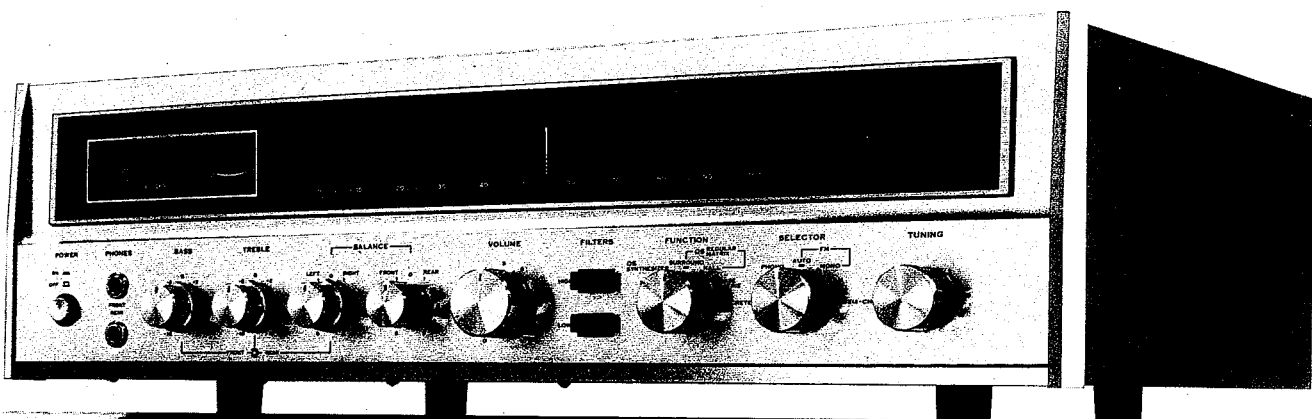


SERVICE MANUAL

4-CHANNEL RECEIVER **SANSUI QRX-3000**



Sansui

SANSUI ELECTRIC CO., LTD.

This service manual is designed for service engineers to repair, adjust, maintain and order the replacement parts of the QRX-3000 correctly.

When ordering the parts, use the stock number and parts name specifically referring to the Parts Locations & Parts List.

For general usage and maintenance of the unit, please refer to the Operating Instructions attached with the unit.

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1. SPECIFICATIONS

AUDIO SECTION

POWER OUTPUT

MUSIC POWER (IHF) ..100 Watts into 4 ohms
 76 Watts into 8 ohms
 CONTINUOUS RMS POWER (1kHz, each channel driven).....19 Watts x 4 into 4 ohms
 15 Watts x 4 into 8 ohms
 CONTINUOUS RMS POWER (1kHz, 4-channels driven) 8 Watts+8 Watts+8 Watts
 +8 Watts into 8 ohms

TOTAL HARMONIC DISTORTION

.....Less than 0.5% at rated output

INTERMODULATION DISTORTION (70Hz: 7,000Hz=4:1 SMPTE method)

.....Less than 0.5% at rated output

POWER BANDWIDTH (IHF) ..20 to 30,000Hz.

LOAD IMPEDANCE4 to 16 ohms

DAMPING FACTORApproximatly 30 at 8 ohms load

INPUT SENSITIVITY AND IMPEDANCE (1kHz, for rated output)

PHONO2.5mV (50k ohms)
 Max. input capability ..More than 100mV at 0.5% distortion
 AUX150mV (50k ohms)
 TAPE MONITOR (PIN, DIN)150mV (50k ohms)

RECORDING OUTPUT

TAPE REC (PIN)150mV
 TAPE REC/PLAY (DIN) ..30mV
 FREQUENCY RESPONSE (at 1 watt output from AUX)30 to 30,000Hz ± 1.5 dB

EQUALIZATION.....RIAA Curve (30 to 15,000Hz ± 1 dB)

CROSSTALK (1,000Hz, at rated output)

.....Better than 45dB

HUM AND NOISE (IHF)

PHONOBetter than 70dB
 AUXBetter than 75dB

TONE CONTROLS

BASS.....+12dB, -12dB at 50Hz
 TREBLE.....+12dB, -12dB at 15,000Hz
 LOUDNESS.....+8dB at 50Hz,
 +3dB at 10,000Hz

FILTERS

LOW.....-10dB at 50Hz (6dB/oct.)
 HIGH-10dB at 10,000Hz (6dB/oct.)

SYNTHESIZER/DECODER

.....QS regular matrix system with vario-matrix circuit

TUNER SECTION

<FM>

TUNING RANGE88 to 108MHz
 SENSITIVITY (IHF)2.5 μ V
 TOTAL HARMONIC DISTORTION
 MONO Less than 0.5%
 STEREO Less than 0.8%
 SIGNAL TO NOISE RATIO (MONO)Better than 60dB
 SELECTIVITYBetter than 50dB
 CAPTURE RATIO (IHF)....Less than 2.5dB
 IMAGE REJECTIONBetter than 45dB
 IF REJECTION.....Better than 60dB
 SPURIOUS RESPONSE REJECTIONBetter than 60dB
 FREQUENCY RESPONSE ..30 to 12,000Hz ± 1 dB / ± 2 dB
 STEREO SEPARATIONBetter than 35dB at 1,000Hz
 ANTENNA IMPEDANCE ..300 ohms balanced,
 75 ohms unbalanced

<AM>

TUNING RANGE535 to 1605kHz
 SELECTIVITYBetter than 25dB
 SENSITIVITY (bar antenna)....50dB/m
 IMAGE REJECTIONBetter than 80dB/m at 1,000kHz
 IF REJECTION.....Better than 80dB/m at 1,000kHz

SEMICONDUCTORS

TRANSISTORS88
 FETS3
 IC1
 ZENER DIODE1
 DIODES50

POWER REQUIREMENTS

VOLTAGE100, 117, 220, 240V
 CONSUMPTION62 watts (rated), 110VA (max.)

DIMENSIONS

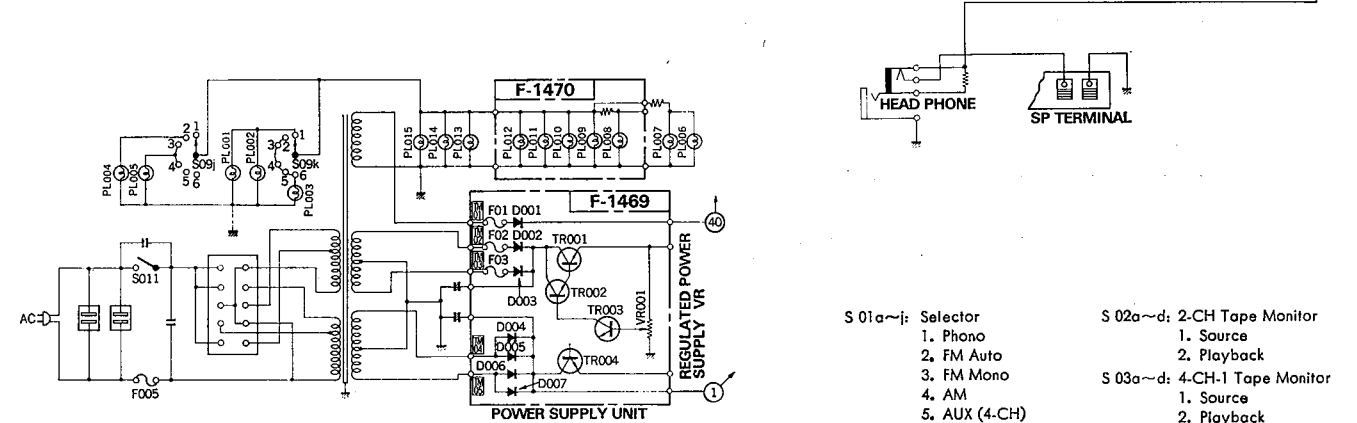
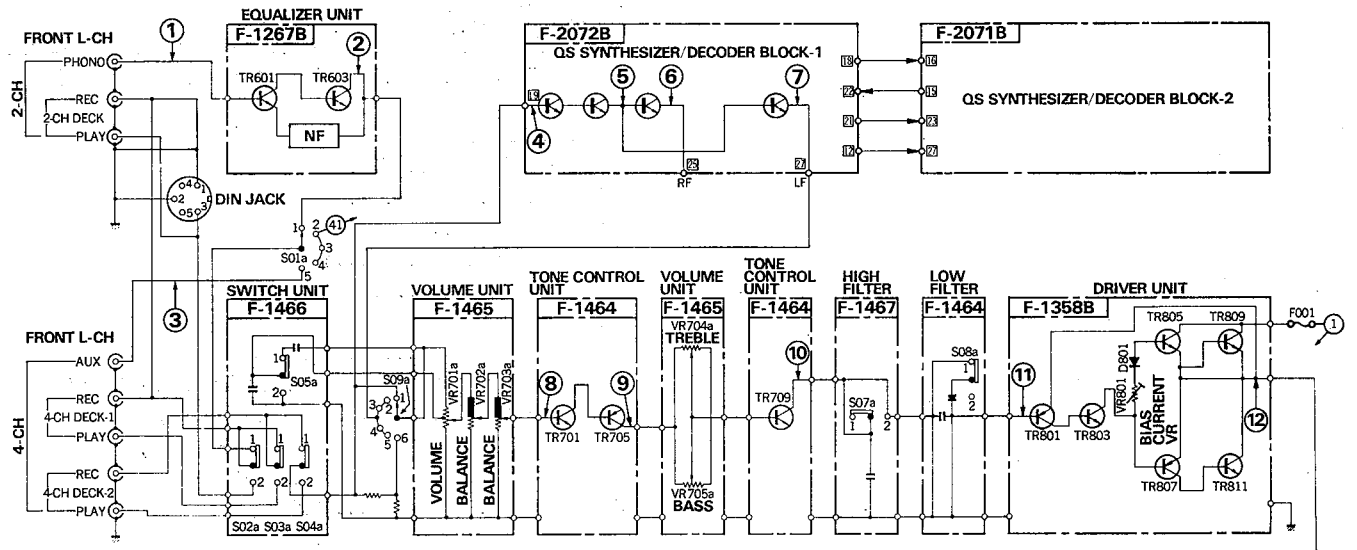
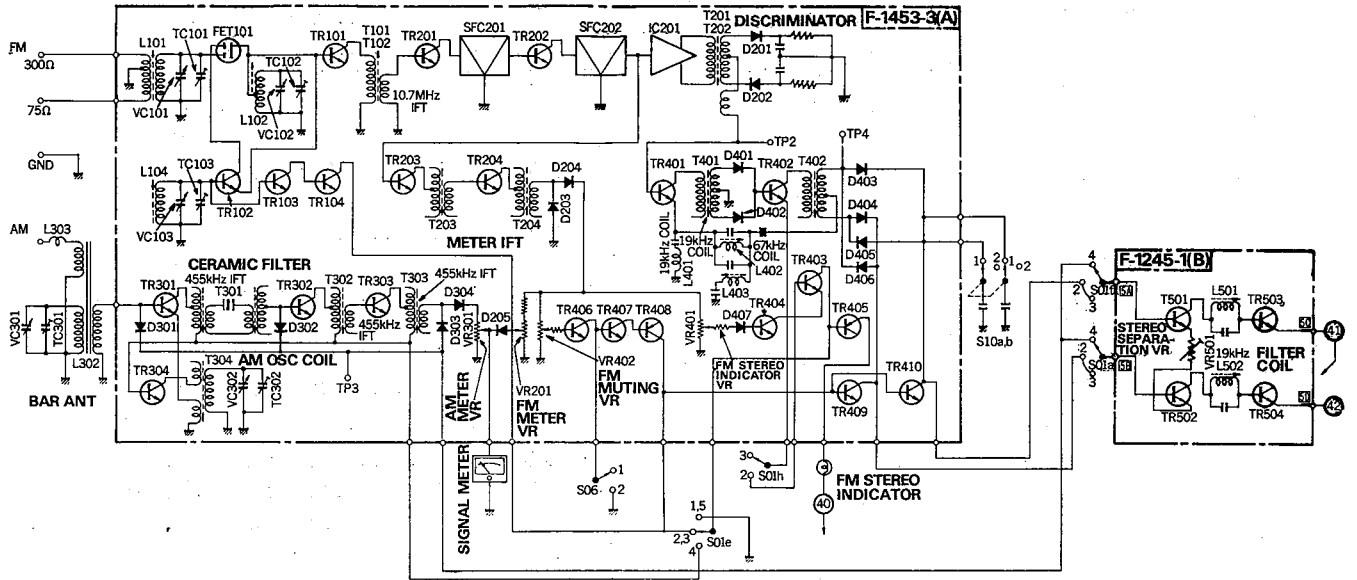
140mm (5 $\frac{5}{16}$ "H),
 505mm (19 $\frac{5}{16}$ "W),
 330mm (13"D)

WEIGHT11.5kg (25.4 lbs)

* Design and specifications subject to change without notice for improvements.

2. BLOCK DIAGRAM AND LEVEL DIAGRAM

2-1. Block Diagram

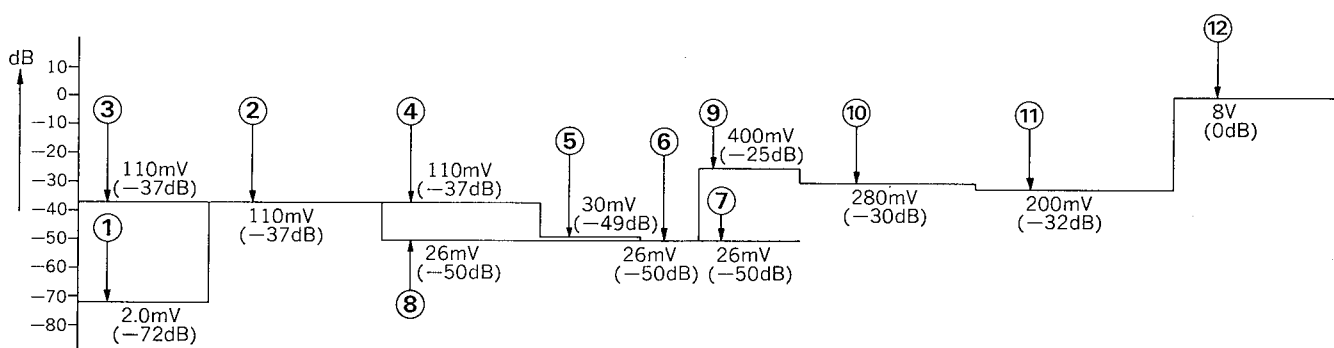


- S 01a~i: Selector
 1. Phono
 2. FM Auto
 3. FM Mono
 4. AM
 5. AUX (4-CH)
- S 02a~d: 2-CH Tape Monitor
 1. Source
 2. Playback
- S 03a~d: 4-CH-1 Tape Monitor
 1. Source
 2. Playback
- S 04a~d: 4-CH-2 Tape Monitor
 1. Source
 2. Playback

2-2. Level Diagram

1. VOLUME controlMaximum
2. BASS TREBLE BALANCE volume controlCenter
3. FUNCTION switchQS Synthesizer
4. InputPHONO 2.0mV 1kHz sine wave
AUX 110mV 1kHz sine wave
(output impedance of 600Ω at
an audio Oscillator)
5. Output8V (8W) 8Ω

Note: Each voltage value is for reference and measured by a VTVM. In some recorders, the actual voltage value is in minor difference from the reference value.



S 05a~d: Loudness

1. Off

2. On

S 06 : FM Muting

1. On

2. Off

S 07a~d: High Filter

1. Off

2. On

S 08a~d: Low Filter

1. Off

2. On

S 09a~k: Function

1. 2-CH

2. QS Synthesizer

3. QS Regular Matrix Surround

4. QS Regular Matrix Hall

5. Phase Matrix

6. Discrete

S10 : Power

1. On

2. Off

S11a~b: FM De-emphasis

1. 75μS

2. 50μS

VR701: Volume

VR702: Balance Volume

VR703: Balance Volume

VR704: Treble Volume

VR705: Bass Volume

VR801: Bias current Adj.

3. ALIGNMENTS AND ADJUSTMENTS

Abbreviation

Equipment

AM FM Generator Oscilloscope Genescope
 AM Signal Generator AM SG
 FM Signal Generator FM SG
 FM Stereo Signal Generator FM SSG
 Oscilloscope Scope
 Audio Oscillator Audio Osci.
 Distortion Meter Dist. Meter

Others

Clockwise CW.
 Counterclockwise CCW.
 Antenna ANT.
 Modulation MOD.

