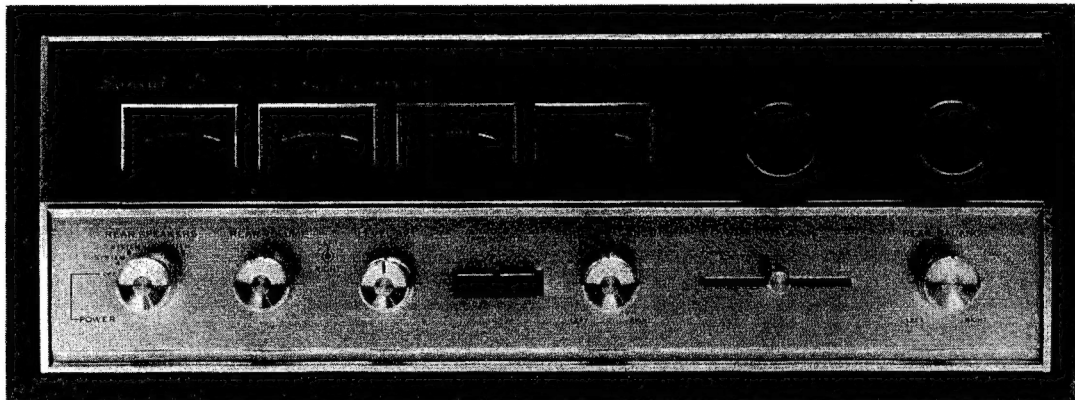




OPERATING INSTRUCTIONS & SERVICE MANUAL

4-CHANNEL REAR AMPLIFIER

SANSUI QS-500



Sansui

SANSUI ELECTRIC COMPANY LIMITED

Congratulations on joining the thousands of proud, satisfied owners of quality stereo components from Sansui. The QS-500 is a marvelous combination of Sansui's revolutionary 4-Channel Synthesizer Decoder (patents pending) and a quality 120 watt power amplifier for the rear channels of a 4-channel stereo system.

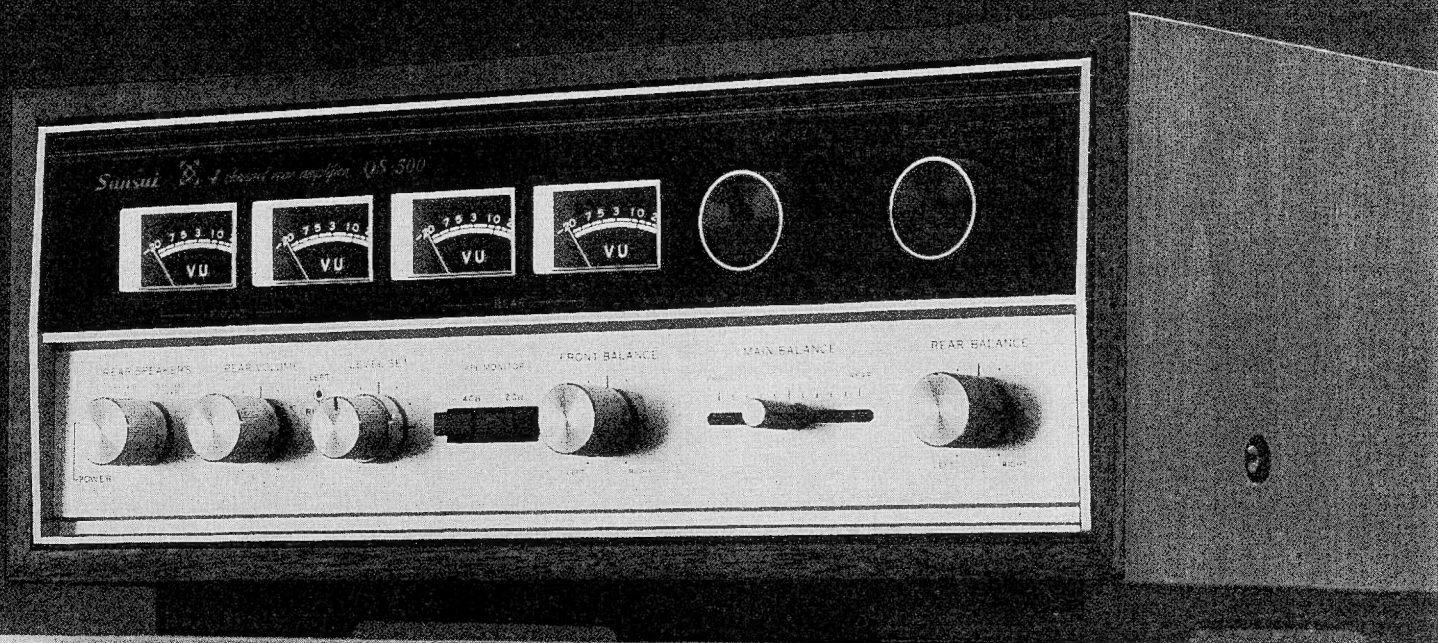
An instrument that literally heralds the new age of 4-channel stereo sound reproduction, the QS-500 not only converts your present collection of 2-channel stereo records and tapes, as well as FM multiplex stereo broadcasts, but, working in the capacity of a decoder, restores any 4-channel material encoded into two channels by a 4-channel encoder to its original full-fledged 4-channel status.

Simply add the QS-500 to your present 2-channel stereo system along with a second pair of speaker systems, and you'll instantly have a 4-channel stereo system to fill your room with the vibrant atmosphere of live performances with all their delicate nuances.

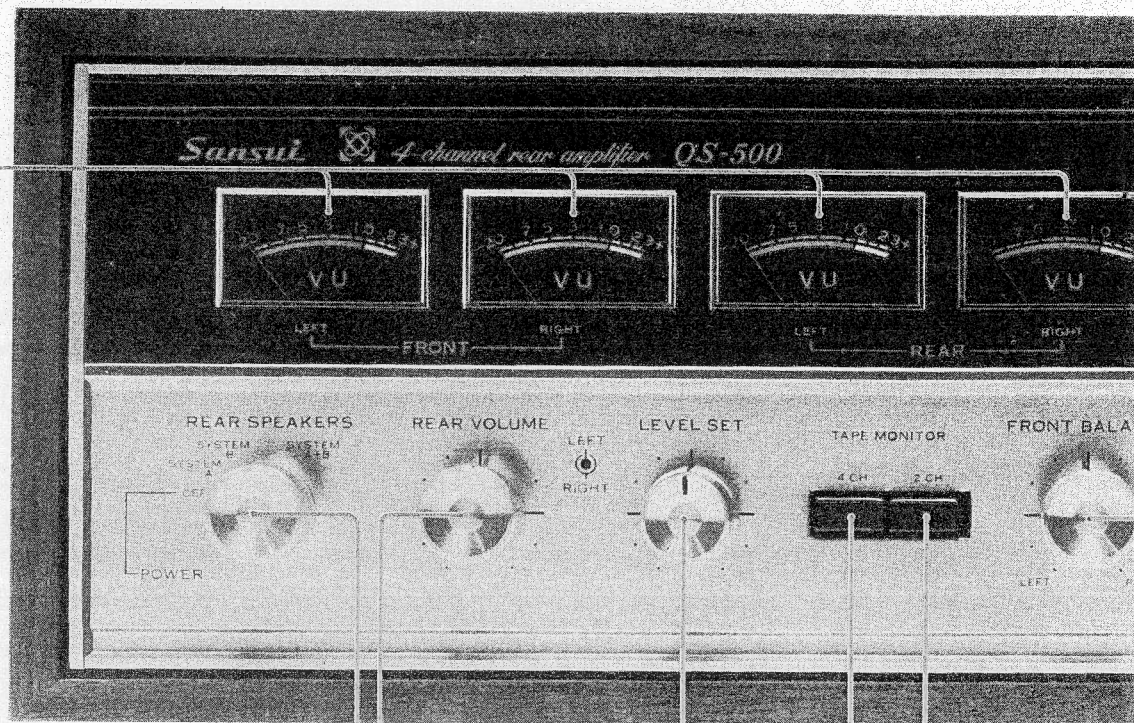
Before you rush to audition the exciting new sound effect, however, may we suggest that you read through this booklet once and acquire basic knowledge about its operation. Then you'll be better prepared to enjoy the wonderful sound of 4-channel stereo at its best for years to come.

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SWITCHES AND CONTROLS



VU Meters

Indicate the signal strength in each channel. From left to right, they represent the front left, front right, rear left and rear right channels.

Power/Rear Speakers Switch

A double-function switch to control the power supply and the selection of rear-channel speaker systems.

POWER OFF: Cuts off the power supply for the entire unit.

SYSTEM A: Turns on the power supply and energizes the speaker systems connected to the SYSTEM A terminals on the unit's rear panel.

SYSTEM B: Turns on the power supply and energizes the speaker systems connected to the SYSTEM B terminals.

SYSTEM A+B: Turns on the power supply and energizes both pairs of speaker systems.

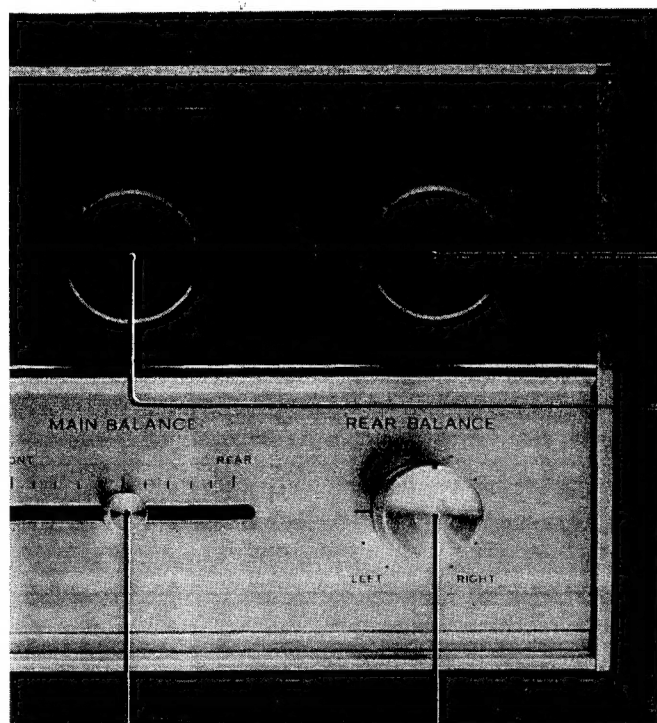
Level Set Control

Use to adjust the level of input signals. The inner and outer knobs are friction-coupled and permit adjusting the input signal level in the left and right channels either independently or simultaneously. The inner knob controls the left channel, and the outer one the right.

Adjust them so that the front left and right channel VU Meter pointers will swing to the red 1 or 2 mark at the loudest passages of the program source to be played.

Rear Volume Control

Use to adjust the sound volume from the rear left and right channel speaker systems. Turn it clockwise to increase it, counterclockwise to lower it. Leave it where the rear channel sound volume is well balanced with that in the front channels. Once the correct balance is achieved, any adjustment of the overall sound volume can be made easily by manipulating the unit's Volume Control (see page 10).



Volume Control

Use to control the overall sound volume. Turn it clockwise to raise it, counterclockwise to lower it.

NOTE: When you turn off the tape monitor switch of your front-channel amplifier, or set it to **SOURCE**, fully turn down its volume control beforehand.

Rear Balance Control

Use in the same manner as the Front Balance Control to balance the rear left and right channels.

Main Balance Control

Adjusts the balance between the front and rear channels. Slide it to the left to increase the sound volume in the front channels, and to the right to increase that in the rear channels.

Front Balance Control

Adjusts the balance between the front left and right channels. Turn it clockwise to increase the sound volume in the front right channel, counterclockwise to increase that in the front left channel.

2-Channel Tape Monitor Switch

Push down to **PLAYBACK** to hear a 2-channel stereo tape being played back by a 2-channel tape deck connected to the unit's rear panel. If the tape deck is a 3-head type, push the switch down before you begin to record into it, and you'll be able to hear the recording immediately reproduced for monitoring.

