

Service Manual

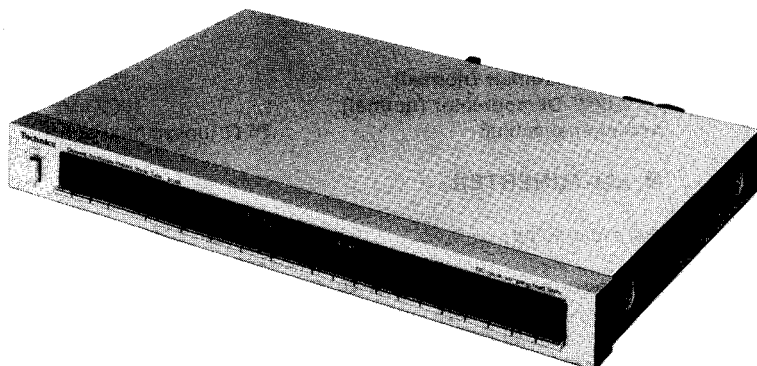
QUARTZ Synthesizer FM/AM Stereo Tuner

ST-S6

[E], [EK], [EG], [EF],
[EH], [EB], [EA]

ST-S6(K)

[EX], [EG], [EH]



* The cabinet and front panel are available in black color and silver types.
* The black type model is provided with (K) in the Service Manual.

Areas

* [E] and [EX] are available in Switzerland and Scandinavia.
* [EK] is available in United Kingdom.
* [EG] is available in F.R. Germany.
* [EF] is available in France.
* [EH] is available in Holland.
* [EB] is available in Belgium.
* [EA] is available in Austria.

English

Specifications (Specifications are subject to change without notice for further improvement.)

(DIN 45 500)

■ FM TUNER SECTION

Frequency range	87.50~108.02 MHz
Sensitivity	0.95 μ V (IHF, usable)
S/N 30 dB	0.95 μ V (75 Ω)
S/N 26 dB	0.85 μ V (75 Ω)
S/N 20 dB	0.75 μ V (75 Ω)
IHF 46 dB stereo quieting sensitivity	20 μ V/75 Ω
Total harmonic distortion	
MONO (normal)	0.04%
STEREO (normal)	0.06%
S/N	
MONO	72 dB (80 dB, IHF)
STEREO	67 dB (74 dB, IHF)
Frequency response	5 Hz~18 kHz, +0.2 dB~-0.5 dB
Alternate channel selectivity	
normal \pm 400 kHz	55 dB
super narrow \pm 200 kHz	25 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	80 dB
IF rejection at 98 MHz	110 dB
Spurious response rejection at 98 MHz	95 dB
AM suppression	55 dB
Stereo separation	
1 kHz	55 dB
10 kHz	40 dB
Carrier leak	
19 kHz	-65 dB (-70 dB, IHF)
38 kHz	-48 dB (-50 dB, IHF)

Channel balance (250 Hz~6,300 Hz)	\pm 1.0 dB
Limiting point	0.75 μ V
Bandwidth	
IF amplifier (normal)	180 kHz
FM demodulator (normal)	1000 kHz
Antenna terminals	75 Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	522~1611 kHz (9 kHz-step) 530~1620 kHz (10 kHz-step)
Sensitivity (S/N 20 dB)	30 μ V, 250 μ V/m
Selectivity (\pm 9 kHz)	55 dB
Image rejection at 999 kHz	55 dB
IF rejection at 999 kHz	45 dB

■ GENERAL

Output voltage	0.3V (0.6V, IHF)
Power consumption	9W
Power supply	AC 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (W×H×D)	430 × 53 × 300 mm (16-15/16" × 2-3/32" × 11-13/16")
Weight	3.3 kg (7.3 lb.)

Technics

Matsushita Electric Trading Co., Ltd.

P.O. Box 288, Central Osaka Japan

TECHNISCHE DATEN (Spezifikationen können infolge von Verbesserungen ohne Ankündigung geändert werden.)

(DIN 45 500)

■ UKW-TUNERTEIL

Wellenbereich	87,50 ~ 108,02 MHz
Eingangsempfindlichkeit	0,95 μ V (nutzbar nach IHF)
S/R 30 dB	0,95 μ V (75 Ω)
S/R 26 dB	0,85 μ V (75 Ω)
S/R 20 dB	0,75 μ V (75 Ω)
Stereumschaltswelle bei 46 dB nach IHF	20 μ V/75 Ω
Gesamtklirrfaktor	
Mono (normal)	0,04%
Stereo (normal)	0,06%
Geräuschabstand	
Mono	72 dB (80 dB nach IHF)
Stereo	67 dB (74 dB nach IHF)
Frequenzgang	5 Hz ~ 18 kHz (+0,2 dB ~ -0,5 dB)
Trennschärfe bei Störsender	
normal \pm 400 kHz	55 dB
super narrow \pm 200 kHz	25 dB
Einfangverhältnis	1,0 dB
Spiegelfrequenz-Dämpfung bei 98 MHz	80 dB
ZF-Dämpfung bei 98 MHz	110 dB
Ansprechdämpfung auf Nebenfrequenzen bei 98 MHz	95 dB
AM-Unterdrückung	55 dB
Übersprechdämpfung	
1 kHz	55 dB
10 kHz	40 dB
Trägerrest	
19 kHz	-65 dB (-70 dB nach IHF)
38 kHz	-48 dB (-50 dB nach IHF)

Kanalabweichung (250 Hz ~ 6300 Hz)	\pm 1,0 dB
Begrenzereinsatz	0,75 μ V
Bandbreite	
ZF-Verstärker (normal)	180 kHz
UKW-Demodulator (normal)	1000 kHz
Antennenanschluß	75 Ω (unsymmetrisch)

■ AM-TUNERTEIL

Wellenbereiche	522 ~ 1611 kHz (9-kHz-Schritte) 530~1620 kHz (10-kHz Schritte)
Eingangsempfindlichkeit (S/R 20 dB)	30 μ V, 250 μ V/m
Trennschärfe (\pm 9 kHz)	55 dB
Spiegelfrequenz-Dämpfung bei 999 kHz	55 dB
ZF-Dämpfung bei 999 kHz	45 dB

■ ALLGEMEINE DATEN

Ausgangsspannung	0,3 V (0,6 V, IHF)
Leistungsaufnahme	9W
Netzspannung	Wechselstrom 50 Hz/60 Hz, 110V/120V/220V/240V
Abmessungen (B×H×T)	430 × 53 × 300 mm
Gewicht	3,3 kg

CARACTERISTIQUES (Sujet à changement sans préavis.)

(DIN 45 500)

■ SECTION SYNTONISATEUR FM

Gamme de fréquence	87,50~108,02 MHz
Sensibilité	0,95 μ V (IHF utilisable)
S/B 30 dB	0,95 μ V (75 Ω)
S/B 26 dB	0,85 μ V (75 Ω)
S/B 20 dB	0,75 μ V (75 Ω)
Sensibilité stéréo au seuil de 46 dB, IHF	20 μ V/75 Ω
Distorsion harmonique totale	
MONO (normal)	0,04%
STEREO (normal)	0,06%
Signal/Bruit	
MONO	72 dB (80 dB, IHF)
STEREO	67 dB (74 dB, IHF)
Réponse de fréquence	5 Hz~18 kHz, +0,2 dB~ -0,5 dB
Sélectivité alternée par canal	
normal \pm 400 kHz	55 dB
super narrow \pm 200 kHz	25 dB
Taux de capture	1,0 dB
Rejection d'image à 98 MHz	80 dB
Rejection FI à 98 MHz	110 dB
Rejection de réponse parasite à 98 MHz	95 dB
Suppression AM	55 dB
Séparation stéréophonique	
1 kHz	55 dB
10 kHz	40 dB
Fuite de porteuse	
19 kHz	-65 dB (-70 dB, IHF)
38 kHz	-48 dB (-50 dB, IHF)

Equilibrage de canaux (250 Hz~6,300 Hz)	\pm 1,0 dB
Point de limite	0,75 μ V
Largeur de bande	
Amplificateur FI (normal)	180 kHz
Démodulateur FM (normal)	1000 kHz
Bornes d'antenne	75 Ω (asymétrique)

■ SECTION SYNTONISATEUR AM

Gamme de fréquence	522~1611 kHz (9 kHz par palier) 530~1620 kHz (10 kHz par palier)
Sensibilité (S/B 20 dB)	30 μ V, 250 μ V/m
Sélectivité (\pm 9 kHz)	55 dB
Réjection d'image à 999 kHz	55 dB
Réjection FI à 999 kHz	45 dB

■ DIVERS

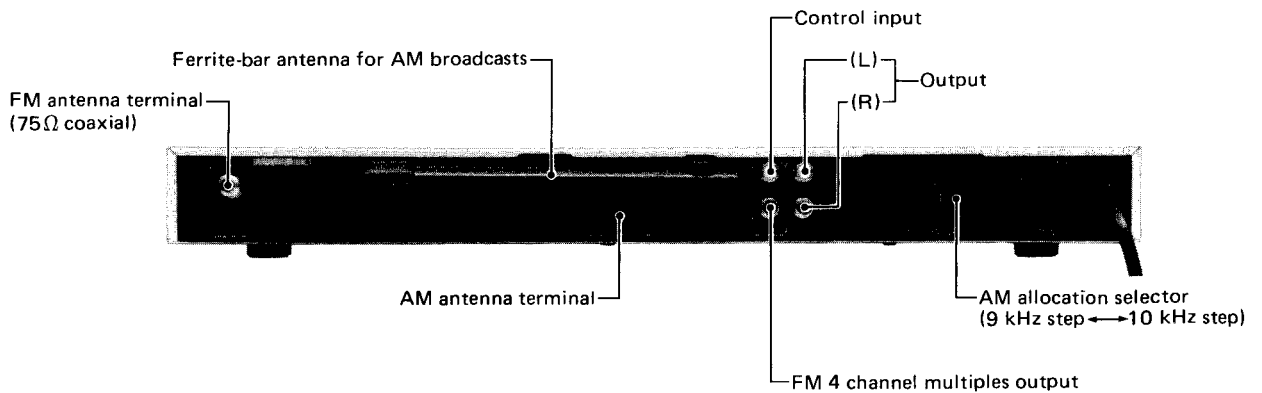
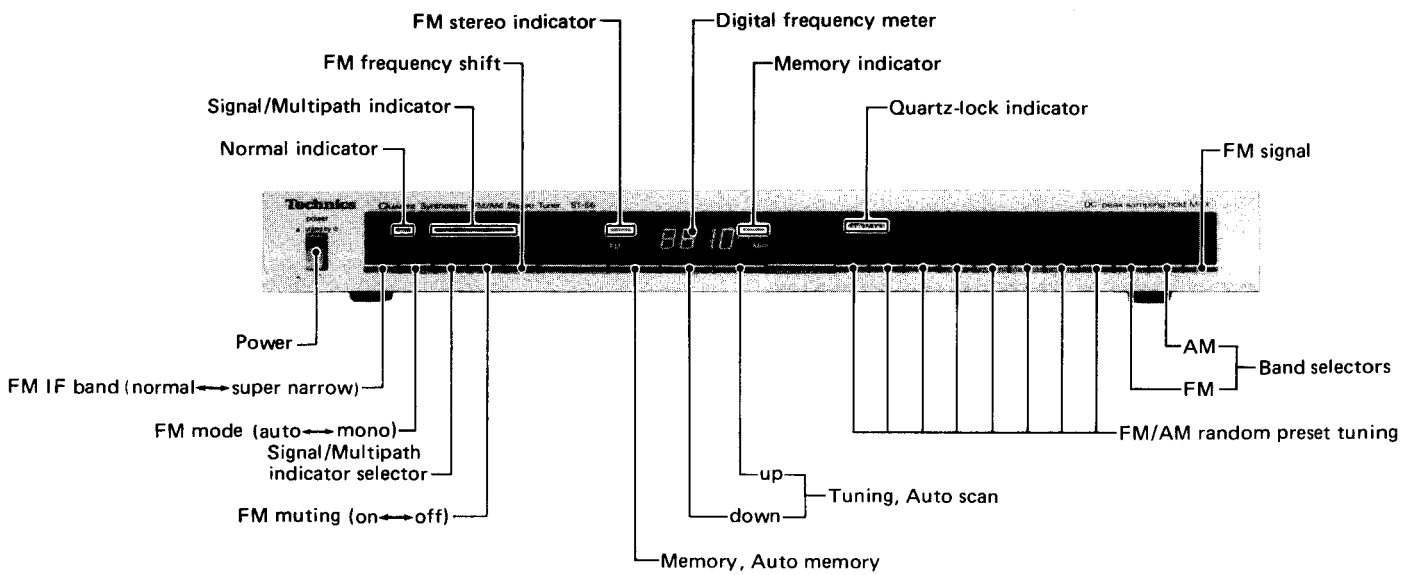
Tension de sortie	0,3 V (0,6V, IHF)
Consommation	9W
Alimentation	CA 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (L×H×Pr)	430 × 53 × 300 mm
Poids	3,3 kg