3-1. Regulated Power Supply Board Adjustment (See Fig. 3-1)

Note:

1. Function QS Synthesizer
2. Volume Minimum

STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
1	Regulated Power supply	DC volt meter	See Fig. 3-1	F-1469 VR001	25±0.1V	

Fig. 3-1

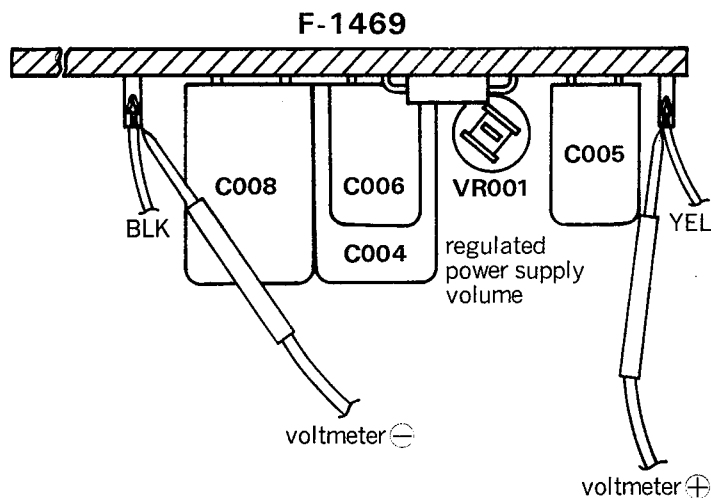
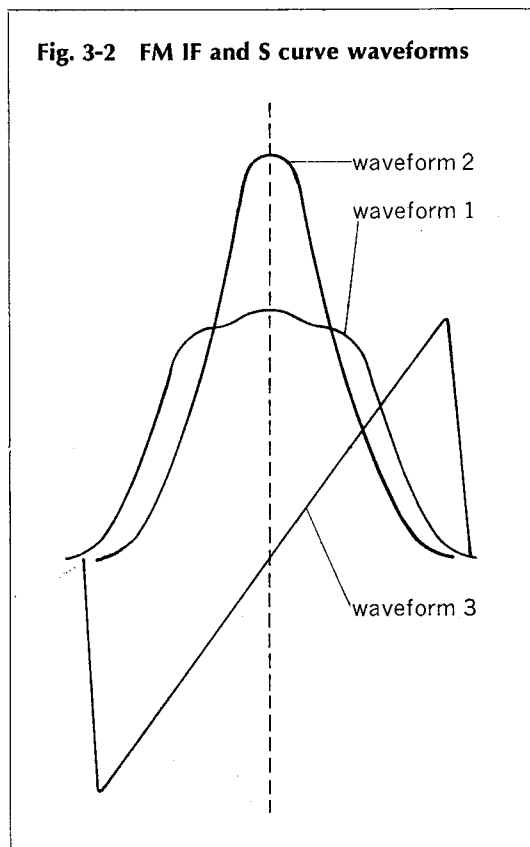


Fig. 3-2 FM IF and S curve waveforms



3-2. Driver Circuit Board Adjustment (See Fig. 3-8 on page 11)

Note:

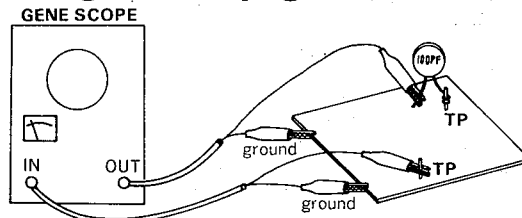
1. VolumeMinimum
2. Confirm the AC Power Supply voltage.
3. After adjustment, run the unit for more than 5 minutes, then check and readjust if necessary.
4. Room temperature should be 18~28°C (65~83°F) for bias current adjustment.

STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
1	Bias current Front L	DC miliammeter	F-1468 F001	VR802 Front L board	20mA	°Step down meter's range accordingly
2	Bias current Front R	Same as above	F-1468 F002	VR801 Front L board	Same as above	Same as above
3	Bias current Rear L	Same as above	F1468 F003	VR802 Front R board	Same as above	Same as above
4	Bias current Rear R	Same as above	F-1468 F004	VR801 Front R board	Same as above	Same as above

3-3. FM IF Alignment (See Fig. 3-2 on page 6, Fig. 3-9 on page 11)

Note:

1. Selector.....FM AUTO
2. Volume.....Minimum
3. Output level of genescopeAfter attenuator
4. Sweepwidth.....1.5~2cm/150kHz
5. Frequency band.....9.5~11.5MHz
6. Connection.....Connect the output of genescope to TP1 through 100pF ceramic capacitor.

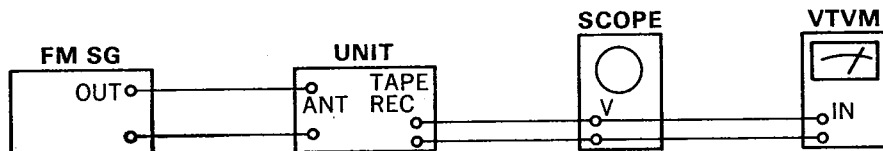


STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	IF coil	Output 55dB Genescope	TP1 Fig. 3-9	TP6 Detector probe	T101, T102	Max. IF waveform 1 as Fig. 3-2	Turn core of T203 CCW.
2	Meter coil	Same as above	Same as above	TP5 Genescope (Direct)	T203, T204	Set the center of waveform 2 with waveform 1 as Fig. 3-2	
3	Discriminator coil	Same as above	Same as above	TP2 Genescope (Direct)	T201 T202	Max. linearity of S curve Set the center of S curve with waveforms 1 & 2 as Fig. 3-2	

3-4. FM Dial Calibration and RF Alignment (See Fig. 3-9 on Page 11)

Note:

1. Selector.....FM AUTO
2. VolumeMinimum
3. Confirm start point of dial pointer before alignment.
4. In Step 3 and 4, if Step 1 and 2 are readjusted, repeat Step 3 and 4 again.
5. Nonmetric, plastic or bakelite, alignment tools should be used for RF alignment.

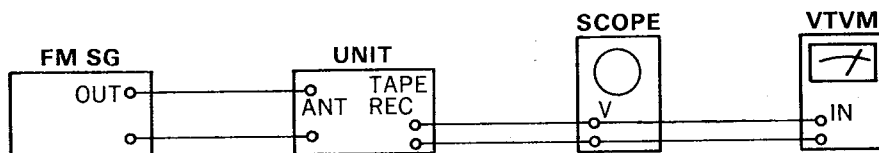


STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	88MHz Dial Calibration	88MHz ANT input 10dB 1kHz (100% MOD) FM SG	ANT terminal 300Ω	VTVM & Scope REC OUT L or Rch	L104	Max.	Set Dial on 88MHz
2	108MHz Dial Calibration	108MHz ANT input 10dB 1kHz (100% MOD) FM SG	Same as above	Same as above	TC103	Same as above	Set Dial on 108MHz
3	Confirm 88MHz Dial Calibration	Same as Step 1	Same as above	Same as above		Confirm 88MHz Dial Calibration	◦If not, repeat from Step 1
4	Confirm 108MHz Dial Calibration	Same as Step 2	Same as above	Same as above		Confirm 108MHz Dial Calibration	◦If not, repeat from Step 2
5	90MHz RF Adj.	90MHz ANT input 10dB 1kHz (100% MOD) FM SG	Same as above	Same as above	L101 L102	Max.	◦Tune FM SG (Max. indication of Signal Meter)
6	106MHz RF Adj.	106MHz ANT input 10dB 1kHz (100% MOD) FM SG	Same as above	Same as above	TC101 TC102	Same as above	Same as above

3-5. FM Meter, Mono Distortion and Muting Adjustment (See Fig. 3-9 on page 11)

Note:

1. SelectorFM AUTO
2. VolumeMinimum

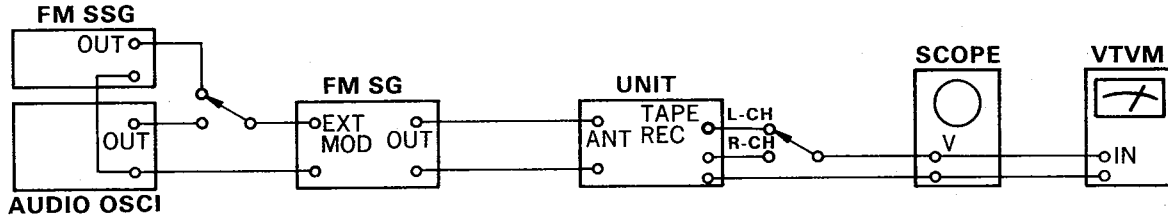


STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	Meter	98MHz ANT input 60dB 1kHz (100% MOD) FM SG	ANT terminal 300Ω	Signal meter	VR201	4.3 on meter 	◦Tune FM SG (Max. indication of Signal Meter) ◦Before adjustment, if meter swang out or not enough, preadjust VR201 until the reasonable point
2	Distortion	Same as above	Same as above	Dist. meter & Scope REC OUT L or Rch	T202	Min. distortion	◦Tune FM SG (Max. indication of Signal Meter)
3	Muting level	98MHz ANT input 25dB 1kHz (100% MOD) FM SG	Same as above	VTVM & Scope REC OUT L or Rch	VR402	Audio signal just muted	◦Set MUTING switch to ON (pushed out) ◦Confirm muting operation after adjustment

3-6. MPX Alignment (See Fig. 3-3, and Fig. 3-9 on page 11)

Note:

1. SelectorFM AUTO
2. VolumeMinimum



STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	67kHz SCA coil	98MHz ANT input 60dB FM SG 67kHz (100% MOD) Audio Osci.	ANT terminal 300Ω	VTVM & Scope TP4	L403	Min. 67kHz	
2	19kHz & 38kHz coil	98MHz ANT input 60dB FM SG Pilot 19kHz (10% MOD) FM SSG	Same as above	Same as above	L401 T401 T402	Max. 38kHz	◦Turn cores of L401, T401 & T402 CCW (Max), before adjustment.
3	19kHz Trap coil	Same as above	Same as above	REC OUT L & Rch	L501 L502	Min. 19kHz	◦L501 is for Lch REC OUT ◦L502 is for Rch REC OUT
4	Indicator (Lighting level)	98MHz ANT input 28dB SM SG Pilot 19kHz (10% MOD) FM SSG	Same as above	Stereo indi. lamp	VR401	Lighting point	◦Confirm lighting level by increasing output of FM SG
5	Separation	98MHz ANT input 60dB FM SG Pilot 19kHz (10% MOD) Rch 1kHz (45% MOD) Lch (0% MOD) FM SSG	Same as above	VTVM & Scope REC OUT Lch	L401	Min.	◦Turn VR501 CCW.
6	Separation	Same as above	Same as above	Same as above	VR501	Same as above	
7	Confirm separation	98MHz ANT input 60dB FM SG Pilot 19kHz (10% MOD) Rch (0% MOD) Lch 1kHz (45% MOD) FM SSG	Same as above	VTVM & Scope REC OUT Rch		Confirm the output is equal to Lch's in Step 5	◦If not, repeat from Step 1

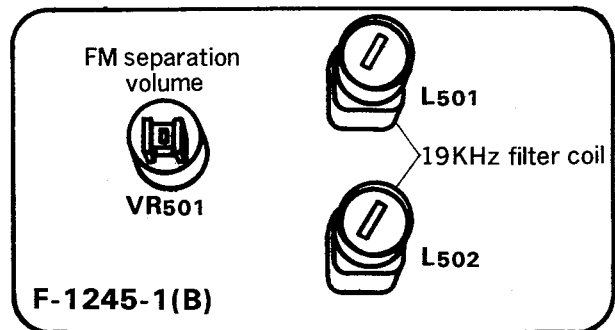


Fig. 3-3

3-7. AM IF, Dial Calibration, RF and Meter Alignment (See Fig. 3-9 on page 11)

Note:

1. Selector.....AM
2. Volume.....Minimum
3. Confirm start point of dial pointer before alignment.
4. After adjustment of signal meter, confirm the meter swing at FM. (If meter swung out or not enough, readjust VR201. (See Page 8)
5. In case of using loop antenna, increase output of AM SG for 26dB than bar antenna's input as it attenuates input sensitivity for 26dB. (See Fig. 3-4)
6. Nonmetaric, plastic or bakelite, alignment tools should be used for RF alignment.

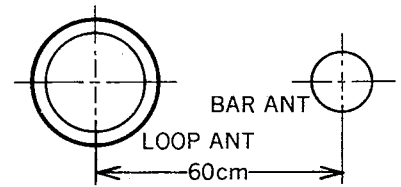
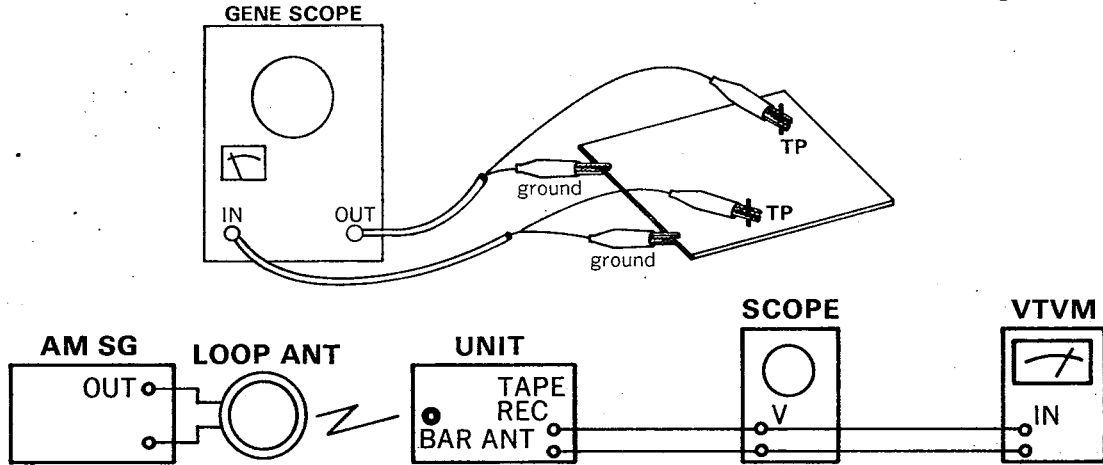
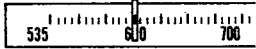

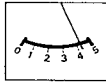


Fig. 3-4



STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
		FROM	TO				
1	IF coil	Output 80dB Genescope	OSC trimmer cap. Fig. 3-10	TP3 Genescope input	T301	IF wave-form as Fig. 3-5	◦Turn cores of T302 & T303 CCW.
2	Same as above	Same as above	Same as above	Same as above	T302	IF wave-form as Fig. 3-6	
3	Same as above	Output 55dB Genescope	Same as above	Same as above	T303	IF wave-form as Fig. 3-7	
4	600kHz Dial Calibration	600kHz ANT input 60dB 400Hz (30% MOD) AM SG Use loop ANT	Bar ANT	VTVM & Scope REC OUT L or Rch	T304	Max.	◦If broadcasting station is near, it might be used 
5	1400kHz Dial Calibration	1400kHz ANT input 60dB 400Hz (30% MOD) AM SG Use loop ANT	Same as above	Same as above	TC302	Same as above	Same as above 
6	Confirm 600kHz Dial Calibration	Same as Step 4	Same as above	Same as above		Same as above	◦If not, repeat from Step 4
7	Confirm 1400kHz Dial Calibration	Same as Step 5	Same as above	Same as above		Same as above	Same as above
8	600kHz RF Adj.	Same as Step 4	Same as above	Same as above	Bar ANT core(L302)	Same as above	
9	1400kHz RF Adj.	Same as Step 5	Same as above	Same as above	TC301	Same as above	
10	Meter	1000kHz ANT input 80dB 400Hz (30% MOD) AM SG Use loop ANT	Same as above	Signal meter	VR301	4.3 on meter 	◦Tune AM SG (Max. indication of signal meter) ◦Before adjustment, if meter swung out or not enough, pre-adjust VR301 until the reasonable point

