



SERVICE MANUAL

4-CHANNEL MUSIC CENTER

SANSUI MQ-2000



Sansui

SANSUI ELECTRIC COMPANY LIMITED.

Dear Service Engineer:

Thank you for the trouble you are taking to service our MQ-2000.

The MQ-2000 4-Channel Music Center is designed for people who want to enter the world of 4-channel stereo without much fuss and without making too big an investment. Like other quality 4-channel stereo equipment from Sansui, it incorporates our unique QS synthesizer/decoder circuit. It is this circuit that enables this compact music center to recover the original four channels of signal from 2-channel program sources encoded from four channels by a Sansui QS encoder. Equally important, it is this circuit that enables the music center to produce exciting 4-channel stereo sound from today's 2-channel stereo sources, by the simple changeover of its Synthesizer/Decoder Function Control.

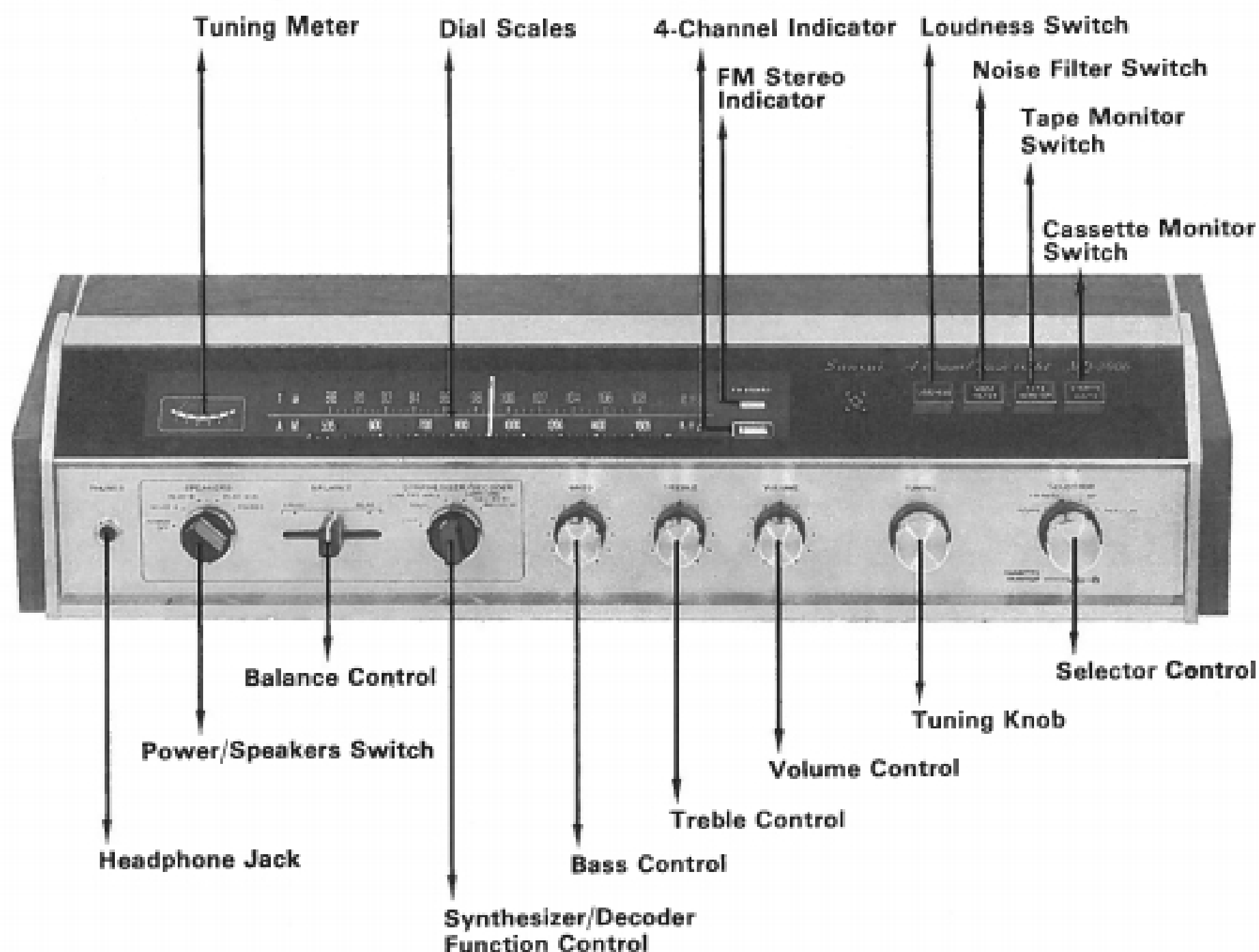
The matrixing or coding system of 4-channel stereo offers these and several other advantages. Since the Sansui QS synthesizer/decoder circuit employs a quite universal decoding matrix, once you understand its design and function, you would most likely find it easy to service matrixing system 4-channel equipment of other makes as well.

It is our sincere hope that this manual, along with the Service Manual for the automatic changer, provides you with all the detailed information required to maintain and service the MQ-2000.

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SWITCHES AND CONTROLS



This Service Manual is concerned only with the receiver part of the MQ-2000. A separate service manual is available for the automatic changer section, and can be obtained simply by writing to SANSUI ELECTRONICS CORPORATION.

GENERAL TROUBLESHOOTING CHART

If the receiver is otherwise operating satisfactorily, the more common causes of trouble may generally be attributed to the following:

1. Incorrect connections or loose terminal contacts. Check the speakers, turntable, tape deck, antenna and power cord.
2. Improper operation. Before operating any audio com-

ponent, be sure to read its manufacturer's instructions.

3. Improper location of audio components. The proper positioning of components, such as speakers and turntable, is essential to maximum stereo enjoyment.

4. Defective audio components.

The following are some other common causes of malfunction and what to do about them.

PROGRAM	SYMPTOM	PROBABLE CAUSE	WHAT TO DO
AM, FM or MPX reception	A. Constant or intermittent noise heard at times or in certain areas	<ul style="list-style-type: none"> * Discharge or oscillation caused by electrical appliances, such as fluorescent lamp, TV set, D.C. motor rectifier or oscillator. * Natural phenomena, such as atmospheric, static or thunderbolts * Insufficient antenna input due to ferroconcrete wall or long distance from station 	<ul style="list-style-type: none"> * Attach noise limiter to electrical appliance producing noise, or attach it to the receiver's power source * Install outdoor antenna and ground receiver to raise SN ratio * Reverse power cord plug/receptacle connections * If noise occurs at certain frequency, attach wave trap to input * Keep receiver at proper distance from other electrical appliances
AM reception	A. Noise heard at a particular time of a day, in a certain area or over part of dial	<ul style="list-style-type: none"> * Peculiar to AM broadcasts 	<ul style="list-style-type: none"> * Install antenna for maximum antenna efficiency. See "RADIO RECEPTION" in operating instructions booklet * In some cases, noise can be eliminated by grounding receiver or reversing power cord plug/receptacle connections
	B. High-frequency noise	<ul style="list-style-type: none"> * Adjacent-channel interference or beat interference * TV set too close to audio system 	<ul style="list-style-type: none"> * Such noise cannot be completely eliminated by the receiver, but it is advisable to turn Treble control counterclockwise and turn on Noise Filter * Keep TV set at proper distance from stereo system
FM reception	A. Noisy	<ul style="list-style-type: none"> * Poor noise limiter effect or too low SN ratio due to insufficient antenna input <p>Note: FM reception is affected considerably by transmission conditions of station, such as power and antenna efficiency. As a result, you may receive one station quite well while receiving another station poorly.</p>	<ul style="list-style-type: none"> * Change the set position or install antenna for maximum signal strength * If this does not prove effective, use exclusive FM outdoor antenna. If using TV antenna for both TV and FM with a divider, make sure TV reception is not affected * Exclusively long lead-in wire of antenna may cause noise
	B. A series of pops	<ul style="list-style-type: none"> * Ignition noise caused by starting of nearby automobile engine 	<ul style="list-style-type: none"> * Install antenna and its lead-in wire at proper distance from street or increase antenna input as described before
	C. Tuning noise between stations	<ul style="list-style-type: none"> * Results from nature of FM reception 	<ul style="list-style-type: none"> * Turn Volume control counterclockwise

PROGRAM	SYMPTOM	PROBABLE CAUSE	WHAT TO DO
FM-MPX reception	A. Noise heard during FM-MPX reception but inaudible during FM mono reception	* Weaker signal because service area of FM-MPX broadcast is only half that of FM mono broadcast	* Orient antenna for maximum antenna input * Switch on Noise Filter and/or turn Treble control counterclockwise
	B. Channel separation deteriorates during reception	* Excess heat	* Circulation of room air is important to receiver. Be sure that receiver is well ventilated
	C. Stereo indicator blinks on and off	* Interference	* Indicator is not faulty
Record playing or tape playback	A. Hum or howling	* Set placed directly on speaker * Wire other than shielded cable used * Loose terminal contact * Shielded cable too close to power cord, fluorescent lamp or other appliances * Nearby amateur radio station or TV transmission antenna	* Place cushion between turntable and speaker cabinet or place them away from each other * Connecting shielded cables should be as short as possible * Turn Bass control counterclockwise * Consult nearest Radio Regulatory Bureau
	B. Surface noise	* Worn or old record * Worn phono stylus * Phono stylus is dusty * Improper stylus pressure	* Recondition playback head of tape deck or the stylus of turntable * Turn Treble control counterclockwise * Turn Noise Filter on
4-channel stereo playback	A. Position of musical instruments and voice not clear	* Incorrect phasing of speakers or input connections	* Check phasing of speakers and input connections * Change rear speaker position and/or direction

TIDBITS

On the QS Synthesizer/Decoder Circuit

This circuit comprises a matrix to recover four channels—left front, right front, left rear and right rear—of information from two channels, and unique phase shifters (patents pending) to closely approximate the delicate ambience of the live performance. The matrixing system of 4-channel stereo is particularly fit to reproduce all those delicate shades and nuances of concert hall performances. In a concert hall, not only the direct sounds from the musical instruments and singers but the indirect sounds reflected off the walls, ceiling and floor play a vital role in the enjoyment of music by the audience. The matrix in the MQ-2000 performs complex additions and subtractions on the input two channels of signal to separate them into four channels, i.e., into direct sounds and indirect sounds with varying phase differences from the former.

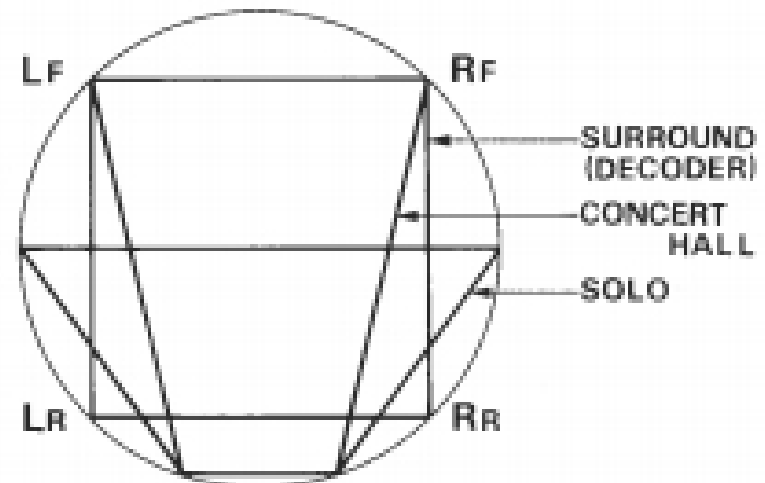
The Synthesizer/Decoder Function Control of the MQ-2000 enables the operator to alter the 'blending coefficient' (additions and subtractions) of the matrix to suit the type of music to be played.

SOLO: The input two channels of signal are released from the front without any blending for very broad separation, but the rear channels are rendered the narrowest of all three positions for 4-channel reproduction. Good for hearing solo and small-band performances where the left-right stereo separation is very limited and there is little expansion of the indirect sounds.

CONCERT HALL: The front left-right separation is a little narrower than SOLO, but the rear channels are separated wider. Appropriate for hearing orchestras and big bands where the stage is wide and the indirect sounds disperse to the left and right.

SURROUND/DECODER: In this position, the matrix provides a square sound field, producing interesting effects with mood music, rock-'n'-roll and other types of music by scattering the musical instruments all around the listener. When made to reproduce 4-channel sources encoded by the Sansui QS 4-channel encoder into a 2-channel form, it

delivers particularly enthralling 4-channel stereo music combining the charm of sound source reproduction of the discrete 4-channel system and the advantage of the sound field reproduction of the matrixing system.



The phase shifters are a circuit to remedy the inherent shortcoming of the matrix circuit. When the original four channels of signal are converted to two channels and then back to four by an encoder and decoder, they are processed through two—encoding and decoding—matrix circuits.

As a result of this process, the sound reproduced in any given channel is a product of several channels of original signal blended together. For example, the sound reproduced out of the left rear speaker system is a mixture of the original left rear channel signal and the two adjacent channel signals—the right rear and left front channels.

These adjacent channel components are required to produce the delicate ambience of the original sound field.

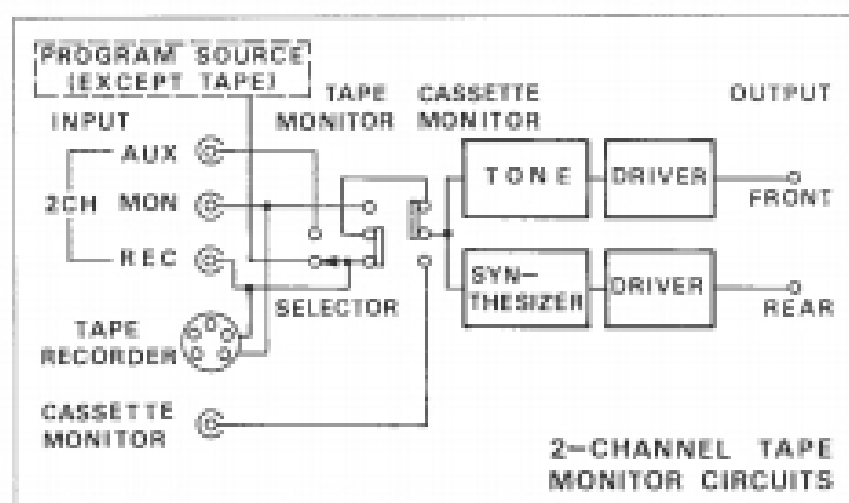
Unfortunately, in this case, the right rear channel component is 180 degrees out of phase with the original left rear channel signal, obscuring the sense of sound image position and directionality.