Keep it at **SOURCE** if neither of the above situations applies.

4-Channel Tape Monitor Switch

Tape monitor switch to control the 4-channel tape deck connected to the QS-500, if it is connected. Push down to reproduce a recorded tape or monitor a recording as it is made.

NOTE: If both the 2-Channel Tape Monitor Switch and the 4-Channel Tape Monitor Switch are both pushed down, only the latter will function.

Function Selector

A 7-position control to permit selecting the sound effect best suited to the type of program being heard.

2-CH: For regular 2-channel stereo sound from the front left and right speaker systems only.

CONCERT HALL 1: For orchestras, big band jazz, etc. Suitable for most purposes. The 'Front 2-2 System' of speaker position (see page 9) is more effective.

CONCERT HALL 2: For solo performances, vocal numbers and other small band selections. The 'Front 2-2 System' of speaker position produces the best results.

SURROUND: Suitable for programs which sound most effective with the musical instruments scattered throughout the room, such as popular music, mood music, Moog sound, rock 'n' roll, rhythm and blues, etc. The '2-2 System' of speaker position (see page 9) produces the best results.

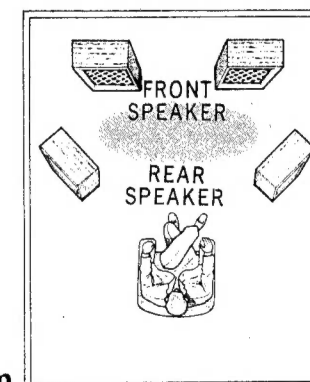
NORMAL: To obtain a normal surround stereo effect.

RIGHT QUARTER TURN: For the same surround effect, but to turn around sound by 90 degrees; i.e., the front left and right sounds will now be heard from the front and rear right speaker systems, and the rear left and right sounds from the front and rear left speaker systems. Use this position to obtain a normal 4-channel stereo effect when hearing vocal or other types of program where sound is loud only on one side.

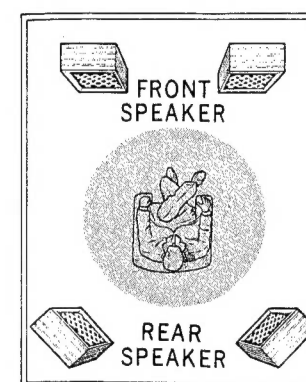
HALF TURN: To turn around sound by 180 degrees, so that the front sound will be heard from the rear speaker systems. Used to hear vocal or other type of programs, this position makes the listener feel like he is right in the middle of the stage.

DECODER: To hear a four-channel record, tape or FM broadcast encoded into two channels by the Sansui 4-Channel Encoder. Distinct sound images of the musical instruments and singers will be formed in the room giving you a 4-channel stereo effect equal to or even better than that obtainable from a discrete 4-channel stereo system. For this sound effect, the '2-2 System' of speaker position is more effective.

Front 2-2 System



2-2 System



CONNECTIONS

Your QS-500 permits you to continue to use your present 2-channel stereo receiver, amplifier or music system and speaker systems for the front channels of 4-channel stereo system. Instructions will be given below on making the necessary connections, but before you set out to make such connections, examine the connections among the various pieces of equipment in your present stereo set-up once more. If a tape deck is connected, disconnect it once. (Refer to the instructions on the connections of a 2-channel tape deck on page 7).

However, if you have bought the amplifier and speaker systems for the front channels for the first time, connect them for regular 2-channel reproduction, as instructed by their manufacturers.

When the above preparations are finished, proceed to make the connections, referring to both the instructions below and the diagram on page 8.

Be sure to make them firm and secure.

Connecting the QS-500 to the Front-Channel Amplifier

Take out the four shielded cords from the accessory kit supplied with your QS-500. Then:

1. Connect a pair of them between the terminal marked "FRONT AMP. FROM REC OUT" on the unit's rear panel and the tape recording terminal of the front-channel amplifier.

2. Connect another pair between the terminal marked "FRONT AMP. TO TAPE MON" and the amplifier's tape playback or monitor terminal.

Be sure that the left and right channels are kept in the same order at both terminals. The accessory shielded cords are colored in blue and yellow to facilitate this.

NOTE: Once you have made the above connections, turn on the tape monitor switch of the front-channel amplifier (or set it to PLAYBACK).

Connecting the Rear-Channel Speaker Systems

Up to two pairs of speaker systems can be connected to the QS-500 to reproduce rear-channel sound, and be driven either independently or simultaneously as selected by the unit's Power/Rear Speakers Switch.

If you are connecting only one pair, connect it to either SYSTEM A or SYSTEM B terminal. Keep the left and right channels, plus and minus polarities in the correct order, referring to the diagram on page 8. Should you want to add another pair at a later date, connect it to the other terminal.

If you have two pairs of speaker systems connected to the QS-500, it is suggested that you place one pair to form the '2-2 System' and the other to form the 'Front 2-2 System' of speaker position (see page 9).

About the Speaker Polarities

Whether or not the four speaker systems in a 4-channel stereo system are in phase with one another is an important factor to the maximum enjoyment of 4-channel stereo sound. The phase relationship must be correct not only between the front left and right speakers, and the rear left and right speaker systems, but also between the front channels and the rear channels.

Even if you have connected the four speaker systems to the two amplifiers with correct polarities between each pair, the speakers may not be in phase with one another if the amplifiers essentially differ in circuit design. They may also fail to achieve a correct phase relationship because of certain acoustic conditions of your room. If such seems to have taken place, change the rear speaker connections and change their polarities while actually listening to them until you feel certain you've obtained a most natural 4-channel stereo effect.

CONNECTIONS

NOTE:

1. The speaker systems connected to your QS-500 must possess an impedance of 4 to 16 ohms. If you want to connect two pairs and drive them simultaneously (by turning the unit's Power/Rear Speakers Switch to the "SYSTEM A+B" position), they should all have an impedance of 8 ohms or more.

2. As your QS-500 connects up to two pairs of speaker systems for the rear channels and allows selecting either or both pairs, you could install a 4-channel stereo system in two rooms and operate them simultaneously or independently, provided that your front-channel amplifier is equipped with a speaker selector switch similar to the QS-500's Power/Rear Speakers Switch.

Connecting Tape Decks 2-Channel Tape Deck

Since you connect your QS-500 to the tape recording and monitor terminals of your front-channel amplifier, you cannot connect a 2-channel tape deck to that amplifier. This is why your QS-500 is equipped with recording and monitor terminals for such a tape deck. There are both pin jack type terminals and a DIN connector socket, and either may be used.

If you want to use pin jack terminals:

1. Connect one pair of shielded cords between the "2 CHANNEL TAPE REC" terminals of the QS-500 and the recording input terminals of the tape deck.

2. Connect another pair of such cords between the unit's "2 CHANNEL TAPE MON" terminals and the tape deck's playback output terminals. Be sure to keep the left and right channels in the same order at both terminals in each case.

If your tape deck is equipped only with a DIN connector socket, however, plug the DIN connector cord extending from it into the 5-pin DIN connector socket on the QS-500's rear panel.

4-Channel Tape Deck

If you connect a 4-channel tape deck to the QS-500, you'll be able to record the 4-channel signals converted by the unit's built-in 4-Channel Synthesizer Decoder, as well as to reproduce 4-channel recorded tapes.

The tape deck may either be connected to the unit's pin jack terminals or the DIN connector socket. If using the former:

1. Connect the 4-channel "TAPE REC" terminals on the unit's rear panel with the input terminals of the tape deck by means of the shielded cords.

2. Then connect the 4-channel "TAPE MON" terminals on the unit's rear panel with the output terminals of the tape deck, also by means of the shielded cords. Be sure not to confuse the front and rear, left and right channels.

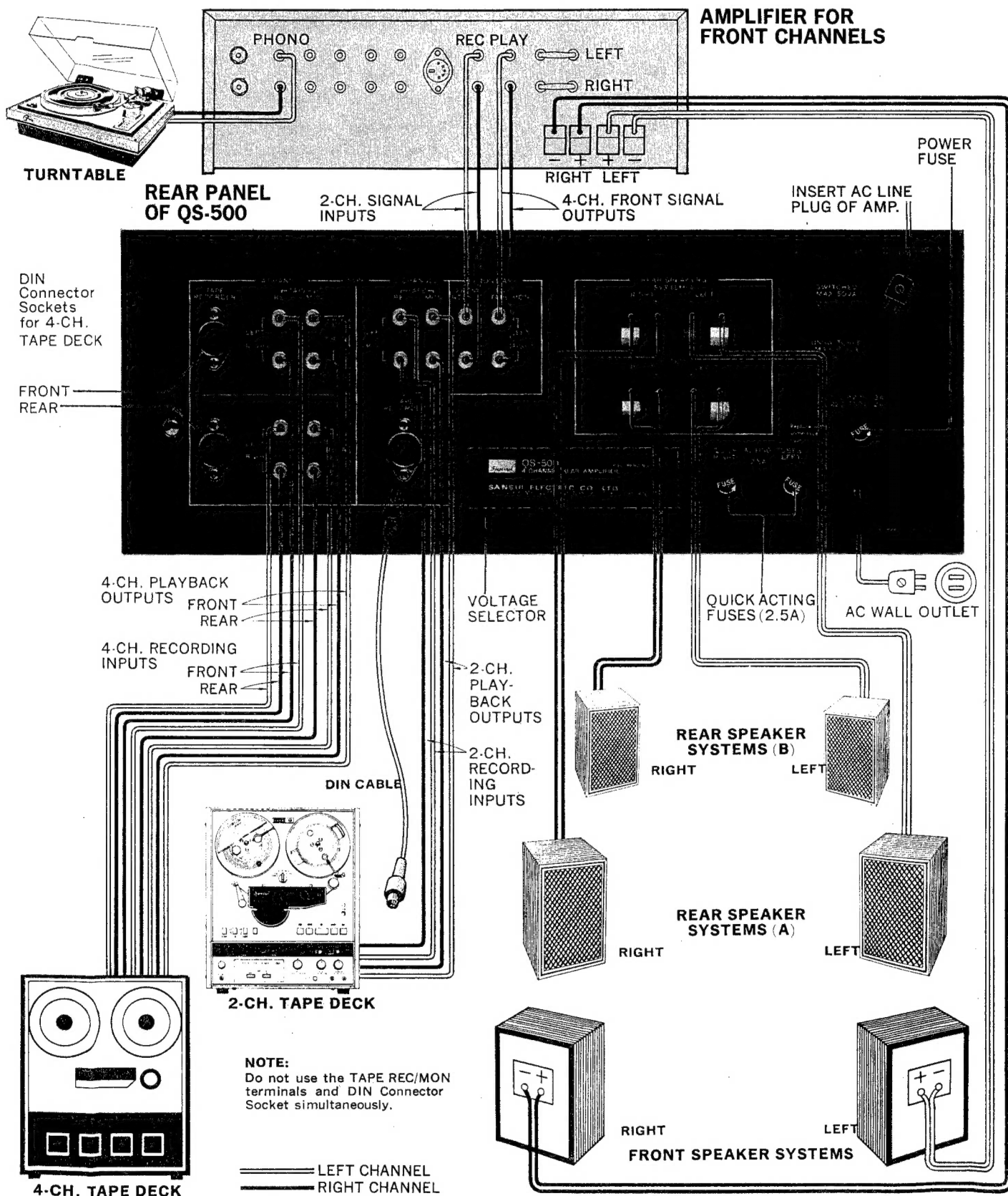
If using the DIN connector socket:

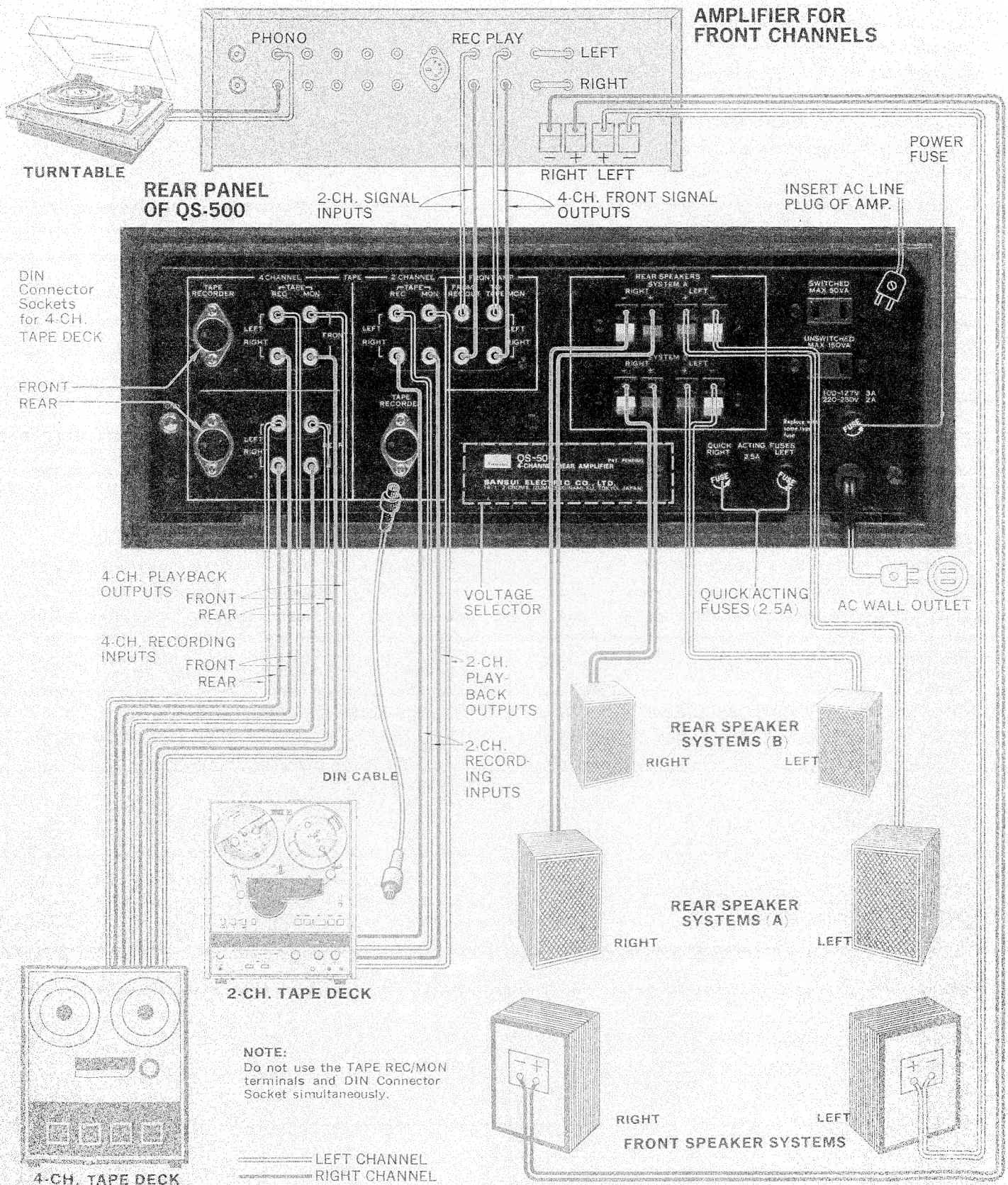
1. Insert the front-channel DIN connector plug of the 4-channel tape deck into the upper DIN connector socket marked "4 CHANNEL TAPE RECORDER" on the unit's rear panel.

2. Then insert the rear-channel DIN connector plug of the tape deck into the lower DIN connector socket.

NOTE: On many 4-channel tape decks, each of the four channels is designated as follows:

FRONT LEFT— CHANNEL 1 or TRACK 1
FRONT RIGHT—CHANNEL 3 or TRACK 3
REAR LEFT— CHANNEL 2 or TRACK 2
REAR RIGHT— CHANNEL 4 or TRACK 4





TO ENJOY 4-CHANNEL STEREO AT ITS BEST

The 4-channel stereo system far excels the conventional 2-channel system in its capability to faithfully reproduce the sound field normally present at any live performance.

Your QS-500 incorporates a QS decoding matrix to re-organize ordinary two-channel stereo signals to four channels and establish clear sound images of the musical instruments and singers, as well as Sansui's exclusive phase-modulator circuit to lend the sound field the liveliness or presence of the original sound field.

The end effect is so exciting and enthralling that many audio experts the world over have termed it purely revolutionary. It is particularly outstanding when the instrument is used to reproduce four-channel programs encoded into two channels by the Sansui 4-Channel Encoder.

To enjoy such 4-channel stereo sound at its best, you should be familiar with certain basic facts about the position of the speaker systems and so forth.

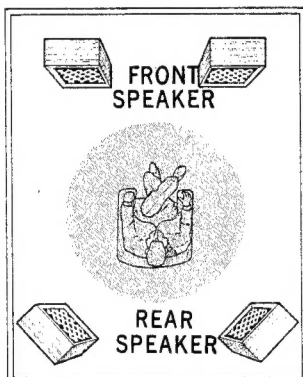
Speaker System Positions

The position of the four speaker systems in a 4-channel stereo system is an essential consideration if you are to enjoy 4-channel stereo sound at its best, and it is very important that you place them appropriately to suit the type of program source you wish to hear.

Two basic positions will be discussed below, but you are free to adapt them to the particular conditions—both acoustic and physical—of your room for optimum 4-channel stereo effects.

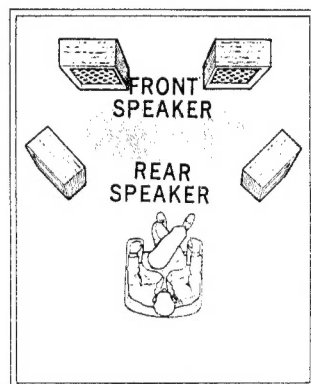
1) 2-2 System

This is the 4-corner position that is widely accepted as the 'standard' for 4-channel stereo. While it is particularly fit for use when hearing material encoded by the Sansui 4-Channel Encoder, it is equally effective for these types of material: mood music, popular music, contemporary music, Moog sound, rhythm and blues, musicals, and live recordings.



2) Front 2-2 System

This system moves the rear speaker systems up front as shown below and creates a sound field—the equivalent of a concert hall stage—in front of the listener. It is suitable for those types of material which more or less require an objective attitude of the audience, such as: symphonies, operas, chamber music, modern jazz and big band jazz.



3) Others

Variations of the above two systems are possible, and you are absolutely free to devise one to suit the particular conditions of your room.

Selecting Rear Speaker Systems

Needless to say, the best 4-channel stereo effect will be realized by using identical speaker systems for both the front and rear channels. But Sansui's QS system of 4-channel stereo is designed so that compact systems, are quite sufficient for use for the rear channels, allowing your QS-500 to produce more than satisfactory 4-channel stereo sound.

The speaker systems, however, should be able to reproduce sound with natural tonal quality and not affected in one way or another.

ADJUSTMENTS

Having read the foregoing instructions on the functions and connections of your newly acquired QS-500 and proper speaker positions, you are now almost ready to step into the immensely richer world of 4-channel stereo. Before you step out, however, make the following adjustments and you'll save yourself a lot of trouble in the future.

Setting for Optimum Input Signal Levels

1. Turn down slightly the volume controls of your QS-500 and front-channel amplifier, and turn the Level Set Control of your QS-500 fully counter-clockwise. Then turn on their power switches.
2. Turn on the tape monitor switch of your front-channel amplifier.
3. Set the unit's three balance controls to their respective center positions.
4. Operate your front-channel amplifier and play a record just as you would do in 2-channel sound reproduction.
5. Turn the Level Set Control clockwise gradually, and you'll notice the four VU meter pointers begin to swing. Leave the control where the front-channel VU meters swing as far as the red 1 or 2 mark at the loudest passages of the music. The Level Set Control, consisting of two friction-coupled knobs, permits separate adjustment of the left and right channel input signal strengths, should they be out of proportion with each other.

NOTE: If your radio tuner and tape decks also have provisions for adjusting their output signal levels, match them to the output level of the phonograph (or turntable or record changer). This will save you the trouble of readjusting the Level Set Control (or Volume Control) every time you change the program source.

Adjusting Volume Balance between the Front/Rear Channels

1. Set your QS-500's three balance controls at their respective center positions.
2. Turn the unit's Volume Control all the way up to the maximum, turning down the front-channel amplifier's volume control simultaneously so as to obtain the loudest volume you can tolerate in daily listening.
3. Now turn down your QS-500's Volume Control to the usual listening level, and then adjust the Rear Volume Control to achieve optimum balance between the front and rear channels.
4. Once the above adjustments are finished, use the QS-500's Volume Control to make any temporary volume adjustments in the course of daily listening.

Adjusting Volume Balance between the Front Left/Right Channels

Adjust the volume balance between front left and right channels by fixing the balance control of the front-channel amplifier in its center and then manipulating the QS-500's Front Balance Control.

OPERATIONS

Reception of FM Stereo Broadcasts/ Playing Records

Operating your QS-500 to receive FM stereo broadcasts or play records is very simple. Just turn on the tape monitor switch of your front-channel amplifier (or set it to "PLAYBACK"), and the rest is the same as 2-channel reproduction. Make any volume and/or balance adjustments with the appropriate controls on the QS-500. Use other controls on the unit for the best 4-channel stereo effect, following instructions on pages 3~5.

Recording/Playing a 2-Channel Stereo Tape

Two-channel stereo tape recordings can be made and reproduced by the use of a 2-channel stereo tape deck connected to the QS-500. If the tape deck is a 3-head type (with separate record and playback heads), it is possible to record a tape and reproduce it simultaneously for the purpose of monitoring.

Recording

1. Set the function selector control of the front-channel amplifier to the program source to be recorded—such as phono, FM, microphone, auxiliary input, etc.
 2. Start the tape deck in the recording mode.
- NOTE:** Push down the 2-Channel Tape Monitor Switch of the QS-500 to "PLAYBACK" if you want to monitor the recording as you make it.

Playback

1. Push down the 2-Channel Tape Monitor Switch of the QS-500 to "PLAYBACK."
2. Start the tape deck in the playback mode.
3. Adjust the playback volume control of the tape deck so that the front-channel VU meter pointers of the QS-500 will swing to the red 1 or 2 mark at the loudest passages of the music being reproduced.
4. Use the various controls on both the QS-500 and front-channel amplifier to obtain the best 4-channel stereo effect for the type of music being reproduced.

Recording/Playing a 4-Channel Stereo Tape

You can record the 4-channel stereo sound from the QS-500 into a 4-channel stereo tape deck connected to the QS-500. And of course, a 4-channel stereo tape recording can be reproduced through the QS-500. If the tape deck is of a 3-head type (with separate record and playback heads), it is possible to record a tape and reproduce it simultaneously to check on the quality of the recording.

Recording

1. Set the function selector control of the front-channel amplifier to the program source to be recorded.
 2. Turn the Function Selector of the QS-500 to a position best suited to the type of the program source.
 3. Start the tape deck in the recording mode.
- NOTE:** Push down the 4-Channel Tape Monitor Switch of the QS-500 to "PLAYBACK" if you want to monitor the recording as you make it.

Playback

1. Push down the 4-Channel Tape Monitor Switch of the QS-500 to "PLAYBACK."
2. Start the 4-channel tape deck in the playback mode.
3. Adjust the playback volume control of the tape deck so that the front-channel VU meter pointers on the QS-500 will swing to the red 1 or 2 mark at the loudest passages of the music being reproduced.
4. Use the various controls on both the QS-500 and front-channel amplifier to obtain the best 4-channel stereo effect for the type of music being reproduced.