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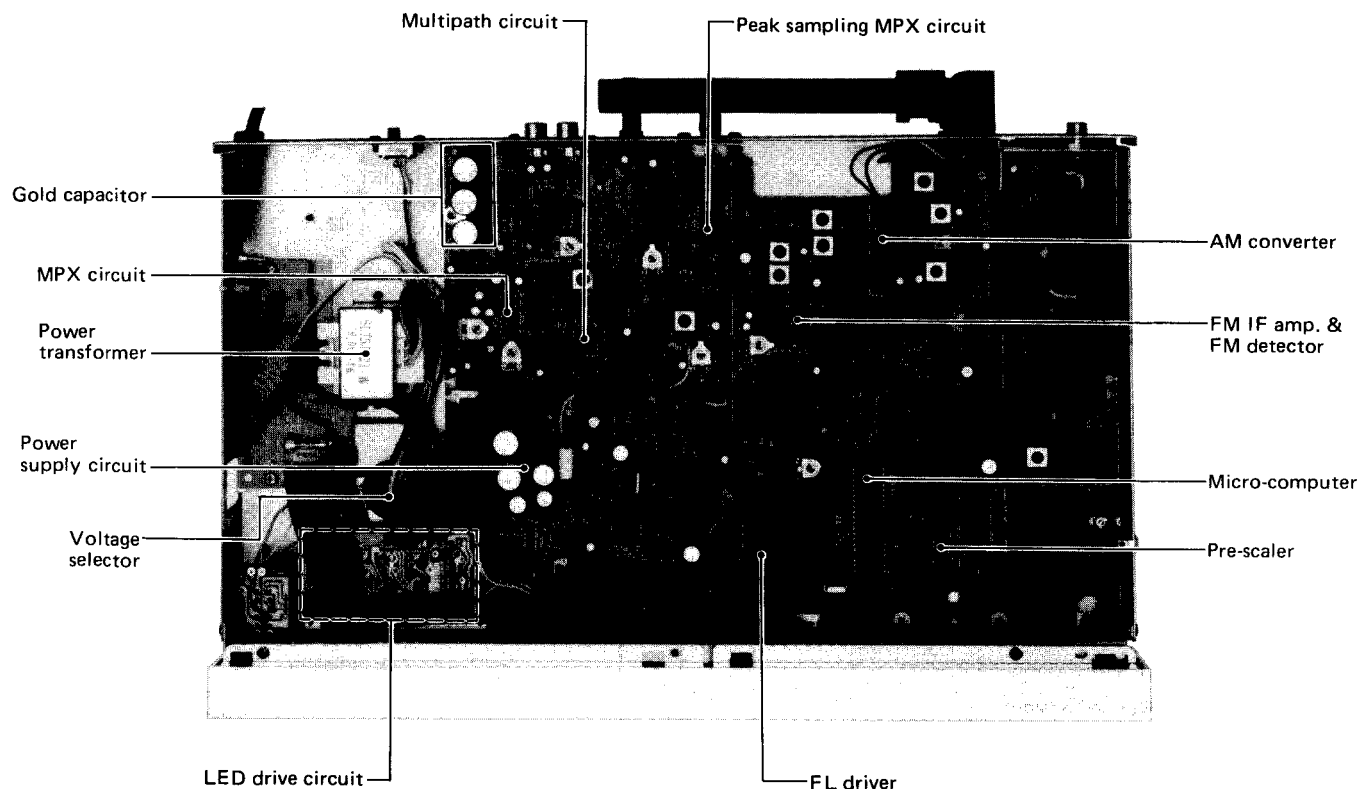
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LOCATION OF CONTROLS



● Voltage adjust switch located at bottom



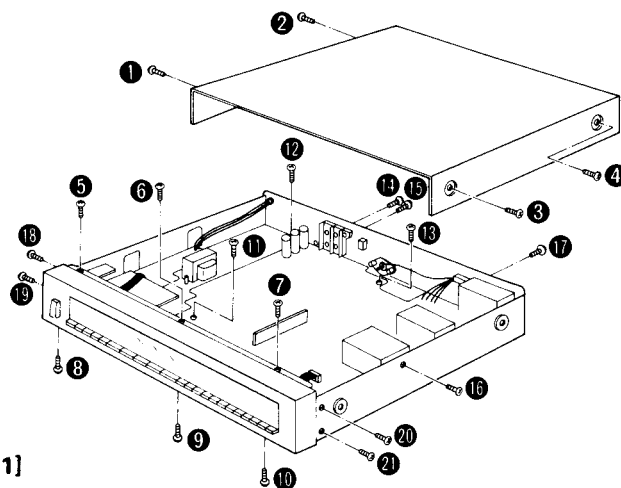
DISASSEMBLY INSTRUCTIONS

How to remove the cabinet

1. Remove the 4 setscrews (Fig. 1 : ① ~ ④) of the cabinet.
2. Remove the cabinet.

How to remove the front panel

1. Remove the cabinet.
2. Remove the 6 setscrews (Fig. 1 : ⑤ ~ ⑩) of the front panel.
3. Lift the front panel in the direction of the arrow in the Fig. 2 to detach it from the chassis.

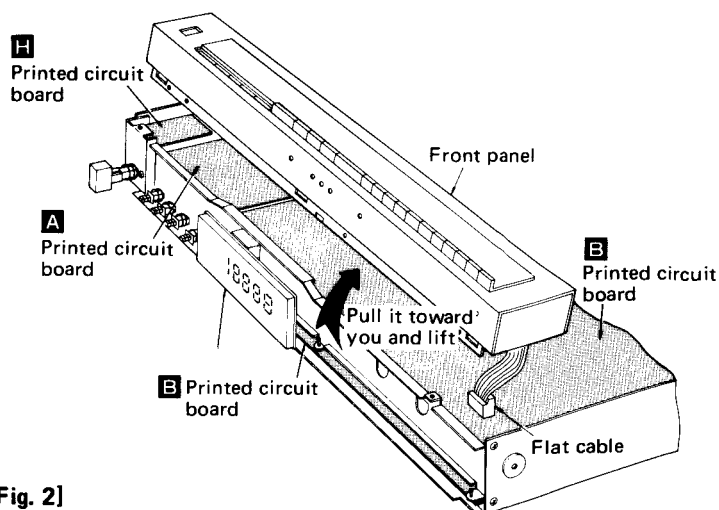


[Fig. 1]

How to remove the printed circuit board

B printed circuit board (FM/AM IF-RF circuit, FM MPX circuit, FL display circuit and power supply circuit.)

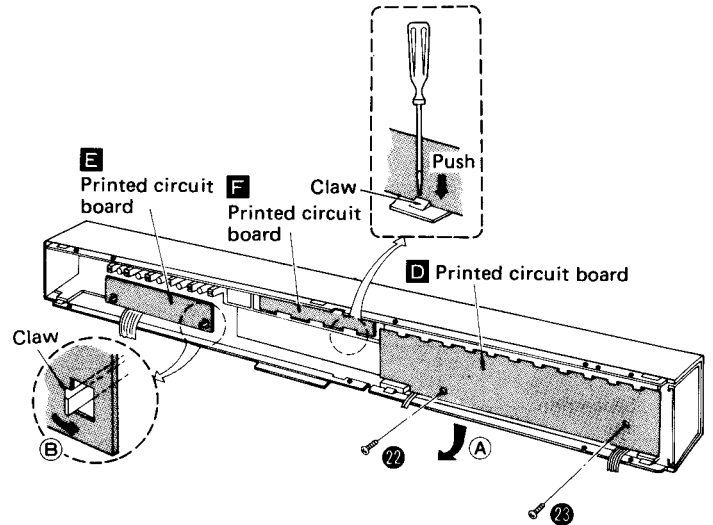
1. Remove the cabinet. (Refer to "How to remove the cabinet.")
2. Remove the 7 setscrews (Fig. 1 : ⑪ ~ ⑰) of the chassis.
3. Remove the 4 setscrews (Fig. 1 : ⑱ ~ ㉑) of the front panel.
4. Remove the printed circuit board from the chassis along with the front panel. Reize it and check.



[Fig. 2]

D printed circuit board (Preset tuning switch circuit.)

1. Remove the cabinet and front panel. (Refer to "How to remove the cabinet" and "How to remove the front panel.")
2. Pull out the flat cable in Fig. 2 and turn over the front panel as shown in Fig. 3.
3. Remove the 2 setscrews (Fig. 3 : 22, 23), then remove the printed circuit board the direction of the arrow (A) in the Fig. 3.



[Fig. 3]

F printed circuit board. (Memory and tuning switch circuit.)

1. Remove the 3 claws used to secure the printed circuit board by using a screwdriver. (Refer to Fig. 3)

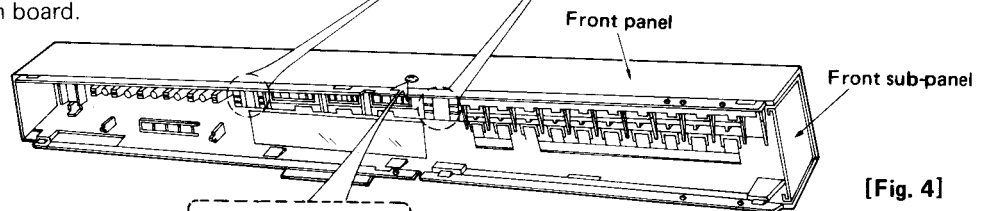
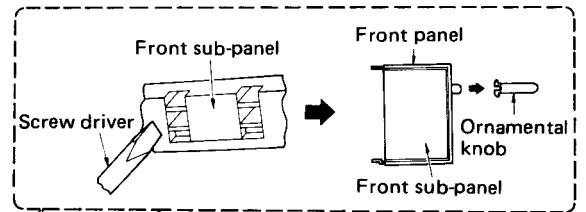
E printed circuit board. (Signal/Multipath indicator circuit.)

1. Open the 2 claws used to secure the printed circuit board in the direction of arrow (B). (Refer to Fig. 3)

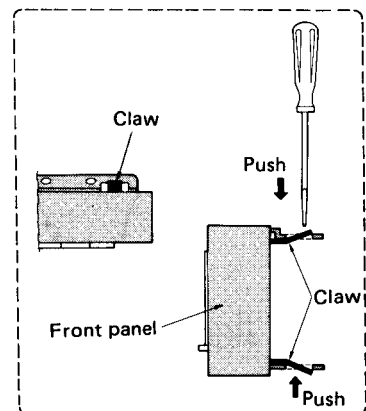
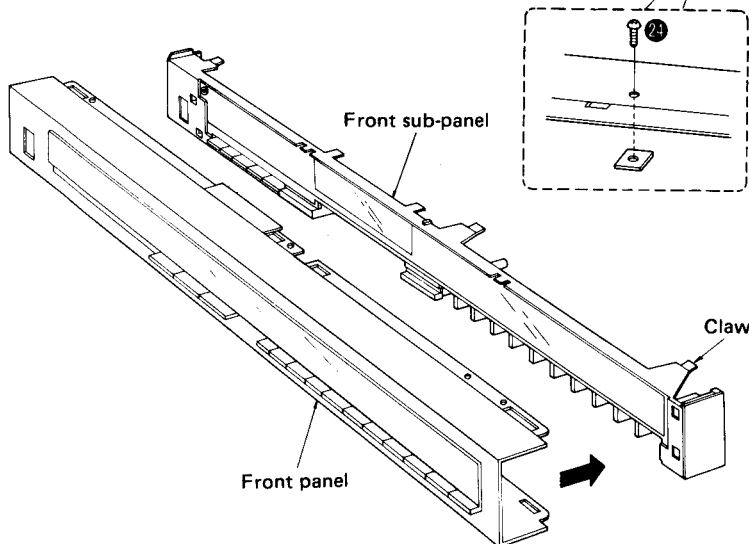
• **How to remove the front sub-panel**

1. Remove the cabinet and front panel. (Refer to "How to remove the cabinet" and "How to remove the front panel.")
2. Remove the **D**, **E** and **F** printed circuit board. (Refer to "How to remove the printed circuit board.")
3. Push the two ornamental knobs to remove them from the front sub-panel. (See Fig. 4)
4. Remove the 1 setscrew (Fig. 4 : 24) of the front panel.
5. The claws projected (at 6 portions) from the front sub-panel are engaged with the front panel. Disengage the claws from by screwdriver or the like to remove the front sub-panel. (See Fig. 5)

Note: When mounting the ornamental knob, install the front sub-panel on the front panel, and then insert the knobs and secure them with board.