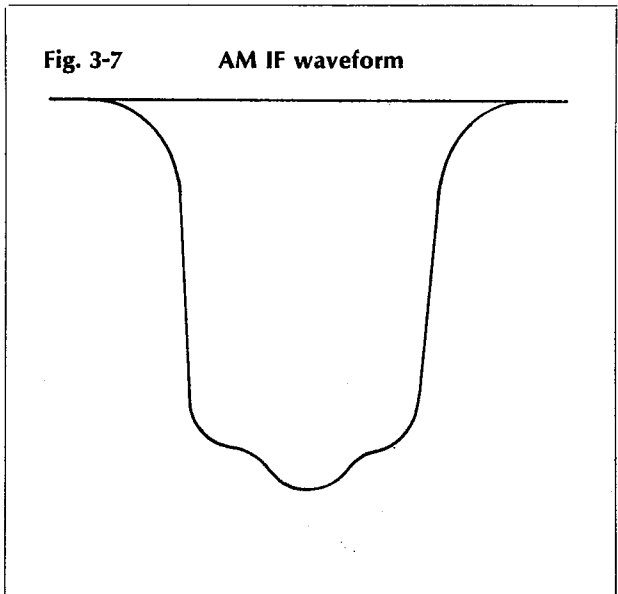
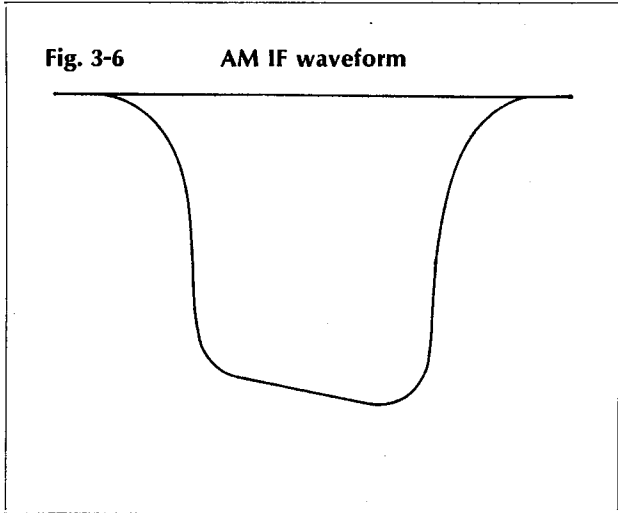
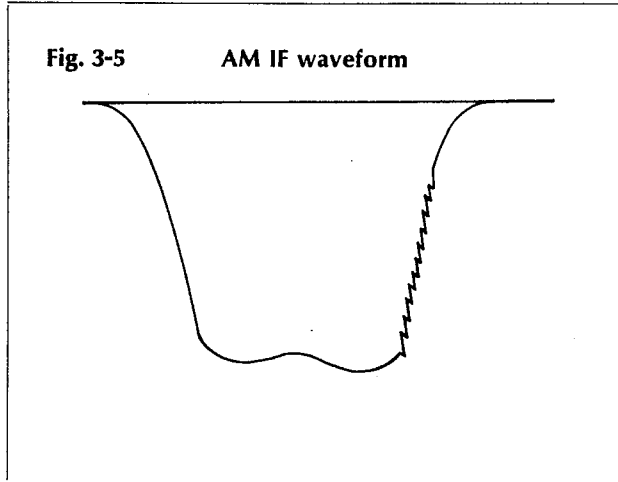


Fig. 3-8

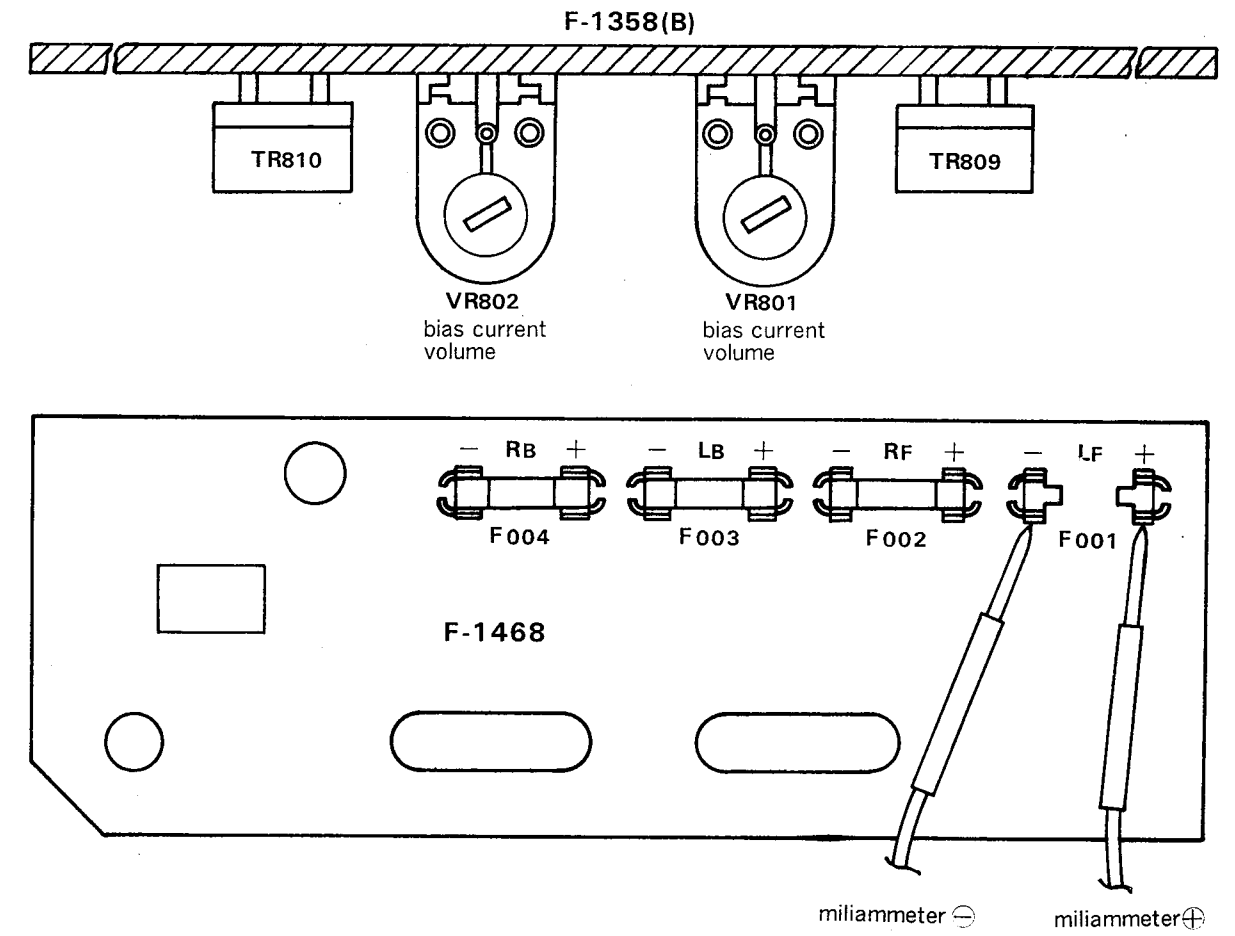
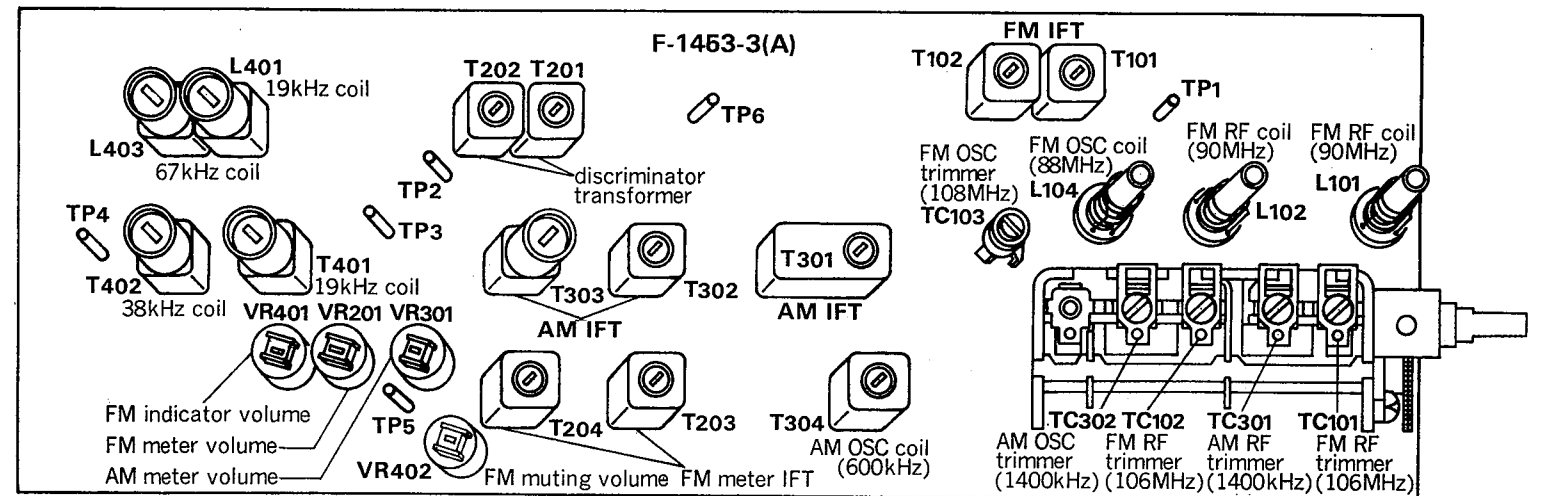


Fig. 3-9



4. THREADING OF DIAL CORD

If dial cord is cut or slips, replace cord by following procedures. As QRX-3000 has a variable capacitor-driving mechanism using 0.7mmφ cord and a dial pointer-driving mechanism using 0.3mmφ cord, please replace them with same types certainly.

*Thread the variable capacitor-driving mechanism from 1 to 9 first, then thread the dial pointer-driving mechanism from 10 to 18 as Fig. 4-1.

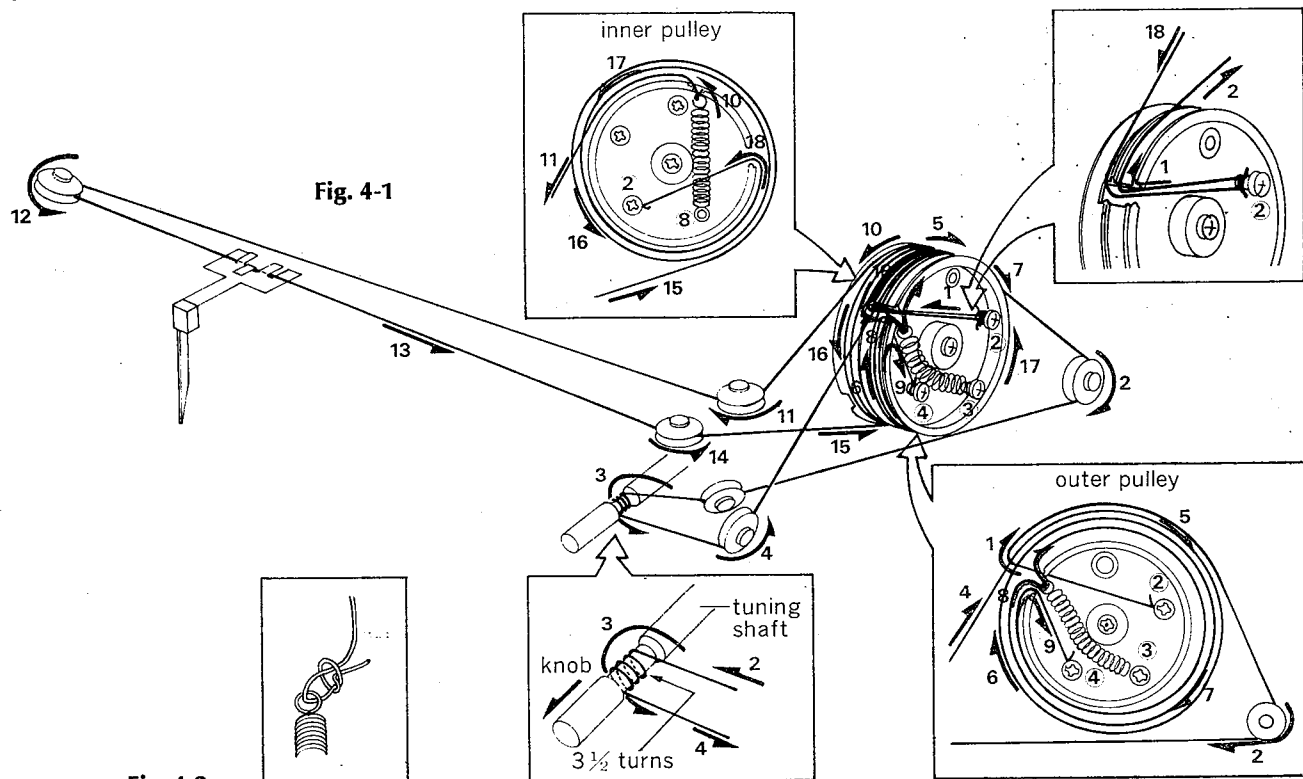


Fig. 4-2

1. Variable Capacitor-Driving Mechanism

- 1) Close the variable capacitor completely (maximum capacitance) and tie cord to number ② screw of the dial pulley.
- 2) Thread cord in the direction of arrow from 1 to 3.
- 3) Wind cord three and half times around the tuning shaft counterclockwise and toward the TUNING knob.
- 4) Thread cord in the direction of arrow from 4 to 5 and wind it on the dial pulley from 5 to 8.
- 5) After 8, pass cord through the spring then wind one turn.
- 6) After 9, tie cord to number ④ screw.

*After threading, make sure that the dial mechanism operates correctly by turning the TUNING knob.

2. Dial Pointer-Driving Mechanism

- 1) Open the variable capacitor completely (minimum capacitance) and tie cord to the dial spring as Fig. 4-2.
- 2) Fix the dial spring with screw to number ⑧ on variable capacitor side of the dial pulley.
- 3) Thread cord in the direction of arrow from 10 to 15.
- 4) Thread cord from 15 to 16 and wind it on the dial pulley from 16 to 18.

5) After 18, tie cord to number ② screw.

*Make sure that the dial mechanism operates correctly by turning the TUNING knob.

*After procedures, lock the knots of cord with paint certainly.

3. Attachment of Dial Pointer

- 1) Turn the TUNING knob and close the variable capacitor completely (maximum capacitance).
- 2) Set the dial pointer to "0" on dial scale and tighten the dial pointer ass'y. (See Fig. 4-3)

*Make sure that the dial mechanism operates correctly by turning the TUNING knob.

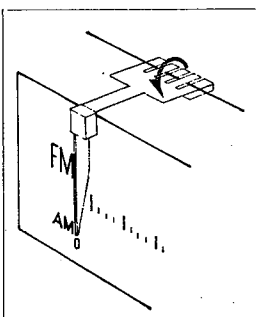


Fig. 4-3

Stock No.	Description
6036020	Dial Cord 0.7mmφ
6036040	Dial Cord 0.3mmφ
6906041	Spring G
6906091	Spring H

5. TROUBLESHOOTING CHART

5-1. Troubleshooting on Power Supply Section

Symptom	Check Point	Cause & What to Do
1. No power supplied to each section		
1-1. Each lamp not lighted		1. Imperfect contact of power supply cord 2. Power fuse F ₀₀₅ open 3. Imperfect contact of voltage selector 4. Defective power switch S ₀₁ 5. Defective power transformer 6. F ₀₁ on F-1469 open
1-2. Each lamp lighted		
1-1) 41.5V not supplied to collector of TR ₈₁₀ (TR ₈₀₉) on F-1358C		7. F ₀₀₁ , F ₀₀₂ on F-1468 open 8. Defective D ₀₀₇ on F-1469
1-2) 33V not supplied to collector of TR ₆₀₃ (TR ₆₀₄) on F-1267		9. F ₀₂ on F-1469 open 10. Defective D ₀₀₂ , D ₀₀₃ on F-1469
2. Wrong voltage supplied to each terminal on F-1469		
1-1) Wrong voltage supplied to terminal 5E on F-1245-1(B)		11. Defective TR ₀₀₁ , TR ₀₀₂ , TR ₀₀₃ on F-1469 12. VR ₀₀₁ out of adjustment on F-1469 13. Defective ZD ₀₀₁ on F-1469
1-2) Wrong voltage supplied to emitter of TR ₀₀₄ on F-1469		14. Defective D ₀₀₄ ~D ₀₀₆ on F-1469 15. Defective TR ₀₀₄ on F-1469

5-2. Troubleshooting on Audio Section

1. Quick acting fuse not open

- 1-1. +41.5V supplied to collectors on each power transistor (TR₈₁₀, TR₈₀₉)
 - 1) Center voltage +20V not supplied — 1. Defective TR₈₀₂ (TR₈₀₁) on F-1358C
- 1-2. +41.5V not supplied to collectors on each power transistor (TR₈₁₀, TR₈₀₉) — 2. Defective power supply section

2. Quick acting fuse open

- 2-1. After replacement, fuse not open — 3. Set the bias current 20mA (See page 7)
- 2-2. After replacement, fuse open again —
 4. Defective TR₈₁₀, TR₈₁₂ (TR₈₀₉, TR₈₁₁) on F-1358C
 5. Defective TR₈₀₆, TR₈₀₈ (TR₈₀₅, TR₈₀₇) on F-1358C
 6. Defective D₈₀₂ (D₈₀₁) on F-1358C
 7. Defective VR₈₀₂ (VR₈₀₁) on F-1358C

3. 2-CH of FUNCTION inoperative

Symptom	Check Point	Cause & What to Do
3-1. Both channels inoperative		8. Defective power supply section
3-2. One channel inoperative		9. Imperfect contact of S _{01a} (S _{01b}) on FUNCTION switch
		10. Imperfect contact of TAPE MONITOR switch on F-1466
		11. Defective TR ₇₀₁ , TR ₇₀₅ , TR ₇₀₉ (TR ₇₀₂ , TR ₇₀₆ , TR ₇₁₀) on F-1464
		12. Imperfect contact of HIGH FILTER switch on F-1467
		13. Imperfect contact of LOW FILTER switch on F-1465
		14. Defective driver circuit (See page 12)

4. QS SYNTHESIZER or QS REGULAR MATRIX of FUNCTION inoperative

4-1. Change the FUNCTION switch to 2-CH		
1) Sound heard from L and R-ch		15. See
2) Sound not heard from L and R-ch		16. Defective 4-CH circuit (F-2072B)
4-2. Both front and rear inoperative		17. Defective TR ₀₁ , TR ₀₃ (TR ₀₂ , TR ₀₄) on F-2072B
4-3. Front inoperative		18. Defective TR ₀₅ (TR ₀₆) on F-2072B
4-4. Rear inoperative		19. Defective TR ₀₇ (TR ₀₈) on F-2072B

5. PHONO inoperative

5-1. Both channels inoperative		20. Defective power supply section
5-2. One channel inoperative		
1) Reverse the output cord of L and R-ch from turntable		
1-1) Inoperative channel reverses		21. Defective turntable
1-2) Inoperative channel not reverse		22. Defective TR ₆₀₁ , TR ₆₀₃ (TR ₆₀₂ , TR ₆₀₄) on F-1267E
		23. Imperfect contact of S _{01a} (S _{01b}) on SELECTOR switch

5-3. Troubleshooting on RF Section

1. Both FM and AM inoperative (PHONO operative)

1-1. Both channels inoperative		1. Defective power supply section to tuner (See page 12).
1-2. One channel inoperative		2. Imperfect contact of S _{01f} (S _{01g}) on SELECTOR switch
		3. Imperfect contact of S _{01a} (S _{01b}) on SELECTOR switch
		4. Defective L ₅₀₁ (L ₅₀₂) on F-1245-1(B)
		5. Defective TR ₅₀₁ , TR ₅₀₃ (TR ₅₀₂ , TR ₅₀₄) on F-1245-1(B)

2. FM Section

* Before check, set MUTING switch to OFF (Pushed in).

