discrete 4-channel tapes can be reproduced.

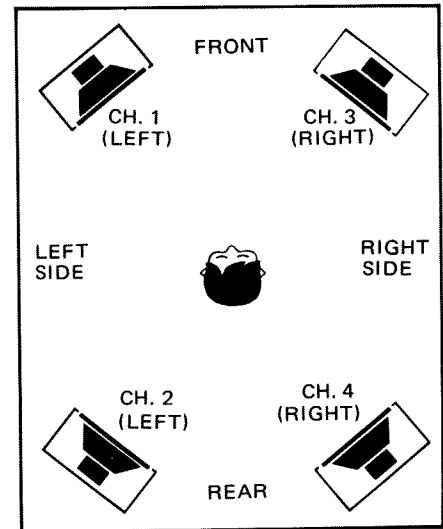


Fig. 14

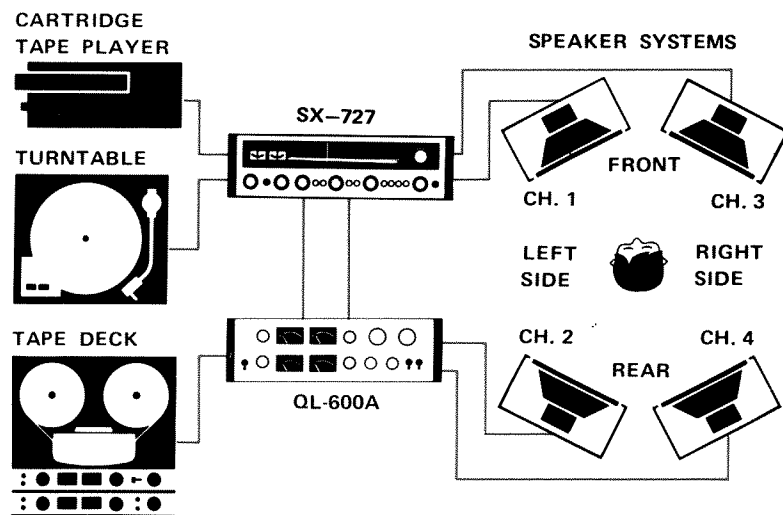


Fig. 15

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 is adding 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 pro-

duced 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, however small, 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.	<ul style="list-style-type: none"> • Static (lightning) • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • The frequency of an adjacent station is interfering with that of the station being tuned in (10kHz beat interference). • 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).	<ul style="list-style-type: none"> • White noise generated from automobile engines. • 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 FM outdoor antenna having many director elements.
	Reception of FM stereo program contains more noise than FM mono program.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Poor connection of shielded wire. (a). • Jack connection is loose. (b). • Line cord or fluorescent lamp is near the shielded wire. (c). • Poor grounding. (d). • 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.	<ul style="list-style-type: none"> • Stylus wears out. (a) • Record wears out. (b) • Dust adheres to stylus. (c) • Stylus is improperly mounted. (d) • Tracking force is not proper. (e) • The TREBLE level is too high. 	Check (a) through (e) and correct the condition. Lower the TREBLE level.

WATCH FOR THE FOLLOWING CONDITIONS; THESE ARE ALSO APT TO BE MISTAKEN FOR MALFUNCTIONS.

	SYMPTOM	SUSPECTED SOURCE OF NOISE	DIAGNOSIS AND REMEDY
	Power is not turned on although the power switch is set to ON.	<ul style="list-style-type: none"> • Fuse blows. (a) • Line plug is loose. (b) 	Check (a) and (b) and correct the condition.
	In playing a record, increasing the volume causes howling.	<ul style="list-style-type: none"> • Distance between the turntable and the speakers is too short. • 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.) Do not enhance the BASS sound level excessively.

SPECIFICATIONS

FETs 4 Transistors 55
 ICs 4 Diodes 34

POWER AMPLIFIER SECTION

Music Power Output (IHF) 195 Watts (4Ω)
 122 Watts (8Ω)
 Continuous Power Output 69W/69W (4Ω)
 (1kHz:each channel driven) 48W/48W (8Ω)
 Continuous Power Output 50W + 50W (4Ω)
 (1kHz:both channel driven) 40W + 40W (8Ω)
 Power Output in the range 37W + 37W (8Ω, Harmonic
 or 20Hz to 20kHz (both Distortion less than 0.5%)
 channels driven)
 Harmonic Distortion Less than 0.5% (Continuous
 power output)
 Less than 0.03% (8Ω, 24W/
 24W power output)
 Intermodulation Distortion Less than 0.5% (Continuous
 power output)
 Less than 0.03% (8Ω, 24W/
 24W power output)
 Power Bandwidth (IHF) 10Hz to 60 kHz (8Ω, Har-
 monic Distortion less than
 0.5%)
 Frequency Response 7 Hz to 80 kHz, ±1 dB
 Input Sensitivity/Impedance 500mV/50kΩ
 (1kHz, Continuous power output)
 Speakers 4 to 16Ω
 Damping Factor 40 (8Ω, 1kHz)