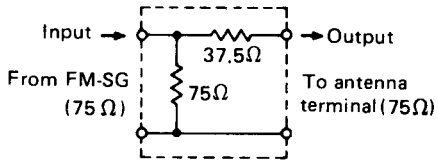
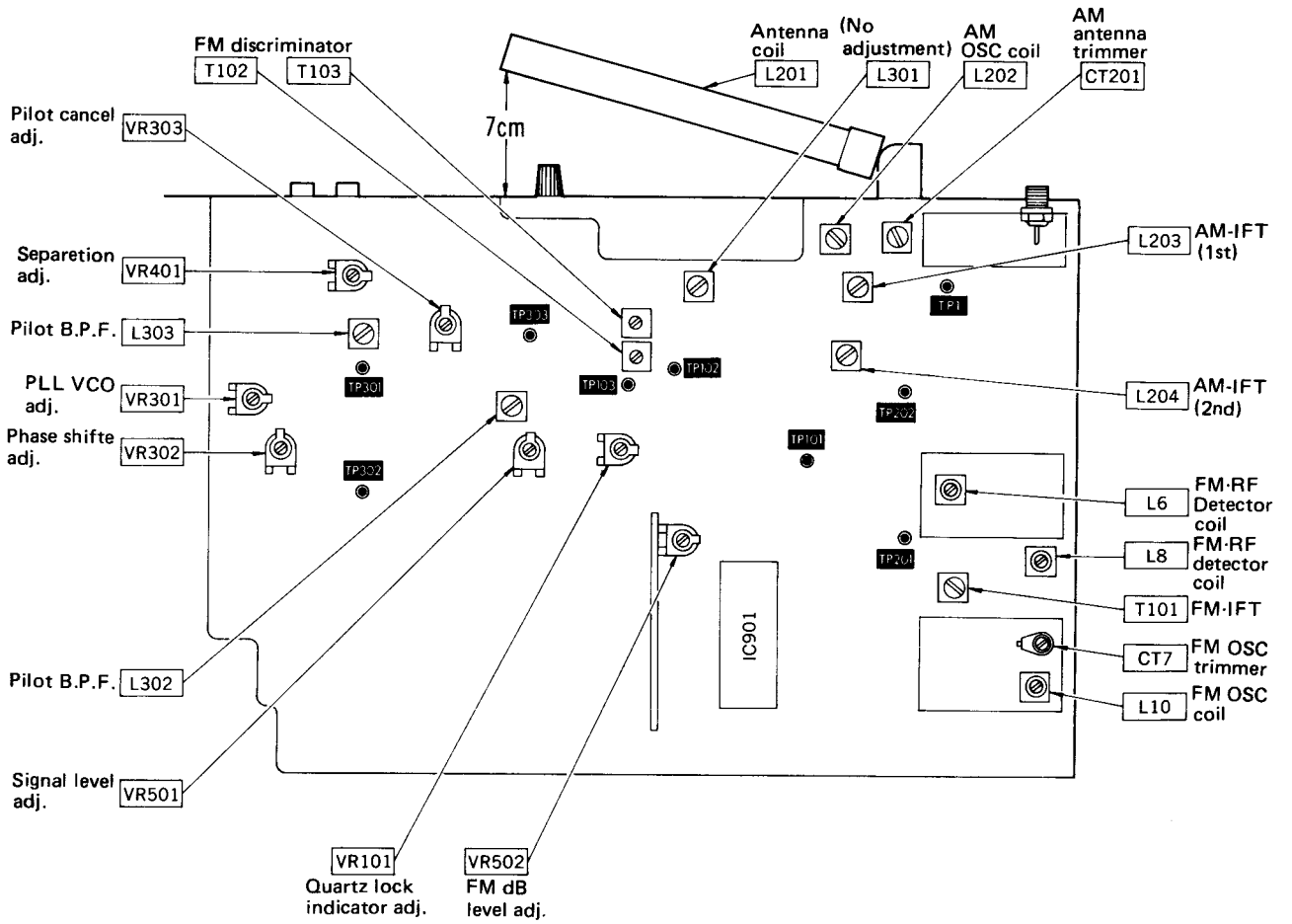
[Fig. 4]



[Fig. 5]

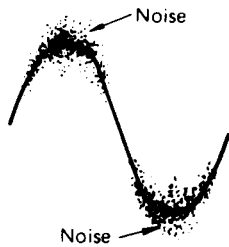
MEASUREMENTS AND ADJUSTMENTS

Adjustment points



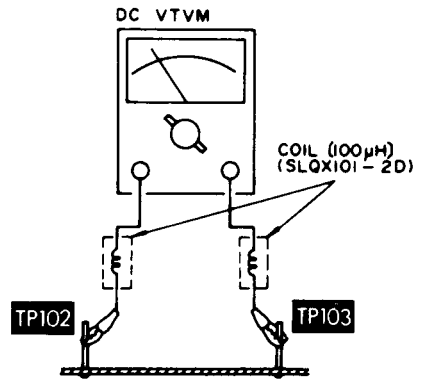
(75Ω FM dummy antenna)

[Fig. 6]
(Abb. 6)



AF output wave form

[Fig. 8]
(Abb. 8)



[Fig. 7]
(Abb. 7)



(Pilot signal cancel)

[Fig. 9]
(Abb. 9)

MEASUREMENTS AND ADJUSTMENTS English

- L301 have been already adjustment, and require no adjustment.
- Set AM allocation selector to "9kHz" position.

AM TUNER ADJUSTMENT

<p>Setting and Equipment used</p> <ol style="list-style-type: none"> 1. AC and DC electronic voltmeters (VTVM) 2. AM signal generator (AM-SG) 3. Maintain line voltage at rated voltage. 4. Output of signal generator should be no higher than necessary to obtain an output reading. 5. Adjust the antenna coil (L201) position by using a screwdriver so that it is at approximately 7 cm degrees to the rear panel. 6. Use a non-metal screwdriver for the adjustment. 7. Set broadcast selector to "AM" position. 					
AM SIGNAL GENERATOR		DISPLAY FREQUENCY	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
CONNECTION	FREQUENCY				
Step No.	AM-IF ADJUSTMENT				
1	Connect AM-SG to AM antenna terminal through 200pF capacitor. Common to chassis. (Powerful input)	450 kHz (30% Mod. with 400 Hz)	Frequency of non-interference	Connect AC VTVM or scope to "OUTPUT" terminals of the set.	T203 (1st IFT) T204 (2nd IFT) Adjust the input frequency and adjustment points so that the output becomes maximum.
AM-RF ADJUSTMENT					
2	Connect AM-SG to AM antenna terminal through 200pF capacitor. Common to chassis. (Weak input)	522 kHz (30% Mod. with 400 Hz)	522 kHz	Connect DC VTVM to TP201 terminal.	L202 (OSC Coil) Adjust L202 to 1.0V ± 0.05V.
3		612 kHz (30% Mod. with 400 Hz)	612 kHz	Connect AC VTVM to scope to "OUTPUT" terminals of the set.	L201 (ANT Coil) 1. Adjust for maximum output. 2. Adjust ferrite core of L201 by screwdriver.
4		1503 kHz (30% Mod. with 400 Hz)	1503 kHz	Connect AC VTVM to scope to "OUTPUT" terminal of the set.	CT201 (ANT Trimmer) 1. Adjust for maximum output. 2. Repeat steps (3) and (4) until the frequency correctly matches the dial display.

FM TUNER ADJUSTMENT

<p>Equipment used</p> <ol style="list-style-type: none"> 1. FM signal generator (FM-SG) 2. Stereo modulator 3. Distortion analyser 4. Oscilloscope 5. AC and DC electronic voltmeters (VTVM). 6. Frequency counter (19 kHz and 108 MHz measurable). 7. FM 75Ω dummy antenna (Fig. 6). <p>Preparation of FM signal generator (FM-SG)</p> <ol style="list-style-type: none"> 1. Connect stereo modulator to FM-SG. 2. Apply SG output to antenna terminal of the set through 75Ω FM dummy antenna. 3. The standard input of the set is 60 dB (1mV), 400 Hz 100% modulation (Because of using dummy antenna, SG output must be 12 dB plus (IHF). That is, when input is 60 dB, SG output is to be 72 dB). 					
<p>Setting</p> <ol style="list-style-type: none"> 1. Set IF band selector to "normal" position 2. Set broadcast selector to "FM" position. 3. FM mode switch to "auto" position. 4. FM muting and FM tuning level switch to "off/standard" position. 5. Signal/Multipath indicator selector (display) switch to "signal" position. 					
FM SIGNAL GENERATOR		DISPLAY FREQUENCY	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
CONNECTION	FREQUENCY				
Step No.	FM-IF ADJUSTMENT				
5	—	No-Signal	100.1 MHz	Connect DC VTVM between TP102 and TP103 through choke coil. (Refer to Fig. 7)	T102 (Discr. IFT) Adjust T102 core so that voltage measured in signal mode is 0V in 300mV range.
FM-RF ADJUSTMENT					
6	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna.	87.9 MHz	87.9 MHz	Connect DC VTVM to TP1 terminal.	L10 (OSC Coil) Adjust L10 (OSC Coil) to 4.1V ± 0.1V.
7		90.1 MHz (100% Mod. with 400 Hz) weak input	90.1 MHz	Connect scope to "OUTPUT" terminals of the set.	L6 (RF DET Coil 1st) L8 (RF DET Coil 2nd) L1 (ANT Coil) 1. Add weak input so that noise is included in the output wave from. 2. Make the adjustment so that the output wave form is vertically symmetrical. (Refer to Fig. 8)
8		106.1 MHz (100% Mod. with 400 Hz)	106.1 MHz	Connect scope to "OUTPUT" terminals of the set.	CT7 (OSC Trimmer) 3. Repeat the steps (7) and (8) until the frequency correctly matches the broadcasts frequency display.

Step No.	FM SIGNAL GENERATOR		DISPLAY FREQUENCY	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
	CONNECTION	FREQUENCY				
FM MONO DISTORTION ADJUSTMENT						
9	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna.	100.1 MHz (100% Mod. with 400 Hz)	100.1 MHz	*Connect DC VTVM between TP102 and TP103 through choke coil. (Refer to Fig. 7) *Connect distortion analyser to "OUTPUT" terminal of the set.	T102 (Discr. IFT) T103 (Discr. IFT)	1. Adjust T102 core so that voltage measured in signal mode is 0V in 300mV range. 2. Adjust T103 core so that distortion of right and left channels are minimized.
FM MPX PILOT (VCO) ADJUSTMENT						
10	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna. (Monaural signal)	100.1 MHz (Non-modulated)	100.1 MHz	Connect frequency counter (through 100kΩ) to TP302 terminal.	VR301 (VCO)	1. Set the FM muting/FM mode switch to "on/auto". 2. Adjust VR 301 to 19 kHz ± 30 Hz.
PILOT SIGNAL BAND PASS FILTER ADJUSTMENT						
11	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna. (Apply 60 dB, pilot 10% Mod. stereo signal)	100.1 MHz (Non-modulated)	100.1 MHz	Connect AC VTVM to TP301 terminal.	L302 (BPF) L303 (BPF)	1. Set the FM mode switch to "auto". 2. Adjust for maximum output.
PILOT CANCEL ADJUSTMENT						
12	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna. (Apply 60 dB, pilot 10% Mod. stereo signal)	100.1 MHz (Non-modulated)	100.1 MHz	Connect scope to TP303 terminal.	L303 (BPF) VR303 (Pilot cancel)	1. Set the FM mode switch to "auto". 2. Repeatedly adjust VR303 and L303 so that the waveform is as shown in Fig. 9. When the output of TP303 is minimum.
PHASE SHIFTER ADJUSTMENT						
13	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna. (Apply 60dB, pilot 10% Mod. stereo signal)	100.1 MHz (100% Mod. with 400 Hz)	100.1 MHz	Connect AC VTVM to left ch. "OUTPUT" terminal.	VR302 (Phase shifter)	1. Set the FM mode switch to "auto". 2. Adjust for maximum output.
STEREO DISTORTION ADJUSTMENT						
14	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna. (Pilot 10% Mod. stereo signal)	100.1 MHz (100% Mod. with 400 Hz) (L mode)	100.1 MHz	Connect distortion analyser to "OUTPUT" terminals of the set through low-pass filter. (fc = 15 kHz ~ 19 kHz)	T101 (IFT)	1. Set the FM muting/FM mode switch to "on/auto". 2. Re-adjust T101 within ± 90° from the preset core position so that the distortion of L ch is minimized. 3. Re-check the steps 5, 7, 8 and 9.
SEPARATION ADJUSTMENT						
15	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna. (Pilot 10% Mod. stereo signal)	100.1 MHz (100% Mod. with 1. kHz) (L or R mode)	100.1 MHz	Connect AC VTVM to "OUTPUT" terminals of the set through low-pass filter. (fc = 15 kHz ~ 19 kHz)	VR401 (Separation)	1. Set the FM muting/FM mode switch to "on/auto". 2. Adjust VR401 so that R output is minimized when stereo modulator is in L (L ch modulation) mode and that L output is minimized in R mode.
SIGNAL METER LED (Light Emitting Diode) INDICATOR ADJUSTMENT						
16	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna. (Apply 42 dB to antenna terminal)	100.1 MHz (100% Mod. with 400 Hz)	100.1 MHz	Signal meter LED	VR501 (meter level)	Adjust VR501 while observing the signal meter LED so that the indicator at 5 th is about to turn on.