Symptom	Check Point	Cause & What to Do
2-1. FM inoperative	1) Tune FM signal generator or broadcasting station	
	1-1) Signal meter operative	6. Defective IC ₂₀₁ on F-1453-3(A) 7. Defective T ₀₁ , T ₀₂ on F-1453-3(A) 8. Defective D ₂₀₁ , D ₂₀₂ on F-1453-3(A) 9. Defective TR ₄₀₁ on F-1453-3(A)
	1-2) Signal meter inoperative (Interstation noise too low compared with proper unit)	10. Defective SFC ₂₀₁ , SFC ₂₀₂ on F-1453-3(A) 11. Defective TR ₂₀₁ , TR ₂₀₂ on F-1453-3(A) 12. Defective FET ₁₀₁ , TR ₁₀₁ on F-1453-3(A) 13. Defective L ₁₀₁ , L ₁₀₂ , T ₁₀₁ , T ₁₀₂ on F-1453-3(A)
2-2. Signal meter inoperative (FM broadcasting sound can be heard)		14. Defective TR ₂₀₃ , TR ₂₀₄ on F-1453-3(A) 15. Defective T ₂₀₃ , T ₂₀₄ on F-1453-3(A) 16. Defective D ₂₀₃ , D ₂₀₄ on F-1453-3(A) 17. Imperfect contact of VR ₂₀₁ on F-1453-3(A) 18. Defective D ₂₀₅ on F-1453-3(A) 19. Defective signal meter (AM too)
2-3. Muting circuit inoperative (Signal meter operative)		20. VR ₄₀₂ out of adjustment on F-1453-3(A) 21. Defective TR ₄₀₆ , TR ₄₀₈ on F-1453-3(A) 22. Defective TR ₄₀₉ , TR ₄₁₀ on F-1453-3(A) (Inoperative L-ch (R-ch)) 23. Defective D ₄₀₈ on F-1453-3(A) 24. Defective D ₀₀₈ 25. Imperfect contact of S ₀₆ on MUTING switch 26. Imperfect contact of S _{01c} on SELECTOR switch
2-4. No channel separation on FM stereo broadcasting		
	* Confirm that SELECTOR switch is set to FM AUTO.	
	* Confirm signal meter operate.	
	1) Indicator lamp	
	1-1) Lighted	27. T ₄₀₁ , T ₄₀₂ defective or out of adjustment 28. Defective D ₄₀₃ , D ₄₀₆ on F-1453-3(A) 29. VR ₅₀₁ out of adjustment or imperfect contact 30. FM IF out of adjustment (By phase characteristic becoming wrong)
	1-2) Not lighted	31. Defective PL ₀₀₇ 32. VR ₄₀₁ out of adjustment or imperfect contact 33. T ₄₀₁ , T ₄₀₂ defective or out of adjustment 34. Defective D ₄₀₁ , D ₄₀₂ on F-1453-3(A) 35. Defective TR ₄₀₁ , TR ₄₀₂ on F-1453-3(A) 36. Defective TR ₄₀₃ ~TR ₄₀₅ on F-1453-3(A)

3. AM Section

3-1. AM inoperative

1) Interstation noise changes by touching the emitter of TR₃₀₁ on F-1453-3(A)

- | | |
|----------------|---|
| 1-1) Increase | 37. Defective T ₃₀₄ on F-1453-3(A) |
| | 38. Defective TR ₃₀₄ on F-1453-3(A) |
| | 39. Defective bar antenna |
| | 40. Variable capacitor short |
| 1-2) No change | 41. Defective D ₃₀₃ on F-1453-3(A) |
| | 42. Defective TR ₃₀₁ ~TR ₃₀₃ on F-1453-3(A) |

3-2. Distortion

- | |
|---|
| 43. Defective D ₃₀₁ ~D ₃₀₃ on F-1453-3(A) |
| 44. T ₃₀₁ ~T ₃₀₃ out of adjustment |

3-3. Signal meter inoperative

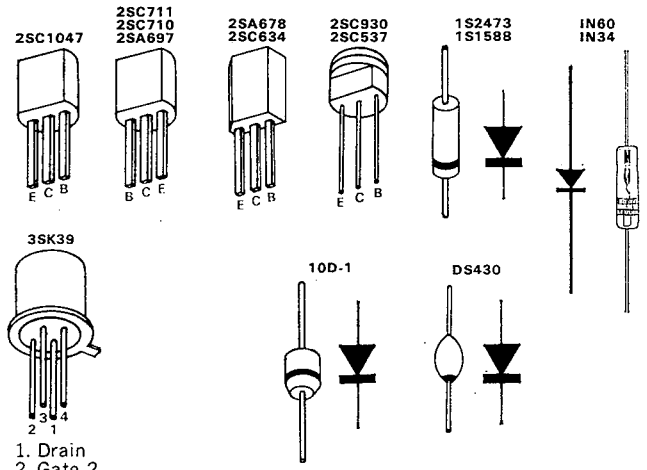
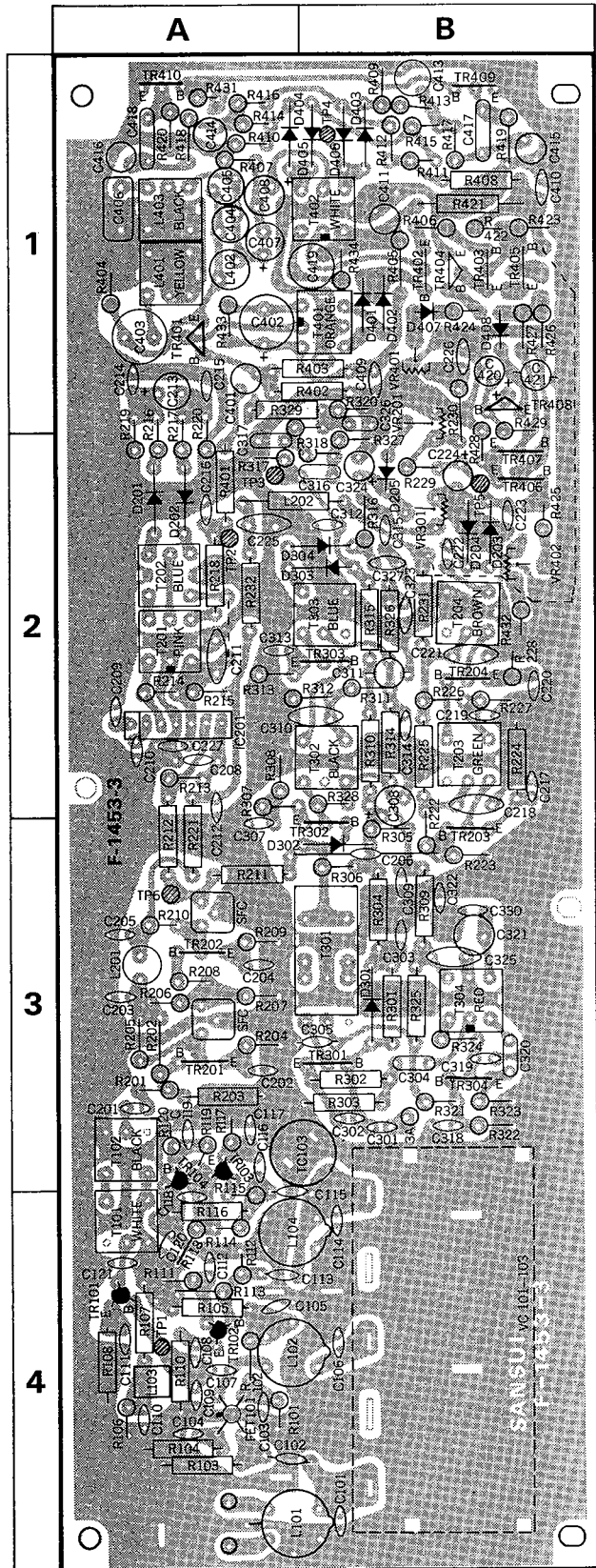
(AM broadcasting sound can be heard)

- | |
|---|
| 45. Defective D ₃₀₄ on f-1453-3(A) |
| 46. Imperfect contact of VR ₃₀₁ on F-1453-3(A) |
| 47. Defective signal meter (FM too) |

6. PARTS LOCATIONS AND PARTS LISTS

6-1. F-1453-3(A) Tuner Circuit Board (Stock No. 7520630 Complete Circuit Board F-1453-3(A))

Conductor Side



1. Drain
2. Gate 2
3. Gate 1
4. Source and Case

Parts List

Parts No.	Stock No.	Description	Position	
TR101	0305801	2SC1047 (B)	4 A	
TR102	0305790	2SC930 (C)	4 A	
TR103	0305790	2SC930 (C)	3 A	
TR104	0305440	2SC537 (E)	3 A	
TR201	0305801	2SC1047 (B)	3 A	
TR202	0305801	2SC1047 (B)	3 A	
TR203	0305801	2SC1047 (B)	3 B	
TR204	0305943	2SC710 (D)	2 B	
TR301	0305943	2SC710 (D)	3 B	
TR302	0305943	2SC710 (D)	3 B	
TR303	0305943	2SC710 (D)	2 B	
TR304	0305943	2SC710 (D)	3 B	
TR401	0305733	2SC711 (G)	1 A	
TR402	0305732	2SC711 (F)	1 B	
TR403	0305732	2SC711 (F)	1 B	
TR404	0305733	2SC711 (G)	1 B	
TR405	0300311	2SA697 (D)	1 B	
TR406	0305733	2SC711 (G)	2 B	
TR407	0305732	2SC711 (F)	2 B	
TR408	0300291, 2	2SA678 (6, 7)	1 B	
TR409	0305891	2SC634A (6)	1 B	
TR410	0305891	2SC634A (6)	1 A	
FET101	037*080	3SK39 (Q) FET	4 A	
IC201	0360060	TA7061AP IC	2 A	
D201	0311060	1N60P	Diode	
D202	0311060	1N60P		2 A
D203	0310400	1N34A		2 B
D204	0310400	1N34A	2 B	
D205	0340090	DS430	Varistor	2 B
D301	0310400	1N34A	Diode	
D302	0310400	1N34A		3 B
D303	0310400	1N34A		2 A, B
D304	0310400	1N34A		2 A, B
D401	0311160	1S2473	1 B	
D402	0311160	1S2473	1 B	

Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
D403	0311180	1S1588	1 B	C206	0660470	47pF 50V ±10%	C.C. 3 A, B
D404	0311180	1S1588	1 A	C208	0656223	0.022μF 25V	2 A
D405	0311180	1S1588	1 B	C209	0656223	0.022μF 25V	2 A
D406	0311180	1S1588	1 B	C210	0656223	0.022μF 25V	C.C. 2 A
D407	0340090	DS430 Varistor	1 B	C211	0656473	0.047μF 25V	2 A
D408	0310340	10D-1 Diode	1 B	C212	0656223	0.022μF 25V	2, 3 A
SFC201	0910120	SFC-10.7MA	3 A	C213	0513100	10μF 25V	E.C. 1 A
SFC202	0910120	SFC-10.7MA	3 A	C214	0660221	220pF 50V	1 A
T101	4235890	10.7MHz (WHITE)	4 A	C215	0660221	220pF 50V	±10% C.C. 1 A
T102	4235900	10.7MHz (BLACK)	3 A	C216	0660221	220pF 50V	2 A
T201	4235750	10.7MHz (PINK)	2 A	C217	0656223	0.022μF 25V	2 B
T202	4235760	10.7MHz (BLUE)	2 A	C218	0656223	0.022μF 25V	2 B
T203	4235770	10.7MHz (GREEN)	2 B	C219	0656223	0.022μF 25V	2 B
T204	4235780	10.7MHz (BROWN)	2 B	C220	0656223	0.022μF 25V	C.C. 2 B
T301	0910180, 1	YFL-455E2 (CFW-455B)	3 A, B	C221	0656223	0.022μF 25V	2 B
T302	4230510	455kHz (BLACK)	2 A, B	C222	0656223	0.022μF 25V	2 B
T303	4230500	455kHz (BLUE)	2 A, B	C223	0656473	0.047μF 25V	2 B
T304	4220280	AM OSC Coil (RED)	3 B	C224	0573338	0.33μF 25V	T.C. 2 B
T401	4240630	19kHz (ORANGE)	1 B	C225	0656223	0.022μF 25V	2 A
T402	4240620	38kHz (WHITE)	1 A, B	C226	0656223	0.022μF 25V	C.C. 1 B
L101	4200570	FM ANT Coil	4 A, B	C227	0656473	0.047μF 25V	2 A
L102	4210200	FM RF Coil (GREEN)	4 A, B	C301	0656223	0.022μF 25V	3 B
L103	4290110	3-303545 Peaking Coil	4 A	C302	0660330	33pF 50V ±10%	C.C. 3 B
L104	4220400	FM OSC Coil (ORANGE)	4 A, B	C303	0656473	0.047μF 25V	C.C. 3 B
L201	4900100	3.3μH Peaking Coil	3 A	C304	0601107	0.01μF 50V ±5%	M.C. 3 B
L202	4290011	3.5μH Peaking Coil	2 A, B	C305	0656473	0.047μF 25V	3 A, B
L301	4290011	3.5μH Peaking Coil	3 A	C307	0656473	0.047μF 25V	C.C. 3 A
L401	4240640	19kHz (YELLOW) MPX Coil	1 A	C308	0515339	3.3μF 50V	E.C. 2, 3 B
L402	4900030	4.7mH Peaking Coil	1 A	C309	0656473	0.047μF 25V	3 B
L403	4240610	67kHz (BLACK) MPX Coil	1 A	C310	0656473	0.047μF 25V	C.C. 2 A, B
	1220150	Variable Capacitor		C311	0533339	3.3μF 25V	BP.E.C. 2 B
C101	0669347	12pF 50V ±5%	C.C. 4 B	C312	0656472	0.0047μF 25V	2 B
C102	0656102	0.001μF 25V	4 A, B	C313	0656473	0.047μF 25V	2 A
C103	0656223	0.022μF 25V	C.C. 4 A	C314	0656473	0.047μF 25V	C.C. 2 B
C104	0656223	0.022μF 25V	4 A	C315	0656103	0.01μF 25V	2 B
C105	0656223	0.022μF 25V	4 A	C316	0601477	0.047μF 50V ±5%	M.C. 2 B
C106	0669353	18pF 50V ±5%	C.C. 4 B	C318	0656473	0.047μF 25V	C.C. 3 B
C107	0669209	8.2pF 50V ±0.25pF	C.C. 4 A	C319	0660150	15pF 50V ±10%	C.C. 3 B
C108	0669347	12pF 50V	4 A	C320	0601107	0.01μF 50V ±5%	M.C. 3 B
C109	0669353	18pF 50V	±5% C.C. 4 A	C321	0620361	360pF 50V ±5%	P.C. 3 B
C110	0660221	220pF 50V ±10%	C.C. 4 A	C322	0660220	22pF 50V ±10%	C.C. 3 B
C111	0656223	0.022μF 25V	C.C. 4 A	C323	0656473	0.047μF 25V	C.C. 2 B
C112	0656223	0.022μF 25V	4 A	C324	0510470	47μF 6.3V	E.C. 2 B
C113	0669203	2.7pF 50V ±0.25pF	C.C. 4 A	C325	0656473	0.047μF 25V	C.C. 3 B
C114	0669378	18pF 50V ±5%	C.C. 4 B	C326	0600206	0.002μF 50V ±5%	M.C. 1 B
C115	0669370	10pF 50V	3, 4 A	C327	0656103	0.01μF 25V	C.C. 2 B
C116	0669370	10pF 50V	±0.25pF C.C. 3 A	C328	0510330	33μF 6.3V	E.C. 2 B
C117	0669320	10pF 50V	3 A	C330	0660150	15pF 50V ±10%	C.C. 3 B
C118	0656223	0.022μF 25V	4 A	C401	0515339	3.3μF 50V	E.C. 1 A
C119	0656223	0.022μF 25V	3 A	C402	0629001	6800pF 50V	1 A
C120	0656223	0.022μF 25V	4 A	C403	0629001	6800pF 50V	1 A
C121	0656223	0.022μF 25V	4 A	C404	0620102	1000pF 50V ±5%	P.C. 1 A
C122	0656473	0.047μF 25V	C.C. 3 A	C405	0620101	100pF 50V	1 A
C201	0656223	0.022μF 25V	3 A	C406	0620271	270pF 50V	1 A
C202	0656223	0.022μF 25V	3 A	C407	0513100	10μF 25V	1 A
C203	0656223	0.022μF 25V	3 A	C408	0513100	10μF 25V	E.C. 1 A
C204	0656223	0.022μF 25V	3 A	C409	0656223	0.022μF 25V	1 B
C205	0656223	0.022μF 25V	3 A	C410	0656223	0.022μF 25V	C.C. 1 B
				C413	0620122	1200pF 50V	1 B
				C414	0620122	1200pF 50V	±5% P.C. 1 A
				C415	0620122	1200pF 50V	1 B
				C416	0620122	1200pF 50V	1 A
				C417	0601108	0.1μF 50V ±5%	M.C. 1 B