PREAMPLIFIER SECTION

Output Voltage 500mV (Rated output),
 4V (Max.)
 Harmonic Distortion Less than 0.1%
 Frequency Response 10 Hz to 20 kHz, ±1 dB
 Input Sensitivity/Impedance PHONO 1 MAG 3mV/50kΩ
 (1kHz, for rated output) PHONO 2 MAG 3mV/50kΩ
 MIC 2.7mV/50kΩ
 AUX 200mV/100kΩ
 TAPE MONITOR 1, 2
 200mV/100kΩ
 Recording Output TAPE REC 1, 2 (Pin jack)
 200mV
 TAPE REC (DIN connector)
 35mV
 BASS Control - 10 dB, +10 dB/100Hz
 TREBLE Control - 10 dB, +10 dB/10kHz
 LOW Filter - 8 dB/50Hz (6 dB/oct.)
 HIGH Filter - 9 dB/10kHz (6 dB/oct.)
 Equalization Curve PHONO: RIAA S.T.D.
 Loudness Contour +10 dB/100Hz, +6 dB/10kHz
 with Volume Control set at
 -40 dB position.

Muting -20 dB
 Hum and Noise (IHF) PHONO More than 85 dB
 AUX More than 95 dB

FM TUNER SECTION

Frequency Range 88MHz to 108MHz
 87.5MHz to 108MHz
 (FTZ approved)
 Usable Sensitivity (IHF) 1.8 μV
 Capture Ratio (IHF) 2.0 dB
 Selectivity (IHF) More than 70 dB
 Image Rejection More than 85 dB (98MHz)
 IF Rejection More than 100 dB (90MHz)
 Spurious Rejection More than 90 dB (98MHz)
 AM Suppression 50 dB
 Signal-to-Noise Ratio 70 dB
 Harmonic Distortion Mono: Less than 0.3% (100%
 Mod.)
 Stereo: Less than 0.5% (100%
 Mod.)
 Tuning Indicator Signal strength type and Cen-
 ter tuning type
 Muting Switchable to ON-OFF
 Stereo Separation More than 40 dB (1kHz)
 Sub Carrier Suppression More than 50 dB
 Antenna Input Impedance 300Ω balanced and
 75Ω unbalanced.

AM TUNER SECTION

Frequency Range 525kHz to 1,605kHz
 Usable Sensitivity (IHF) 10 μV
 Selectivity (IHF) More than 35 dB
 Image Rejection More than 80 dB (1,000kHz)
 IF Rejection More than 75 dB
 Signal-to-Noise Ratio More than 50 dB
 Antenna Built-in ferrite loopstick an-
 tenna

MISCELLANEOUS

Power Requirements 120V 60Hz,
 or 110V, 120V, 130V, 220V
 and 240V (switchable) 50-
 60Hz
 Power Consumption 270W (Max.)
 AC Outlets Switched 1, Unswitched 2.
 Dimensions (overall) 19-1/16in./485mm (width)
 5-7/8in./150mm (height)
 15-3/8in./390mm (depth)
 Weight Without package 30 lb 14 oz/14 kg
 With package 37 lb 8 oz/17 kg
 Furnished Parts
 FM T-type Antenna 1 Speaker Plug 6
 Fuses 1.5A (5 line voltage 1 Polishing cloth 1
 model only) Operating instructions 1
 3A 2

NOTE: Specifications and the design subject to possible modifi-
 cations without notice due to improvements.

FM TUNER TRACKING ALIGNMENT

ABSTIMMUNG DES FM-EMPfangSTEILS

Set is factory adjusted, no re-adjustments should normally be required. If re-adjustment is required, observe following steps.

Nachjustierungen dürften normalerweise nicht erforderlich sein. Gegebenenfalls wie folgt vorgehen, um die FTZ-Bestimmungen zu erfüllen.

Connections

Connect FM signal generator to FM antenna terminals. Connect V.T.V.M. to TAPE REC outputs. Adjust signal generator output level at 20dB, apply 400Hz 30% modulation.