Sansui engineers have resolved this problem by phase-shifting the left rear channel by -90 degrees from the front, and the right rear channel by $+90$ degrees. The result is a most natural 4-channel stereo sound field.

The ± 90 -degree phase shifters are exclusive to Sansui's QS Coding System of 4-channel stereo.

On 2-Channel Tape Monitor Circuits

The MQ-2000 is equipped with recording and playback terminals for an open-reel 2-channel stereo tape deck, and with playback terminals for a cassette stereo tape deck. The former, located on the rear panel, and the latter, located on the front, are connected in series and therefore possess identical electric input specifications, but no dubbing (copying of recorded tapes) can be done between the two tape circuits. To dub a tape, connect the playback tape deck to the 2CH AUX terminals and the recording tape deck to the 2CH REC (and MON) terminals.



Replacement of Pickup Cartridge

To replace the pickup cartridge of the automatic changer, consult the separate Service Manual for the changer and use the screws supplied for this purpose. The phono input sensitivity of the MQ-2000's receiver section is 4mV. If you're replacing the cartridge with a new cartridge of a different make (i.e., other than SHURE M75-6), make certain its output voltage matches or exceeds this level. Or else, not only the rated power output will fail to be delivered, but the reproduced sound may be distorted in some cases.

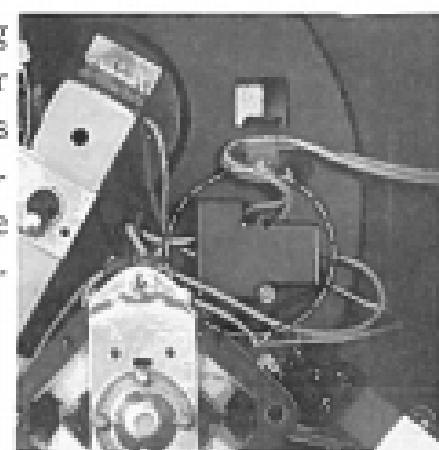
On the Power Supply Voltage and Frequency

If the purchaser is using the MQ-2000 in an area where the power supply voltage and/or frequency are different from those indicated on the unit's carton box, they need be adjusted.

The frequency affects the revolution of the automatic changer. The pulley attached to the motor shaft need be exchanged for the one matching the frequency of the area. Remove the changer platter first.

The voltage influences the performance of both the amplifier section and automatic changer. First adjust the amplifier by re-setting the Voltage Selector Plug inside the amplifier section so that its arrow faces the correct voltage indication of the area.

Then alter the wiring inside the changer after removing the cover, as shown in the photograph, referring to the changer's Service Manual.



BEFORE YOU BEGIN SERVICING

Before you actually set out to service the MQ-2000, it is advisable to check if all connections are properly made and if the operation is correct. Examine these simple check points once more:

Connections

1. Is the power cord connected to the wall AC outlet?
2. Is the required power voltage being supplied to the unit?
3. Is the antenna(s) properly connected?
4. Is the tape deck(s) connected to the correct terminals?
5. Are the output plug and power plug of the automatic changer properly connected to the receiver section? Check inside the unit.
6. If two or more speaker systems are connected to the MQ-2000's speaker terminals in parallel with each other, is their composite impedance 4Ω or greater? This is necessary for the speaker systems to produce natural sounds.
7. Has the power fuse or any of the quick-acting fuses blown?

Operation

1. Is the Power Switch turned on?
2. Are the Selector Control, Synthesizer/Decoder Function Control, and the Power/Speakers Switch set to the respective correct positions?
3. Isn't the Tape Monitor Switch pushed down, though you don't want to reproduce a tape?
4. Aren't both the Tape Monitor Switch and Cassette Monitor Switch pushed down? If they are, the cassette monitor circuit takes precedence.
5. Isn't the Synthesizer/Decoder Function Control set to AUX (4CH)? This position should be selected only when you wish to play back a discrete 4-channel music tape on a 4-channel tape deck.
6. Is the Volume Control turned to a proper position?

Basic Service Hints

■ The receiver section can always be serviced more easily by removing the base board on which the automatic changer is mounted. The board can be removed by taking off the four screws securing it.

■ For detailed servicing instructions, see pp. 8-26. To examine or service the tuner section without the help of a measuring instrument, take care to maximize the antenna input signal level. This is especially important with the FM tuner, because the FM wave is more directional.

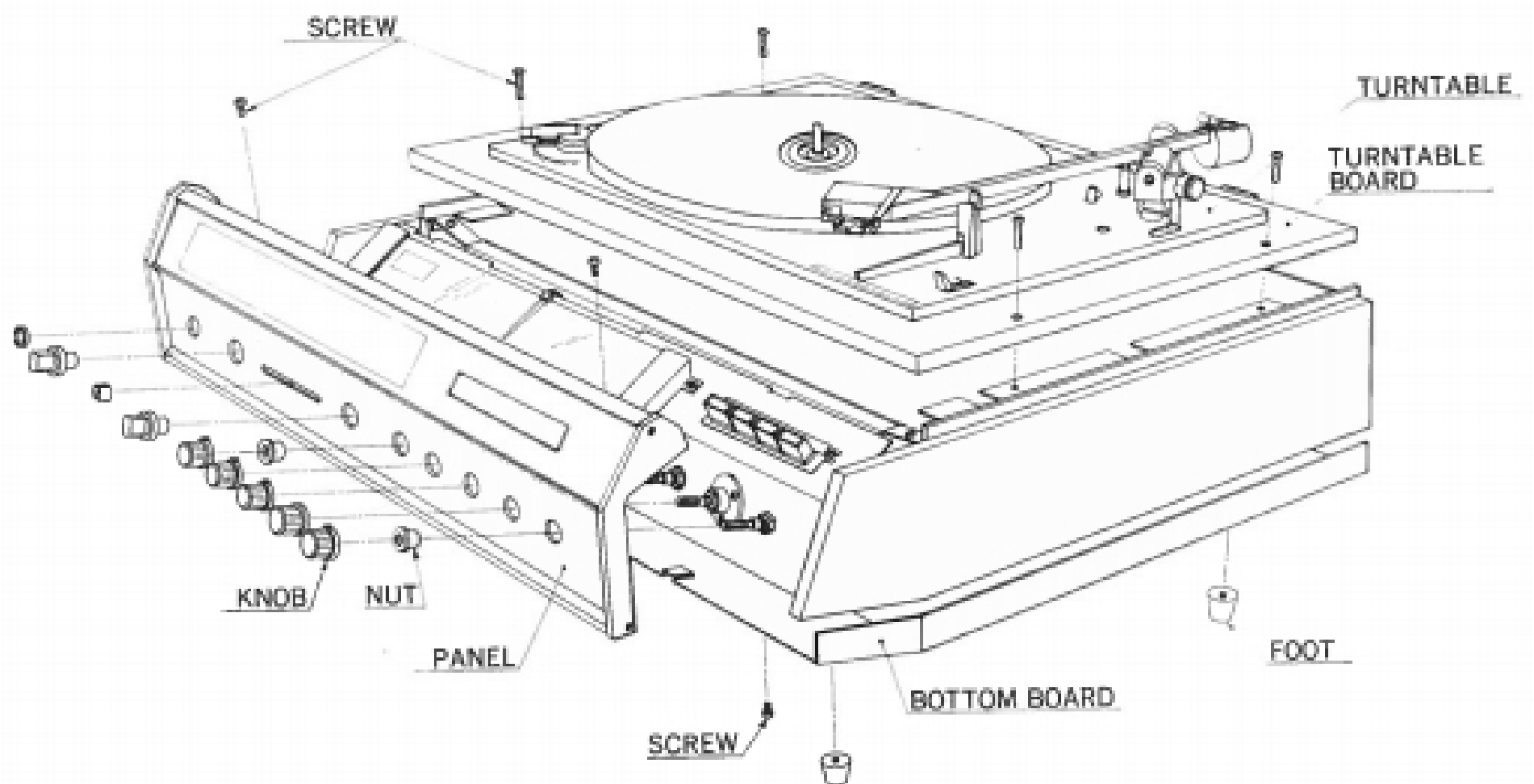
If you're only using the built-in FM loop antenna, the receiving sensitivity could change considerably depending on the position and direction in which the MQ-2000 is placed. In a fringe FM signal area, it would help greatly just to stretch 300Ω balanced feeder cable (supplied) to a T shape.

To examine or service the audio amplifier section, connect a four to 16Ω load to the speaker output terminals. If you wish to check such electric output characteristics as the power bandwidth, feed the input signals to the 2CH AUX input terminals. When replacing the R843-846 resistors (0.5Ω , 2W) on F-1162-2, fix the new resistor(s) away from the printed circuit board itself, so that the heat radiated by the resistor(s) may be dispersed by convection. On the other hand, if you ever replace the power transistor(s) (TR821-828), mount them firmly to the chassis, so that the radiated heat may escape by conduction.

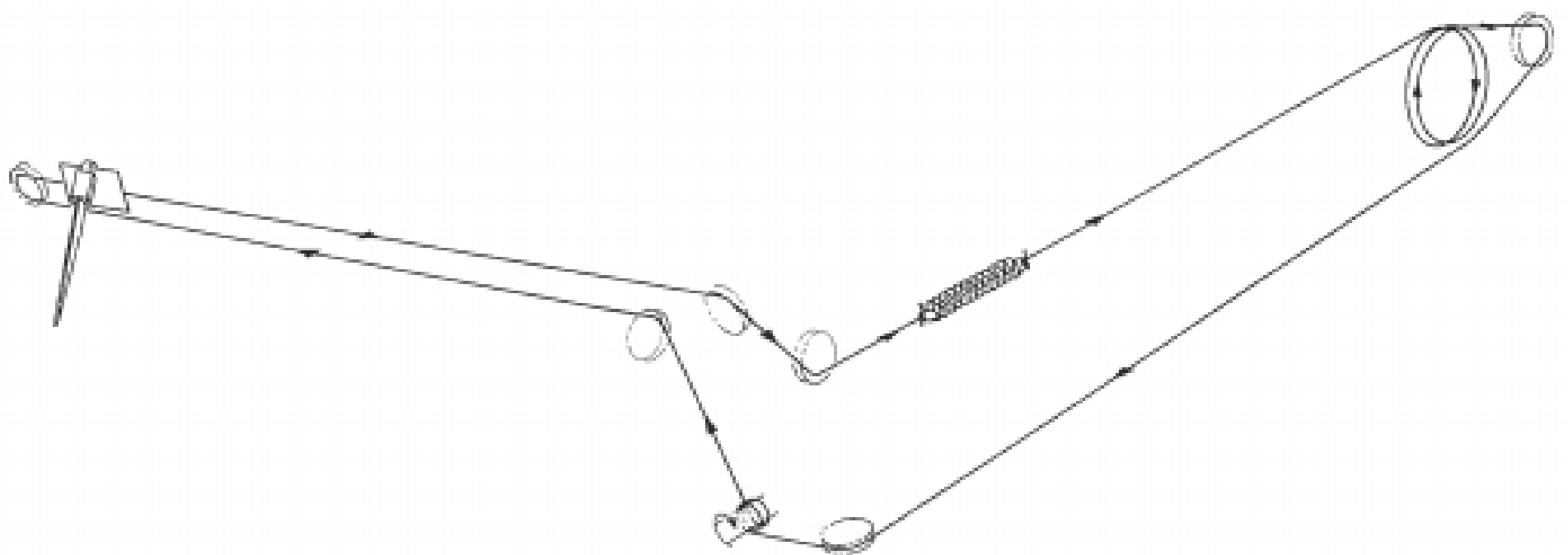
■ Order the necessary parts from your nearest authorized Sansui Service Station. When you order, specify the name of the printed circuit board on which the part is located, the parts number, parts name and stock number. Please be advised beforehand, however, that if the particular part you ordered is out of stock, we may send you a substitute.