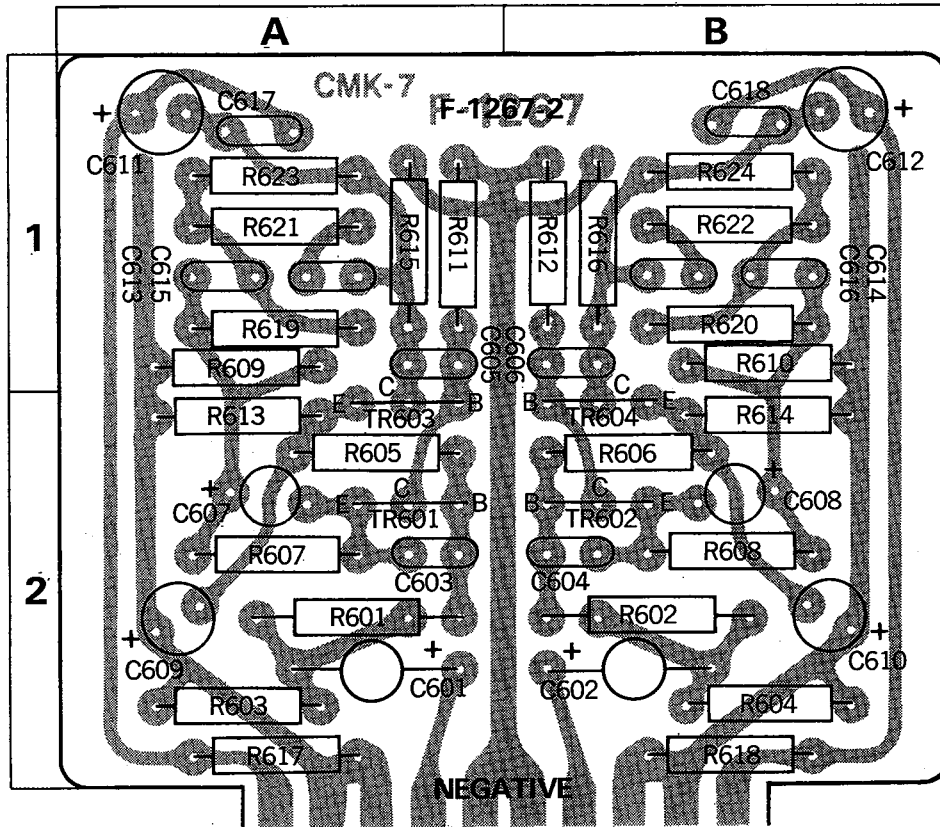
to be continued

F-1453-3(A) Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
C418	0601108	0.1 μ F 50V \pm 5% M.C.	1 A	R308	0106821	820 Ω \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	2 A
C419	0620272	2700pF 50V P.C.	1 A, B	R309	0107121	120 Ω	3 B
C420	0573159	1.5 μ F 25V T.C.	1 B	R310	0107822	8.2k Ω } \pm 5% $\frac{1}{4}$ W C.R.	2 B
C421	0515339	3.3 μ F 50V E.C.	1 B	R311	0106153	15k Ω }	2 B
R101	0106124	120k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	4 A	R312	0106472	4.7k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	2 A, B
R102	0106224	220k Ω }	4 A	R313	0106561	560 Ω }	2 A
R103	0107124	120k Ω }	4 A	R314	0107121	120 Ω }	2 B
R104	0107101	100 Ω } \pm 5% $\frac{1}{4}$ W C.R.	4 A	R315	0107103	10k Ω }	2 B
R105	0107221	220 Ω }	4 A	R316	0106221	220 Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	2 B
R106	0106562	5.6k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	4 A	R317	0106103	10k Ω }	2 A
R107	0107123	12k Ω }	4 A	R318	0106472	4.7k Ω }	2 B
R108	0107392	3.9k Ω } \pm 5% $\frac{1}{4}$ W C.R.	4 A	R319	0106393	39k Ω }	
R110	0107221	220 Ω }	4 A	R320	0106562	5.6k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	1 B
R111	0106121	120 Ω }	4 A	R321	0106223	22k Ω }	3 B
R112	0106682	6.8k Ω }	4 A	R322	0106562	5.6k Ω }	3 B
R113	0106473	47k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	4 A	R323	0106102	1k Ω }	3 B
R114	0106152	1.5k Ω }	4 A	R324	0106561	560 Ω }	3 B
R115	0106390	39 Ω }	3, 4 A	R325	0107561	560 Ω }	3 B
R116	0107222	2.2k Ω } \pm 5% $\frac{1}{4}$ W C.R.	4 A	R326	0107121	120 Ω }	2 B
R117	0106102	1k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	3 A	R327	0106473	47k Ω }	2 B
R118	0106272	2.7k Ω }	4 A	R328	0106822	8.2k Ω } (E.L.R.)	2 B
R119	0106563	56k Ω }	3 A	R330	0107152	1.5k Ω }	
R120	0106333	33k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	3 A	R401	0107102	1k Ω }	2 A
R201	0106221	220 Ω }	3 A	R402	0107104	100k Ω }	1 A, B
R202	0106332	3.3k Ω }	3 A	R403	0107224	220k Ω }	1 A, B
R203	0107152	1.5k Ω } \pm 5% $\frac{1}{4}$ W C.R.	3 A	R404	0106102	1k Ω }	1 A
R204	0106102	1k Ω }	3 A	R405	0106101	100 Ω }	1 B
R205	0106331	330 Ω }	3 A	R407	0106332	3.3k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	1 A
R206	0106332	3.3k Ω }	3 A	R408	0107102	1k Ω } \pm 5% $\frac{1}{4}$ W C.R.	1 B
R207	0106152	1.5k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	3 A	R409	0106104	100k Ω }	1 B
R208	0106101	100 Ω }	3 A	R410	0106104	100k Ω }	1 A
R209	0106102	1k Ω }	3 A	R411	0106104	100k Ω }	1 B
R210	0106102	1k Ω }	3 A	R412	0106104	100k Ω }	1 B
R211	0107331	330 Ω }	3 A	R413	0106822	8.2k Ω }	1 B
R212	0107221	220 Ω } \pm 5% $\frac{1}{4}$ W C.R.	2, 3 A	R414	0106822	8.2k Ω }	1 A
R213	0106560	56 Ω }	2 A	R415	0106822	8.2k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	1 B
R214	0106562	5.6k Ω }	2 A	R416	0106822	8.2k Ω }	1 A
R215	0106221	220 Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	2 A	R417	0106563	56k Ω }	1 B
R216	0106102	1k Ω }	1, 2 A	R418	0106563	56k Ω }	1 A
R217	0106102	1k Ω }	1, 2 A	R419	0106823	82k Ω }	1 B
R218	0107101	100 Ω } \pm 5% $\frac{1}{4}$ W C.R.	2 A	R420	0106823	82k Ω }	1 A
R219	0106682	6.8k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	1, 2 A	R421	0171271	270 Ω } \pm 10% 1W M.R.	1 B
R220	0106682	6.8k Ω }	1, 2 A	R422	0106223	22k Ω }	1 B
R221	0107101	100 Ω } \pm 5% $\frac{1}{4}$ W C.R.	2, 3 A	R423	0106473	47k Ω }	1 B
R222	0106153	15k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	2, 3 B	R424	0106103	10k Ω }	1 B
R223	0106472	4.7k Ω }	3 B	R425	0106473	47k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	2 B
R224	0107102	1k Ω } \pm 5% $\frac{1}{4}$ W C.R.	2 B	R426	0106105	1M Ω }	1 B
R225	0107101	100 Ω }	2 B	R427	0106473	15k Ω }	1 B
R226	0106153	15k Ω }	2 B	R428	0106330	33 Ω }	1, 2 B
R227	0106472	4.7k Ω }	2 B	R429	0106473	47k Ω }	1, 2 B
R228	0106102	1k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	2 B	R431	0106472	4.7k Ω }	1 A
R229	0106221	220 Ω }	2 B	R432	0106822	8.2k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	2 B
R230	0106221	220 Ω }	1, 2 B	R433	0106224	220k Ω }	1 A
R231	0107102	1k Ω }	2 A	R434	0106683	68k Ω }	1 B
R232	0107100	10 Ω }	2 B	R435	0107562	5.6k Ω } \pm 5% $\frac{1}{4}$ W C.R.	
R301	0107103	10k Ω }	3 B	VR201	1035150	22k Ω (B)	1 B
R302	0107220	22 Ω }	3 B	VR301	1035150	22k Ω (B) Semi-Variable Resistor (Solid Type)	2 B
R303	0107102	1k Ω }	3 B	VR401	1035150	22k Ω (B)	1 B
R304	0107123	12k Ω }	3 B	VR402	1035150	22k Ω (B)	2 B
R305	0106823	82k Ω }	3 B		2260010	Test Pin	
R306	0106103	10k Ω } \pm 5% $\frac{1}{4}$ W C.R. (E.L.R.)	3 B				
R307	0106680	68 Ω }	2 A				

6-3. F-1267E Equalizer Circuit Board (Stock No. 7550480 Complete Circuit Board F-1267E)

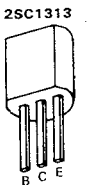
Conductor Side



Parts List

Parts No.	Stock No.	Description	Position
TR601	0306070	2SC1313(F)	2A
TR602	0306070	2SC1313(F)	2B
TR603	0306070	2SC1313(F)	2A
TR604	0306070	2SC1313(F)	2B
C601	0573339	3.3μF 25V	T.C. 2A
C602	0573339	3.3μF 25V	T.C. 2B
C605	0660100	10pF 50V	C.C. 1A
C606	0660100	10pF 50V	C.C. 1B
C609	0511470	47μF 10V	E.C. 2A
C610	0511470	47μF 10V	E.C. 2B
C611	0573688	0.68μF 25V	T.C. 1A
C612	0573688	0.68μF 25V	T.C. 1B
C613	0600476	0.0047μF 50V	1A
C614	0600476	0.0047μF 50V	1B
C615	0600126	0.0012μF 50V	± 5% M.C. 1A
C616	0600126	0.0012μF 50V	1B
C621	0660151	150pF 50V	±10% C.C.
C622	0660151	150pF 50V	±10% C.C.
R601	0107222	2.2kΩ	2A
R602	0107222	2.2kΩ	2B
R603	0107184	180kΩ	2A
R604	0107184	180kΩ	2B
R605	0107824	820kΩ	± 5% ¼W C.R. 2A
R606	0107824	820kΩ	2B
R607	0107479	4.7Ω	2A
R608	0107479	4.7Ω	2B

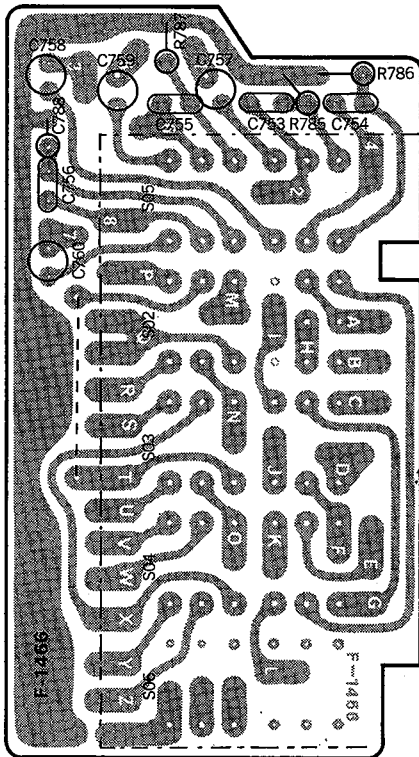
Parts No.	Stock No.	Description	Position
R609	0107122	1.2kΩ	1A
R610	0107122	1.2kΩ	1B
R611	0107104	100kΩ	1A
R612	0107104	100kΩ	1B
R613	0107272	2.7kΩ	2A
R614	0107272	2.7kΩ	2B
R615	0107822	8.2kΩ	1A
R616	0107822	8.2kΩ	1B
R617	0107823	82kΩ	± 5% ¼W C.R. 2A
R618	0107823	82kΩ	2B
R619	0107824	820kΩ	1A
R620	0107824	820kΩ	1B
R621	0107272	2.7kΩ	1A
R622	0107272	2.7kΩ	1B
R623	0107563	56kΩ	1A
R624	0107563	56kΩ	1B
R625	0107683	68kΩ	
R626	0107683	68kΩ	



6-4. F-1466 Switch Control Circuit Board

(Stock No. 7591700 Complete Circuit Board F-1466)

Conductor Side



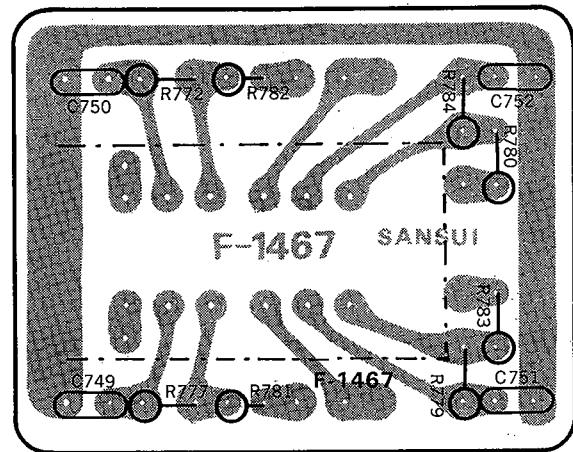
Parts List

Part No.	Stock No.	Description
C753	0600227	0.022 μ F 50V
C754	0600227	0.022 μ F 50V
C755	0600227	0.022 μ F 50V
C756	0600227	0.022 μ F 50V
C757	0620181	180 pF 50V
C758	0620181	180 pF 50V
C759	0620181	180 pF 50V
C760	0620181	180 pF 50V
R785	0106273	27k Ω
R786	0106273	27k Ω
R787	0106273	27k Ω
R788	0106273	27k Ω
S02-06	1130730	Push Switch (5 Stage)

6-5. F-1467 High Filter Circuit Board

(Stock No. 7591720 Complete Circuit Board F-1467)