SIMPLE MAINTENANCE HINTS

If the Rear-Channel Sound Is Shaky

You may sometimes notice the sound from the rear speaker systems is shaky when that from the front speaker systems is not. Probable causes of this condition include the following:

1. The record is damaged or worn out.
2. The cartridge stylus is damaged or has dust on it.
3. The stylus pressure of the cartridge is either too light or heavy.
4. The cartridge itself is faulty.
5. The level of the input signals fed to the QS-500 is too high.
6. The sound in the record or tape is distorted to begin with.
7. The stereo separation of the FM tuner is poor, or the FM antenna input is insufficient and the broadcast signal contains considerable noise.

If the Separation of the Front/Rear, Left/Right Channels Is Poor

While your QS-500 is designed so that the sounds from the four speaker systems blend with one another to form an integrated sound field, the separation of the front and rear channels, and the left and right channels, may sometimes, be disturbingly poor for one of the following reasons:

1. The program source itself is poor in stereo separation.
2. The left and right channels of the program source are not in phase.
3. The left and right channels of the program source differ in output voltage.

To Connect the Front-Channel Amplifier, etc.

Use the pin plug-equipped shielded cords supplied with your QS-500 to connect the front-channel amplifier. If you should choose to use other cords for some reason, they should be relatively thick and have a minimum of distributed capacity. And try to keep them as short as possible. Observe the same cautions when connecting tape decks.

About the Place of Installation

The bonnet of the QS-500 is designed so that any heat radiated inside will escape through it. Due care

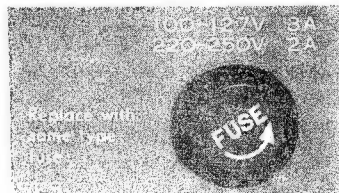
should be taken of the dissipation of such heat if you wish to place something on top of the QS-500 or put the unit inside a closed cabinet, etc. Above all, avoid placing it where it may be exposed to the direct sunlight.

Should the Power Fuse Blow

If the VU meters fail to glow and the QS-500 remains dead when you turn on the Power/Rear Speakers Switch, it is possible that its power fuse has blown.

If this happens, disconnect the power cord from the AC outlet and examine the power fuse on the unit's rear panel. If you find it blown, find out the cause of the blowout and eliminate it, then replace the blown fuse with a new glass-tubed fuse of the rated capacity (3-ampere for 100 to 127 volts, 2-ampere for 220 to 250 volts).

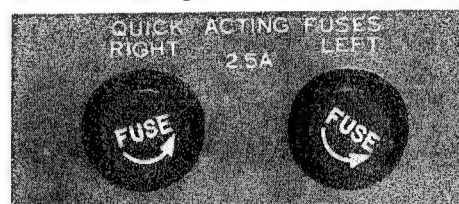
Never use a fuse of a different capacity or a piece of wire, even as a stop-gap measure, or serious danger could result.



About the Quick-Acting Fuses

If the VU meters of the QS-500 illuminate but no sound is heard from both or either of the rear speaker systems, examine their connections and operation once. If nothing is wrong with them, it is possible that both or either of the quick-acting fuses protecting the power transistors has blown.

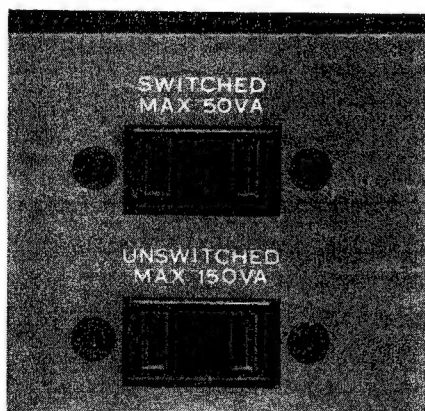
If this happens, disconnect the power cord from the AC outlet and check the two quick-acting fuses on the unit's rear panel. If you find both or either of them blown, discover and eliminate the cause of the blowout, and replace it with a new 2.5-ampere quick-acting fuse supplied. Probable causes of the blowout include excessively large input signals and a short-circuit at the speaker terminals.



SIMPLE MAINTENANCE HINTS

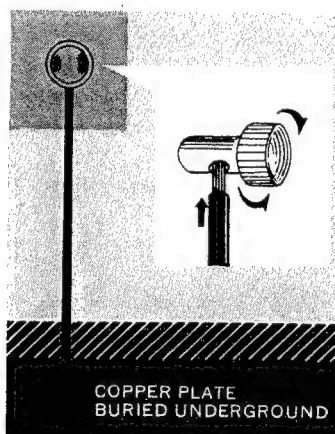
AC Outlets

Of the two AC outlets provided on the rear panel, the one marked SWITCHED is controlled by the front-panel Power/Rear Speakers Switch. The other, marked UNSWITCHED, is always 'live' and independent of the Power/Rear Speakers Switch. Their power capacity is limited, and it is prohibited to connect equipment with a bigger power requirement. Before connecting any equipment, make certain its power requirement does not exceed the power capacity limit.



Grounding

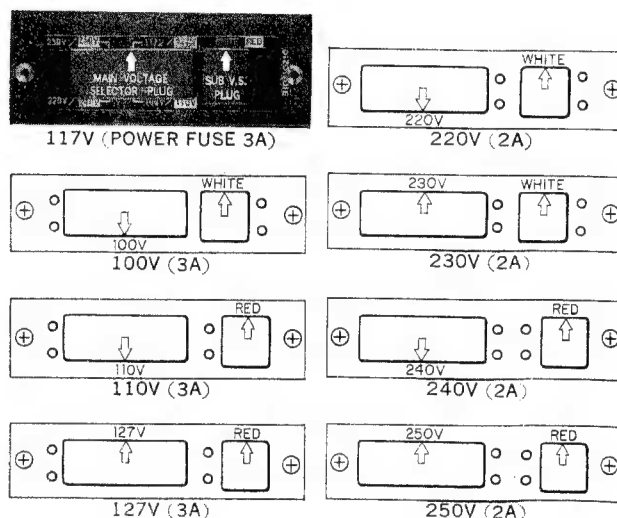
Any noise picked up by the connecting cords may be effectively grounded by connecting a piece of PVC (polyvinyl chloride) or enameled wire to the rear-panel grounding terminal on the QS-500's rear panel, attaching a small copper plate or carbon rod to the other end and burying it deep underground. The grounding leads of other equipment in the system may be connected to the same terminal to ground the entire system at once.



Voltage Adjustment

So that you may operate your QS-500 in any part of the world, it is equipped with Voltage Selector Plugs. As it is set to the correct power supply voltage of your area in our factory prior to shipment, there is no need to touch it. However, should you move after purchasing the unit and find the power supply voltage is different, simply reset the plugs as follows:

1. Remove the two screws securing the name plate on the unit's rear panel, then remove the name plate.
2. Set the arrow mark on the Main Voltage Selector Plug to the required voltage: 100, 110, 117, 127, 220, 230, 240 or 250 volts.
3. If the required voltage is indicated in red, set the arrow mark on the adjacent Sub Voltage Selector Plug to "RED." If it is indicated in white, however, set that arrow to "WHITE."
4. Change the power fuse also whenever the power supply voltage has changed. For 100-127 volt operation, use a 3-ampere glass-tubed fuse. For 220-250 volt operation, use a 2-ampere version of such fuse.
5. Where the power supply voltage considerably fluctuates, the Voltage Selector may be reset to avoid unpleasant side effects of such fluctuation. Reset it to the voltage immediately higher than the peak of the fluctuation.



SPECIFICATIONS/ACCESSORIES

SYNTHESIZER SECTION

INPUT LEVEL

RATED INPUT 2-CHANNEL: 0.15V (50k Ω)
MINIMUM INPUT 2-CHANNEL: 0.05V (50k Ω)
TAPE MONITOR 2-CHANNEL: 0.15V (50k Ω)
4-CHANNEL: 0.775V (50k Ω)

OUTPUT LEVEL

RATED OUTPUT (0 VU) 4-CHANNEL:
0.775V (to Front Amplifier)

MAXIMUM OUTPUT 4-CHANNEL:
5.0V (to Front Amplifier)

RECORDING OUTPUT 2-CHANNEL: 0.15V
4-CHANNEL: 0.775V

FREQUENCY RESPONSE

REAR CHANNEL: 20 to 20,000Hz +1, -2dB

SYNTHESIZATION OF REAR CHANNEL SIGNAL:

- 1 NEW SANSUI'S MATRIX SYSTEM
- 2 SANSUI'S PHASE MODULATION SYSTEM

REAR CHANNEL PHASE MODULATION:

Max. 180 degrees at 10,000Hz

HUM AND NOISE(IHF): less than -70dB

POWER AMPLIFIER SECTION

POWER OUTPUT

MUSIC POWER (IHF): 120W at 4 ohms load
90 W at 8 ohms load

CONTINUOUS POWER: 40/40W at 4 ohms load
33/33W at 8 ohms load

TOTAL HARMONIC DISTORTION:

less than 0.5% at rated output

INTERMODULATION DISTORTION:

(60Hz:7,000Hz=4:1 SMPTE method)
less than 0.5% at rated output

POWER BANDWIDTH (IHF): 20 to 40,000Hz

CHANNEL SEPARATION: better than 60dB

HUM AND NOISE (IHF): less than -80dB

LOAD IMPEDANCE: 4 to 16 ohms

DAMPING FACTOR: 24

SEMICONDUCTORS:

Transistors: 37 Diodes: 20 IC:1 Modules: 7 Zener Diodes: 2

POWER REQUIREMENTS

POWER VOLTAGE: 100, 110, 117, 127, 220, 230,
240, 250V 50/60Hz

POWER CONSUMPTION: 205W (max. signal)

DIMENSION: 382mm (15 $\frac{1}{16}$ ")W, 167mm (6 $\frac{7}{16}$ ")H
337mm (13 $\frac{5}{16}$ ")D

WEIGHT: 10kg (22 lbs)

* Manufacturer reserves right to change design and/or specifications without notice for purpose of improvement.

About Servicing

If anything should ever go wrong with your QS-500 or if you have any question about it, please contact the Sansui dealer from whom you purchased it or your nearest Authorized Sansui Service Station.