FM SIGNAL GENERATOR		DISPLAY FREQUENCY	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE	
CONNECTION	FREQUENCY					
FM SIGNAL-STRENGTH INDICATOR ADJUSTMENT						
17	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna. (Apply 54 dB to antenna terminal)	100.1 MHz (100% Mod. with 400 Hz)	100.1 MHz	————	VR502	<ol style="list-style-type: none"> 1. Push the FM signal level indicator button switch, and adjust VR502 so that 54 dB is displayed. 2. Decrease the input down to 30 dB and then slowly increase up to 54 dB. 3. Make sure that the display is then 56 dB. If 54 dB is not displayed, re-adjust it.
FM QUARTZ LOCK INDICATOR ADJUSTMENT						
18	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna. (Apply 6.0 dB to antenna terminal)	100.1 MHz (100% Mod. with 400 Hz)	100.1 MHz	————	VR101	<ol style="list-style-type: none"> 1. Set the FM mode switch to "off". 2. First rotate VR101 anticlockwise, and then slowly clockwise so that the quartz lock indicator lights up.

EINSTELLUNGSANWEISUNGEN Deutsch

- Die Spule (L301) ist bereits justiert worden und bedarf keiner weiteren Justierung.
- AM Wellenverteilungs-Wahlschalter auf Position "9kHz" stellen.

AM (MW)-EINSTELLUNG

Stellungen und zu benutzende Geräte					
1.	Elektronische Voltmeter für Wechsel- und Gleichstrom (VTVM)	5.	Nittels eines Schraubenziehers des Stellung der Antennenspule (L201) so einstellen, daß, sie gegen die Rückenplatte einen Winkel von ca. 7 cm macht.		
2.	AM (MW)-Meßsender (AM-SG)	6.	Einen nichtmetallischen Schraubenzieher für die Einstellungen verwenden.		
3.	Netzspannung auf ihren Sollwerthalten.	7.	Bereichsschalter. . . . AM		
4.	Der Ausgang des Meßsenders darf nicht höher sein als unbedingt notwendig für eine gute Ablesung.				

AM (MW)-MESSENDER		ANZEIGE-FREQUENZ DURCH VOR-EINSTELLUNG	VORBEREITUNG	ABGLEICHSPUNKTE	ABGLEICHsverFAHREN
ANSCHLUSS	FREQUENZ				

Nr.

AM (MW)-ZF-ABGLEICH

1	Einen MW-Signal-generator über einen 200pF Kondensator mit dem MW-Antenneneingang verbinden. Die gemeinsame Leitung mit dem Chassis verbinden. (Starker Eingang)	450 kHz (400 Hz Modulat., 30%)	Kein Empfang	Oszilloskop oder Wechselstrom-Voltmeter über den Ausgang "OUTPUT".	T203 (1. IFT) T204 (2. IFT)	Die Eingangsfrequenz und die Einstellungspunkte so adustieren, daß der Ausgang den maximalen Wert erreicht.
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AM (MW)-HF-ABGLEICH

2	Einen MW-Signal-generator über einen 200pF Kondensator mit dem MW-Antenneneingang verbinden. Die gemeinsame Leitung mit dem Chassis verbinden. (Schwacher Eingang)	522 kHz (400 Hz Modulat., 30%)	522 kHz	Zwischen TP201 und Erdung Gleichstrom-Voltmeter schließen.	L202 (Osc. Spule)	L202 so justieren, daß die vom Gleichstrom-Voltmeter gemessene. (1,0V ± 0,05V)
3		612 kHz (400 Hz Modulat., 30%)	612 kHz	Oszilloskop oder Wechselstrom-Voltmeter über den Ausgang "OUTPUT" schließen.	L201 (Ant. Spule)	<ol style="list-style-type: none"> 1. Auf max. Ausgang abgleichen. 2. Den Ferritkern von L201 mit einem Schraubendreher justieren.
4		1503 kHz (400 Hz Modulat., 30%)	1503 kHz	Oszilloskop oder Wechselstrom-Voltmeter über den Ausgang "OUTPUT" schließen.	CT201 (Ant. Trimmer)	<ol style="list-style-type: none"> 1. Auf max. Ausgang abgleichen. 2. Die Schritte (3) und (4) wiederholen, bis die Frequenz genau mit der Skalenanzeige übereinstimmt.

FM (UKW)-EINSTELLUNG

Verwendete Einrichtungen	Vorbereitung AM UKW-Messender (FM-SG)
<ol style="list-style-type: none"> 1. UKW-Meßsender (FM-SG) 2. Stereo-Modulator (oder Trennmesser) 3. Verzerrungsmesser 4. Oszilloskop 5. Elektronische Voltmeter für Wechsel- und Gleichstrom (VTVM) 6. Signalfrequenzmesser (meßbar für 19 kHz und 108 MHz) 7. UKW 75-Ohm Kunstantenne (Abb. 6) 	<ol style="list-style-type: none"> 1. Stereo-Modulator an FM-SG anschließen. 2. SG-Ausgang über 75-Ohm UKW Kunstantenne an den Antenneneingang des Gerätes schließen. 3. Der normale Eingang des Gerätes beträt 60 dB (1mV), 400 Hz 100% Modulation. (Wegen Verwendung der Kunstantenne muß der Signalausgang 12 dB plus (IHF) sein: d.h. beim Eingang von 60 dB soll der Signalausgang 72 dB sein.)

Zustand des Gerätes						
1. Den UKW-Antennenwahlschalter auf die "normal"-Stellung bringen.		2. Den Eingangswähler auf die "FM"-Position stellen.		3. UKW-Betriebsart-Schalter in die "auto"-position.		
4. UKW-Stillabstimmungs- und UKW-Abstimmungspegel-Schalter in die "off/standard"-position.		5. Signal/Multipath-Anzeiger-Wahlschalter (Anzeige) in die "Signal"-position.				
Nr	FM (UKW) MESSENDER		ANZEIGE-FREQUENZ DURCH VOR-EINSTELLUNG	VORBEREITUNG	ABGLEICHSPUNKTE	ABGLEICHsverfahren
	ANSCHLUSS	FREQUENZ				
UKW-ZF-ABGLEICH						
5	—	Kein Signal	100.1 MHz	Ein Gleichstromröhrenvoltmeter zwischen TP102 und TP103 über eine Drosselspule verbinden. (Siehe Abb. 7)	T102 (Diskriminator FT)	Den Kern von T102 so justieren, daß die gemessene Spannung im signallosen Modus 0V im 300mV Bereich beträgt.
UKW-HF-ABGLEICH						
6		87.9 MHz	87.9 MHz	Zwischen TP1 und Erdung Gleichstrom-Voltmeter schließen.	L10 (Osc. Spule)	L10 so justieren, daß die vom Gleichstrom-Voltmeter gemessene Spannung $4.1V \pm 0.1V$ beträgt.
7	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	90.1 MHz (400 Hz Modulat., 100%)	90.1 MHz	Oszilloskop über den Ausgang "OUTPUT" schließen.	L6 (HF Det. Spule 1) L8 (HF Det. Spule 2) L1 (Ant. Spule)	1. Einen schwachen Eingang geben, bei dem Geräusch in der Ausgangswellenform enthalten wird. 2. So einstellen, daß die Ausgangswellenform vertikal symmetrisch wird. (Abb. 8) 3. Die Einstellung von (7) und (8) wiederholen, bis die Frequenz mit der Skala übereinstimmt.
8		106.1 MHz (400 Hz Modulat., 100%)	106.1 MHz	Oszilloskop über den Ausgang "OUTPUT" schließen.	CT7 (Osc. Trimmer)	
ABGLEICH AUF MIN. VERZERRUNG IN STELLUNG UKW-MONO						
9	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	100.1 MHz (400 Hz Modulat., 100%)	100.1 MHz	* Ein Gleichstromröhrenvoltmeter zwischen TP102 und TP103 über eine Drosselspule verbinden. * Verzerrungsmesser an rechten und linken Kanäle Ausgangsklemme "OUTPUT"	T102 (Diskriminator FT) T103 (Diskriminator FT)	1. Den Kern von T102 so justieren, daß die gemessene Spannung im signallosen Modus 0V im 300mV Bereich beträgt. 2. T103 Kern für minimale Verzerrung der rechten und linken Kanäle justieren.
UKW-MPX-PILOTABGLEICH (VCO)						
10	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. (Mono-Signal)	100.1 MHz (Unmodulierte Welle)	100.1 MHz	Signal frequenzmesser an TP302 schließen. (durch 100kΩ)	VR301 (VCO)	1. Den UKW Muting/UKW-Betriebsartschalter auf "on/ auto" einstellen. 2. VR301 so abgleichen, daß Ausgangsfrequenz von TP302 $19 \text{ kHz} \pm 30 \text{ Hz}$.
KONTROLL-BANDPASSFILTER-ABGLEICH						
11	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. (60 dB, pilot 10% modulierte stereosignal anlegen.)	100.1 MHz (Unmodulierte Welle)	100.1 MHz	Wechselstrom Röhrenvoltmeter an Klemmen TP301 anschließen.	L302 L303	1. Den UKW Betriebsartschalter auf "auto" einstellen. 2. Auf max. Ausgang abgleichen.
KONTROLL-AUFLOSEN-ABGLEICH						
12	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. (60 dB, pilot 10% modulierte stereosignal anlegen.)	100.1 MHz (Unmodulierte Welle)	100.1 MHz	Oszillograph an Klemmen TP303 anschließen.	L303 VR303	1. Den UKW Betriebsartschalter auf "auto" einstellen. 2. VR303 und L303 wiederholt justieren, so daß die Wellenform so wird, wie in Abb. 9 gezeigt, wenn die Ausgangsleistung von TP303 minimal ist.
PHASENSCHIFTER ABGLEICH						
13	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. (60 dB, pilot 10% modulierte Stereo-Signal anlegen.)	100.1 MHz (400 Hz Modulat., 100%) L-Betriebsart	100.1 MHz	Wechselstromvoltmeter an L-Kanal Ausgangsklemme "OUTPUT" schließen.	VR302	1. Den UKW Betriebsartschalter auf "auto" einstellen. 2. Auf max. Ausgang abgleichen.