Conductor Side



Parts List

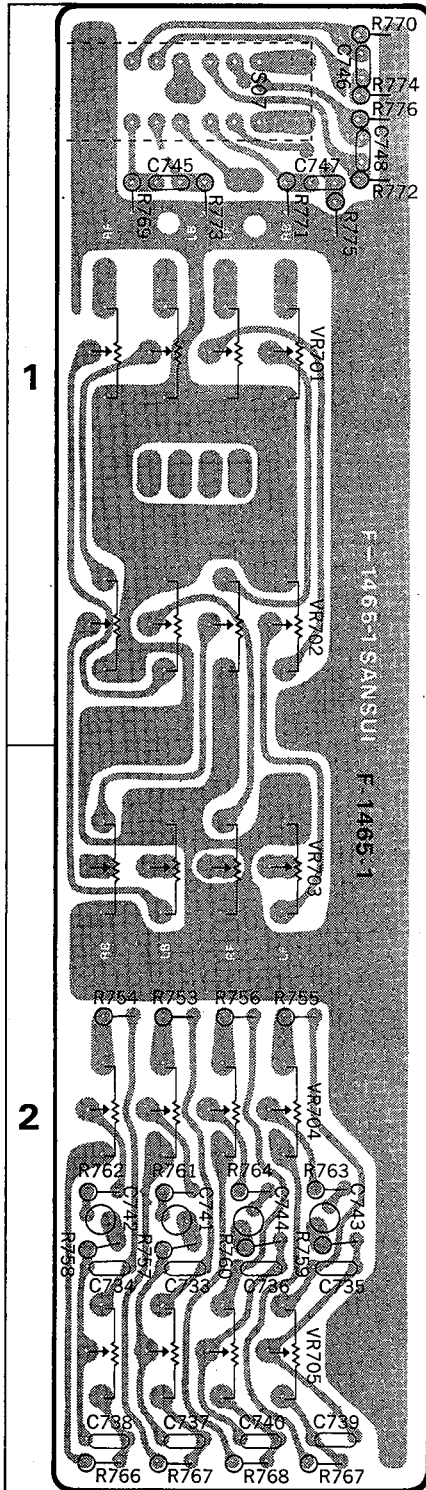
Parts No.	Stock No.	Description
C749	0600566	0.0056 μ F 50V
C750	0600566	0.0056 μ F 50V
C751	0600566	0.0056 μ F 50V
C752	0600566	0.0056 μ F 50V
R777	0106224	220k Ω
R778	0106224	220k Ω
R779	0106224	220k Ω
R780	0106224	220k Ω
R781	0106103	10k Ω
R782	0106103	10k Ω
R783	0106103	10k Ω
R784	0106103	10k Ω
S07	1130720	Push Switch

Abbreviations

- C.R.** : Carbon Resistor
- S.R.** : Solid Resistor
- Ce.R.** : Cement Resistor
- M.R.** : Metallized Film Resistor
- M.C.** : Mylar Capacitor
- E.C.** : Electrolytic Capacitor
- BP.E.C.** : Bi-Polar Electrolytic Capacitor
- C.C.** : Ceramic Capacitor
- Mi.C.** : Mica Capacitor
- O.C.** : Oil Capacitor
- P.C.** : Polystyrene Capacitor
- T.C.** : Tantalum Capacitor

6-6. F-1465 Volume Control Circuit Board (Stock No. 7591710 Complete Circuit Board F-1465)

Conductor Side



Parts List

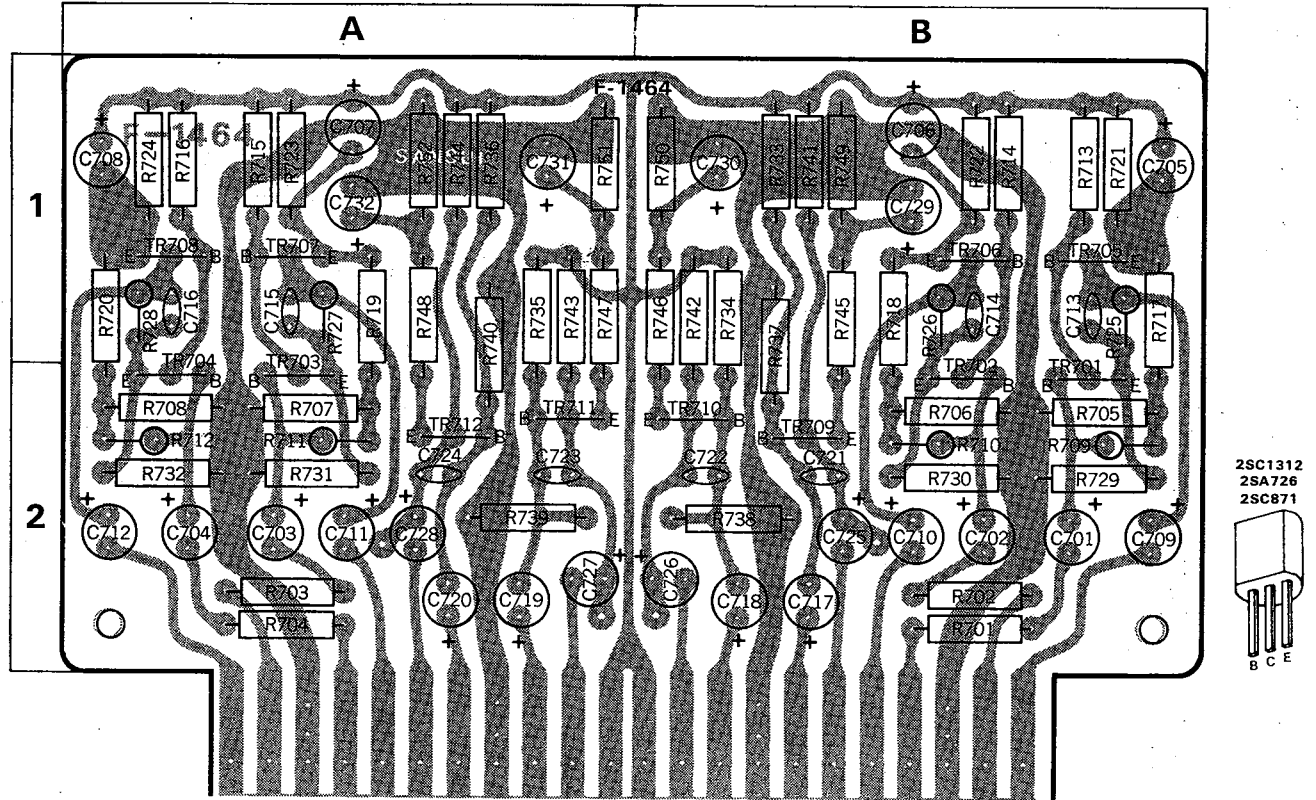
Parts No.	Stock No.	Description	Position
C733	0600827	0.082 μ F 50V	2
C734	0600827	0.082 μ F 50V	2
C735	0600827	0.082 μ F 50V	2
C736	0600827	0.082 μ F 50V	2
C737	0600827	0.082 μ F 50V	2
C738	0600827	0.082 μ F 50V	2
C739	0600827	0.082 μ F 50V	2
C740	0600827	0.082 μ F 50V	2
C741	0620102	1000 pF 50V	2
C742	0620102	1000 pF 50V	2
C743	0620102	1000 pF 50V	2
C744	0620102	1000 pF 50V	2
C745	0600157	0.015 μ F 50V	1
C746	0600157	0.015 μ F 50V	1
C747	0600157	0.015 μ F 50V	1
C748	0600157	0.015 μ F 50V	1
C781	0519103	0.47 μ F 50V	± 5% E.C.
C782	0519103	0.47 μ F 50V	
C783	0519103	0.47 μ F 50V	
C784	0519103	0.47 μ F 50V	
R753	0106822	8.2k Ω	2
R754	0106822	8.2k Ω	2
R755	0106822	8.2k Ω	2
R756	0106822	8.2k Ω	2
R757	0106223	22k Ω	2
R758	0106223	22k Ω	2
R759	0106223	22k Ω	2
R760	0106223	22k Ω	2
R761	0106222	2.2k Ω	2
R762	0106222	2.2k Ω	2
R763	0106222	2.2k Ω	2
R764	0106222	2.2k Ω	2
R765	0106822	8.2k Ω	± 5% C.R.(E.L.R.)
R766	0106822	8.2k Ω	2
R767	0106822	8.2k Ω	2
R768	0106822	8.2k Ω	2
R769	0106224	220k Ω	1
R770	0106224	220k Ω	1
R771	0106224	220k Ω	1
R772	0106224	220k Ω	1
R773	0106224	220k Ω	1
R774	0106224	220k Ω	1
R775	0106224	220k Ω	1
R776	0106224	220k Ω	1
VR701	1060240,1	250k Ω (B) × 4	Variable Resistor
VR702	1060230,1	250k Ω (MN) × 4	Dual Shaft Variable Resistor
VR703	1060250,1	250k Ω (MN) × 4	Variable Resistor
VR704	1060220,1	100k Ω (B) × 4	Dual Shaft Variable Resistor
VR705	1060220,1	100k Ω (B) × 4	
S08	1130720	Push Switch	1

Abbreviations

C.R. : Carbon Resistor	BP.E.C.: Bi-Pola Electrolytic Capacitor
S.R. : Solid Resistor	C.C. : Ceramic Capacitor
Ce.R. : Cement Resistor	Mi.C. : Mica Capacitor
M.R. : Metallized Film Resistor	O.C. : Oil Capacitor
M.C. : Mylar Capacitor	P.C. : Polystyrene Capacitor
E.C. : Electrolytic Capacitor	T.C. : Tantalum Capacitor

6-7. F-1464 Tone Control Circuit Board (Stock No. 7560720 Complete Circuit Board F-1464)

Conductor Side



Parts List

Parts No.	Stock No.	Description	Position	Parts No.	Stock No.	Description	Position
TR701	0305475	2SC871® (F)	2 B	C704	0519101	1 μF 50V	2 A
	or			C705	0510470	47 μF 6.3V	1 B
TR702	0306090	2SC1312® (F)	2 B	C706	0510470	47 μF 6.3V	1 B
	or			C707	0510470	47 μF 6.3V	1 A
TR703	0305475	2SC871® (F)	2 A	C708	0510470	47 μF 6.3V	E.C. 1 A
	or			C709	0519001	10 μF 25V	2 B
TR704	0306090	2SC1312® (F)	2 A	C710	0519001	10 μF 25V	2 B
	or			C711	0519001	10 μF 25V	2 A
TR705	0305475	2SC871® (F)	2 A	C712	0519001	10 μF 25V	2 A
	or			C713	0660470	47 pF 50V	1 B
TR706	0300410	2SA726® (F)	1 B	C714	0660470	47 pF 50V	±10% C.C. 1 B
TR707	0300410	2SA726® (F)	1 A	C715	0660470	47 pF 50V	±10% C.C. 1 A
TR708	0300410	2SA726® (F)	1 A	C716	0660470	47 pF 50V	1 A
TR709	0305475	2SC871® (F)	2 B	C717	0519001	10 μF 25V	2 B
	or			C718	0519001	10 μF 25V	2 B
TR710	0306090	2SC1312® (F)	2 B	C719	0519001	10 μF 25V	E.C. 2 A
	or			C720	0519001	10 μF 25V	2 A
TR711	0305475	2SC871® (F)	2 A	C721	0660470	47 pF 50V	2 B
	or			C722	0660470	47 pF 50V	±10% C.C. 2 B
TR712	0306090	2SC1312® (F)	2 A	C723	0660470	47 pF 50V	±10% C.C. 2 A
	or			C724	0660470	47 pF 50V	2 A
C701	0519101	1 μF 50V	2 B	C725	0519101	1 μF 50V	2 B
C702	0519101	1 μF 50V	E.C. 2 B	C726	0519101	1 μF 50V	2 B
C703	0519101	1 μF 50V	2 A	C727	0519101	1 μF 50V	2 A
				C728	0519101	1 μF 50V	E.C. 2 A
				C729	0510470	47 μF 6.3V	1 B
				C730	0510470	47 μF 6.3V	1 B
				C731	0510470	47 μF 6.3V	1 A
				C732	0510470	47 μF 6.3V	1 A

to be continued

F-1464 Parts List

Parts No.	Stock No.	Description	Position
R701	0107222	2.2kΩ	2 B
R702	0107222	2.2kΩ	2 B
R703	0107222	2.2kΩ	2 A
R704	0107222	2.2kΩ	2 A
R705	0107223	22kΩ	2 B
R706	0107223	22kΩ	2 B
R707	0107223	22kΩ	2 A
R708	0107223	22kΩ	2 A
R709	0106124	120kΩ	2 B
R710	0106124	120kΩ	2 B
R711	0106124	120kΩ	2 A
R712	0106124	120kΩ	2 A
R713	0107333	33kΩ	1 B
R714	0107333	33kΩ	1 B
R715	0107333	33kΩ	1 A
R716	0107333	33kΩ	1 A
R717	0107334	330kΩ	1, 2 B
R718	0107334	330kΩ	1, 2 B
R719	0107334	330kΩ	1, 2 A
R720	0107334	330kΩ	1, 2 A
R721	0107821	820Ω	1 B
R722	0107821	820Ω	1 B
R723	0107821	820Ω	1 A
R724	0107821	820Ω	1 A
R725	0106123	12kΩ	1 B
R726	0106123	12kΩ	1 B
R727	0106123	12kΩ	1 A
R728	0106123	12kΩ	1 A
R729	0107821	820Ω	2 B
R730	0107821	820Ω	2 B
R731	0107821	820Ω	2 A
R732	0107821	820Ω	2 A
R733	0107474	470kΩ	1 B
R734	0107474	470kΩ	1, 2 B
R735	0107474	470kΩ	1, 2 A
R736	0107474	470kΩ	1 A
R737	0107473	47kΩ	1, 2 B
R738	0107473	47kΩ	2 B
R739	0107473	47kΩ	2 A
R740	0107473	47kΩ	1, 2 A
R741	0107392	3.9kΩ	1 B
R742	0107392	3.9kΩ	1, 2 B
R743	0107392	3.9kΩ	1, 2 A
R744	0107392	3.9kΩ	1 A
R745	0107331	330Ω	1, 2 B
R746	0107331	330Ω	1, 2 B
R747	0107331	330Ω	1, 2 A
R748	0107331	330Ω	1, 2 A
R749	0107101	100Ω	1 B
R750	0107101	100Ω	1 B
R751	0107101	100Ω	1 A
R752	0107101	100Ω	1 A

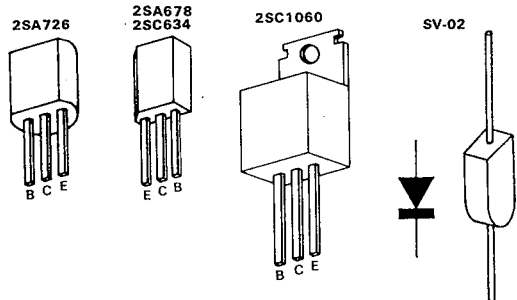
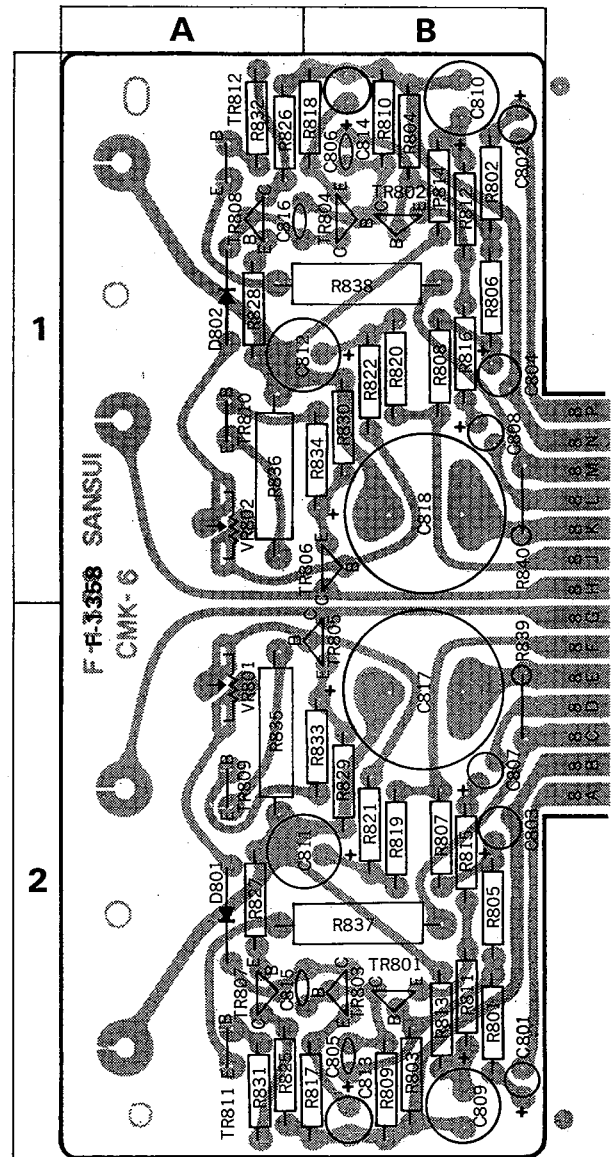
Abbreviations

- | | |
|--|--|
| C.R. : Carbon Resistor | BP.E.C.: Bi-Pola Electrolytic Capacitor |
| S.R. : Solid Resistor | C.C. : Ceramic Capacitor |
| Ce.R. : Cement Resistor | Mi.C. : Mica Capacitor |
| M.R. : Metallized Film Resistor | O.C. : Oil Capacitor |
| M.C. : Mylar Capacitor | P.C. : Polystyrene Capacitor |
| E.C. : Electrolytic Capacitor | T.C. : Tantalum Capacitor |