DISASSEMBLY PROCEDURE / DIAL MECHANISM

REMOVING THE FRONT PANEL AND BOARDS

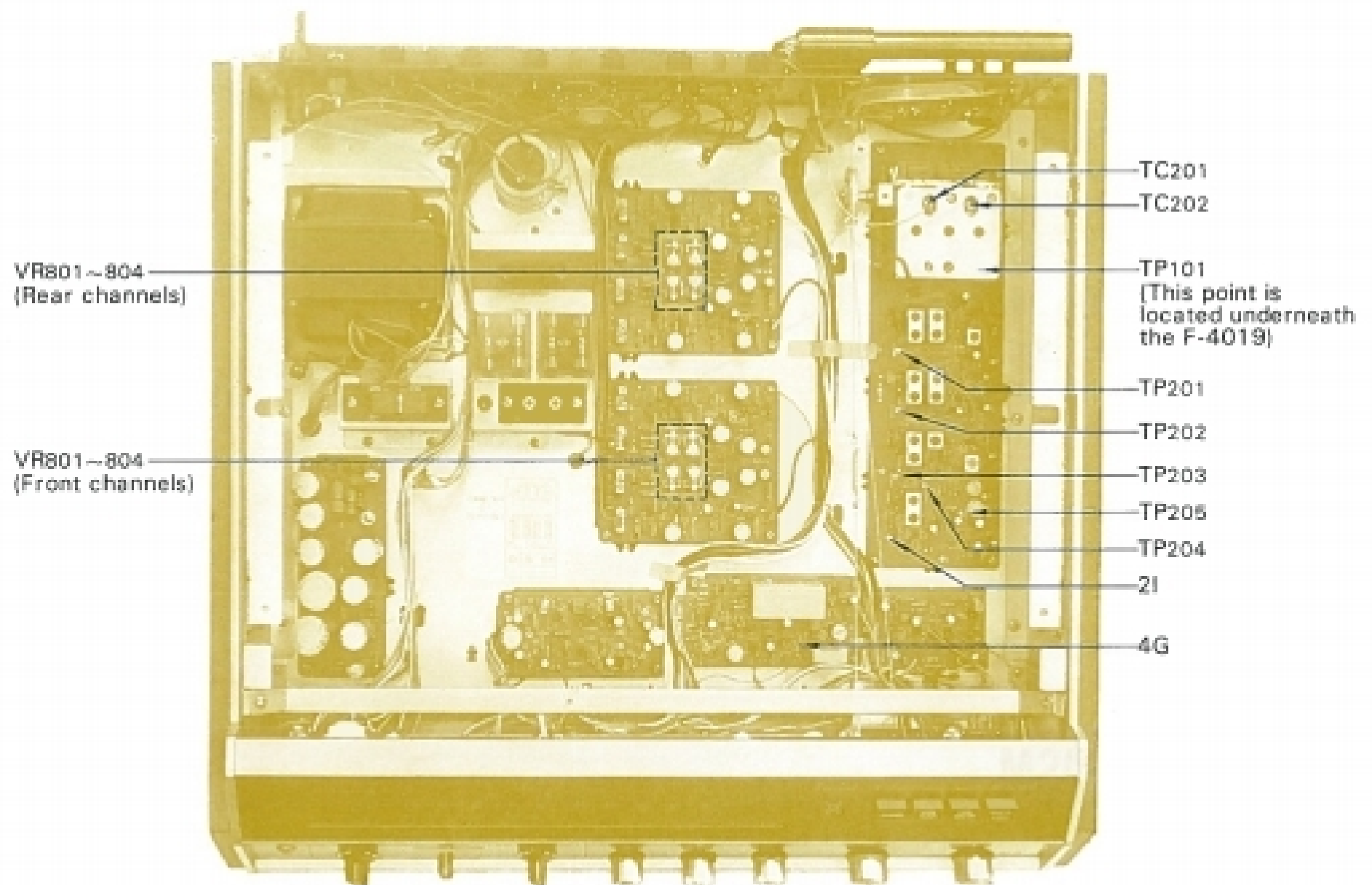


DIAL MECHANISM



ALIGNMENT

TEST POINTS



FM ALIGNMENT PROCEDURE

NOTE: To align, set the signal generator level to minimum.
Turn tuning gang fully.
Center carrier wave.
Set pointer at reference mark.

STEP	ALIGN.	GENERATOR	FEED SIGNAL	CONNECT	DIAL SETTING	ADJUST	ADJUST FOR
1.	IF Transformer	10.7 MHz ± 200 kHz	Sweep signal to TP ₁₀₁ via the 0.022 μ F ceramic capacitor	Oscilloscope to TP _{101, 202} and 203 via the 0.022 μ F ceramic capacitor with probe Grounding TP ₂₀₄ via the 0.022 μ F ceramic capacitor		Primary and secondary coils of T _{101, 202, 203}	Best I.F. wave form
2.	Discriminator	10.7 MHz ± 200 kHz	Sweep signal to TP ₁₀₁ via the 0.022 μ F ceramic capacitor	Oscilloscope to 2I (Remove the 0.022 μ F and the grounding connected to TP ₂₀₄)		FM. Discriminator transformer T ₁₀₄ top primary and secondary	S curve
3.	O.S.C.	90 MHz 400 Hz 100% Modulation	To antenna terminals	Oscilloscope and V.T.V.M. to output load	90 MHz	O.S.C. coil L ₀	Maximum
4.	O.S.C.	106 MHz 400 Hz 100% Modulation	To antenna terminals	Oscilloscope and V.T.V.M. to output load	106 MHz	O.S.C. trimmer TC ₀₁	Maximum
5.	Reiterate 3 and 4.						
6.	High-frequency Amp. Circuit	90 MHz 400 Hz 100% Modulation	To antenna terminals	Oscilloscope and V.T.V.M. to output load	90 MHz	Antenna coil L ₁ and L ₂	Maximum
7.	High-frequency Amp. Circuit	106 MHz 400 Hz 100% Modulation	To antenna terminals	Oscilloscope and V.T.V.M. to output load	106 MHz	Trimmer TC ₁ and TC ₂	Maximum
8.	Reiterate 6 and 7.						

FM MULTIPLEX ALIGNMENT PROCEDURE

1. Do not attempt to align the Multiplex Circuit unless the following equipments are available:

a. Multiplex Stereo Generator b. Oscilloscope c. AC. V.T.V.M. d. Audio Oscillator e. FM Signal Generator

STEP	ALIGN.	GENERATOR	FEED SIGNAL TO	TEST EQUIPMENT (S)	ADJUST	ADJUST FOR
1	19kHz Transformer	FM Signal Gen. Modulated 30% by STEREO Gen. sub-channel	Antenna terminals Tune to signal	V.T.V.M. and Oscilloscope at 4G	L ₄₀₁	Maximum
2	38kHz Transformer and Separation VR	FM Signal Gen. Modulated 30% by STEREO Signal Gen. channel-L	Antenna terminals Tune to signal	V.T.V.M. and Oscilloscope at output load, (channel-R)	T ₄₀₂ or T ₄₀₃ within $\frac{1}{4}$ turn and Separation VR ₄₀₁	Minimum (Channel-R)

ALIGNMENT

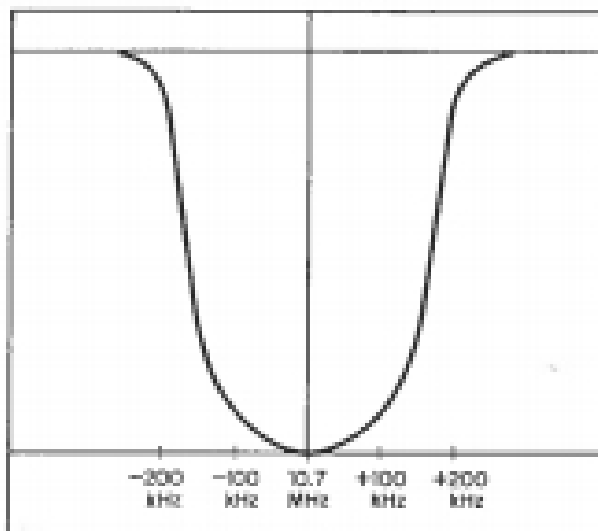
AM ALIGNMENT PROCEDURE

NOTE: To align, set the signal generator level to minimum.

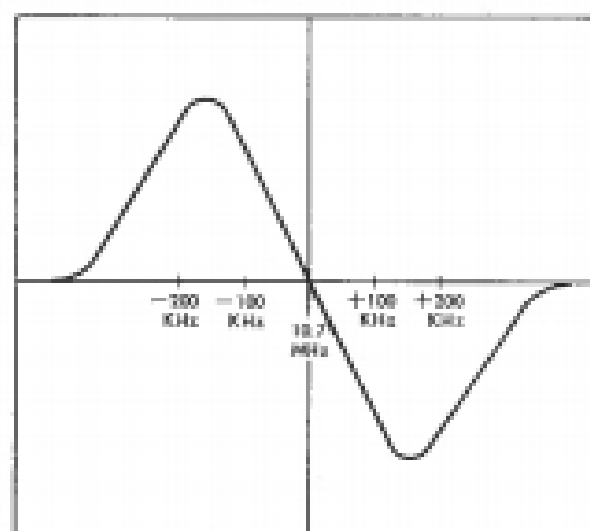
STEP	ALIGN.	GENERATOR	FEED SIGNAL TO	TEST EQUIPMENTS	DIAL SETTING	ADJUST	ADJUST FOR
1.	I.F. Transformer	455 kHz ± 30 kHz Sweep-generator	Antenna terminals	Oscilloscope and V.T.V.M. at TP ₂₀₀		Primary and Secondary from the 1st I.F.T (T ₂₀₇) to the 3rd I.F.T. (203)	Best I.F. wave form
2.	O.S.C.	AM-generator 535 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	535 kHz	O.S.C. Coil T ₂₀₈	Maximum
3.	O.S.C.	AM-generator 1(1600kHz)600 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	1600 kHz	O.S.C. Trimmer TC ₂₀₂	Maximum
4.	Reiterate 2 and 3						
5.	Antenna circuit	AM-generator 1600 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	600 kHz	Ferrite bar Antenna L ₂₀₁	Maximum
6.	Antenna circuit	AM-generator 1400 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	1400 kHz	Antenna circuit Trimmer TC ₂₀₁	Maximum
7.	Reiterate 5. 6. 7.						

STANDARD WAVE FORMS

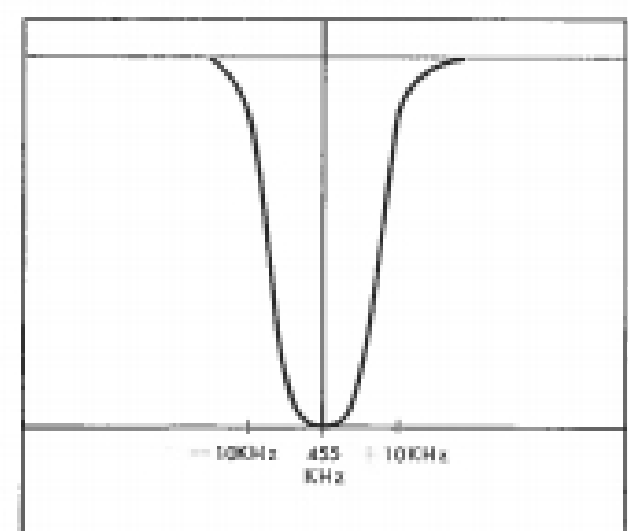
FM IF WAVE FORM



FM DISCRIMINATOR WAVE FORM

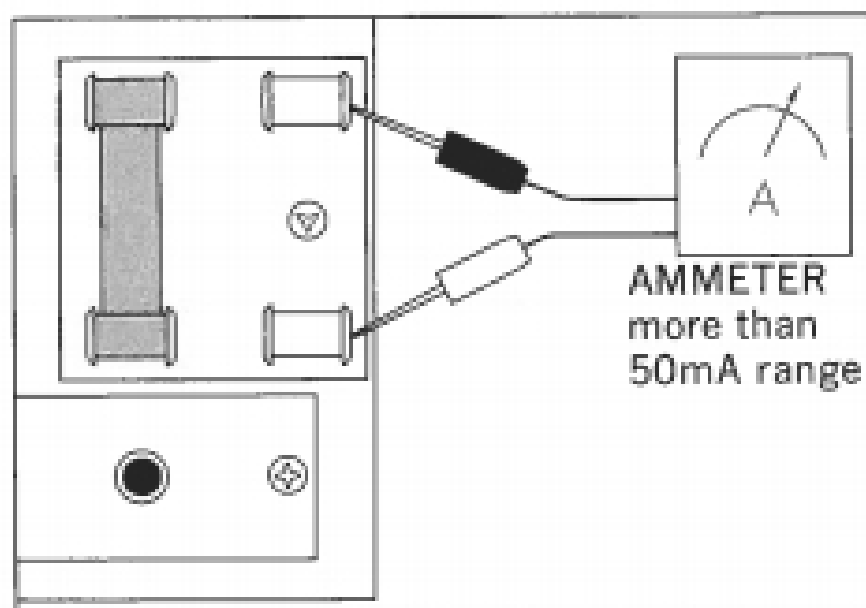


AM IF WAVE FORM



CURRENT ADJUSTMENT

STEP	SETTING OF AMMETER (TESTER)	WHAT TO DO	NOTE
1.		Remove F_{501} and F_{502}	Use an ammeter with 50mA range
2.		Set $VR_{503, 504}$ (front channels) to minimum	
3.		Set Volume Control to minimum	
4.		Turn on the receiver	Be sure to switch on 1st and then connect the ammeter
5.	50mA range.	Connect ammeter to F_{503} as illustrated in Fig. 1	
6.		Turn VR_{503} (left channel) clockwise and adjust current to 20 to 15 mA	
7.	50mA range.	Turn off the receiver and replace F_{501}	
8.		Turn on the receiver and connect ammeter to F_{502} as illustrated in Fig. 1	
9.		Turn VR_{504} (right channel) clockwise and adjust current to 30 to 25mA	
10.		Replace F_{502}	
11.		Adjust the rear channels as above	