ACCESSORIES

1. OPERATING INSTRUCTIONS

AND SERVICE MANUAL 1

2. OPERATING SHEET 1

3. CONNECTING CORDS WITH PIN-PLUGS 4

4. POLISHING CLOTH 1

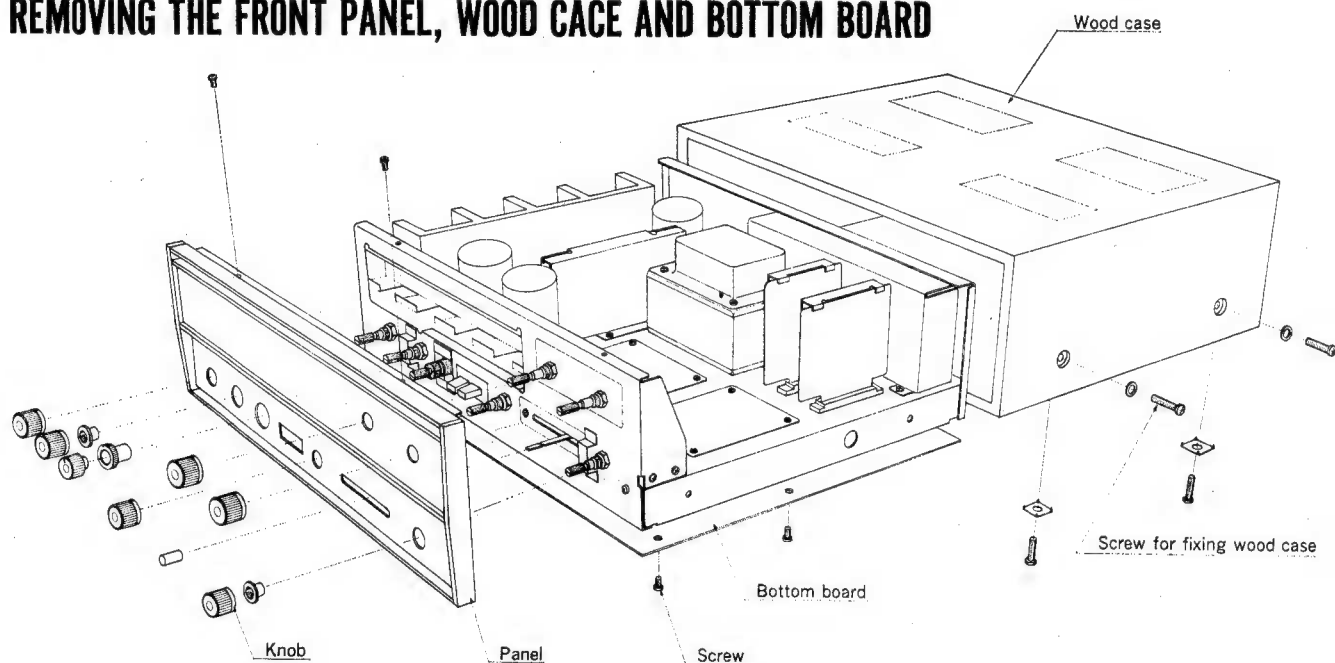
5. QUICK ACTING FUSES..... 2

6. BUTTERFLY BOLTS 2

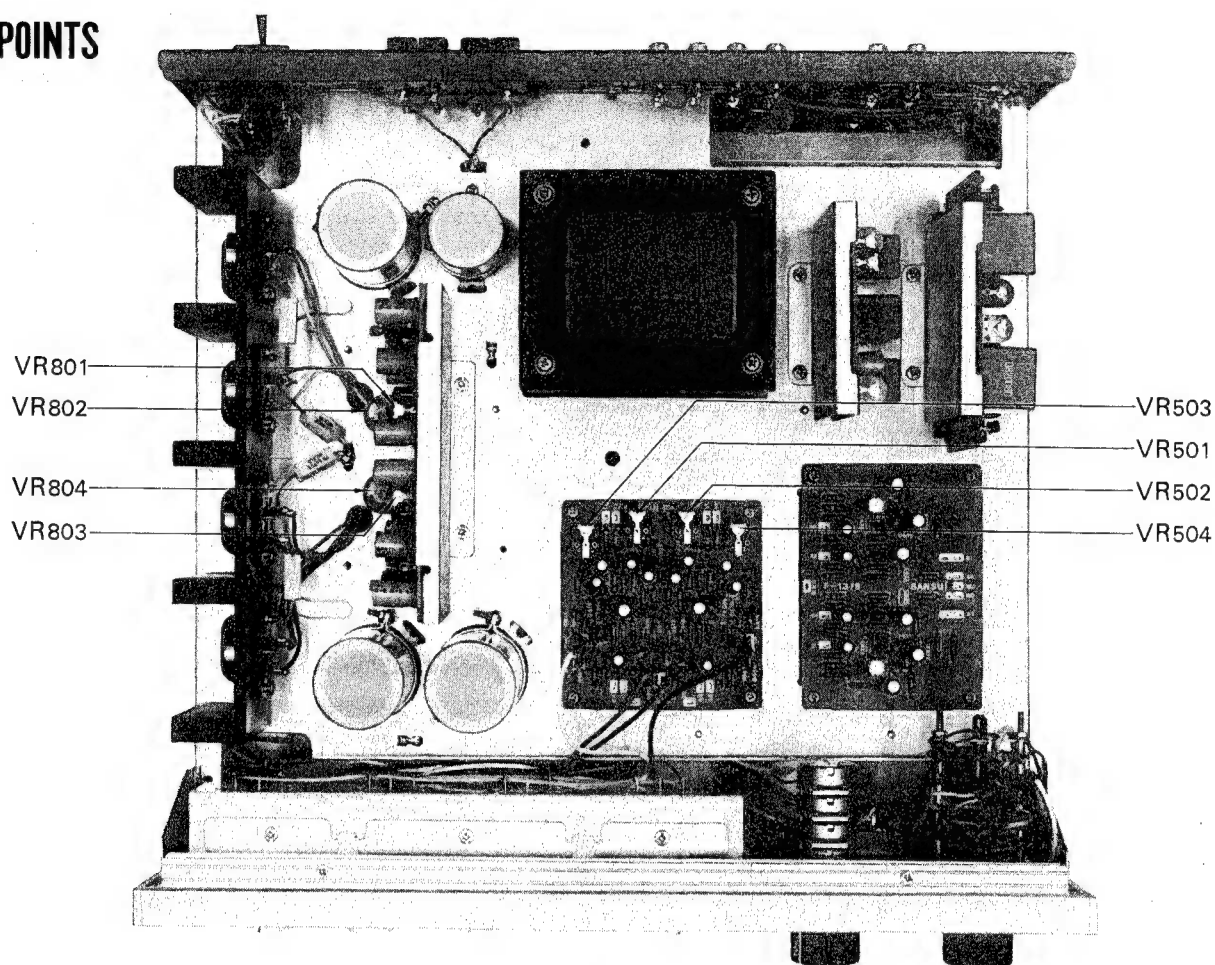
7. WASHERS..... 2

DISASSEMBLY PROCEDURE / TEST POINTS

REMOVING THE FRONT PANEL, WOOD CASE AND BOTTOM BOARD



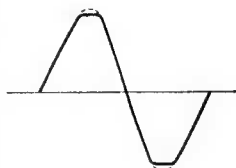
TEST POINTS



ALIGNMENT

OUTPUT ALIGNMENT OF REAR-CHANNEL POWER AMPLIFIER

STEP	CONNECT/ADJUST	REMARKS
1.	Turn the Rear Volume Control fully counterclockwise.	
2.	Set an oscillator to 1kHz, then connect it to 4 CHANNEL TAPE MON rear left-channel input terminal.	Use oscillator with output capacity greater than 200mV. Set all three Balance Controls in center and turn up master Volume Control to maximum.
3.	Push down 4 Channel Tape Monitor Switch.	
4.	Connect an 8-ohm (or 16-ohm) resistor (minimum rating of 50 watts) to SYSTEM A rear left-channel speaker terminals.	
5.	Connect an oscilloscope to the same speaker terminal.	
6.	Set Power/Rear Speakers Switch to "SYSTEM A" position.	
7.	Turn Rear Volume Control slowly clockwise.	
8.	Adjust VR ₈₀₁ so that both peaks of output, wave form are clipped simultaneously.	
9.	For rear right-channel, repeat above procedure, but adjust VR ₈₀₃ in step 8.	

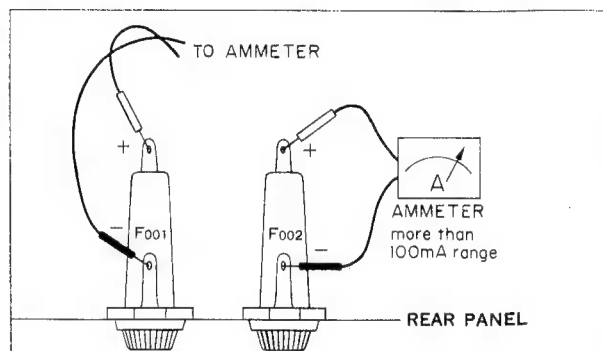


CURRENT ALIGNMENT OF REAR-CHANNEL POWER AMPLIFIER

STEP	CONNECT/ADJUST	REMARKS
1.	Remove F ₀₀₁ and F ₀₀₂	
2.	Turn VR ₈₀₂ and VR ₈₀₄ fully counterclockwise	
3.	Turn on Power/Rear Speakers Switch.	
4.	Connect ammeter (tester) where F ₀₀₁ was (Refer to Fig. 1.)	Be sure power is turned on before connecting ammeter. Set ammeter to its 50-100mA range.
5.	Turn VR ₈₀₂ slowly clockwise until ammeter shows 15-20mA.	
6.	Turn off power, then replace F ₀₀₁ .	
7.	Turn on power again.	
8.	Now, connect ammeter (tester) where F ₀₀₂ was (Refer to Fig. 1.)	Same as step 4.
9.	Turn VR ₈₀₄ slowly clockwise until ammeter shows 15-20mA.	
10.	Turn off power, then replace F ₀₀₂ .	

ALIGNMENT OF VU METERS

STEP	CONNECT/ADJUST
1.	Set your QS-500's three Balance Controls at respective center positions.
2.	Push down 4 Channel Tape Monitor Switch.
3.	Set a low-frequency oscillator to 1kHz, 775mV, then connect it to 4 CHANNEL TAPE MON front left-channel input terminal.
4.	Adjust VR ₅₀₁ so that front left-channel VU meter swings to "0".
5.	Make same adjustments with VR ₅₀₂ , VR ₅₀₃ , VR ₅₀₄ for front right, rear left and rear right channel VU meters, respectively.



(Fig. 1) QUICK-ACTING FUSE HOLDER

PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

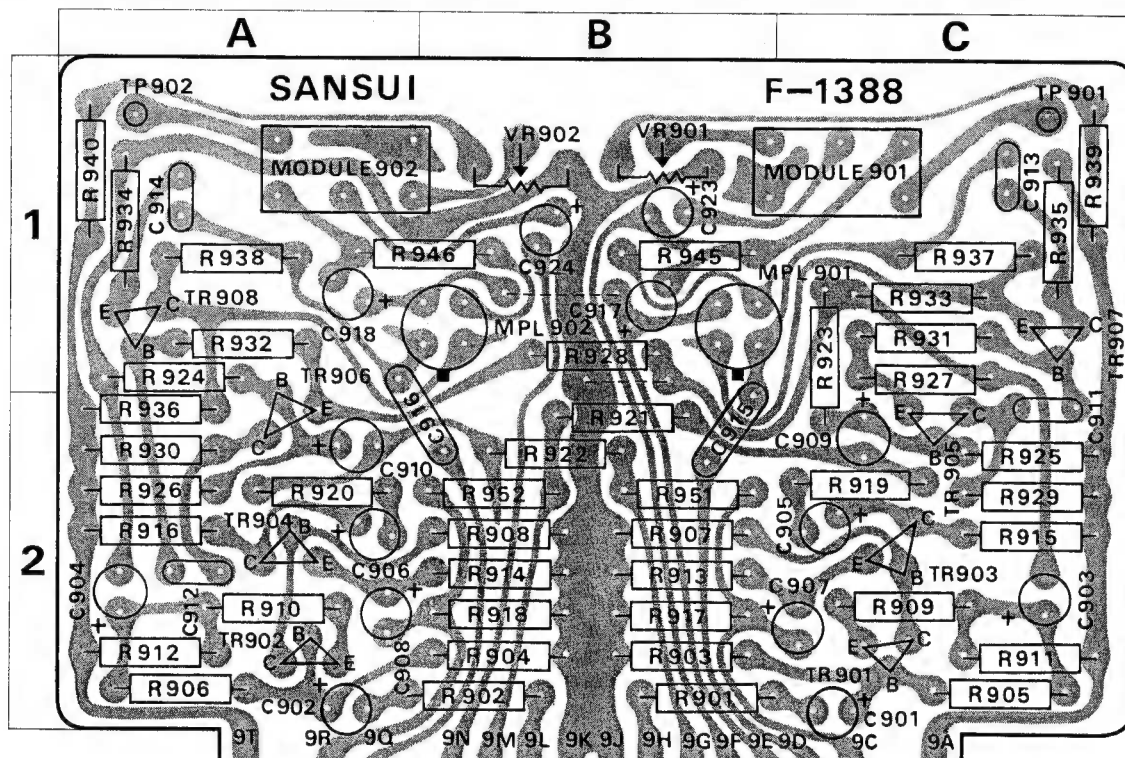
SYNTHESIZER <F-1388>

W	X	Y	Z
R901	8.2k Ω	0101822	2 B
R902	8.2k Ω	0101822	2 B
R903	820k Ω	0101824	2 B
R904	820k Ω	0101824	2 B
R905	100k Ω	0101104	2 C
R906	100k Ω	0101104	2 A
R907	33k Ω	0101333	2 B
R908	33k Ω	0101333	2 B
R909	3.3k Ω	0101332	2 C
R910	3.3k Ω	0101332	2 A
R911	39k Ω	0101393	2 C
R912	39k Ω	0101393	2 A
R913	3.3k Ω	0101332	2 B
R914	3.3k Ω	0101332	2 B
R915	3.3k Ω	0101332	2 C
R916	3.3k Ω	0101332	2 A
R917	220k Ω	0101224	2 B
R918	220k Ω	0101224	2 B
R919	56k Ω	0101563	2 C
R920	56k Ω	0101563	2 A
R921	82k Ω	0101823	2 B
R922	82k Ω	0101823	2 B
R923	56k Ω	0101563	1 C
R924	56k Ω	0101563	1 A
R925	120k Ω	0101124	2 C
R926	120k Ω	0101124	2 A
R927	3.3k Ω	0101332	1 C

$\pm 10\% \frac{1}{4}W$ CR.