Nr.	FM (UKW) MESSENDER		ANZEIGE-FREQUENZ DURCH VOR-EINSTELLUNG	VORBEREITUNG	ABGLEICHSPUNKTE	ABGLEICHVERFAHREN
	ANSCHLUSS	FREQUENZ				
STEREO-VERZERRUNGSABGLEICH						
14	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. (Stereo-Pilotsignal 10% moduliert.)	100.1 MHz (400 Hz Modul., 100%) L-Betriebsart	100.1 MHz	Tiefpaßfilter (fc = 15 ~ 19 kHz) über Verzerrungsmesser an Ausgangsklemme "OUTPUT" des Gerätes schließen.	T101 (IFT)	1. Den UKW Muting/UKW-Betriebsartschalter auf "on/auto" einstellen. 2. Den schon eingestellten T101 erneut, innerhalb von ± 90° von der voreingestellten Kernposition einstellen, sodaß die Verzerrung des linken Kanals minimalisiert wird. 3. Die Schritte 5, 7, 8 und 9 noch einmal überprüfen.
TRENNUNG-ABGLEICH						
15	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. (Stereo-Pilotsignal 10% moduliert.)	100.1 MHz (400 Hz Modul., 100%) L-order R-Betriebsart	100.1 MHz	Tiefpaßfilter (fc = 15 ~ 19 kHz) über Wechselstromvoltmeter an Ausgangsklemme "OUTPUT" des Gerätes schließen.	VR401	1. Den UKW Muting/UKW-Betriebsartschalter auf "on/auto" einstellen. 2. VR401 auf minimale Anzeige des R-Ausgangs bei Stereo-modulator in L (L-Kanal-modulation) Modus, und auf minimale Anzeige des L-Ausgangs in R-Modus abgleichen.
ABGLEICHEN DES SIGNALMETER-LED (LICHTERZEUGENDE DIODE)-ANZEIGERS						
16	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. Meßsender auf 42 dB einstellen.	100.1 MHz (400 Hz Modul., 100%)	100.1 MHz	Signalmeter-LED	VR501 (Metervolumen)	Unter Beobachtung der Signalmeter-LED VR501 so justieren, daß der Anzeiger am 5. fast aufzuleuchten beginnt.
UKW-SIGNALPEGELTASTE						
17	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. (54 dB in den Antenneneingang leiten.)	100.1 MHz (400 Hz Modul., 100%)	100.1 MHz	—	VR502	1. Den UKW-Signalpegelanzeiger-Tastenschalter drücken und VR502 so justieren, daß 54 dB angezeigt wird. 2. Die Eingangsleistung auf 30 dB reduzieren und dann langsam auf 54 dB erhöhen. 3. Überprüfen, daß dann 54 dB angezeigt wird. Falls der Anzeigewert nicht 54 dB beträgt, erneut justieren.
UKW-ABSTIMMANZEIGE-ABGLEICH						
18	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. (6.0 dB in den Antenneneingang leiten.)	100.1 MHz (400 Hz Modul., 100%)	100.1 MHz	—	VR101	1. Den UKW Betriebsartschalter auf "off". 2. VR101 zuerst entgegen dem Uhrzeigersinn drehen, und dann langsam im Uhrzeigersinn drehen, so daß die Quarz-Verriegelungs-Anzeigelampen auf leuchten.

INSTRUCTIONS DE REGLAGE Français

- La bobine (L301) a déjà été mise au point et ne nécessite plus de réglage.
- Régler le sélecteur d'attribution AM sur la position "9kHz".

REGLAGE DE AM

Réglage et équipement utilisé	
1. Voltmètres électronique de courant alternatif et de courant continu (VTVM)	5. Régler la position de la bobine (L201) de l'antenne en utilisant un tournevis de telle sorte qu'elle soit environ à 7cm de la plaque arrière.
2. Générateur du signal AM (AM-SG)	6. Utiliser un tournevis non-métallique pour la réglage.
3. Conservez la tension du secteur à la tension nominale.	7. Sélecteur de gamme AM
4. Le signal du générateur ne doit pas être plus élevé qu'il n'est nécessaire à obtenir une lecture en sortie.	

No.	AM GENERATEUR		FREQUENCE D'AFFICHAGE PAR PREREGLAGE	PREPARATIONS	ELEMENTS REGLES	PROCEDURE DE REGLAGE
	BRANCHEMENT	FREQUENCE				
REGLAGE DE FI-AM						
1	Brancher le AM-SG à la borne de l'antenne AM par un condensateur de 200pF. Commun au châssis. (Entrée sous puissante)	450kHz (modulé à 30% par 400 Hz)	Point sans signal	C.A. Voltmètre électronique ou oscilloscope sur prise de sortie de l'appareil.	T203 (1 transfo F1) T204 (2 transfo F1)	Régler la fréquence d'entrée et les points de réglage de telle sorte que la sortie devienne maximale.
REGLAGE DE RF-AM						
2		522 kHz (modulé à 30% par 400 Hz)	522 kHz	Brancher le voltmètre à courant continu entre TP201 et la prise de terre.	L202 (Bobine Osc.)	Régler L202 de telle sorte que le voltage mesuré par la voltmètre à courant continu, soit de 1.0V ± 0.05V.
3	Brancher le AM-SG à la borne de l'antenne AM par un condensateur de 200pF. Commun au châssis. (Entrée faible)	612 kHz (modulé à 30% par 400 Hz)	612 kHz	C.A. Voltmètre électronique ou oscilloscope sur prise de sortie de l'appareil.	L201 (Bobine Ant.)	1. Régler au maximum de signal de sortie. 2. Régler le noyau ferrite de L201 à l'aide d'un tournevis.
4		1503 kHz (modulé à 30% par 400 Hz)	1503 kHz	C.A. Voltmètre électronique ou oscilloscope sur prise de sortie de l'appareil.	CT201 (Trimmer Ant.)	1. Régler au maximum de signal de sortie. 2. Refaire les étapes (3) et (4) jusqu'à ce que la fréquence s'aligne correctement avec l'affichage du cadran.

REGLAGE DE FM

Equipment utilisé		Préparation du générateur de signal FM (FM-SG)	
1. Générateur du signal FM (FM-SG)	2. Commande de réglage stéréophonique (ou vu-mètre de séparation).	1. Brancher la commande de réglage stéréophonique à FM-SG.	2. Alimenter la sortie SG à la borne de l'antenne de l'appareil, par l'antenne fictive FM, 75 ohms.
3. Jauge de distorsion.	4. Oscilloscope.	3. L'entrée standard de l'appareil est de 60 dB (1mV), 400Hz, 100% de modulation (à cause de l'utilisation de l'antenne fictive, la sortie SG doit être de plus 12 dB (IHF). Ce qui signifie que quand l'entrée est de 60 dB, la sortie SG doit être de 72 dB.)	
5. Voltmètres électronique de courant alternatif et de courant continu (VTVM).	6. Compteur de fréquence (19kHz et 108MHz mesurable).	7. Antenne fictive FM, 75Ω ohms (Fig. 6)	
Conditions de l'appareil		4. Commutateur d'accord silencieux FM du niveau de synthèse FM sur la position "off/standard".	
1. Placer le sélecteur de l'antenne FM sur la position "normal".		5. Commutateur du sélecteur (affichage) indicateur de signaux/multivoies sur la position "signal".	
2. Sélecteur d'entrée sur la position "FM".			
3. Commutateur de mode FM sur la position "auto".			

No.	FM GENERATEUR		FREQUENCE D'AFFICHAGE PAR PREREGLAGE	PREPARATIONS	ELEMENTS REGLES	PROCEDURE DE REGLAGE
	BRANCHEMENT	FREQUENCE				
REGLAGE DE FI-FM						
5	—	Sans Signal	100.1MHz	Brancher le voltmètre électronique a c.c. aux bornes TP102 et TP103. (Voir la Fig. 7)	T102 (Transfor FI discri.)	Régler le noyau T102 de telle sorte que le voltage mesuré dans le mode sans signal, soit de 0V dans la gamme des 300mV.
REGLAGE DE RF-FM						
6		87.9 MHz	87.9 MHz	Brancher le voltmètre à courant continu entre TP1 et la prise de terre.	L10 (Bobine Osc.)	Régler L10 de telle sorte que le voltage mesuré par le voltmètre à courant continu soit de 4.1V ± 0.1V.
7	Brancher sur la prise d'antenne FM à travers une antenne fictive FM	90.1 MHz (modulé à 100% par 400 Hz)	90.1 MHz	Oscilloscope sur prise de sortie du tuner.	L6 (1er détecteur) L8 (2e détecteur) L1 (Bobin Ant.)	1. Appliquer une entrée faible de telle sorte que le parasite soit compris dans la forme de l'onde de sortie. 2. Faire le réglage de telle sorte que la forme de l'onde de sortie soit verticalement symétrique. (Voir Fig. 8)
8		106.1 MHz (modulé à 100% par 400 Hz)	106.1 MHz	Oscilloscope sur prise de sortie du tuner.	CT7 (Trimmer Osc.)	3. Refaire les réglages (7) et (8) jusqu'à ce que la fréquence corresponde correctement avec l'échelle du cadran.

No.	FM GENERATEUR		FREQUENCE D'AFFICHAGE PAR PREREGLAGE	PREPARATIONS	ELEMENTS REGLES	PROCEDURE DE REGLAGE
	BRANCHEMENT	FREQUENCE				
REGLAGE DE LA DISTORSION FM EN MONO						
9	Branchez sur la prise d'antenne FM à travers une antenne fictive FM	100.1 MHz (modulé à 100% par 400 Hz)	100.1 MHz	*Brancher le voltmètre électronique a.c.c. aux bornes TP102 et TP103. (Voir la Fig. 7) *Brancher le compteur de distorsion à la borne de sortie (OUTPUT) du canal gauche et droit de l'appareil.	T102 (Transfo FI discr.) T103 (Transfo FI discr.)	1. Régler le noyau T102 de telle sorte que le voltage mesuré dans le mode sans signal, soit de 0V dans la gamme des 300mV. 2. Régler le noyau T103 de telle sorte que la distorsion des canaux droit et gauche soit la plus faible.
REGLAGE (VCO) PILOTE MULTIPLEX FM						
10	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. (Signal monoscoustique)	100.1 MHz (Non modulé)	100.1 MHz	Brancher le compteur de fréquence à TP302. (Par l'intermédiaire de 100kΩ)	VR301	1. Placer le commutateur de réglage silencieux de FM/ mode FM sur "on/auto". 2. Régler VR301 de telle sorte que la fréquence de sortie de TP302 soit de 19 kHz ± 30 Hz.
REGLAGE FILTRE PILOTE PASS-BANDE						
11	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. (Appliquer un signal stéréo modulé, signal pilote à 10% de 60 dB)	100.1 MHz (Non modulé)	100.1 MHz	Brancher un voltmètre à courant alternatif à TP301	L302 L303	1. Placer le commutateur de mode de FM sur la position "auto". 2. Régler au maximum de signal de sortie.
ANNULATION DU SIGNAL PILOTE						
12	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. (Appliquer un signal stéréo modulé, signal pilote à 10% de 60 dB)	100.1 MHz (Non modulé)	100.1 MHz	Brancher le voltmètre à courant alternatif et l'oscilloscope à TP303	L303 VR303	1. Placer le commutateur de mode de FM sur la position "auto". 2. Adjuster de façon répétée VR303 et L303 de façon à ce que la forme d'onde soit telle qu'elle est montrée à la Fig. 9 lorsque la sortie de TP303 est minimale.
REGLAGE DU DEPHASEUR						
13	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. (Appliquer un signal stéréo modulé, signal pilote à 10% de 60 dB)	100.1 MHz (modulé à 100% par 400 Hz) (Mode G)	100.1 MHz	Brancher un voltmètre à courant continu à la borne de sortie du canal gauche.	VR302	1. Placer le commutateur de mode de FM sur la position "auto". 2. Régler au maximum de signal de sortie.
REGLAGE DE LA DISTORSION STEREO						
14	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. (Signal stéréo pilote à 10% de modulation)	100.1 MHz (modulé à 100% par 400 Hz) (Mode G)	100.1 MHz	Brancher le filtre passe-bas (fc = 15 ~ 19 kHz) à la borne de sortie (OUTPUT) de l'appareil par un compteur de distorsion.	T101	1. Placer le commutateur de mode de FM sur la position "auto". 2. Rerégler le T101 déjà réglé, à ± 90% de la position préréglée du noyau de telle sorte que la distorsion du canal gauche soit minimale. 3. Révérifier les étapes 5, 7, 8 et 13.
REGLAGE DE LA SEPARATION DES CANAUX						
15	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. (Signal stéréo pilote à 10% de modulation)	100.1 MHz (modulé à 100% par 400 Hz) (Mode G ou D.)	100.1 MHz	Brancher le filtre passe-bas (fc = 15 ~ 19 kHz) à la borne de sortie (OUTPUT) de l'appareil par un voltmètre à courant alternatif.	VR401	1. Placer le commutateur de mode de FM sur la position "auto". 2. Régler VR401 de telle sorte que la sortie droite soit minimale quand la commande d'accord stéréophonique est dans le mode gauche (modulation du canal gauche) et que la sortie gauche soit minimale dans mode droit.