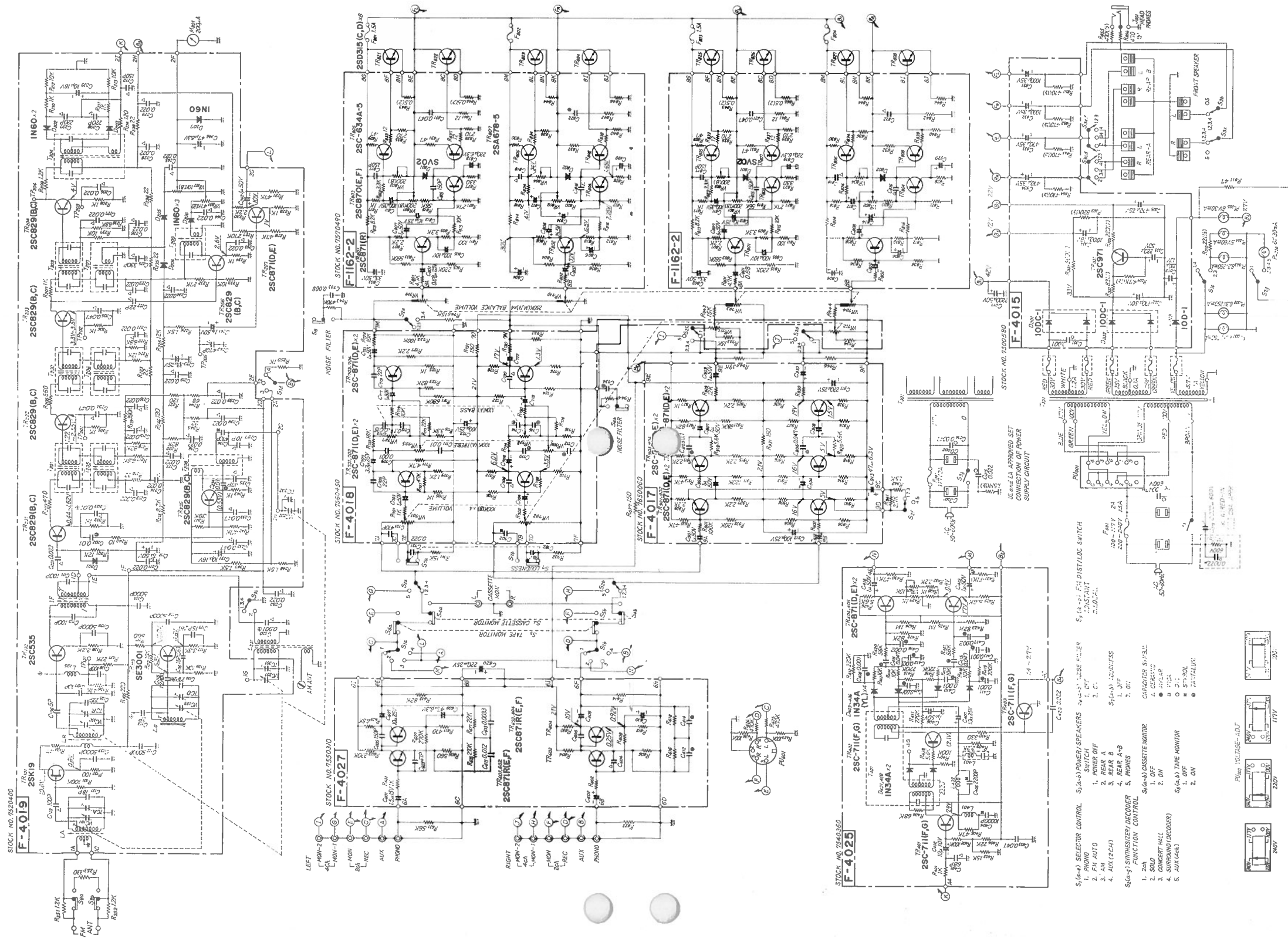


(Fig. 1) Quick-Acting FUSE HOLDER

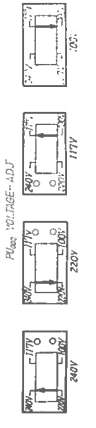
OUTPUT ADJUSTMENT

STEP	WHAT TO DO	NOTE
1.	Adjust volume control to minimum	
2.	Set oscillator to 1,000Hz and connect it to 4CH. AUX LEFT FRONT input	Oscillator used should have oscillation frequency of 20 to 20,000Hz and output voltage of more than 200mV
3.	Set Synthesizer/Decoder Function control to AUX (4CH)	Set other controls and switches as follows: Balance to CENTER Tape Monitor to OFF Tone to CENTER Other to OFF
4.	Connect 8- or 16-ohm load resistor with capacity of more than 14 watts to LEFT SPEAKER output	
5.	Connect oscilloscope to SPEAKER terminal	
6.	Turn on the receiver and slowly raise volume. Check output at terminal by means of oscilloscope	
7.	Adjust VR_{501} (left channel) so that peak of sine wave is clipped simultaneously	
8.	Adjust right channel similarly, and then rear channels	

SCHEMATIC DIAGRAM



- S1 (6-3) SELECTOR CONTROL** S1 (6-3) USE F-129
 1. POWER OFF
 2. C
 3. AM
 4. AUX (ECHO)
 5. PHONES
- S1 (6-3) JUNCTION**
 1. OFF
 2. ON
- S1 (6-3) CASSETTE MONITOR**
 1. OFF
 2. ON
- S1 (6-3) TAPE MONITOR**
 1. OFF
 2. ON
- S1 (6-3) TAPE MONITOR**
 1. OFF
 2. ON



Power Transformer
 250V
 117V
 250V
 250V

SPECIFICATIONS

AUDIO SECTION

POWER OUTPUT

MUSIC POWER (IHF): 74W at 4-ohm load
70W at 8-ohm load

CONTINUOUS POWER: 15W x 4 at 4-ohm load
14W x 4 at 8-ohm load

TOTAL HARMONIC DISTORTION: less than 1% at rated output

INTERMODULATION DISTORTION: (60Hz, 7,000Hz=4:1, SMPTE method)
less than 1%

POWER BANDWIDTH: 30 to 30,000Hz at 8-ohm load

FREQUENCY RESPONSE: (at normal listening level)
30 to 30,000Hz \pm 2dB

CHANNEL SEPARATION: (at 1,000Hz, rated output)
better than 50dB

HUM AND NOISE (IHF)

PHONO: better than -60dB
AUX: better than -70dB

INPUT SENSITIVITY (at rated output, 1,000Hz)

PHONO (2-CHANNEL): 4mV (50k ohms)

AUX (2-CHANNEL): 180mV (50k ohms)

4-CHANNEL INPUT: 180mV (50k ohms)

TAPE MON (pin): 180mV (50k ohms)

TAPE RECORDER (DIN): 180mV (50k ohms)

RECORDING OUTPUT (at rated output, 1,000Hz)

TAPE REC (pin): 180mV

TAPE RECORDER (DIN): 30mV

LOAD IMPEDANCE: 4 to 16 ohms

DAMPING FACTOR: 50 at 8 ohm load

EQUALIZER

PHONO: RIAA NF Type

TONE CONTROLS (Front channel only)

BASS: +10dB -10dB at 50Hz

TREBLE: +10dB -10dB at 10,000Hz

LOUDNESS: +6dB at 50Hz, +4dB at 10kHz
(Volume Control at -30dB)

TUNER SECTION

<FM>

TUNING RANGE: 88 to 108MHz

SENSITIVITY: 2.5 μ V 20dB quieting
5.0 μ V IHF

TOTAL HARMONIC DISTORTION: less than 1%

SIGNAL TO NOISE RATIO: better than 50dB

SELECTIVITY: better than 35dB

CAPTURE RATIO: 3dB

IMAGE REJECTION: better than 45dB

IF REJECTION: better than 60dB

SPURIOUS RESPONSE REJECTION: better than 60dB

STEREO SEPARATION: better than 30dB at 400Hz

SPURIOUS RADIATION: less than 34dB

ANTENNA INPUT IMPEDANCE: 300-ohm balanced

<AM>

TUNING RANGE: 535 to 1,605kHz

SENSITIVITY: 350 μ V at 1,000kHz (bar antenna)

IMAGE FREQUENCY REJECTION: better than 50dB at 1,000Hz

IF REJECTION: better than 50dB at 1,000Hz

SELECTIVITY: better than 20dB

CONTROLS/SWITCHES

SWITCHES

SELECTOR: PHONO, FM-AUTO, AM, AUX (2CH)

SYNTHESIZER/DECODER: 2CH, SOLO, CONCERT HALL, SURROUND
(DECODER) AUX (4CH)

SPEAKERS SELECTOR: POWER OFF, REAR A, REAR B, REAR A+B,
PHONES

TAPE MONITOR (2CH): SOURCE, PLAYBACK

CASSETTE MONITOR: PLAY/BACK

LOUDNESS: OFF, ON (Front only)

NOISE FILTER: OFF, ON (Front only)

CONTROLS

VOLUME,
BASS (Front only),
TREBLE (Front only),
BALANCE (Front \rightarrow Rear)

OTHER SPECIAL FEATURES

Signal Strength Meter, FET Frontend,

FM Mono/Stereo Automatic Switching and Stereo Indicator, AM Ferrite
Bar Antenna, Stereo Headphone Jack (Front only),

Cassette Monitor,

4-Channel Indicator

SYNTHESIZER/DECODER SECTION

INPUT LEVEL:

RATED INPUT 2-CHANNEL: 180mV (50k ohms)

FREQUENCY RESPONSE:

FRONT CHANNEL: 30 to 20,000Hz \pm 1dB

REAR CHANNEL: 30 to 20,000Hz \pm 1dB -2dB

REAR CHANNEL PHASE SHIFT:

LEFT: -90 degree at 300Hz

RIGHT: +90 degree at 600Hz

SEMICONDUCTORS

TRANSISTORS: 53

DIODES: 22

FET: 1

POWER REQUIREMENTS

POWER VOLTAGE: 100, 117, 220, 240V 50/60Hz

POWER CONSUMPTION: 150VA (max. signal)

DIMENSIONS

486mm (19 $\frac{1}{8}$ ") W

443.5mm (17 $\frac{1}{2}$ ") D

115mm (4 $\frac{3}{8}$ ") H

WEIGHT

17.1kg (37.6 lbs)

RECORD CHANGER SECTION

TYPE: 3-Speed Automatic Changer

MOTOR: 2-Coil 4-Pole Induction Type

SPEEDS: 33 $\frac{1}{3}$, 45, 78 rpm

CHANGER PLATTER: Sheet Metal 273mm (10 $\frac{3}{4}$ ")

Weight 1.1kg (2 $\frac{1}{2}$ lbs)

ANTI-SKATING DEVICE: Automatic Adjustment

FLUTTER AND WOW: \pm 0.20%

FINE ADJUSTMENT OF THE

REVOLUTION SPEED

(PITCH CONTROL): \pm 3%

STYLUS PRESSURE: 3.0 Grams (0-6 Grams Adjustable)

CARTRIDGE: SHURE M75-6 (With the Changer Stylus)

CHANNEL SEPARATION: 25dB (at 1kHz)

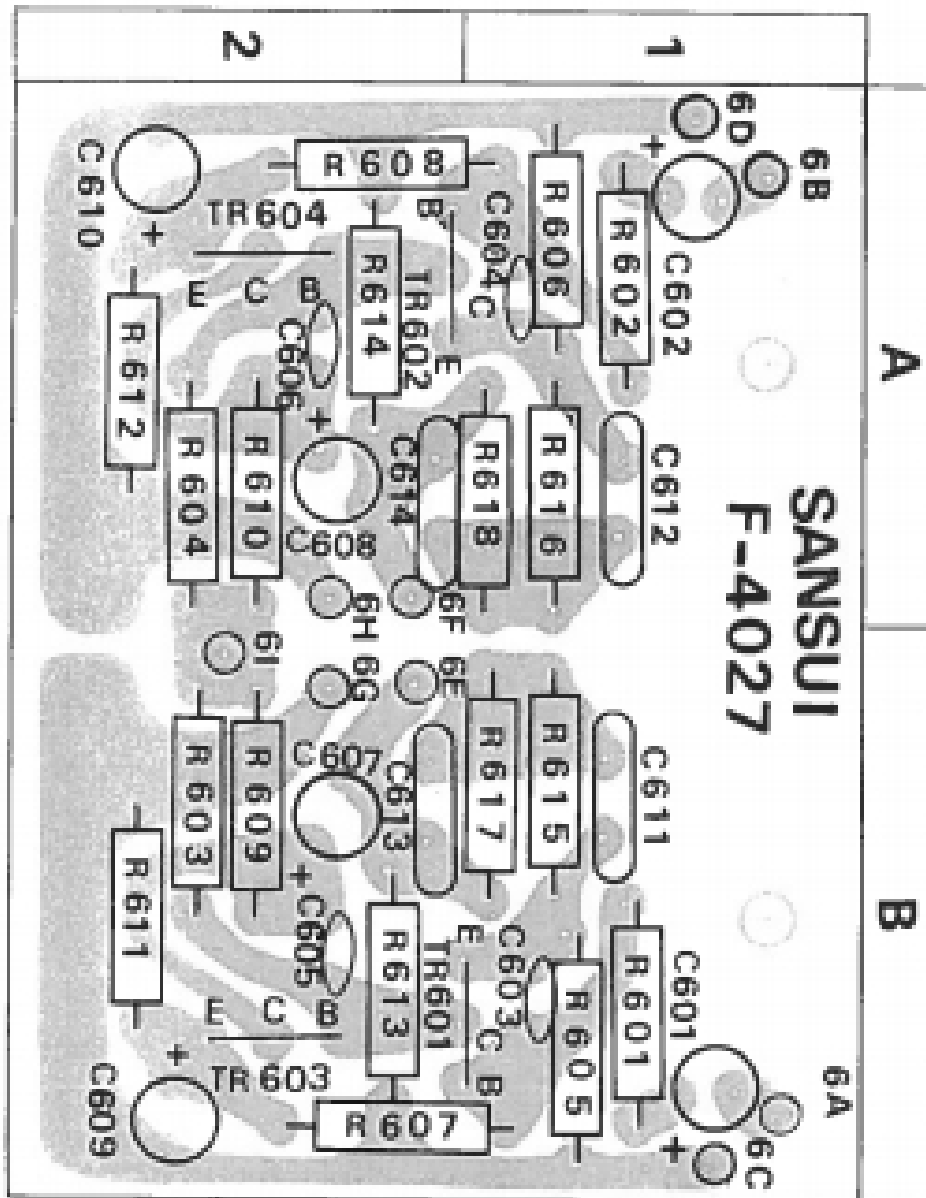
OUTPUT LEVEL: 5mV (50mm/sec)