Anschlüsse

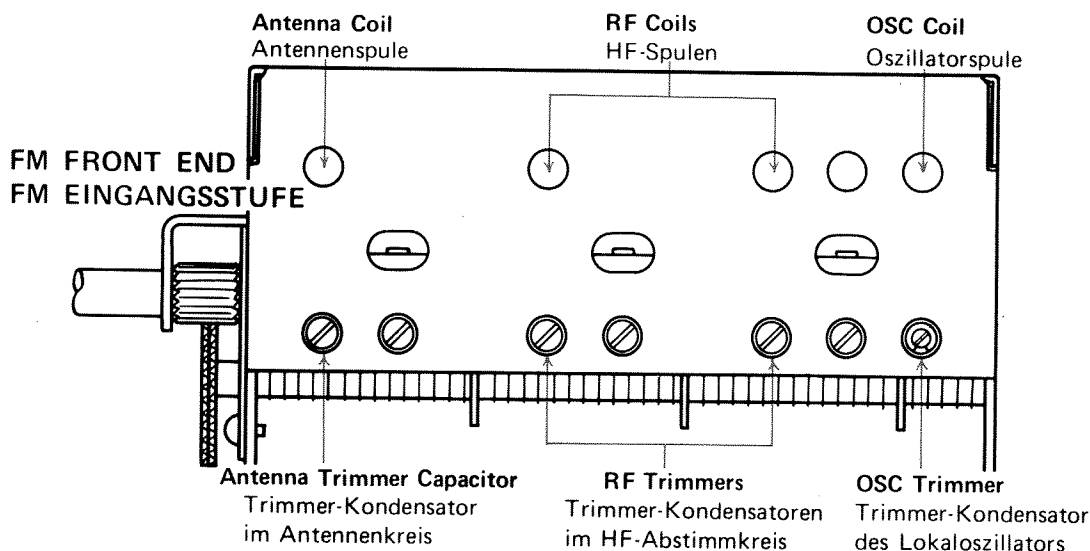
Testgenerator an UKW-Antennenanschlüsse, Röhrevoltmeter an TAPE REC Ausgänge anschliessen. Testgenerator auf 20dB Ausgangspegel, 400Hz 30% Modulation einstellen.

Procedure

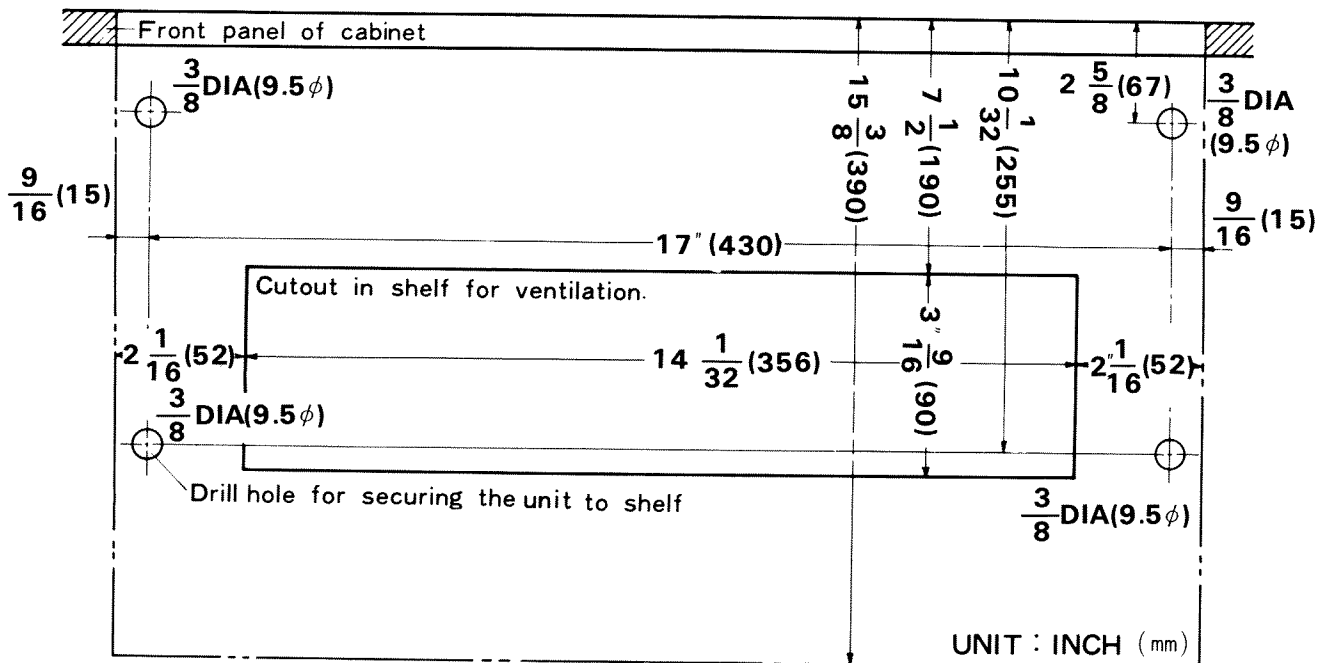
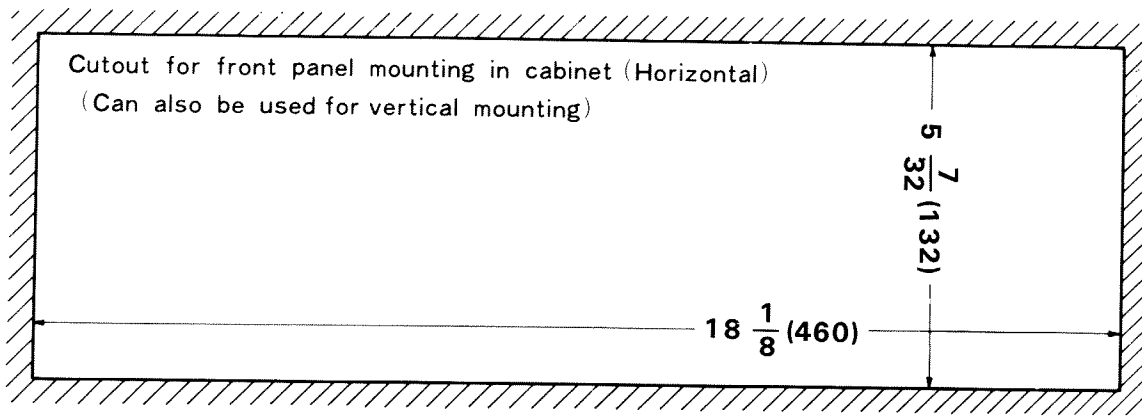
1. Turn tuning knob to extreme left and confirm that pointer is at scale end.
2. Set signal generator frequency at 87.4MHz. Adjust oscillator coil in figure to obtain maximum output reading on V.T.V.M.
3. Turn tuning knob to 106MHz, adjust signal generator for 106MHz. Adjust oscillator trimmer capacitor to obtain maximum output reading.
4. Adjust receiver and signal generator at 90MHz. Adjust RF and antenna coils core to obtain maximum output reading.
5. Return to 106MHz setting. Adjust RF and antenna trimmer capacitors to obtain maximum output reading.
6. Repeat steps 2 – 5 to optimum output alignment.