6-8. F-1358C Driver Circuit Board

(Stock No. 7570750 Complete Circuit Board F-1358C)

Conductor Side



Parts List

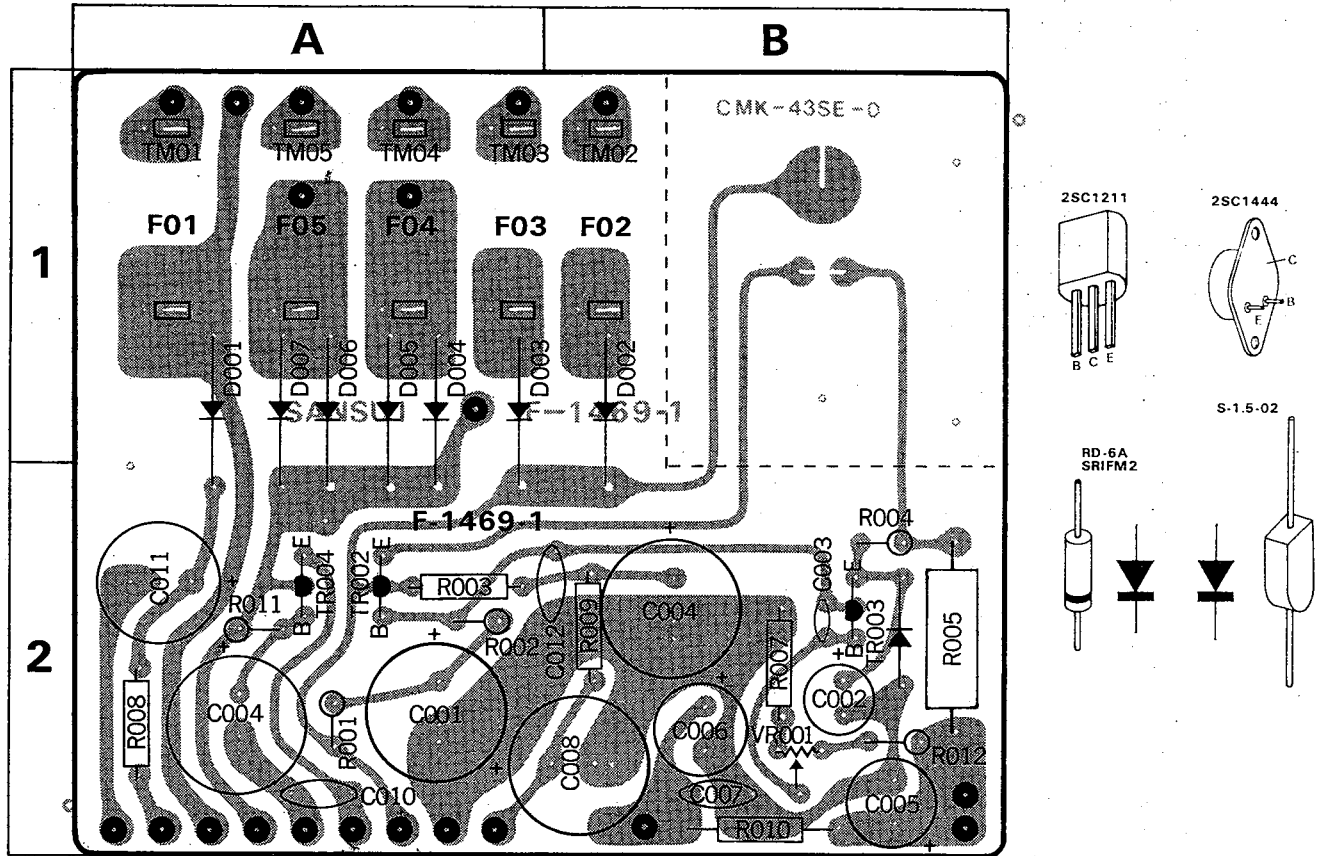
Parts No.	Stock No.	Description	Position
TR801	0300410	2SA726®(F)	2 B
TR802	0300410	2SA726®(F)	1 B
TR803	0305891, 2	2SC634A (6, 7)	2 B
TR804	0305891, 2	2SC634A (6, 7)	1 B
TR805	0305891, 2	2SC634A (6, 7)	2 B
TR806	0305891, 2	2SC634A (6, 7)	1 B
TR807	0300291, 2	2SA678A (6, 7)	2 A
TR808	0300291, 2	2SA678A (6, 7)	1 A
TR809	0305711, 2	2SC1060 (B, C)	2 A
TR810	0305711, 2	2SC1060 (B, C)	1 A
TR811	0305711, 2	2SC1060 (B, C)	2 A
TR812	0305711, 2	2SC1060 (B, C)	1 A
} Transistor			
D801	0310490	SV-02	2 A
D802	0310490	SV-02	1 A
} Diode			
C801	0515109	1 μ F 50V	2 B
C802	0515109	1 μ F 50V	1 B
C803	0515479	4.7 μ F 50V	E.C. 2 B
C804	0515479	4.7 μ F 50V	1 B
C805	0660470	47pF 50V	$\pm 10\%$ C.C. 2 B
C806	0660470	47pF 50V	1 B
C807	0512100	10 μ F 16V	2 B
C808	0512100	10 μ F 16V	1 B
C809	0512101	100 μ F 16V	2 B
C810	0512101	100 μ F 16V	1 B
C811	0515470	47 μ F 50V	E.C. 2 A, B
C812	0515470	47 μ F 50V	1 A, B
C813	0510101	100 μ F 6.3V	2 B
C814	0510101	100 μ F 6.3V	1 B
C815	0660470	47pF 50V	$\pm 10\%$ C.C. 2 A, B
C816	0660470	47pF 50V	1 A, B
C817	0513102	1000 μ F 25V	E.C. 2 B
C818	0513102	1000 μ F 25V	2 B
R801	0107103	10k Ω	2 B
R802	0107103	10k Ω	1 B
R803	0107104	100k Ω	2 B
R804	0107104	100k Ω	1 B
R805	0107224	220k Ω	2 B
R806	0107224	220k Ω	1 B
R807	0107683	68k Ω	2 B
R808	0107683	68k Ω	1 B
R809	0107182	1.8k Ω	2 B
R810	0107182	1.8k Ω	1 B
R811	0107151	150 Ω	2 B
R812	0107151	150 Ω	1 B
R813	0107123	12k Ω	2 B
R814	0107123	12k Ω	$\pm 5\%$ $\frac{1}{4}$ W C.R. 1 B
R815	0107682	6.8k Ω	2 B
R816	0107682	6.8k Ω	1 B
R817	0107221	220 Ω	2 B
R818	0107221	220 Ω	1 B
R819	0107102	1k Ω	2 B
R820	0107102	1k Ω	1 B
R821	0107332	3.3k Ω	2 B
R822	0107332	3.3k Ω	1 B
R825	0107221	220 Ω	2 A
R826	0107221	220 Ω	1 A
R827	0107270	27 Ω	2 A
R828	0107270	27 Ω	1 A
R829	0107221	220 Ω	2 B

Parts No.	Stock No.	Description	Position
R830	0107221	220 Ω	1 B
R831	0107689	6.8 Ω	2 A
R832	0107689	6.8 Ω	$\pm 5\%$ $\frac{1}{4}$ W C.R. 1 A
R833	0107689	6.8 Ω	2 B
R834	0107689	6.8 Ω	1 B
R835	0132478	0.47 Ω	2 A
R836	0132478	0.47 Ω	1 A
R837	0132478	0.47 Ω	2W Co. R. 2 A, B
R838	0132478	0.47 Ω	1 A, B
R839	0103471	470 Ω	$\pm 5\%$ $\frac{1}{2}$ W C.R. 2 B
R840	0103471	470 Ω	1 B
VR801	1031021, 2	200 Ω (B)	Semi-Variable 2 A
VR802	1031021, 2	200 Ω (B)	Resistor (Stand type) 1 A

6-9. Special Parts List

- ※F-2072B QS SYNTHESIZER/DECODER BLOCK-1
Stock No. 7650150 Complete Circuit Board
- ※F-2071B QS SYNTHESIZER/DECODER BLOCK-2
Stock No. 7650160 Complete Circuit Board

6-10. F-1469-1 Power Supply Circuit Board (Stock No. 7500840 Complete Circuit Board F-1469-1)
Conductor Side



Parts List

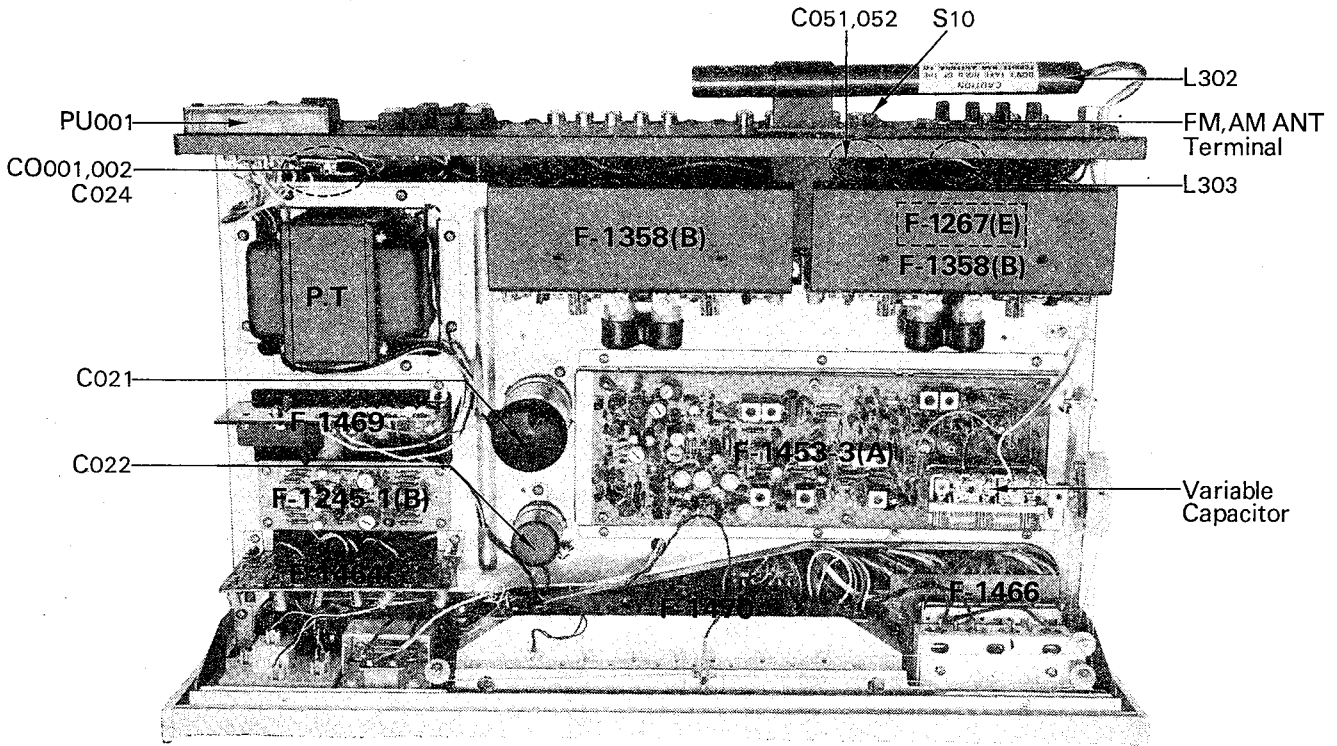
Parts No.	Stock No.	Description	Position
TR001	0306100-2	2SC1444 (R,O,Y)	} Transistor 2 A
TR002	0305930,1	2SC1211 (C,D)	
TR003	0305930,1	2SC1211 (C,D)	
TR004	0305930,1	2SC1211 (C,D)	
D001	0310870	SR1FM2	} Diode 1, 2 A
D002	0310870	SR1FM2	
D003	0310870	SR1FM2	
D004	0310960	S-1.5-02	
D005	0310960	S-1.5-02	
D006	0310960	S-1.5-02	
D007	0310960	S-1.5-02	
ZD001	0315560	RD6A (N) Zener Diode	2 A
C001	0515221	220 μ F 50V	} $\pm 10\%$ E.C. 2 A
C002	0511101	100 μ F 10V	
C003	0660221	220 pF 50V	
C004	0515471	470 μ F 50V	
C005	0513101	100 μ F 25V	
C006	0513101	100 μ F 25V	
C007	0657473	0.047 μ F 50V	
C008	0515471	470 μ F 50V	
C009	0515221	220 μ F 50V	
C010	0657473	0.047 μ F 50V	
C011	0511471	470 μ F 10V	

Parts No.	Stock No.	Description	Position
R001	0106822	8.2k Ω $\pm 5\%$ $\frac{1}{4}$ W C.R.	} 2 A
R002	0106822	8.2k Ω (E.L.R.)	
R003	0107681	680 Ω $\pm 5\%$ $\frac{1}{4}$ W C.R.	} 2 A
R004	0106272	2.7k Ω $\pm 5\%$ $\frac{1}{4}$ W C.R.	
R005	0132478	0.47 Ω $\pm 10\%$ 2 W Ce.R.	} 2 B
R007	0107102	1k Ω $\pm 5\%$ $\frac{1}{4}$ W C.R.	
R008	0107689	6.8 Ω $\pm 5\%$ $\frac{1}{4}$ W C.R.	} 2 A
R009	0107471	470 Ω $\pm 5\%$ $\frac{1}{4}$ W C.R.	
R010	0103101	100 Ω $\pm 5\%$ $\frac{1}{2}$ W C.R.	} 2 B
R011	0103123	12k Ω $\pm 5\%$ $\frac{1}{2}$ W C.R.	
VR001	1035370	10k Ω (B) Semi-Variable Resistor (Solid Type)	2 B
F01	0432900	5A 250V	} Wired-in Fuse 1 A
F02	0432850	2A 250V	
F03	0432850	2A 250V	

Abbreviations

- C.R. : Carbon Resistor
- S.R. : Solid Resistor
- Ce.R. : Cement Resistor
- M.R. : Metallized Film Resistor
- M.C. : Mylar Capacitor
- E.C. : Electrolytic Capacitor
- BP.E.C.: Bi-Pola Electrolytic Capacitor
- C.C. : Ceramic Capacitor
- Mi.C. : Mica Capacitor
- O.C. : Oil Capacitor
- P.C. : Polystyrene Capacitor
- T.C. : Tantalum Capacitor

6-12. Other Parts (Top Side)



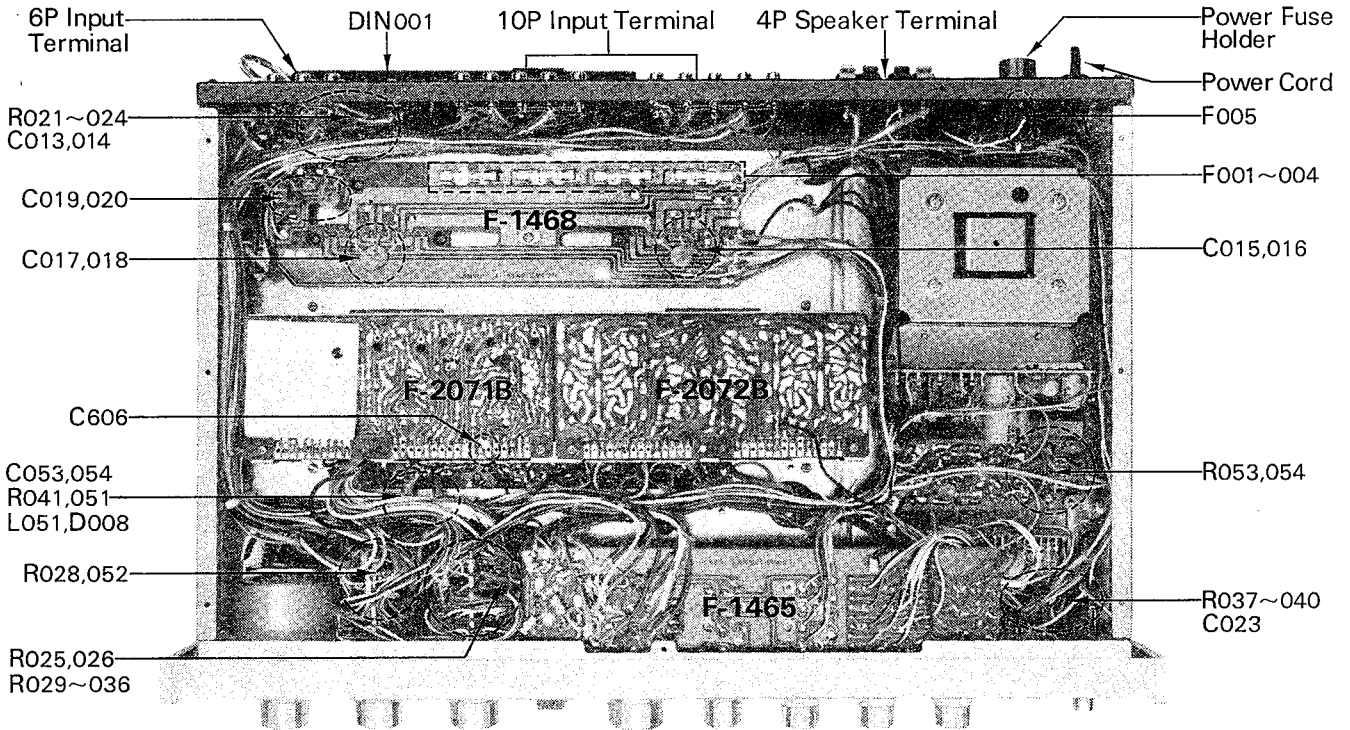
Top Side Parts List

Parts No.	Stock No.	Description	
	1220150	Variable Capacitor	
C021	0559340	4700 μ F 50V	E.C.
C022	0559302	1000 μ F 50V	
C024	0605476	0.0047 μ F 250V \pm 20%	M.C.
C051	0620821	820pF 50V	P.C.
C052	0620821	820pF 50V \pm 5%	
L303	4900110	100 μ F Ferri-inductor	
S10	1110040	Slide Switch	
PU001	2410080	Voltage Selector, socket	
	2410090	Voltage Selector, plug	
CO001	2450040	AC Outlet	
CO002	2450040	AC Outlet	
L302	4200550	Bar Antenna (ARS-31B)	
	2210160	4P Antenna Terminal	
T001	4001330	Power Transformer	