FREQUENCY RANGE: 20 to 20,000Hz

PRINTED CIRCUIT BOARDS AND PARTS LIST

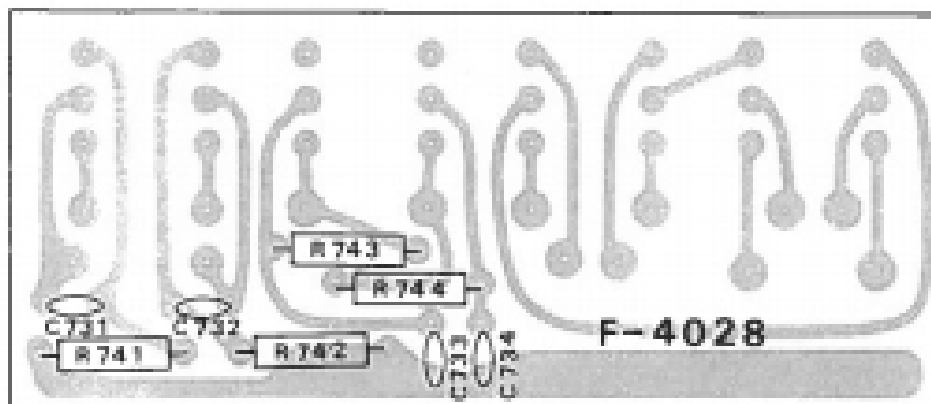
W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

EQUALIZER BLOCK <F-4027>



W	X	Y	Z
R601	1kΩ	0101102	1 B
R602	1kΩ	0101102	1 A
R603	220kΩ	0101224	2 B
R604	220kΩ	0101224	2 A
R605	560Ω	0101561	1 B
R606	560Ω	0101561	1 A
R607	270kΩ	0101274	1, 2 B
R608	270kΩ	0101274	1, 2 A
R609	6.8kΩ	0101682	2 B
R610	6.8kΩ	0101682	2 A
R611	470Ω	0101471	2 B
R612	470Ω	0101471	2 A
R613	82kΩ	0101823	2 B
R614	82kΩ	0101823	2 A
R615	270kΩ	0101274	1 B
R616	270kΩ	0101274	1 A
R617	22kΩ	0101223	1 B
R618	22kΩ	0101223	1 A
C601	1.5μF	0571159	1 B
C602	1.5μF	0571159	1 A
C603	47pF	0660470	1 B
C604	47pF	0660470	1 A
C605	150pF	0660151	2 B
C606	150pF	0660151	2 A
C607	10μF	0513100	2 B
C608	10μF	0513100	2 A
C609	47μF	0510470	2 B
C610	47μF	0510470	2 A
C611	0.012μF	0601127	1 B
C612	0.012μF	0601127	1 A
C613	0.0033μF	0601336	2 B
C614	0.0033μF	0601336	2 A
TR601	23C871R (E.F)	0305474, 5	1 B
TR602		0305474, 5	1, 2 A
TR603		0305474, 5	2 B
TR604		0305474, 5	2 A

PUSH BUTTON BLOCK <F-4028>



W	X	Y
R741	15kΩ	0101153
R742	15kΩ	0101153
R743	470kΩ	0101474
R744	470kΩ	0101474
C731	0.022μF	0601227
C732	0.022μF	0601227
C733	0.008μF	0601806
C734	0.008μF	0601806
S4	Cassette Monitor	1130300
S5	Tape Monitor	
S6	Noise Filter	
S7	Loudness	

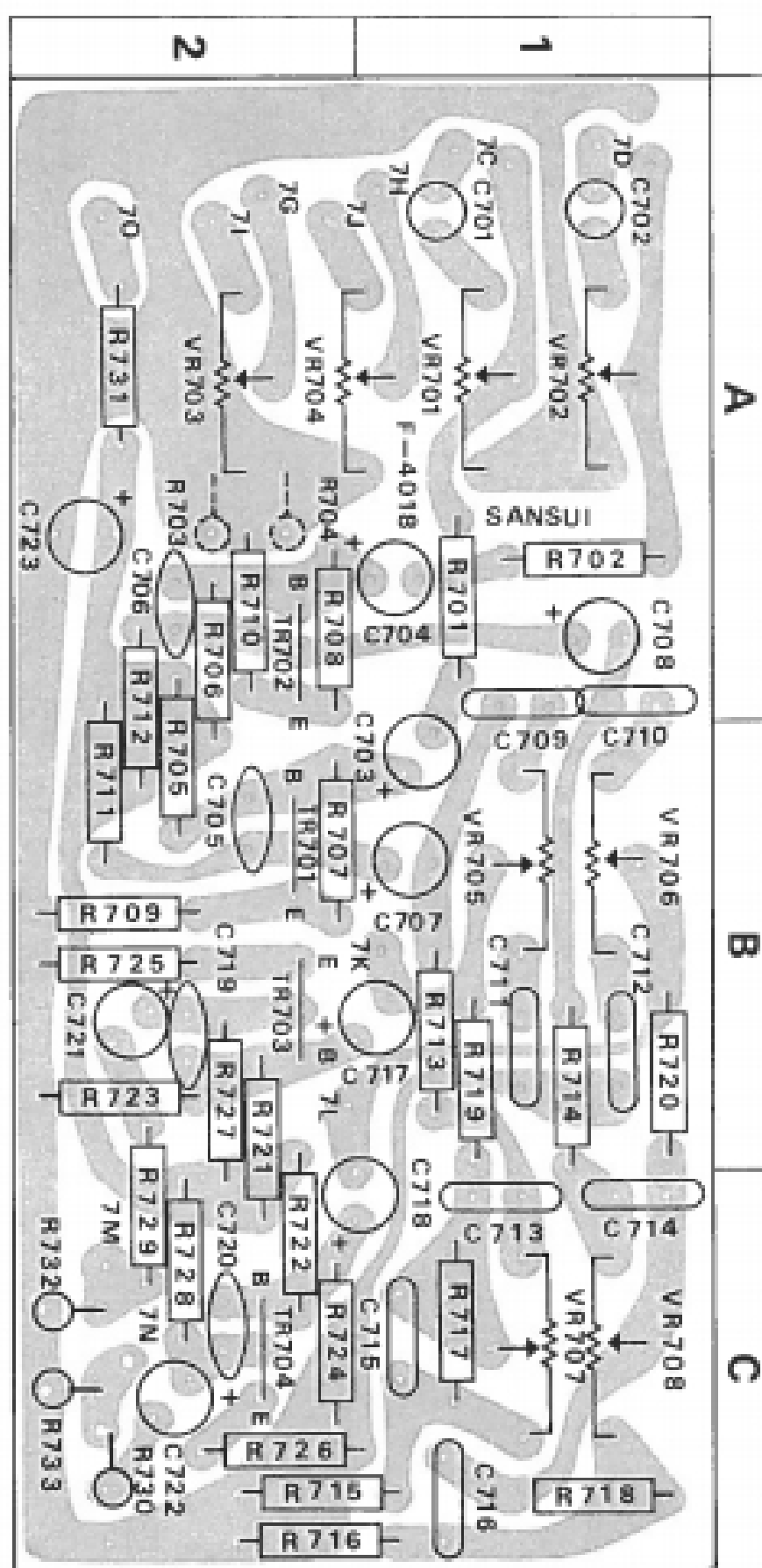
PRINTED CIRCUIT BOARDS AND PARTS LIST

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

TONE CONTROL BLOCK (F-4018)

W	X	Y	Z	
R701	1kΩ	0101102	1 A	
R702	1kΩ	0101102	1 A	
R703	15kΩ	0101153	2 A	
R704	15kΩ	0101153	2 A	
R705	1MΩ	0101105	2 A, B	
R706	1MΩ	0101105	2 A, B	
R707	47kΩ	0101473	2 B	
R708	47kΩ	0101473	2 A	
R709	1.2kΩ	0101122	2 B	
R710	1.2kΩ	0101122	2 A	
R711	4.7kΩ	0101472	2 A, B	
R712	4.7kΩ	0101472	2 A, B	
R713	18kΩ	0101183	1 B	
R714	18kΩ	0101183	1 B	
R715	3.3kΩ	0101332	1, 2 C	
R716	3.3kΩ	0101332	1, 2 C	
R717	22kΩ	0101223	1 U	
R718	22kΩ	0101223	1 C	
R719	10kΩ	0101103	1 B	
R720	10kΩ	0101103	1 B	
R721	680kΩ	0101684	2 B, C	
R722	680kΩ	0101684	2 B, C	
R723	82kΩ	0101823	2 B	
R724	82kΩ	0101823	2 C	
R725	1kΩ	0101102	2 B	
R726	1kΩ	0101102	1, 2 C	
R727	2.2kΩ	0101222	2 B, C	
R728	2.2kΩ	0101222	2 C	
R729	10kΩ	0101103	2 B, C	
R730	10kΩ	0101103	2 C	
R731	150Ω	0101151	2 A	
R732	100kΩ	0101104	2 C	
R733	100kΩ	0101104	2 C	
VR701~704	100kΩ(B) × 4	Volume Control	1060070, 1	1, 2 A
VR705, 706	100kΩ(A) × 2	Treble Control	1010790, 1	1 B
VR707, 708	100kΩ(A) × 2	Bass Control	1010790, 1	1 C
C701	470pF	±10% 50 V SC.	0611471	1 A
C702	470pF		0611471	1 A
C703	1pF		0515109	1 A, B
C704	1pF		0515109	1 A
C705	22pF	±10% 50 V CC.	0660220	2 B
C706	22pF		0660220	2 A
C707	3.3pF	25 V EC.	0513339	1 B
C708	3.3pF		0513339	1 A
C709	0.001pF	0601106	0601106	1 A
C710	0.001pF		0601106	1 A
C711	0.01pF	±10% 50 V MC.	0601107	1 B
C712	0.01pF		0601107	1 B
C713	0.015pF		0601157	1 C
C714	0.015pF		0601157	1 C
C715	0.1pF	0601108	0601108	1 C
C716	0.1pF		0601108	1 C
C717	1pF	50 V EC.	0515109	1, 2 B
C718	1pF		0515109	1, 2 B C
C719	22pF	±10% 50 V CC.	0660220	2 B
C720	22pF		0660220	2 C

W	X	Y	Z	
C721	1pF	50 V EC.	0515109	2 B
C722	1pF		0515109	2 C
C723	100pF	25 V EC.	0513101	2 A
TR701	25C871 (D, E)	0305470, 1	2 B	
TR702		0305470, 1	2 A	
TR703		0305470, 1	2 B	
TR704		0305470, 1	2 C	



SYNTHESIZER BLOCK <F-4017>

W	X	Y	Z
R901	100kΩ	0101104	1 B
R902	100kΩ	0101104	2 B
R903	120kΩ	0101124	1 B
R904	120kΩ	0101124	2 B
R905	47kΩ	0101473	1 B
R906	47kΩ	0101473	2 B
R907	2.2kΩ	0101222	1 B
R908	2.2kΩ	0101222	2 B
R909	2.2kΩ	0101222	1 B
R910	2.2kΩ	0101222	2 B
R911	120kΩ	0101124	1 B
R912	120kΩ	0101124	2 B
R913	47kΩ	0101473	1 B
R914	47kΩ	0101473	2 B
R915	2.2kΩ	0101222	1 A
R916	2.2kΩ	0101222	2 A
R917	2.2kΩ	0101222	1 B
R918	2.2kΩ	0101222	2 B
R919	5.6kΩ	0101562	1 A
R920	5.6kΩ	0101562	2 A, B
R921	680kΩ	0101684	1 A
R922	680kΩ	0101684	2 A
R923	82kΩ	0101823	1 A
R924	82kΩ	0101823	2 A
R925	2.2kΩ	0101222	1, 2 A
R926	2.2kΩ	0101222	1, 2 A
R927	1kΩ	0101102	1 A
R928	1kΩ	0101102	2 A
R929	12kΩ	0101123	1 A
R930	12kΩ	0101123	2 A
R931	150Ω	0101151	1, 2 A
C901	1μF	0515109	1 B
C902	1μF	0515109	2 B
C903	1μF	0515109	1 B
C904	1μF	0515109	2 B
C905	0.1μF	0601108	1 A, B
C906	0.047μF	0601477	2 A
C907	1μF	0515109	1 A
C908	1μF	0515109	2 A
C909	1μF	0515109	1 A
C910	1μF	0515109	2 A
C911	220μF	0513221	1, 2 A
C912	100μF	0513101	1, 2 B
C913	47μF	0510470	1 B
TR901		0305470, 1	1 B
TR902		0305470, 1	2 B
TR903		0305470, 1	1 B
TR904		0305470, 1	2 B
TR905		0305470, 1	1 A
TR906		0305470, 1	2 A

±10% 1/4W CR.