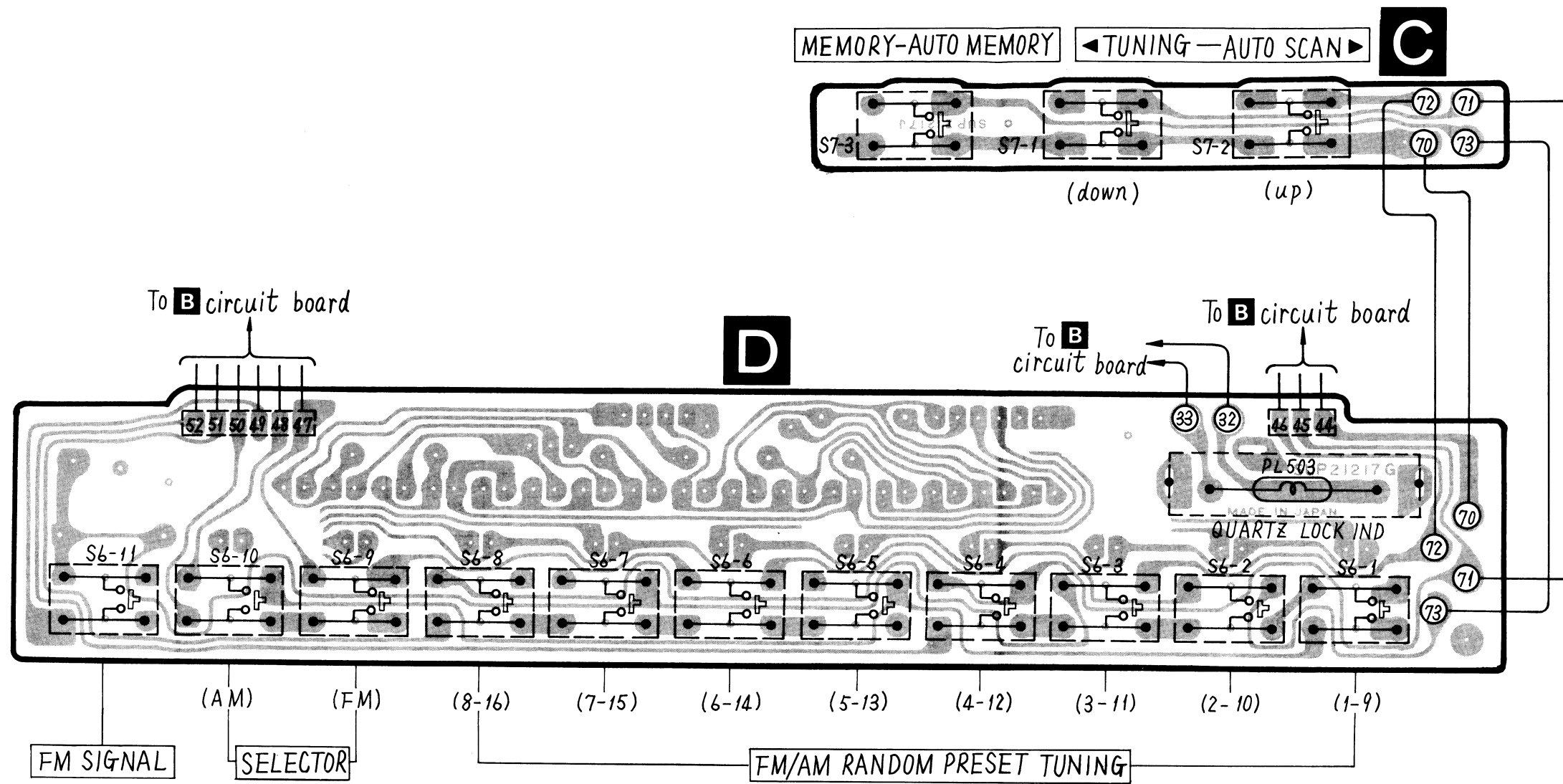
No.	FM GENERATEUR		FREQUENCE D'AFFICHAGE PAR PREREGLAGE	PREPARATIONS	ELEMENTS REGLES	PROCEDURE DE REGLAGE
	BRANCHEMENT	FREQUENCE				
ALIGNEMENT DE L'INDICATEUR DE SIGNAL DE LA DIODE A EMISSION DE LUMIERE (DEL)						
16	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. (Niveau de sortie du générateur 42 dB)	100.1 MHz (modulé à 100% par 400 Hz)	100.1 MHz	DEL du compteur à signal de l'aiguille du cadran.	VR501 (Registor variable du compteur)	Régler VR501 en observant la DEL du compteur à signal afin que l'indicateur au 5 ^{ème} est à presque tourner.
REGLAGE INDICATEUR D'INTENSITE DES SIGNAUX FM						
17	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. (Niveau de sortie du générateur 54 dB)	100.1 MHz (modulé à 100% par 400 Hz)	100.1 MHz	—	VR502	1. Appuyer sur le commutateur à touche de l'indicateur de niveau de transmission FM, et régler VR502 de façon à ce que 54 dB soit affiché. 2. Diminuer l'entrée à 30 dB, puis augmenter lentement jusqu'à 54 dB. 3. S'assurer que l'affichage soit alors de 54 dB. Si 54 dB n'est pas affiché, l'ajuster à nouveau.
REGLAGE DE L'INDICATEUR DE BLOCAGE PAR QUARTS FM						
18	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. (Niveau de sortie du générateur 6.0 dB)	100.1 MHz (modulé à 100% par 400 Hz)	100.1 MHz	—	VR101	1. Placer le commutateur de mode de FM sur la position "off". 2. Tourner tout d'abord VR101 dans le sens inverse des aiguilles d'une montre, puis lentement dans le sens des aiguilles d'une montre de façon à ce que l'indicateur de blocage par quart s'éclairisse.

REPLACEMENT PARTS LIST...Electrical Parts

- Notes:**
- Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
 - Important safety notice: Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

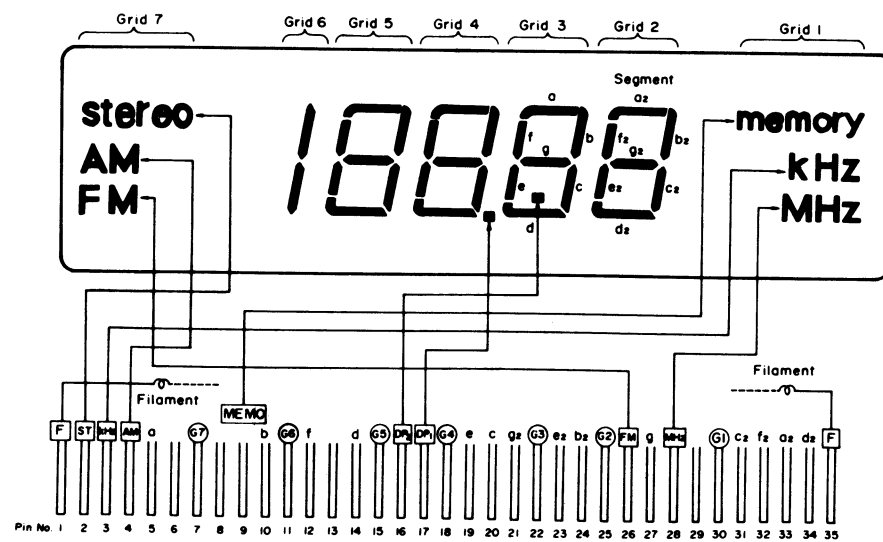
Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
INTEGRATED CIRCUITS			DIODES		
IC101	SVIM5215L	IC, FM IF Amplifier	D1, 5, 6, 7	SVDSVC211	Diode, Variable Capacitor (for FM)
IC103	RV1UPC1018CF	IC, FM IF & AM Converter	D101, 102, 202	20A90	Diode, Switching
IC104	SVIUPC1167C2	IC, FM IF Detector	504, 921		
IC301	SVIUPC1161C	IC, FM MPX	D103, 203, 503	MA162A	Diode, Switching
IC302, 401, 501	AN6552F	IC, Multipath, Buffer	542, 544, 605		
IC303	SVIUPD4066C	IC, Peak Sampling Switch	607, 608, 610		
IC502	AN6876	IC, LED Driver	612 ~ 618, 711		
IC503	AN6552F	IC, Loop Filter	901, 902, 904		
IC901	SVID1704C514	IC, Micro-Computer	905, 907		
IC902	SVIUPB553C-E	IC, Pre-Scaler	911 ~ 920		
IC903	SVIMSL915RS	IC, FL Driver	D201	SVDBB312E	Diode, Variable Capacitor (for AM)
Q1	3SK74-L1	Transistor, FM RF Amplifier	D506 ~ 510	SVDGL-9PR9	Light Emitting Diode, Red
Q3	2SC1674-M	Transistor, FM Mixer	D511	SVDGL-9HY9	Light Emitting Diode, Yellow
Q4, 5, 6	2SC1675-L	Transistor, FM Oscillator, Buffer	D513	MA27A2	Diode
Q101, 102, 103	2SC829-C	Transistor, Switching	D537	SVDMZ416	Diode, 16V Zener
Q104, 301, 501	2SC945-Q	Transistor, Phase Shift, AM Amplifier	D543	MA27A1	Diode
601 ~ 608, 611		Switching, Quartz Lock Lamp Driver	D547	SVDSR1K2	Rectifier
613 ~ 616, 902 ~ 905		Muting, Loop Filter	D701 ~ 704	Δ	
Q502, 503, 609	2SA733-P1	Transistor, AM Amplifier, Switching, Muting	D705	MA162A	Diode
612, 703, 704, 901			D706	SVDMZ333A	Diode, 33V Zener
Q701	2SD762-O	Transistor, Regulator	D707	SVDEQA0113RA	Diode, 13V Zener
Q705	2SC1815-Y	Transistor, Regulator	D709	RVDRD6R2EB	Diode, 6.2V Zener
			D710	MA1064A	Diode, 6.4V Zener
			D908	MA162A	Diode
			D910, 923	MA162A	Diode

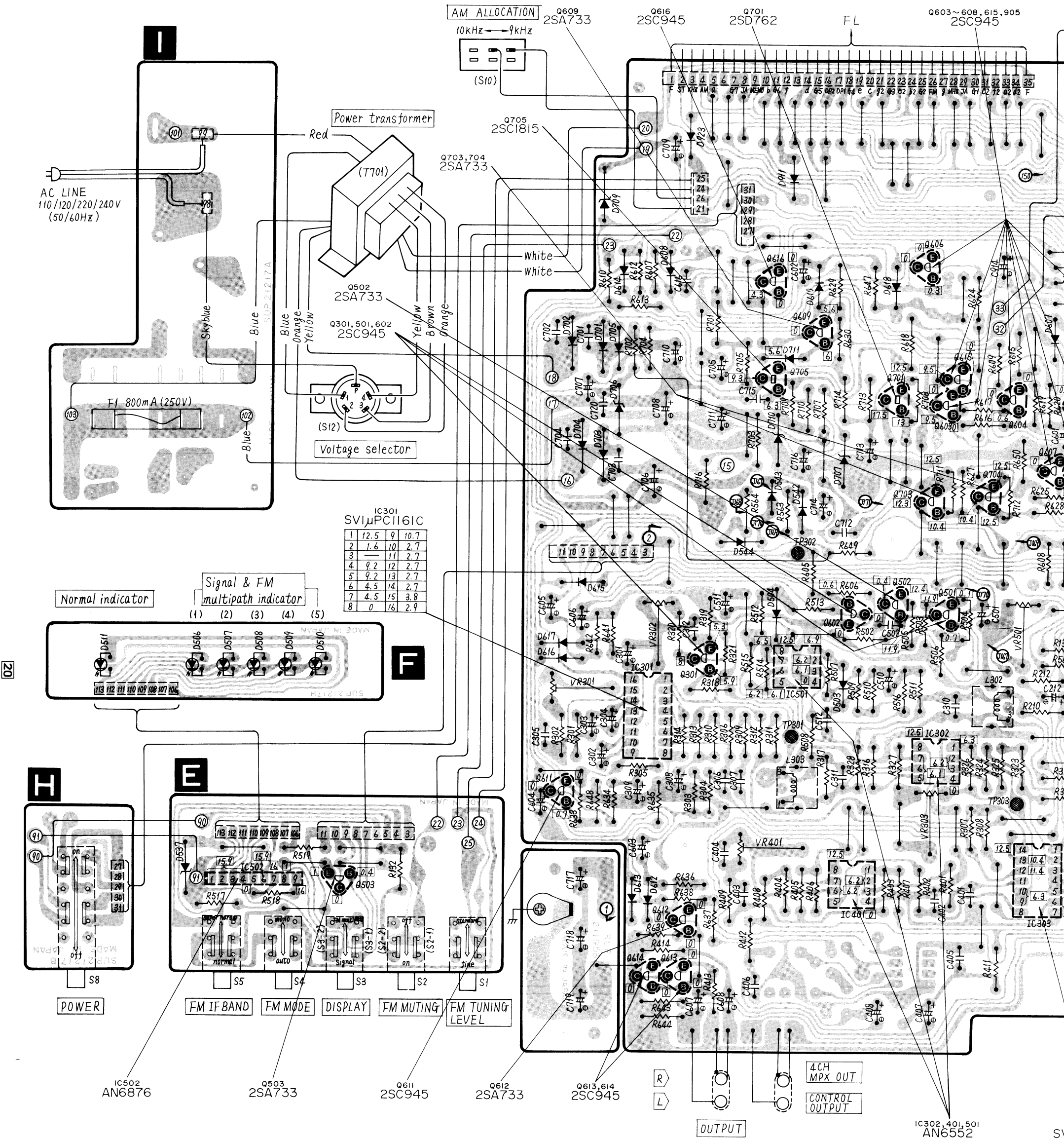
■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