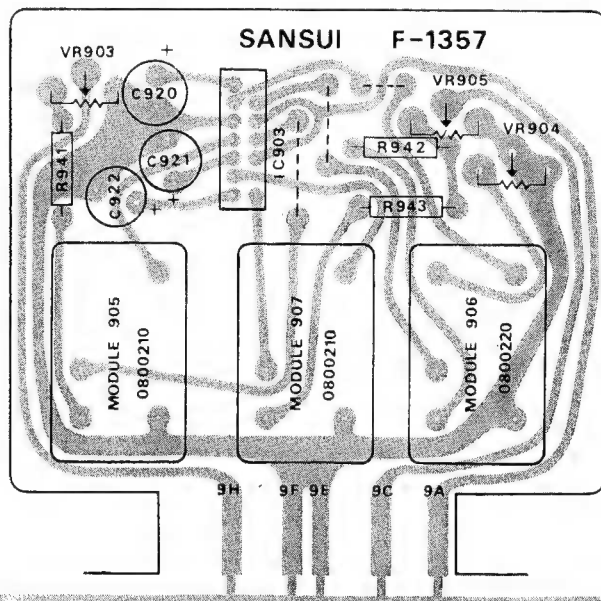
W	X	Y	Z
R928	3.3k Ω	0101332	1 B
R929	3.3k Ω	0101332	2 C
R930	3.3k Ω	0101332	2 A
R931	12k Ω	0101123	1 C
R932	12k Ω	0101123	1 A
R933	3.9k Ω	0101392	1 C
R934	3.9k Ω	0101392	1 A
R935	3.9k Ω	0101392	1 C
R936	3.9k Ω	0101392	2 A
R937	18k Ω	0101183	1 C
R938	18k Ω	0101183	1 A
R939	18k Ω	0101183	1 C
R940	18k Ω	0101183	1 A
R945	22 Ω	0101220	1 B
R946	22 Ω	0101220	1 A, B
R951	68k Ω	0101683	2 B
R952	68k Ω	0101683	2 B
R981	82k Ω	0101823	
R982	82k Ω	0101823	
R983	820k Ω	0101824	
R984	820k Ω	0101824	
VR901	2k Ω (B)	1031070	1 B
VR902	2k Ω (B)	1031070	1 B
C901	1 μ F	0515109	2 C
C902	1 μ F	0515109	2 A
C903	10 μ F	0515339	2 C
C904	10 μ F	0515339	2 A

$\pm 10\% \frac{1}{4}W$ CR.



OSCILLATOR <F-1357>

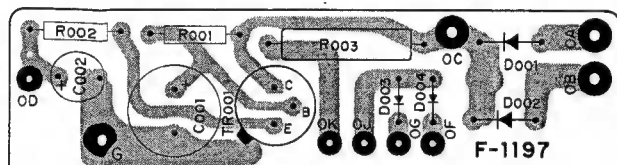
W	X	Y
R941	39k Ω	0101393
R942	150k Ω	0101154
R943	120k Ω	0101124
VR903	50k Ω (B)	1031132
VR904		1031132
VR905		1031132
C920	100 μ F	0510101
C921	100 μ F	0510101
C922	100 μ F	0510101
IC903	Hybrid IC	0820041
MODULE ₉₀₅	CR Compound Circuits	0800210
MODULE ₉₀₆		0800220
MODULE ₉₀₇		0800210



W	X	Y	Z
C905	1 μ F	0515109	2C
C906	1 μ F	0515109	2A
C907	4.7 μ F	0513479	2C
C908	4.7 μ F	0513479	2A
C909	1 μ F	0515109	2C
C910	1 μ F	0515109	2A
C911	0.047 μ F	0601477	2C
C912	0.022 μ F	0601227	2A
C913	0.0012 μ F	0601126	1C
C914	0.0012 μ F	0601126	1A
C915	0.047 μ F	0601477	2B
C916	0.047 μ F	0601477	1A, 2B
C917	4.7 μ F	0513479	1B
C918	4.7 μ F	0513479	1A
C923	1 μ F	0515109	1B
C924	1 μ F	0515109	1B
TR901	XA495BL (C, D)	0300162, 3	2C
TR902		0300162, 3	2A
TR903		0305880, 1, 2	2C
TR904	2SC1000 (GR, BL, Y)	0305880, 1, 2	2A
TR905		0305880, 1, 2	2C
TR906		0305880, 1, 2	2A
TR907		0305880, 1, 2	1C
TR908		0305880, 1, 2	1A
MODULE ₉₀₁	Compound Circuits	0820060	1C
MODULE ₉₀₂		0820060	1A
MPL901	MCL-706	0920021	1B
MPL902		0920021	1B

RIPPLE FILTER <F-1197A>

W	X	Y
R001	12k Ω	0111123
R002	6.8 Ω	0111689
C001	220 μ F 75V EC.	0519302
C002	4.7 μ F 160 V EC.	0518479
TR001	2SC627 (1, 2)	0305580, 1
D001	SA-2Z	0310420
D002		0310420



Abbreviations

- CR : Carbon Resistor
- SR : Solid Resistor
- CeR : Cement Resistor
- EC : Electrolytic Capacitor
- MC : Mylar Capacitor
- CC : Ceramic Capacitor
- OC : Oil Capacitor

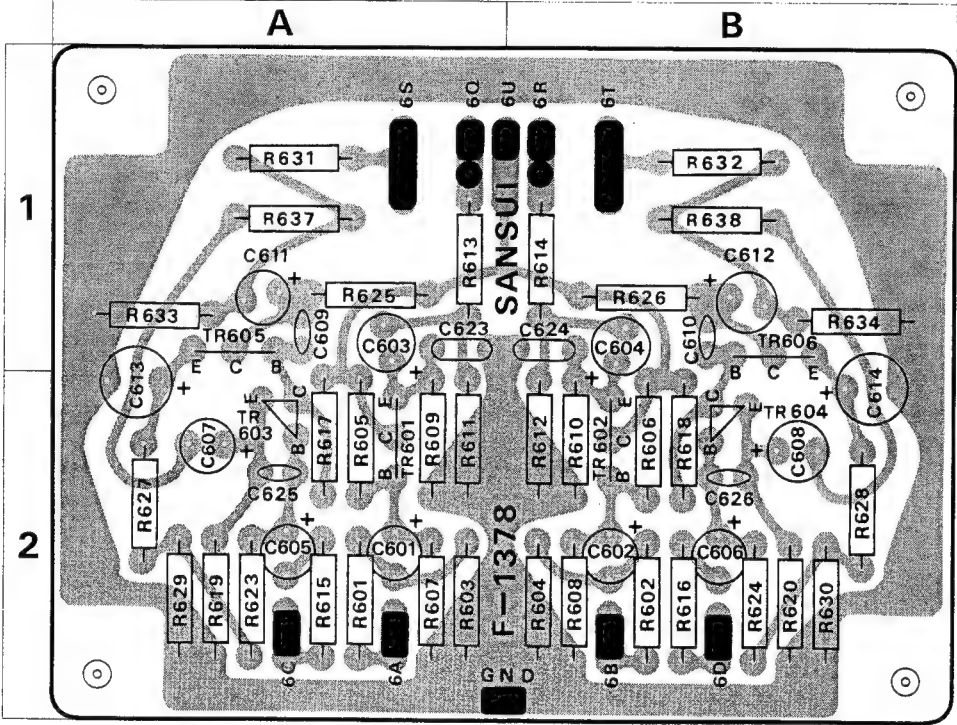
PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

BUFFER AMP. <F-1378>

W	X	Y	Z
R601	2.2k Ω	0101222	2 A
R602	2.2k Ω	0101222	2 B
R603	470k Ω	0101474	2 A
R604	470k Ω	0101474	2 B
R605	470k Ω	0101474	2 A
R606	470k Ω	0101474	2 B
R607	220k Ω	0101224	2 A
R608	220k Ω	0101224	2 B
R609	6.8k Ω	0101682	2 A
R610	6.8k Ω	0101682	2 B
R611	100k Ω	0101104	2 A
R612	100k Ω	0101104	2 B
R613	470 Ω	0101471	1 A
R614	470 Ω	0101471	1 B
R615	2.2k Ω	0101222	2 A
R616	2.2k Ω	0101222	2 B
R617	100k Ω	0101104	2 A
R618	100k Ω	0101104	2 B
R619	3.9k Ω	0101392	2 A
R620	3.9k Ω	0101392	2 B
R623	1M Ω	0101105	2 A
R624	1M Ω	0101105	2 B
R625	6.8k Ω	0101682	1 A
R626	6.8k Ω	0101682	1 B
R627	2.2k Ω	0101222	2 A
R628	2.2k Ω	0101222	2 B
R629	1k Ω	0101102	2 A
R630	1k Ω	0101102	2 B

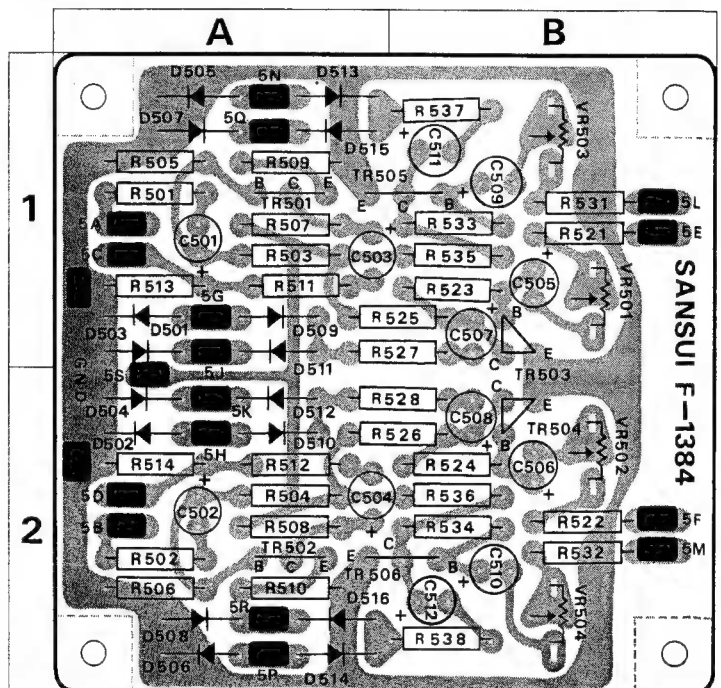
W	X	Y	Z
R631	470 Ω	0101471	1 A
R632	470 Ω	0101471	1 B
R633	47k Ω	0101473	1 A
R634	47k Ω	0101473	1 B
R637	2.7k Ω	0101272	1 A
R638	2.7k Ω	0101272	1 B
C601	1 μ F	0515109	2 A
C602	1 μ F	0515109	2 B
C603	10 μ F	0513100	1 A
C604	10 μ F	0513100	1 B
C605	1 μ F	0515109	2 A
C606	1 μ F	0515109	2 B
C607	33 μ F	0511330	2 A
C608	33 μ F	0511330	2 B
C609	330pF	0660331	1 A
C610	330pF	0660331	1 B
C611	10 μ F	0513100	1 A
C612	10 μ F	0513100	1 B
C613	47 μ F	0510470	2 A
C614	47 μ F	0510470	2 B
TR601	2SC871R (E, F)	0305474, 5	2 A
TR602	2SC871R (E, F)	0305474, 5	2 B
TR603	2SC871R (E, F)	0305474, 5	2 A
TR604	2SC871R (E, F)	0305474, 5	2 B
TR605	2SC871R (E, F)	0305474, 5	1 A
TR606	2SC871R (E, F)	0305474, 5	1 B