50 V EC.

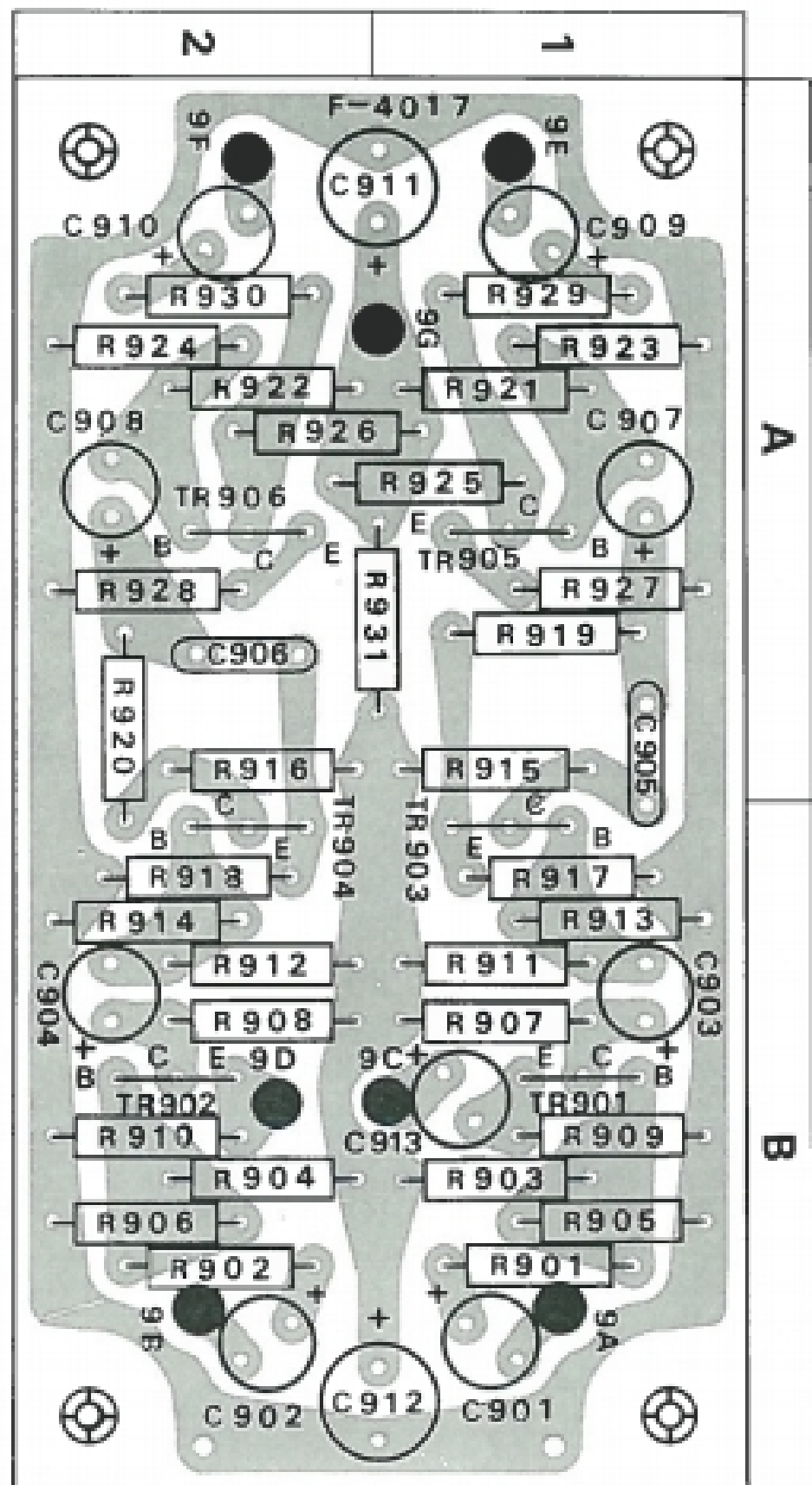
±10% 50 V MC.

50 V EC.

25 V EC.

6.3 V EC.

25C871 (D, E)



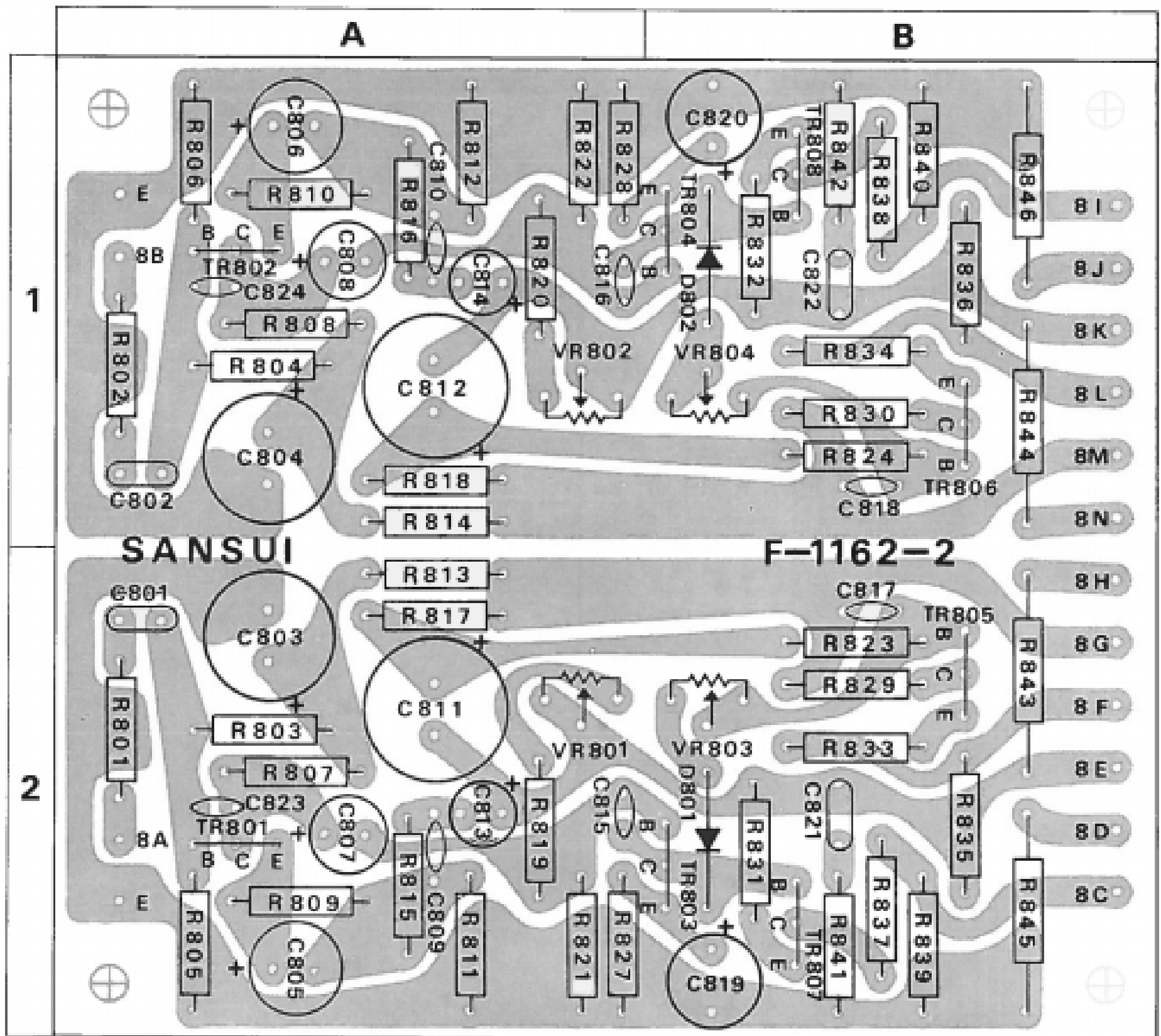
PRINTED CIRCUIT BOARDS AND PARTS LIST

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

DRIVER BLOCK <F-1162-2>

W	X	Y	Z
R201	4.7k Ω	0101472	2 A
R202	4.7k Ω	0101472	1 A
R203	560k Ω	0101564	2 A
R204	560k Ω	0101564	1 A
R205	220k Ω	0101224	2 A
R206	220k Ω	0101224	1 A
R207	2.2k Ω	0101232	2 A
R208	2.2k Ω	0101232	1 A
R209	3.3k Ω	0101332	2 A
R210	3.3k Ω	0101332	1 A
R211	100 Ω	0101101	2 A
R212	100 Ω	0101101	1 A
R213	8.2k Ω	0101822	2 A
R214	8.2k Ω	0101822	1 A
R215	10k Ω	0101103	2 A
R216	10k Ω	0101103	1 A
R217	1k Ω	0101102	2 A
R218	1k Ω	0101102	1 A
R219	56k Ω	0101563	2 A
R220	56k Ω	0101563	1 A
R221	27k Ω	0101273	2 A
R222	27k Ω	0101273	1 A
R223	3.3k Ω	0101332	2 B
R224	3.3k Ω	0101332	1 B
R227	330 Ω	0101331	2 A
R228	330 Ω	0101331	1 A
R229	47 Ω	0101470	2 B
R230	47 Ω	0101470	1 B
R231	47 Ω	0101470	2 B
R232	47 Ω	0101470	1 B
R233	12 Ω	0101120	2 B
R234	12 Ω	0101120	1 B
R235	270 Ω	0101271	2 B
R236	270 Ω	0101271	1 B
R237	12 Ω	0101120	2 B
R238	12 Ω	0101120	1 B
R239	270 Ω	0101271	2 B
R240	270 Ω	0101271	1 B
R241	12 Ω	0101120	2 B
R242	12 Ω	0101120	1 B
R243	0.5 Ω	0152508	2 B
R244	0.5 Ω	0152508	1 B
R245	0.5 Ω	0152508	2 B
R246	0.5 Ω	0152508	1 B
VR201	200k Ω (B) AC Balance Adj. (Left)	1030351	2 A
VR202	200k Ω (B) AC Balance Adj. (Right)	1030351	1 A
VR203	200 Ω Bias Adj. (Left)	1032021	2 B
VR204	200 Ω Bias Adj. (Right)	1032021	1 B
C201	0.68 μ F } 25 V AEC.	0563688	2 A
C202	0.68 μ F }	0563688	1 A
C203	33 μ F } 50 V EC.	0515330	2 A
C204	33 μ F }	0515330	1 A
C205	100 μ F } 10 V EC.	0511101	2 A
C206	100 μ F }	0511101	1 A

W	X	Y	Z
C207	1 μ F } 50 V EC.	0515109	2 A
C208	1 μ F }	0515109	1 A
C211	100 μ F } 35 V EC.	0514101	2 A
C212	100 μ F }	0514101	1 A
C213	10 μ F } 25 V EC.	0513100	2 A
C214	10 μ F }	0513100	1 A
C215	150pF } $\pm 10\%$ 50 V CC.	0660151	2 A
C216	150pF }	0660151	1 A
C217	150pF }	0660151	2 B
C218	150pF }	0660151	1 B
C219	220 μ F } 6.3 V EC.	0510221	2 B
C220	220 μ F }	0510221	1 B
C221	0.047 μ F } $\pm 10\%$ 50 V MC.	0601477	2 B
C222	0.047 μ F }	0601477	1 B
TR201	25C871 (E, F)	0305471, 2	2 A
TR202		0305471, 2	1 A
TR203	25C870 (E, F)	0305510, 1	2 B
TR204		0305510, 1	1 B
TR205	25C634A-5, 6	0305890, 1	2 B
TR206		0305890, 1	1 B
TR207	25A678-5, 6	0300290, 1	2 B
TR208		0300290, 1	1 B
D201	5V-02	0310490	2 B
D202	5V-02	0310490	1 B