● Terminal guide of transistors, diodes and IC's

<p>3SK74</p>	<p>2SD762</p>	<p>AN6552F, SV1μPB553C</p>
<p>1. Gate 1 2. Gate 2 3. Drain 4. Source</p>	<p>SVIM5215L</p>	<p>SV1μPC1018F, SV1μPC1161C, SV1μPC1167C2</p>
<p>2SA733, 2SC829, 2SC945, 2SC1674, 2SC1675, 2SC1815</p>	<p>SVIMSL915RS</p>	<p>SV1μPD4066C</p>
<p>SVID1704C514</p>		<p>AN6876</p>





IC301 SV1PC1161C

1	12.5	9	10.7
2	1.6	10	2.7
3	—	11	2.7
4	9.2	12	2.7
5	9.2	13	2.7
6	4.5	14	2.7
7	4.5	15	3.8
8	0	16	2.9

Normal indicator (1) (2) (3) (4) (5)
Signal & FM multipath indicator (1) (2) (3) (4) (5)

IC502 AN6876

Q503 2SA733

Q611 2SC945

Q612 2SA733

Q613, 614 2SC945

IC302, 401, 501 AN6552

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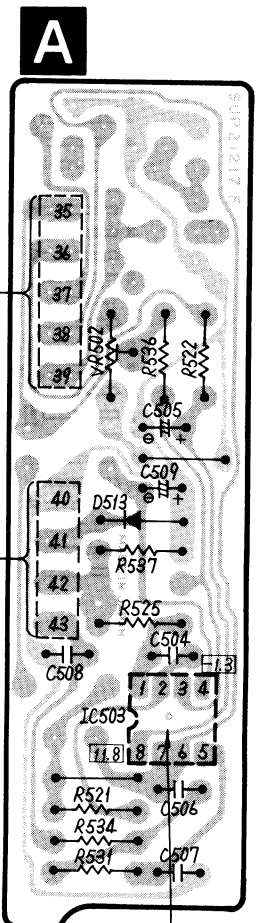
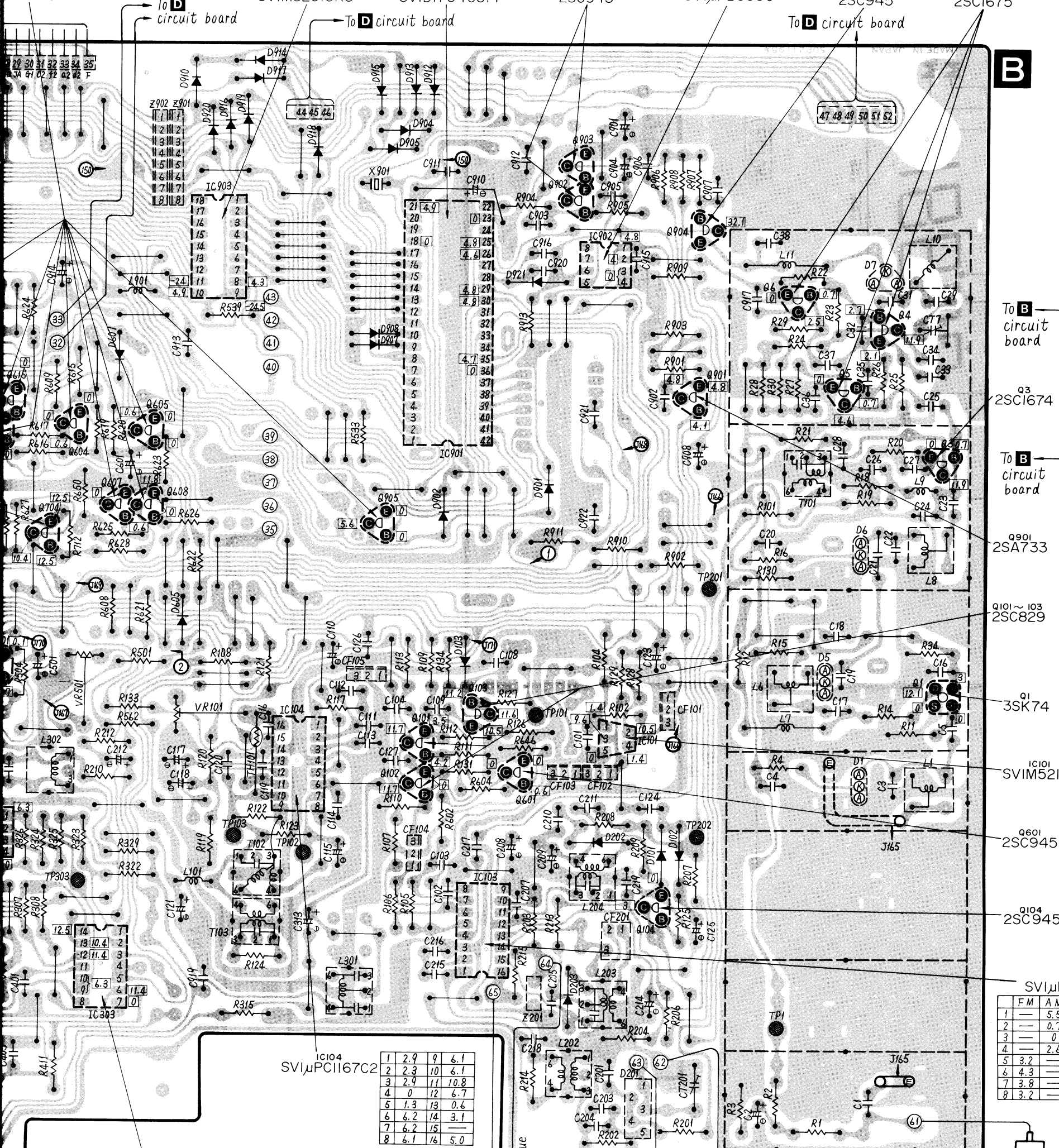
L

OUTPUT

4CH MPX OUT

CONTROL OUTPUT

~608, 615, 905
2SC945



B

A

IC903 SVIMSL915RS To D circuit board

IC901 SVIDI704C514 To D circuit board

Q902, 903 2SC945

IC902 SVI μ PB553C

Q904 2SC945

Q4~6 2SC1675

IC104 SVI μ PC1167C2

1	2.9	9	6.1
2	2.3	10	6.1
3	2.9	11	10.8
4	0	12	6.7
5	1.3	13	0.6
6	6.2	14	3.1
7	6.2	15	
8	6.1	16	5.0

	FM	AM	FM	AM
1	—	5.5	9	—
2	—	0.7	10	—
3	—	0	11	—
4	—	2.6	12	—
5	3.2	—	13	—
6	4.3	—	14	—
7	3.8	—	15	—
8	3.2	—	16	—

AM antenna coil

(L201)

Gray

Brown

Black

White

AM ANT

FM ANT

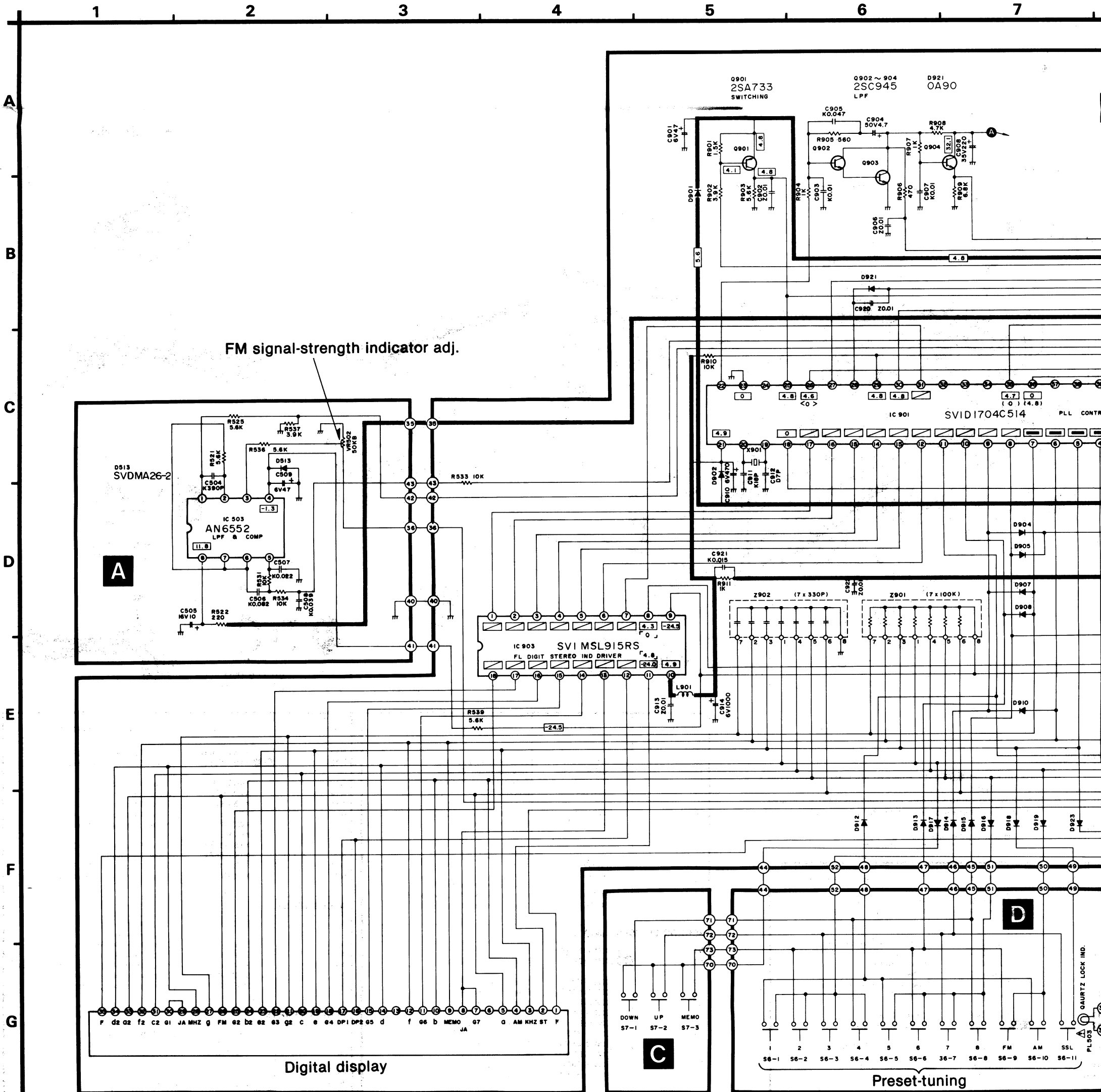
01, 501
552

IC303 SVI μ PD4066C

■ **SCHEMATIC DIAGRAM** (This schematic diagram may be modified at any time with the development of new technology.)

Notes:

- | | |
|--|--|
| <p>1. S1 : FM frequency shift switch in "+25 kHz" position.
off → +25 kHz</p> <p>2. S2 : FM muting and FM tuning level switch in "on/fine" position.
on/fine → off/standard</p> <p>3. S3 : Signal/Multipath indicator selector (display) switch in "signal" position.
signal → FM multipath</p> <p>4. S4 : FM mode switch in "auto" position.
auto → mono</p> <p>5. S5 : FM IF band selector switch in "normal" position.
normal → super narrow</p> <p>6. S6-1 ~ S6-8 : FM/AM random preset tuning switch.
CH1 ~ CH16</p> <p>7. S6-9, S6-10 : Band selector switch. (S6-9. . . . FM, S6-10. . . . AM)</p> | <p>8. S6-11 : FM signal switch.</p> <p>9. S7-1, S7-2 : Tuning and auto-scan switch.</p> <p>10. S7-3 : Memory and auto memory switch.</p> <p>11. S8 : Power switch in "on" position.</p> <p>12. S10 : AM allocation switch in "9 kHz" position.
9 kHz → 10 kHz</p> <p>13. S12 : Voltage selector switch in "220V" position.
100V → 120V → 220V → 240V</p> <p>14. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
* Figures in stand for DC voltage in FM signal (no signal) reception mode.
* Figures in stand for DC voltage in FM stereo signal reception mode.</p> |
|--|--|



* Figures in () stand for DC voltage in AM signal reception mode.