METER AND OUTPUT <F-1384>

W	X	Y	Z
R501	2.2k Ω	0101222	1 A
R502	2.2k Ω	0101222	2 A
R503	470k Ω	0101474	1 A
R504	470k Ω	0101474	2 A
R505	150k Ω	0101154	1 A
R506	150k Ω	0101154	2 A
R507	2.2k Ω	0101222	1 A
R508	2.2k Ω	0101222	2 A
R509	1.2k Ω	0101122	1 A
R510	1.2k Ω	0101122	2 A
R511	100 Ω	0101101	1 A
R512	100 Ω	0101101	2 A
R513	100k Ω	0101104	1 A
R514	100k Ω	0101104	2 A
R521	120k Ω	0101124	1 B
R522	120k Ω	0101124	2 B
R523	470k Ω	0101474	1 B
R524	470k Ω	0101474	2 B
R525	3.3k Ω	0101332	1 A, B
R526	3.3k Ω	0101332	2 A, B
R527	1k Ω	0101102	1 A, B
R528	1k Ω	0101102	2 A, B
R531	120k Ω	0101124	1 B
R532	120k Ω	0101124	2 B
R533	470k Ω	0101474	1 B
R534	470k Ω	0101474	2 B
R535	3.3k Ω	0101332	1 B
R536	3.3k Ω	0101332	2 B
R537	1k Ω	0101102	1 B
R538	1k Ω	0101102	2 B
VR501	200k Ω (B)	1032152	1 B
VR502	200k Ω (B)	1032152	2 B
VR503	200k Ω (B)	1032152	1 B
VR504	200k Ω (B)	1032152	2 B
C501	1 μ F	0515109	1 A
C502	1 μ F	0515109	2 A
C503	10 μ F	0513100	1 A
C504	10 μ F	0513100	2 A
C505	1 μ F	0515109	1 B
C506	1 μ F	0515109	2 B
C507	4.7 μ F	0513479	1 B
C508	4.7 μ F	0513479	2 B
C509	1 μ F	0515109	1 B
C510	1 μ F	0515109	2 B
C511	4.7 μ F	0513479	1 B
C512	4.7 μ F	0513479	2 B
TR501	2SC871R (F)	0305475	1 A
TR502	2SC871R (F)	0305475	2 A
TR503	2SC711 (E, F)	0305731, 2	1 B
TR504	2SC711 (E, F)	0305731, 2	2 B
TR505	2SC711 (E, F)	0305731, 2	1 A, B
TR506	2SC711 (E, F)	0305731, 2	2 A, B

W	X	Y	Z
D501	IN34A (BL, Y)	0310400, 1	1 A
D502	IN34A (BL, Y)	0310400, 1	2 A
D503	IN34A (BL, Y)	0310400, 1	1 A
D504	IN34A (BL, Y)	0310400, 1	2 A
D505	IN34A (BL, Y)	0310400, 1	1 A
D506	IN34A (BL, Y)	0310400, 1	2 A
D507	IN34A (BL, Y)	0310400, 1	1 A
D508	IN34A (BL, Y)	0310400, 1	2 A
D509	IN34A (BL, Y)	0310400, 1	1 A
D510	IN34A (BL, Y)	0310400, 1	2 A
D511	IN34A (BL, Y)	0310400, 1	1 A
D512	IN34A (BL, Y)	0310400, 1	2 A
D513	IN34A (BL, Y)	0310400, 1	1 A
D514	IN34A (BL, Y)	0310400, 1	2 A
D515	IN34A (BL, Y)	0310400, 1	1 A
D516	IN34A (BL, Y)	0310400, 1	2 A



PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

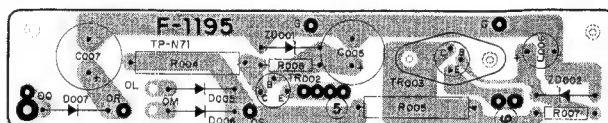
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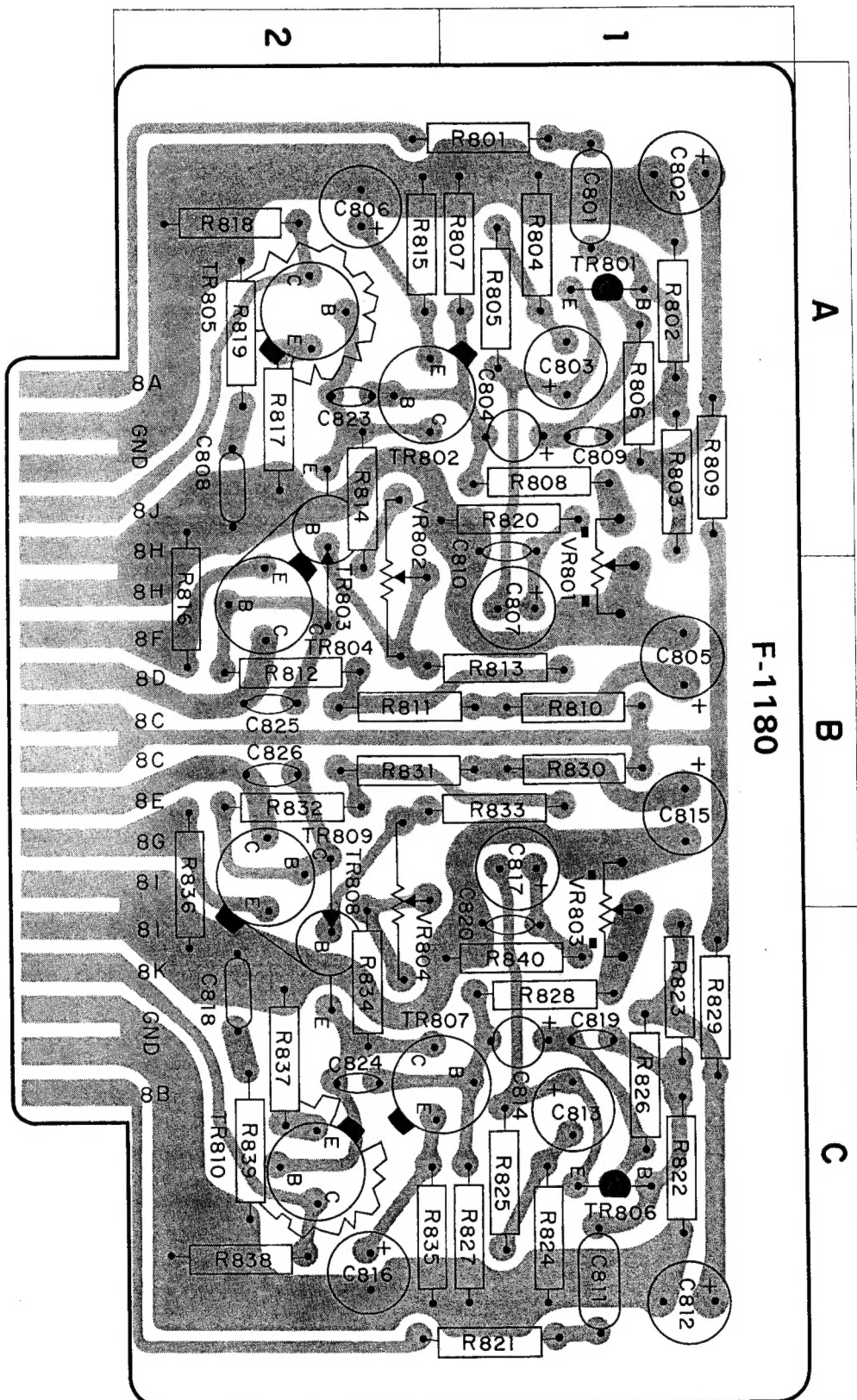
W	X	Y	Z
R801	2.2k Ω	0101222	1A
R802	150k Ω	0101154	1A
R803	560k Ω	0101564	1A
R804	220 Ω	0101221	1A
R805	3.3k Ω	0101332	1A
R806	3.3k Ω	0101332	1A
R807	10k Ω	0101103	1A
R808	47k Ω	0101473	1A
R809	56k Ω	0101563	1A
R810	1.8k Ω	0101182	1B
R811	3.9k Ω	0101392	2B
R812	39 Ω	0101390	2B
R813	3.3k Ω	0101332	1B
R814	1.5k Ω	0101152	2A
R815	220 Ω	0101221	2A
R816	100 Ω	0101101	2B
R817	4.7 Ω	0101479	2A
R818	100 Ω	0101101	2A
R819	10 Ω	0111100	2A
R820	8.2k Ω	0101822	1A
R821	2.2k Ω	0101222	1C
R822	150k Ω	0101154	1C
R823	560k Ω	0101564	1C
R824	220 Ω	0101221	1C
R825	3.3k Ω	0101332	1C
R826	3.3k Ω	0101332	1C
R827	10k Ω	0101103	1C
R828	47k Ω	0101473	1C
R829	56k Ω	0101563	1C
R830	1.8k Ω	0101182	1B
R831	3.9k Ω	0101392	2B
R832	39 Ω	0101390	2B
R833	3.3k Ω	0101332	1B
R834	1.5k Ω	0101152	2C
R835	220 Ω	0101221	2C
R836	100 Ω	0101101	2B
R837	4.7 Ω	0101479	2C
R838	100 Ω	0101101	2C
R839	10 Ω	0101100	2C
R840	8.2k Ω	0101822	1C
VR801	200k Ω (B) AC Balance Adj.	1031150, 2	1A, B
VR802	1k Ω (B) DC Bias Adj.	1030690	2A, B
VR803	200k Ω (B) AC Balance Adj.	1031150, 2	1B, C
VR804	1k Ω (B) DC Bias Adj.	1030690	2B, C
C801	0.22 μ F $\pm 10\%$ 50 V MC.	0601228	1A
C802	100 μ F 25 V EC.	0513101	1A
C803	220 μ F 10 V EC.	0511221	1A
C804	1 μ F 50 V EC.	0515109	1A
C805	33 μ F 50 V EC.	0515330	1B
C806	100 μ F 10 V EC.	0511101	2A
C807	10 μ F 50 V EC.	0515100	1B
C808	0.047 μ F $\pm 10\%$ 50 V MC.	0601477	2A
C809	47pF $\pm 10\%$ 50 V CC.	0660470	1A
C811	0.22 μ F $\pm 10\%$ 50 V MC.	0601228	1C
C812	100 μ F 25 V EC.	0513101	1C

W	X	Y	Z
C813	220 μ F 10 V EC.	0511221	1C
C814	1 μ F 50 V EC.	0515109	1C
C815	33 μ F 50 V EC.	0515330	1B
C816	100 μ F 10 V EC.	0511101	2C
C817	10 μ F 50 V EC.	0515100	1B
C818	0.047 μ F $\pm 10\%$ 50 V MC.	0601477	2C
C819	47pF $\pm 10\%$ 50 V CC.	0660470	1C
C823	47pF	0660470	2A
C824	47pF	0660470	2C
C825	330pF $\pm 10\%$ 50 V CC.	0660331	2B
C826	330pF	0660331	2B
TR801	2SC458LG (B, C)	0305310, 1	1A
TR802	2SC627 (1,2) or 2SC1124 (1,2,3)	0305580, 1 or 0305900, 1, 2	2A
TR803	2SC281 (B, C) or 2SC984 (C, D)	0305121, 2 or 0305672, 3	2A, B
TR804	2SC959 (M, L)	0305741, 2	2B
TR805	2SA606 (M, L) Pair 2SA537A (A, B, C) Pair	or 0305480, 1, 2 or 0300120, 1, 2	2A
TR806	2SC458LG (B, C)	0305310, 1	1C
TR807	2SC627 (1,2) or 2SC1124 (1,2,3)	0305580, 1 or 0305900, 1, 2	1, 2C
TR808	2SC281 (B, C) or 2SC984 (C, D)	0305121, 2 or 0305672, 3	2B, C
TR809	2SC959 (M, L) Pair 2SC708A (A, B, C) Pair	0305741, 2 or 0305480, 1, 2	2B
TR810	2SA606 (M, L) Pair 2SA537A (A, B, C) Pair	0300211, 2 or 0300120, 1, 2	2C