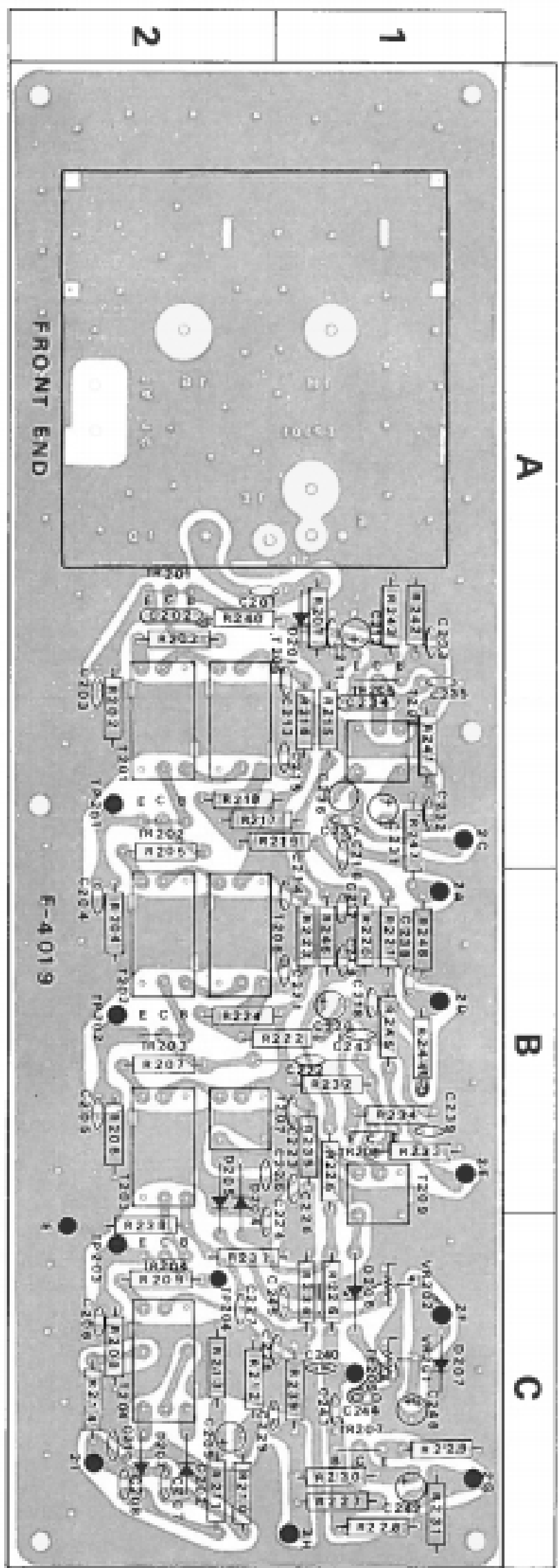


PRINTED CIRCUIT BOARDS AND PARTS LIST

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

FM/AM BLOCK <F-4019>

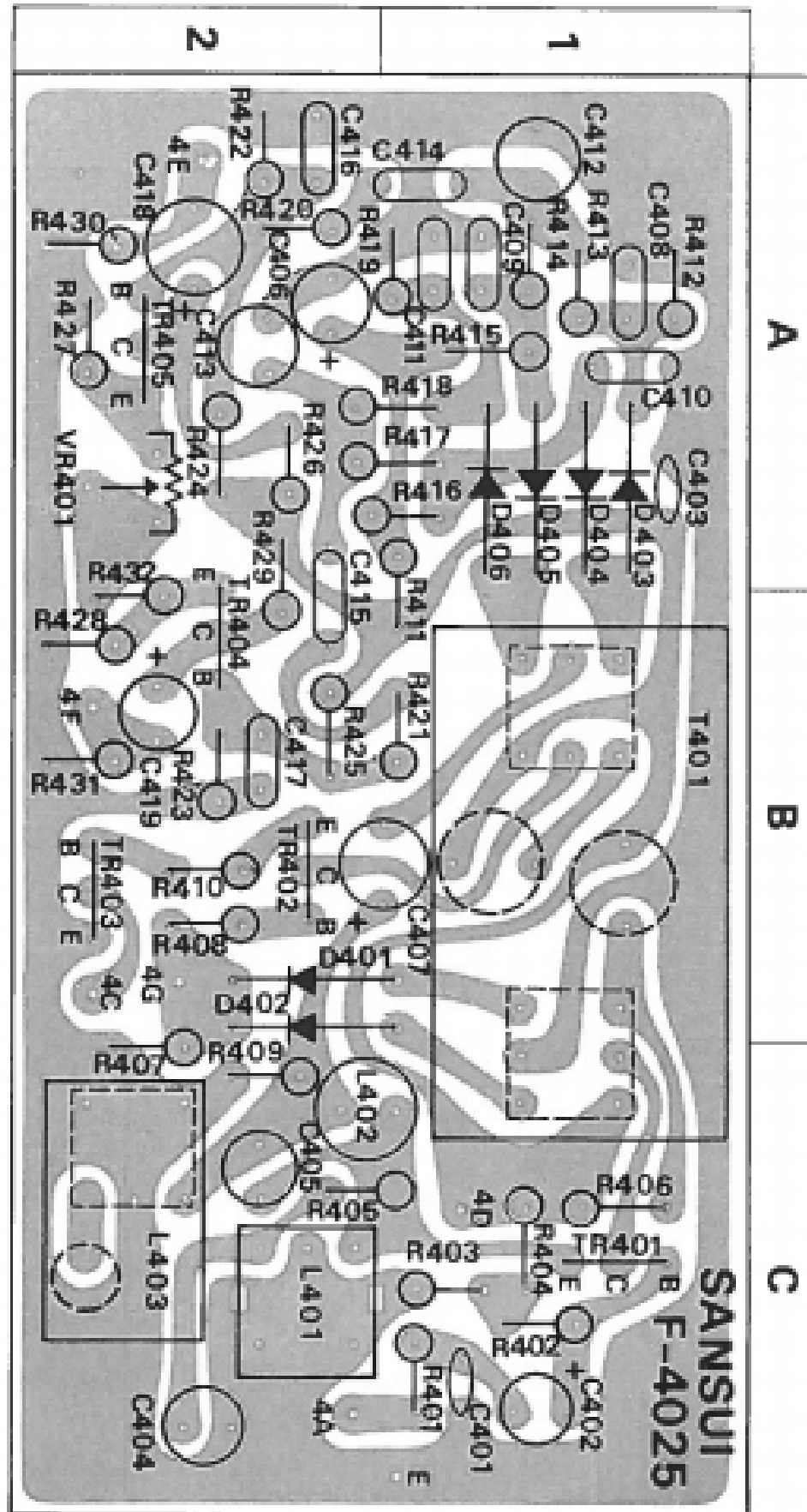
W	X	Y	Z	W	X	Y	Z	
R201	12kΩ	0101123	1 A	C209	3.3μF	25 V EC.	0513339	2C
R202	1kΩ	0101102	2 A	C210	150pF ±10%	50 V CC.	0660151	2C
R203	470Ω	0101471	2 A	C211	0.022μF ^{+80%} / _{-20%}	25 V CC.	0656223	1 A
R204	1kΩ	0101102	2 B	C212	1μF	50 V EC.	0505109	1 A
R205	560Ω	0101561	2 A	C213	0.022μF	±10% 25 V CC.	0656223	1 A
R206	1kΩ	0101102	2 B	C214	0.022μF		0656223	1 B
R207	1kΩ	0101102	2 B	C215	0.022μF		0656223	1 A
R208	1kΩ	0101102	2 C	C216	0.022μF		0656223	1 A
R209	1.2kΩ	0101122	2 C	C217	0.022μF		0656223	1 B
R210	1kΩ	0101102	2 C	C218	0.022μF		0656223	1 B
R211	1kΩ	0101102	2 C	C219	0.022μF	0656223	1 B	
R212	10kΩ	0101103	2 C	C220	3.3μF	25 V EC.	0513339	1 B
R213	10kΩ	0101103	2 C	C221	0.022μF ^{+80%} / _{-20%}	25 V CC.	0656223	1 B
R214	120Ω	0101121	2 C	C222	22pF ±10%	50 V CC.	0660220	1, 2 B
R215	8.2kΩ	0101822	1 A	C223	0.022μF ^{+80%} / _{-20%}	25 V CC.	0656223	1 B
R216	22Ω	0101220	1 A	C224	0.022μF ^{+80%} / _{-20%}	25 V CC.	0656223	2 B, C
R217	6.8kΩ	0101682	1, 2 A	C225	330pF ±10%	50 V CC.	0660331	2 B
R218	82kΩ	0101823	1, 2 A	C226	0.022μF	±10% 25 V CC.	0656223	1 C
R219	390kΩ	0101394	1, 2 A	C227	0.022μF ^{+80%} / _{-20%}		0656223	2 C
R220	82kΩ	0101823	1 B	C228	0.022μF ^{+80%} / _{-20%}		25 V CC.	0656223
R221	120Ω	0101121	1 B	C229	0.022μF	0656223	1, 2 C	
R222	6.8kΩ	0101682	1, 2 B	C230	10μF	16 V EC.	0512100	1 A
R223	22Ω	0101220	1 B	C231	0.047μF ^{+80%} / _{-20%}	25 V CC.	0656473	1 A
R224	12kΩ	0101123	1, 2 B	C232	0.047μF ^{+80%} / _{-20%}	25 V CC.	0656473	1 A
R225	12kΩ	0101123	1 B	C233	0.01μF ±10%	50 V MC.	0601107	1 A
R226	1.5kΩ	0101152	1 C	C234	47pF ±10%	50 V CC.	0660470	1 A
R227	270kΩ	0101274	1 C	C235	470pF ±10%	50 V SC.	0610401	1 A
R228	47kΩ	0101473	1 C	C236	10pF ±10%	50 V CC.	0660100	1 A
R229	1kΩ	0101102	1 C	C237	0.022μF	±10% 25 V CC.	0656223	1 B
R230	2.2kΩ	0101222	1 C	C238	0.022μF ^{+80%} / _{-20%}		0656223	1 B
R231	47kΩ	0101473	1 C	C239	470pF	0660471	1 C	
R232	27kΩ	0101273	1 B	C240	1μF	50 V EC.	0515109	1 C
R233	10kΩ	0101103	1 B	C241	1μF	50 V EC.	0515109	1 C
R234	1kΩ	0101102	1 B	C242	0.022μF	±10% 25 V CC.	0656223	1 B
R235	22Ω	0101220	1 B	C243	0.022μF ^{+80%} / _{-20%}		0656223	1 C
R236	22Ω	0101220	1 C	C244	0.022μF	±10% 25 V CC.	0556223	1 C
R237	10kΩ	0101103	1, 2 C	C245	0.022μF		0510470	1 C
R238	6.8kΩ	0101682	2 C	C246	47pF	6.3 V EC.	0510470	1 C
R239	22Ω	0101220	1 C	TR201		0305460, 1	2 A	
R240	10Ω	0101100	1, 2 A	TR202		0305460, 1	2 A	
R241	39kΩ	0101393	1 A	TR203	25C829 (B, C)	0305460, 1	2 B	
R242	4.7kΩ	0101472	1 A	TR204		0305460, 1	2 C	
R243	1kΩ	0101102	1 A	TR205		0305460, 1	1 A	
R244	68Ω	0101680	1 B	TR206		0305460, 1	1 B	
R245	22Ω	0101220	1 B	TR207	25C871 (D, E)	0305470, 1	1 C	
R246	120Ω	0101121	1 B	D201		0310330	1 A	
R247	1.5kΩ	0101152	1 A, B	D202		0310330	2 C	
R248	1.5kΩ	0101152	1 B	D203	IN60	0310330	2 C	
VR201	47kΩ(B) Tuning Meter Adj. (FM)	1035170	1 C	D204		0310330	2 B, C	
VR202	10kΩ(B) Tuning Meter Adj. (AM)	1035130	1 C	D205		0310330	2 B, C	
C201	0.022μF ^{+80%} / _{-20%}	0656223	2 A	D206		0310330	1 C	
C202	0.01μF ±10%	0601107	2 A	D207	0310330	1 C		
C203	0.01μF ±20%	0652103	2 A	T201	FM IFT	4235610	2 A	
C204	0.047μF	0656473	2 B	T202		4235610	2 B	
C205	0.047μF ^{+80%} / _{-20%}	0656473	2 B	T203		4235600	2 B	
C206	0.022μF	0656223	2 C	T204	FM Detector	4235620	2 C	
C207	220pF	0660221	2 C	T205	AM IFT	4230370	2 A	
C208	220pF	0660221	2 C	T206		4230370	2 B	
				T207		4230380	2 B	
				T208	AM OSC	4220330	1 A	
				T209	FM Meter Coil	4235400	1 B	
					FM PACK	7510470	1, 2 A	



PRINTED CIRCUIT BOARDS AND PARTS LIST

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

FM MPX BLOCK (F-4025)

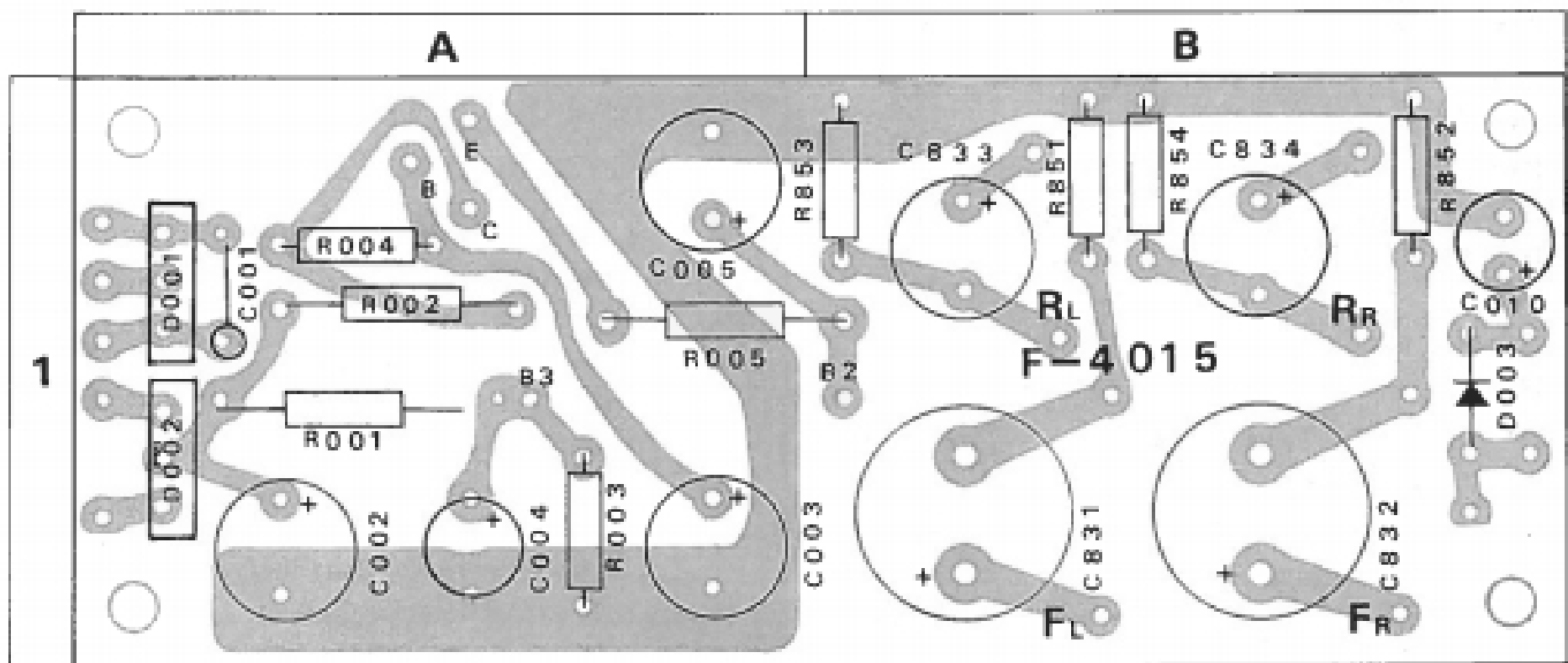


W	X	Y	Z
R401	1kΩ	0101102	1 C
R402	100kΩ	0101104	1 C
R403	15kΩ	0101153	1 C
R404	22kΩ	0101223	1 C
R405	47kΩ	0101473	1, 2 C
R406	68kΩ	0101683	1 C
R407	100kΩ	0101104	2 C
R408	5.6kΩ	0101562	2 B
R409	2.2kΩ	0101222	2 C
R410	330Ω	0101331	2 B
R411	220kΩ	0101224	1 A, B
R412	220kΩ	0101224	1 A
R413	10kΩ	0101103	1 A
R414	10kΩ	0101103	1 A
R415	220kΩ	0101224	1 A
R416	220kΩ	0101224	1, 2 A
R417	10kΩ	0101103	1, 2 A
R418	10kΩ	0101103	1, 2 A
R419	220kΩ	0101224	1 A
R420	56kΩ	0101563	2 A
R421	56kΩ	0101563	1 B
R422	82kΩ	0101823	2 A
R423	82kΩ	0101823	2 B
R424	1MΩ	0101105	2 A
R425	1MΩ	0101105	2 B
R426	5.6kΩ	0101562	2 A
R427	1kΩ	0101102	2 A
R428	1kΩ	0101102	2 B
R429	5.6kΩ	0101562	2 A, B
R430	47kΩ	0101473	2 A
R431	47kΩ	0101473	2 B
R432	2.2kΩ	0101222	2 A, B
R433	39kΩ	0101393	2 B (underneath)
VR401	10kΩ (B) FM Separation Adj.	1035130	2 A
C401	68pf ±10% 50 V CC.	0660680	1 C
C402	10μf 10 V EC.	0511100	1 C
C403	0.047μf +80% -20% 50 V CC.	0657473	1 A
C404	10000pf ±10% 50 V SC.	0611103	2 C
C405	2200pf ±5% 50 V SC.	0610222	2 C
C406	1pf 50 V EC.	0515109	2 A
C407	10μf 25 V EC.	0513100	1, 2 B
C408	0.001μf	0601106	1 A
C409	0.001μf	0601106	1 A
C410	0.001μf	0601106	1 A
C411	0.001μf	0601106	1 A
C412	0.001μf	0601106	1 A
C413	0.001μf ±10% 50 V MC.	0601106	2 A
C414	0.047μf	0601477	1 A
C415	0.047μf	0601477	2 A, B
C416	0.002μf	0601206	2 A
C417	0.002μf	0601206	2 B
C418	1pf 50 V EC.	0515109	2 A
C419	1pf 50 V EC.	0515109	2 B
C420	0.022μf +80% -20% 25 V CC.	0656223	
C421	3.3μf 25 V EC.	0513339	2 B (underneath)