Bottom Side Parts List

Parts No.	Stock No.	Description		
D008	0311180	1S1588 Diode		
C013	0657473	0.047 μ F 50V	C.C.	
C014	0657473	0.047 μ F 50V		
C015	0657473	0.047 μ F 50V		
C016	0657473	0.047 μ F 50V		
C017	0657473	0.047 μ F 50V		
C018	0657473	0.047 μ F 50V		
C019	0657473	0.047 μ F 50V		
C020	0657473	0.047 μ F 50V		
C023	0605337	0.033 μ F 250V \pm 20%		M.C.
C053	0512100	10 μ F 16V		E.C.
C054	0515109	1 μ F 50V		
C606	0573159	1.5 μ F 25V	T.C.	
R021	0107104	100k Ω	\pm 5% $\frac{1}{4}$ W C.R.	
R022	0107104	100k Ω		
R023	0107334	330k Ω		

6-13. Other Parts (Bottom Side)

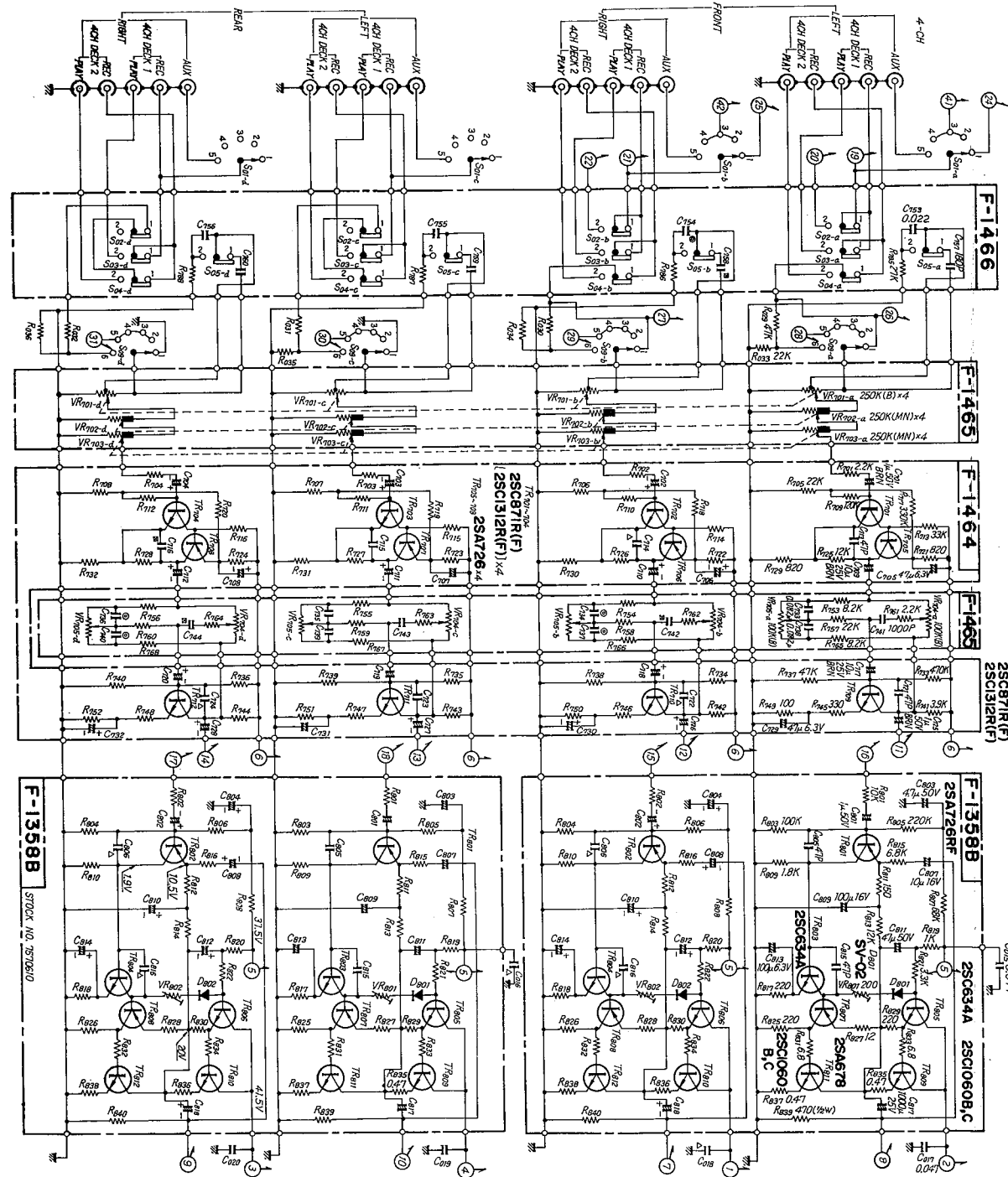


Parts No.	Stock No.	Description
R024	0107334	330k Ω
R025	0107474	470k Ω
R026	0107474	470k Ω
R028	0103102	1k Ω
R029	0107473	47k Ω
R030	0107473	47k Ω
R031	0107473	47k Ω
R032	0107473	47k Ω
R033	0107223	22k Ω
R034	0107223	22k Ω
R035	0107223	22k Ω
R036	0107223	22k Ω
R037	0103221	220 Ω
R038	0103221	220 Ω
R039	0103221	220 Ω
R040	0103221	220 Ω
R041	0107100	10 Ω

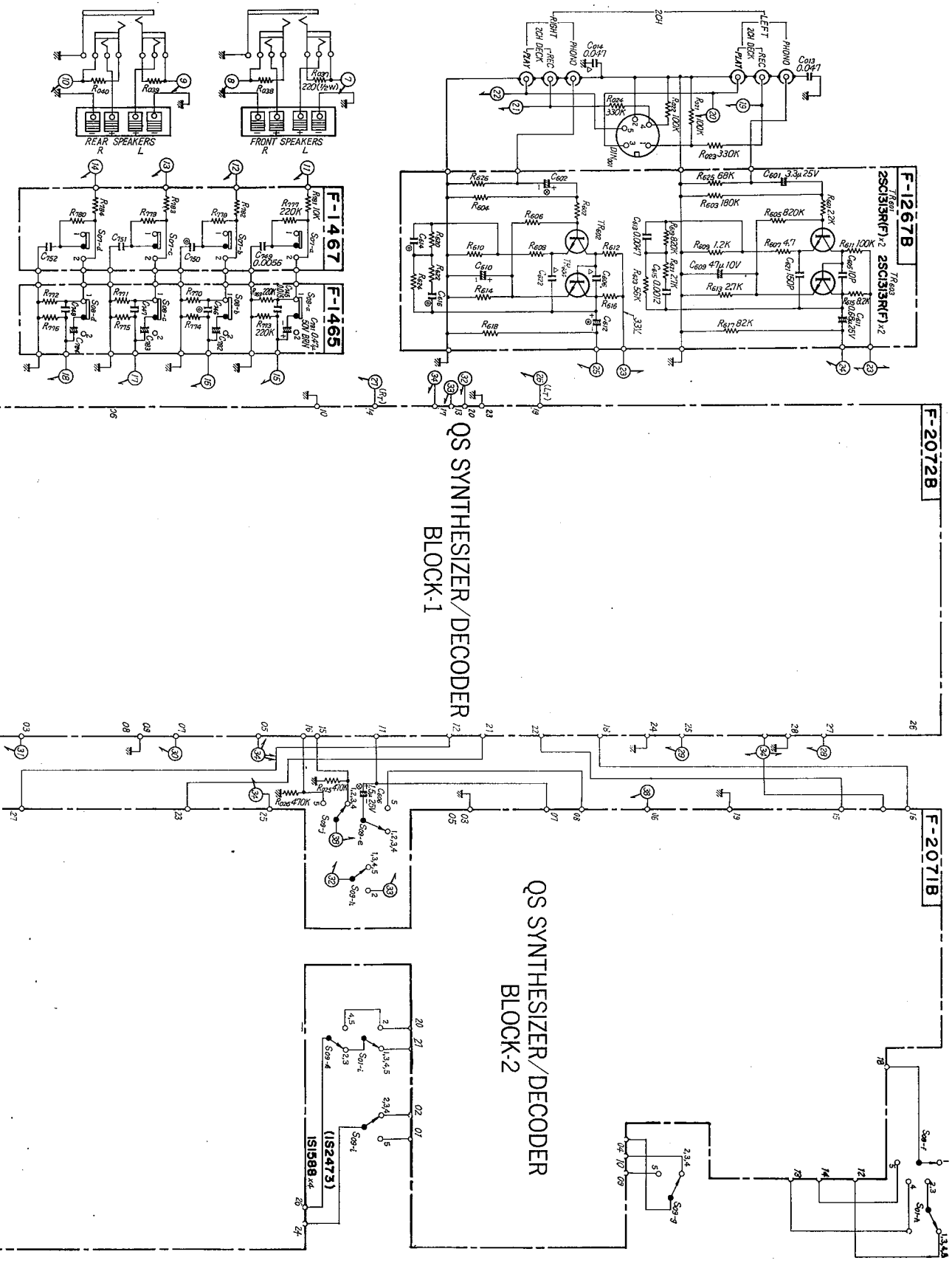
Parts No.	Stock No.	Description
R051	0107330	33 Ω
R052	0107471	470 Ω
R053	0107824	820k Ω
R054	0107824	820k Ω
	2591620	F-1468 Circuit Board
F001	0433230	2A Quick Acting Fuse
F002	0433230	2A Quick Acting Fuse
F003	0433230	2A Quick Acting Fuse
F004	0433230	2A Quick Acting Fuse
F005	{ 0431240	2A Power Fuse (100~117V)
	{ 0431230	1.5A Power Fuse (220~240V)
	2300060	Power Fuse Holder
DIN001	2430040	Din Jack
	2200330	6P INPUT Terminal
	2200350	10P INPUT Terminal
	2200350	10P INPUT Terminal
	2290100	4P Speaker Terminal
	3800020	Power Cord

8. SCHEMATIC DIAGRAM OF AUDIO SECTION

* Design and specifications subject to change without notice for improvements.



- SWITCHES**
- Sa1 (-) SELECTOR
 1. PHONO
 2. FM AUTO
 3. FM MONO
 4. AM
 5. AUX (4-CH)
 - Sa2 (-) 3-CH TAPE MONITOR
 1. SOURCE
 2. PLAYBACK
 - Sa3 (-) 4-CH-1 TAPE MONITOR
 1. SOURCE
 2. PLAYBACK
 - Sa4 (-) 4-CH-2 TAPE MONITOR
 1. SOURCE
 2. PLAYBACK
 - Sa5 (-) LEADNESS
 1. OFF
 2. ON
 - Sa6 (-) HIGH FILTER
 1. OFF
 2. ON
 - Sa7 (-) LOW FILTER
 1. OFF
 2. ON
 - Sa8 (-) FUNCTION
 1. 2-CH
 2. QS SYNTHESIZER
 3. QS REGULAR MATRIX
 4. QS REGULAR MATRIX
 5. PHASE MATRIX
 6. DISCRETE
 - Sa9 POWER
 1. ON
 2. OFF



9. REPLACEMENT OF MAIN PARTS

9-1. Dial Lamp

- 1) Remove wood bonnet.
- 2) Insert a screwdriver into hole on upper side of back panel and loosen two screws, then remove reflector box.
- 3) Remove defective lamp.
- 4) Replace the lamp with same type of 7V 300mA Fuse Type Lamp.



9-2. Dial Plate

- 1) Remove wood bonnet.
- 2) Remove all knobs and nuts on front panel.
- 3) Remove two screws fixing upper side of front panel, then remove front panel.
- 4) Remove dial pointer ass'y.
- 5) Remove shield packing fixing front left side on dial plate.
- 6) Remove masking base on switch ass'y.
- 7) Remove stopper of dial scale on lower side of dial plate. Peel off the dial plate by removing double face tape on dial plate. Stick double face tape on left, right and upper side of a new dial plate, and attach.
- 8) For attachment of dial pointer, see Fig. 4-3 on page 12.
- 9) After replacement, confirm Dial Calibration certainly. If any miscalibration exists, recheck attachment of dial plate and proceed the dial calibration adjustment (see page 8 for FM and page 10 for AM).

9-3. Switch Assembly

- 1) Same as step 1)~3) on 9-2. Dial Plate.
- 2) Remove shield packing fixing front left side on dial plate.
- 3) Remove masking base on switch ass'y.
- 4) Remove two screws fixing of switch ass'y.
- 5) Pull complete circuit board (switch ass'y F-1466) backward.

9-4. Volume and LOW Filter

- 1) Same as step 1)~3) on 9-2. Dial Plate.
- 2) Remove bottom plate.
- 3) Remove screws fixing low filter switch,
- 4) Remove volume nut on back panel.
- 5) Pull complete circuit board (tone control ass'y F-1464) backward.

9-5. HIGH Filter

- 1) Same as step 1)~3) on 9-2. Dial Plate.
- 2) Insert a screwdriver into hole on upper side of back panel and loosen two screws, then pull reflector box backward.
- 3) Remove two screws fixing high filter.
- 4) Pull complete circuit board (high filter ass'y F-1467) backward.

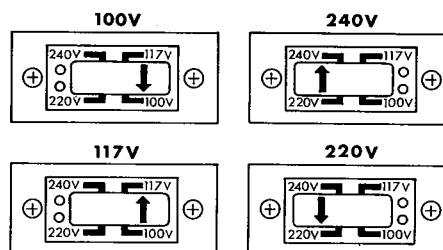
10. MAINTENANCE

10-1. Voltage Adjustment

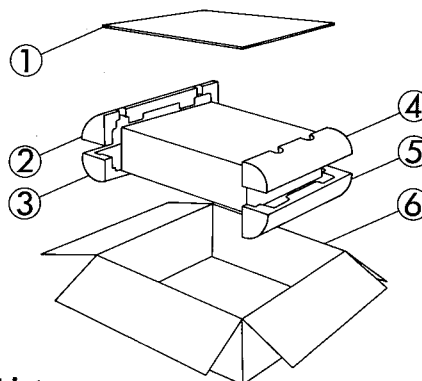
The voltage Selector on the rear panel enables you to operate at correct voltage in any areas. The voltage has been preadjusted at the factory, but can be easily changed as follows.

- 1) Remove the two screws securing the name plate on the unit's rear panel, then remove the name plate.
- 2) Unplug the Voltage Selector plug once, and reset it so that the arrow mark on it faces the correct voltage indication. Also change the power fuse when the power supply voltage has changed. For 100/117 volt operation, use a 2-ampere glass-tubed fuse. For 220/240 volt operation, use a 1.5-ampere one.

Note: The Voltage Selector can be used to eliminate the trouble caused by the considerable voltage fluctuation. In this case, it should be set to the peak voltage.



11. PACKING LIST



Parts List

Parts No.	Stock No.	Description
1	9017231	Inner Packing (upper)
2	9027722	Stylofoam Packing
3	9027722	Stylofoam Packing
4	9027722	Stylofoam Packing
5	9027722	Stylofoam Packing
6	9007731	Carton Case

12. ACCESSORY PARTS LIST

Stock No.	Description
9406020	Polishing Cloth
0433230	2A Quick Acting Fuse
2410110	Pin Plug (red)
2410120	Pin Plug (white)
3820010	FM/AM Antenna



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