POWER <F-1195-1B>

W	X	Y
R004	68 Ω	0104680
R005	68 Ω	0104680
R006	680 Ω	0101681
R007	3.9k Ω	0101392
R011	10 Ω	0101100
C005	220 μ F 50 V EC.	0515221
C006	220 μ F 50 V EC.	0515221
C015	220 μ F 25 V EC.	0513221
TR002	2SC971 Green (2, 3)	0305532, 3
TR003	2SD205 (K, L)	0308130, 1
D005	F14A	0310940
D006	F14A	0310940
ZD001	RD 24A (M, N)	0315410, 20
ZD002	RD 24A (M, N)	0315410, 20





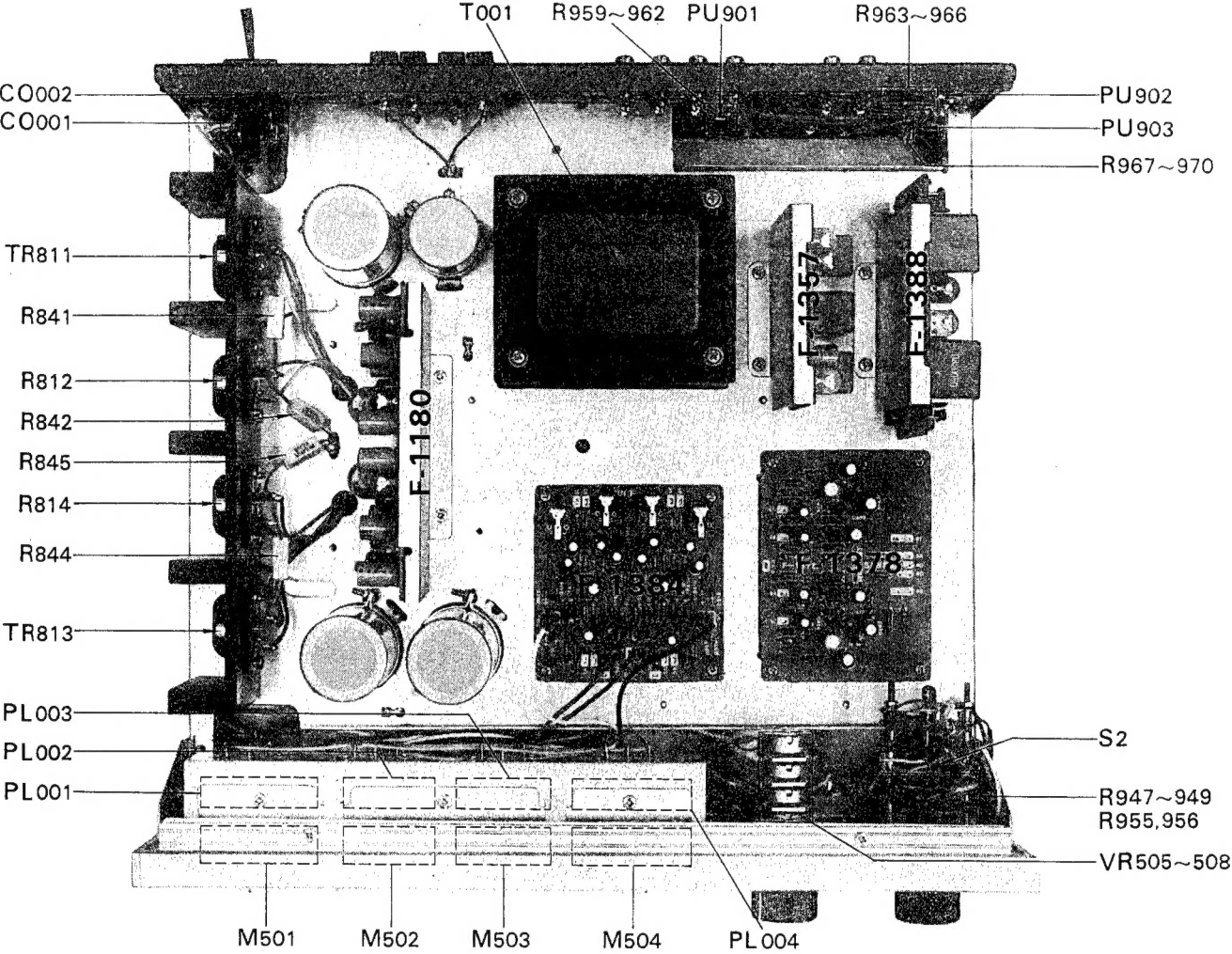
OTHER PARTS AND THEIR POSITIONS ON CHASSIS

W: Parts No. X: Parts Name Y: Stock No.

OTHER PARTS

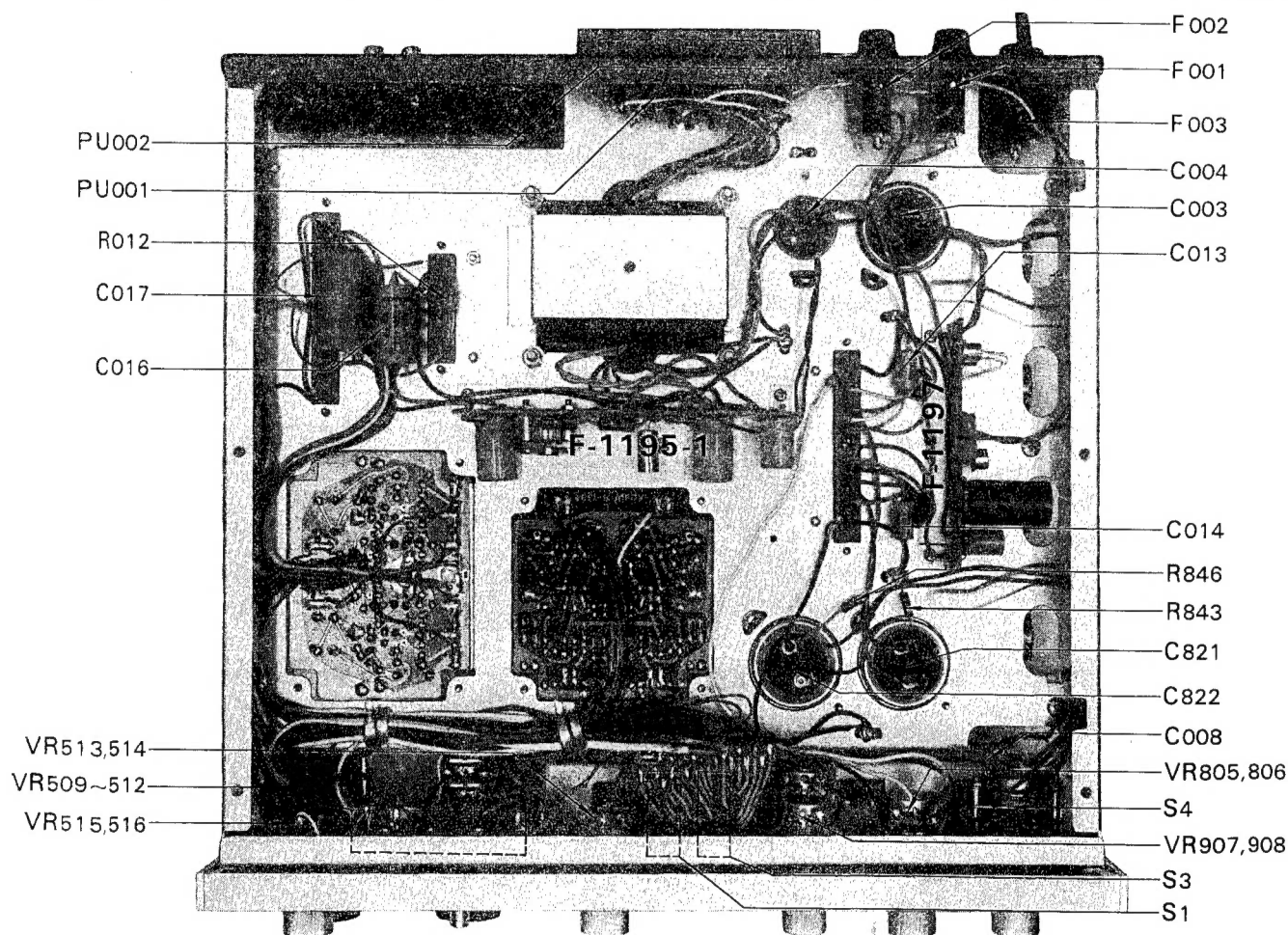
W	X			Y
R012	68Ω	±10%	1/2W SR.	0111680
R103	0.47Ω	±10%	2W CeR.	0152478
R841	0.47Ω			0152478
R842	0.47Ω			0152478
R843	330Ω	±10%	1/2W SR.	0111331
R844	0.47Ω	±10%	2W CeR.	0152478
R845	0.47Ω			0152478
R846	330Ω			0111331
R947	27kΩ	±10%	1/4W CR.	0101273
R948	27kΩ			0101273
R949	18kΩ			0101183
R955	15kΩ			0101153
R956	15kΩ			0101153
R959	100kΩ			0101104
R960	100kΩ			0101104
R961	330kΩ			0101334
R962	330kΩ			0101334
R963	100kΩ			0101104
R964	100kΩ			0101104

W	X			Y
R965	2.2M Ω	±10%	½W SR.	0111225
R966	2.2M Ω			0111225
R967	100k Ω	±10%	¼W CR.	0101104
R968	100k Ω			0101104
R969	2.2M Ω	±10%	½W SR.	0111225
R970	2.2M Ω			0111225
VR505~508	100k Ω (A) × 4	Volume		1060020
VR509~512	250k Ω (MN) × 2	Main Balance		1040100
VR513, 514	100k Ω (MN)	Front Balance		1010690
VR515, 516	100k Ω (MN)	Rear Balance		1010690
VR805, 806	250k Ω (B) × 2	Rear Volume		1010710
VR907, 908	250k Ω (B) × 2	Level Set		
C003	2200 μ F	80 V	EC.	0559820
C004	1000 μ F	50 V	EC.	0559304
C008	0.01 μ F	+80% -20%	150V CC.	0659801
C013	0.01 μ F	400V	OC.	0590107
C014	0.01 μ F			0590107



W	X	Y
C016	330 μ F } 25 V EC.	0513331
C017		0513102
C821	2200 μ F } 80 V EC.	0559820
C822		0559820
TR811	2SC1111 (R, O, Y) or 2SC793 (R, Y, BL)	0305830, 1, 2
TR812		
TR813		or
TR814		0305450, 1, 2
S1(a, b)	2 Ch. Tape Monitor Switch	1130360
S3(a~d)	4 Ch. Tape Monitor Switch	
S2(a~i)	Y-4-8-7 Function Selector	1104200
S4(a~e)	Y-1-4-4 Power/Rear Speaker Switch	1101290
M501	VU Meter	4300440
M502		4300440
M503		4300440
M504		4300440
T001	400-B1040XX Power Transformer	4000510

W	X	Y
CO001	AC Outlet	2450040
CO002		2450040
F001	2.5A Quick Acting Fuse	0433242
F002		0433242
F003		0431262
	3A Fuse (100~127V)	0431242
	2A Fuse (220~250V)	
PU001	Voltage Selector Socket	2410170
PU002	Voltage Selector Plug	2410180
		2410190
PU901	DIN Connector	2430040
PU902		2430040
PU903		2430040
PL001	Pilot Lamp F Type 6.3 V 0.25A	0420020
PL002		0420020
PL003		0420020
PL004		0420020





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