W	X	Y	Z
TR401	25C711 (F, G)	0305732, 3	1 C
TR402		0305732, 3	2 B
TR403		0305732, 3	2 B
TR404	25C871 (D, E)	0305470, 1	2 A, B
TR405		0305470, 1	2 A
D401	1N34A	0310400	1, 2 B
D402		0310400	1, 2 B
D403		0310401	1 A
D404	1N34A (YELLOW)	0310401	1 A
D405		0310401	1 A
D406		0310401	1 A
D407	D5-410	0340030	2 B
T401	19kHz, 38kHz MPX Coil	4240670	1 B, C
L401	19kHz MPX Coil	4240590	2 C
L402	Micro-Inductor	4900090	1, 2 C
L403	67kHz MPX Coil	4240680	2 C

POWER BLOCK <F-4015>

W	X	Y	Z
R001	560Ω	±10% 1 W CR.	0104561 1 A
R002	82Ω		0104830 1 A
R003	820Ω	±10% 1/4 W SR.	0111821 1 A
R004	4.7kΩ		0111472 1 A
R005	220Ω	±10% 1 W CR.	0104221 2 A, B
R851	470Ω	±10% 1/4 W SR.	0111471 1 B
R852	470Ω		0111471 1 B
R853	470Ω		0111471 1 B
R854	470Ω		0111471 1 B
C001	0.001 μF	±20% 400 V OC.	0590106 1 A
C002	470 μF	50 V EC.	0515471 1 A
C003	220 μF		0515221 1 A
C004	1000 μF	16 V EC.	0512102 1 A
C005	470 μF	25 V EC.	0513471 1 A
C816	220 μF	10 V EC.	0511221 1 B
C831	1000 μF	35 V EC.	0549004 1 B
C832	1000 μF		0549004 1 B
C833	470 μF		0514371 1 B
C834	470 μF		0514371 1 B
TR001	25C971	0305531	1 A
D001	100C-1	0310680	1 A
D002	100C-1	0310680	1 A
D003	100-1	0310340	1 B



OTHER PARTS AND THEIR POSITIONS ON CHASSIS

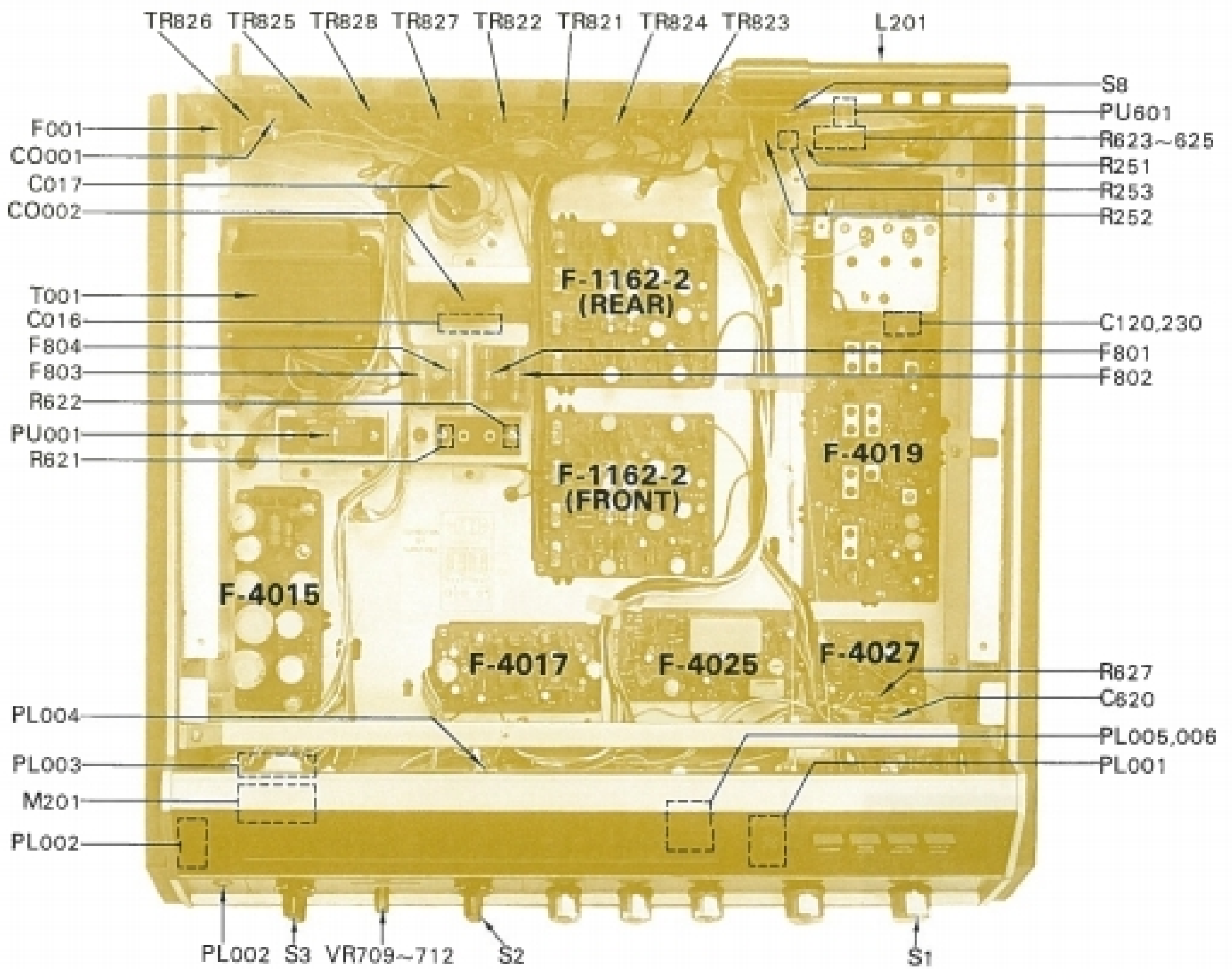
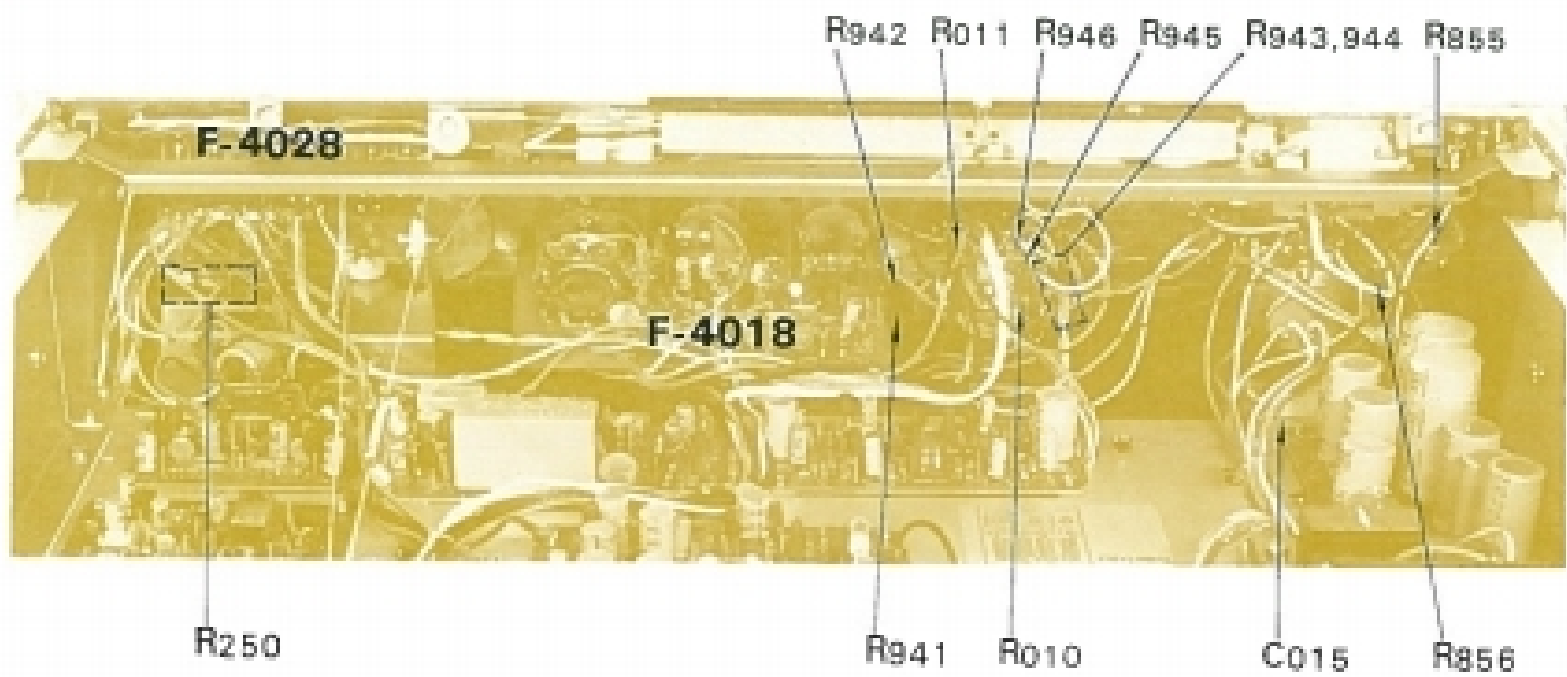
W: Parts No. X: Parts Name Y: Stock No.

W	X	Y
R250	1k Ω	0101102
R251	1.2k Ω	0101122
R252	1.2k Ω	0101122
R253	330 Ω	0101331
R221	56k Ω	0101563
R222	56k Ω	0101563
R223	100k Ω	0101104
R224	100k Ω	0101104
R225	470k Ω	0101104
R226	470k Ω	0101104
R227	150 Ω	0101151
R245	15k Ω	0101153
R255	470 Ω	0111471
R256	470 Ω	0111471
R941	2.7k Ω	0101272
R942	1.5k Ω	0101152
R943	15k Ω	0101153
R944	15k Ω	0101153
R945	39k Ω	0101393
R946	39k Ω	0101393
R010	22 Ω	0111220
R011	47 Ω	0101470
VR709~712	250k Ω (MIN) \times 4	1040130
C120	0.001 μ F \pm 20% 50V CC.	0652102
C330	0.022 μ F \pm 20% 25V CC.	0656223
C420	220 μ F 25V EC.	0513221
C015	0.022 μ F \pm 20% 600V OC.	0591227
C016	0.0047 μ F \pm 20% 600V OC.	0591476
C017	2200 μ F 50V EC.	0559307
TR821		0308330,1 or 0308330,1
TR822		0308330,1 or 0308330,1
TR823		0308330,1 or 0308330,1
TR824	25D315 (C, D) or 25D155 (N, M)	0308330,1 or 0308330,1
TR825		0308330,1 or 0308330,1
TR826		0308330,1 or 0308330,1
TR827		0308330,1 or 0308330,1
TR828		0308330,1 or 0308330,1
T001	Power Transformer	4001020
L201	Ferrite Bar Antenna	4200280
M201	Tuning Meter (200 μ A)	4300390, 1
S1	Selector Control	1102340, 50
S2	Synthesizer/Decoder Function Control	1103420
S3	Power/Speakers Switch	1102330, 60
S4	FM DIST/LOC Switch	1110040
F001	Power Fuse 100~117V 2A 220~240V 1A	0430241
	Power Fuse Holder	2300040
F801	Quick Acting fuse 1.5A	0430101
F802		0430101

W	X	Y
F803	Quick Acting Fuse 1.5A	0430101
F804		0430101
	Quick Acting Fuse Holder	2310070
PL001	Dial Indicator 6.3V 250mA	0420020
PL002		0420020
PL003	Tuning Meter Lamp	0420020
	Lamp Holder PL001~003	2310030
PL004	Needle Lamp	0400101
PL005	FM Stereo Indicator	0400190
PL006		
CO001	AC Outlet	2450040
CO002		2450040
J001	Headphone Jack	2430060
PU001	DIN Socket	2430040
PU001	Voltage Selector	
	Plug	2410090
	Socket	2410080

Abbreviations	
CR	: Carbon Resistor
SR	: Solid Resistor
CoR	: Cement Resistor
CC	: Ceramic Capacitor
EC	: Electrolytic Capacitor
AEC	: Aluminium Electrolytic Capacitor
MC	: Mylar Capacitor
SC	: Polystyrene Capacitor
OC	: Oil Capacitor
TC	: Tantalum Capacitor

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





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