Abgleichverfahren

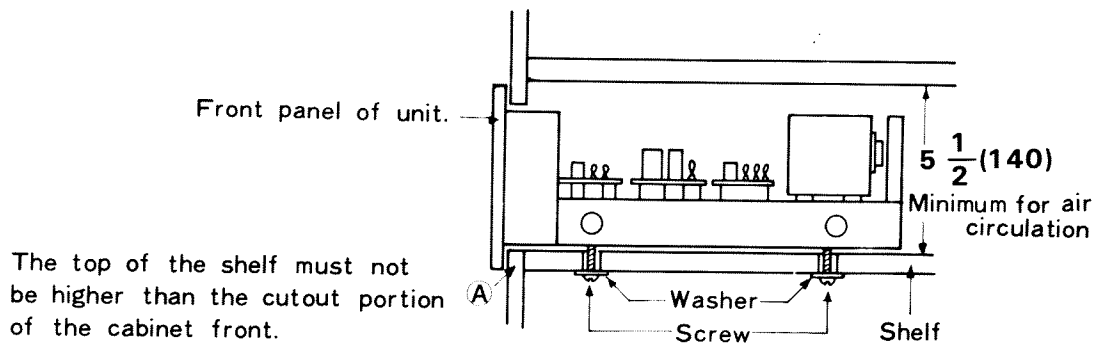
1. Sendereinstellung auf extrem links drehen. Zeiger muss am Skalenende stehen.
2. Testgeneratorfrequenz auf 87.4MHz einstellen. Oszillatortrimmer in Abbildung so justieren, dass maximaler Ausgangspegel am Voltmeter abgelesen wird.
3. Sendereinstellung und Testgenerator auf 106MHz einstellen. Trimmer-Kondensator des Lokaloszillators wiederum auf maximalen Ausgangspegel einstellen.
4. Empfänger und Testgenerator auf 90MHz einstellen. Kerne der HF- und Antennenspulen auf maximalen Ausgangspegel abgleichen.
5. Wieder auf 106MHz übergehen. Trimmer-Kondensatoren im HF-Abstimmkreis und Antennenkreis auf maximalen Ausgangspegel justieren.
6. Schritte 2 – 5 wiederholen, bis bestmögliche Abstimmung erzielt ist.



MOUNTING TEMPLATE



Remove the four feet on the bottom plate of the unit.



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