* H: 5V, L: 0V

* H: 5V, L: -26V

15. Transistor and IC terminals which carry no voltage indication emit 5V pulse waveforms or are subject to change according to the frequency or input signal levels.

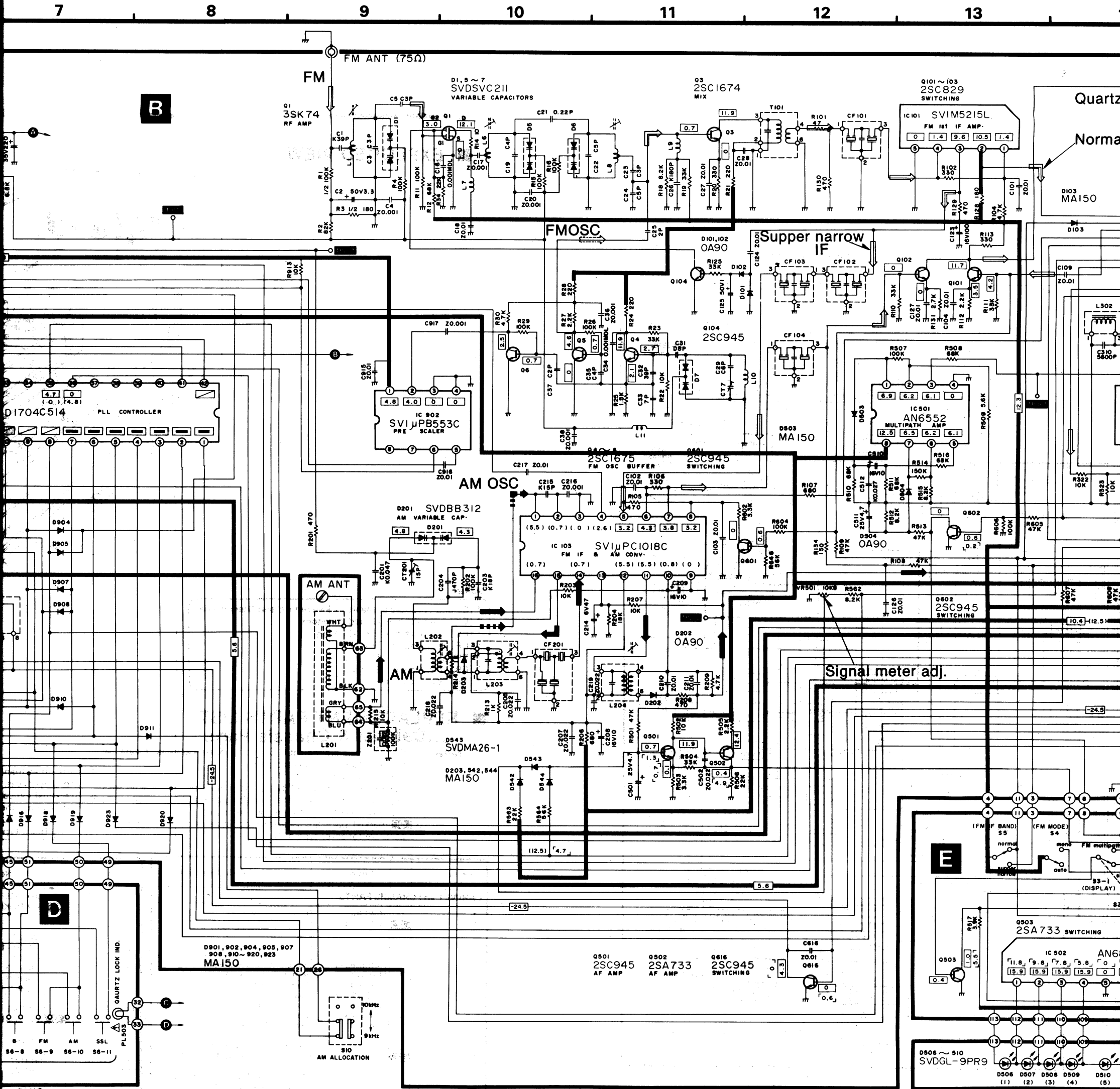
16. Signal lines

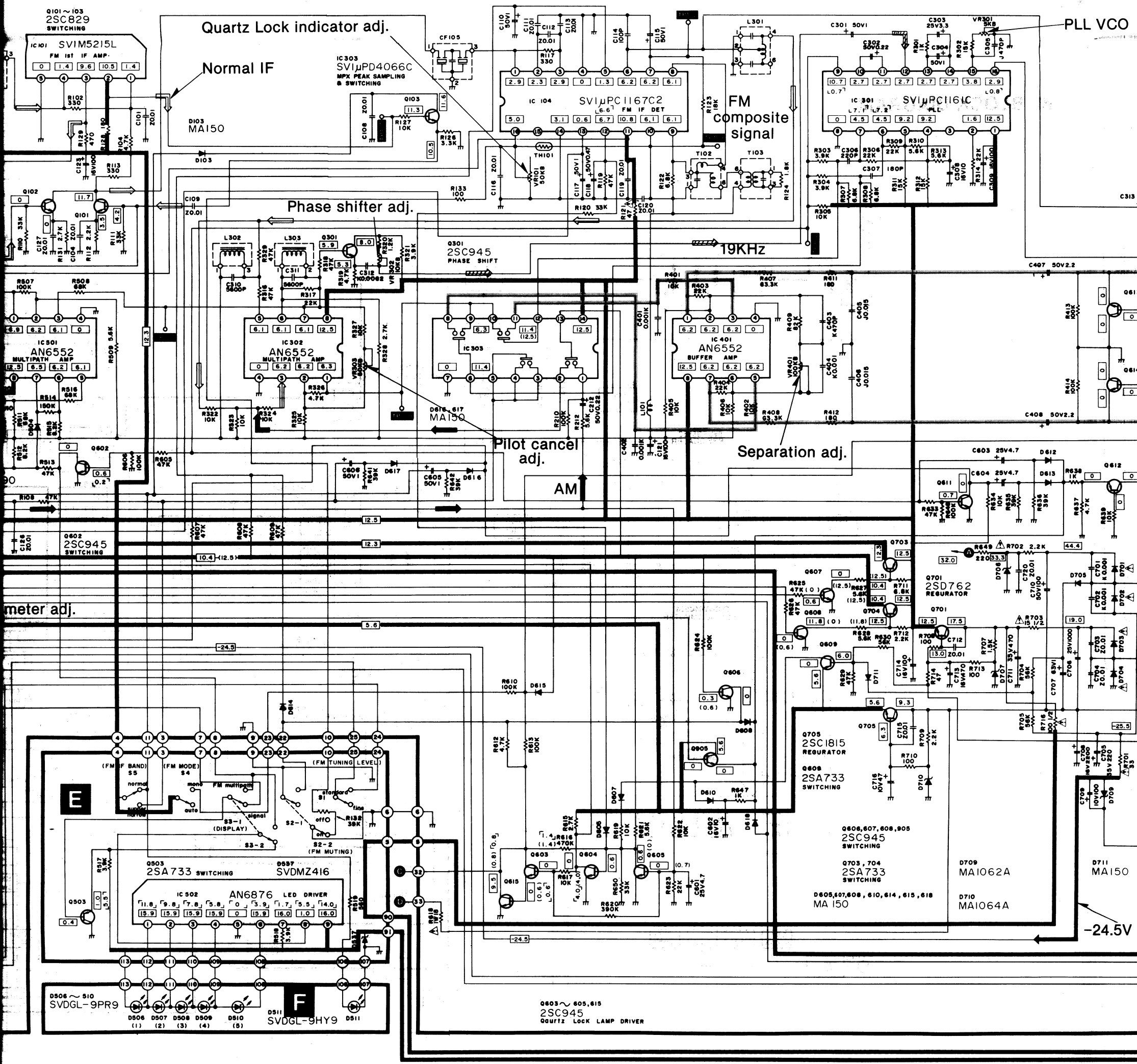
FM signal
 Audio frequency signal
 AM signal
 Positive voltage line

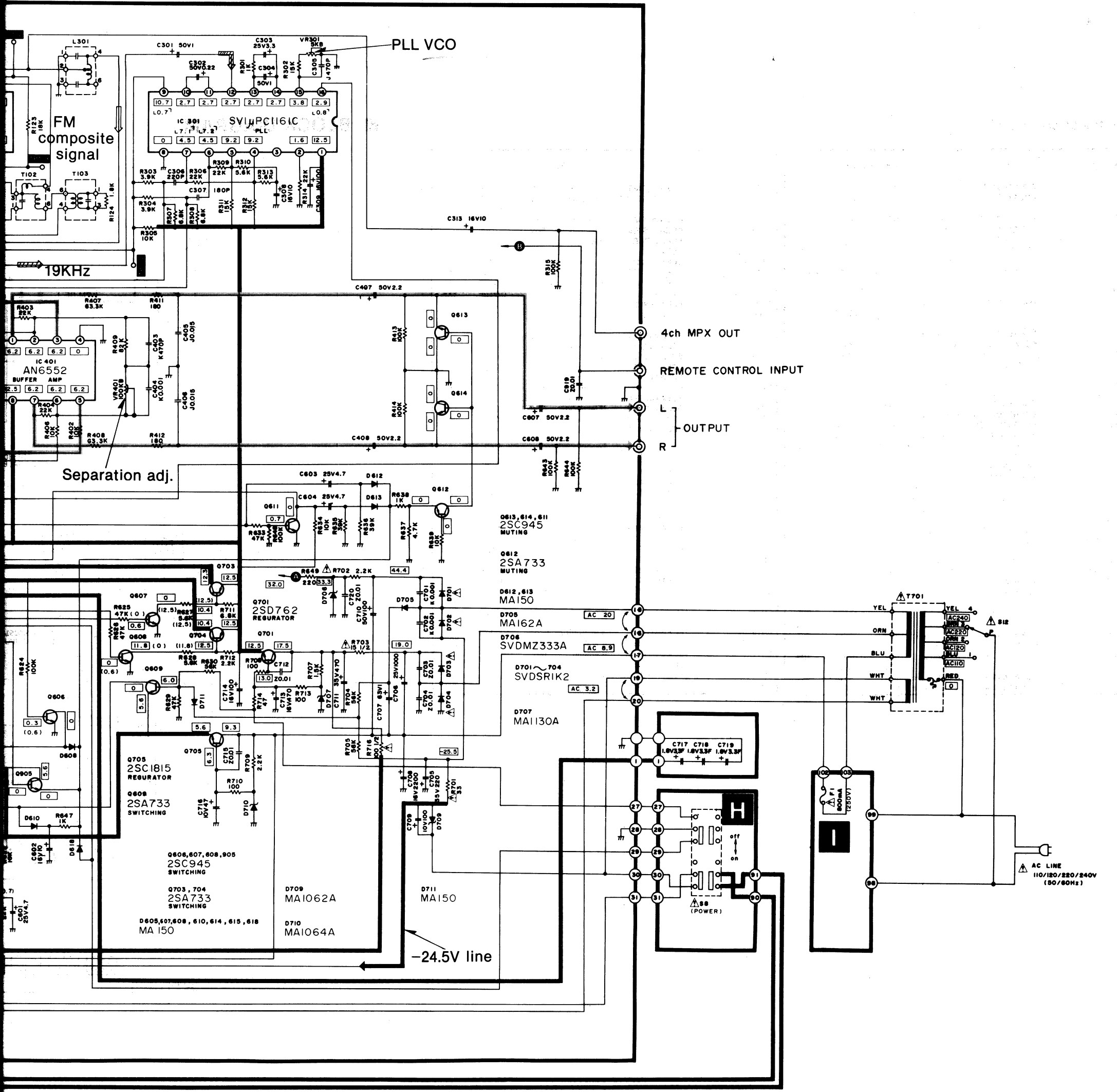
17. Important safety notice:

Components identified by mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

circuit tester (high-impedance)
 s, depending on the internal



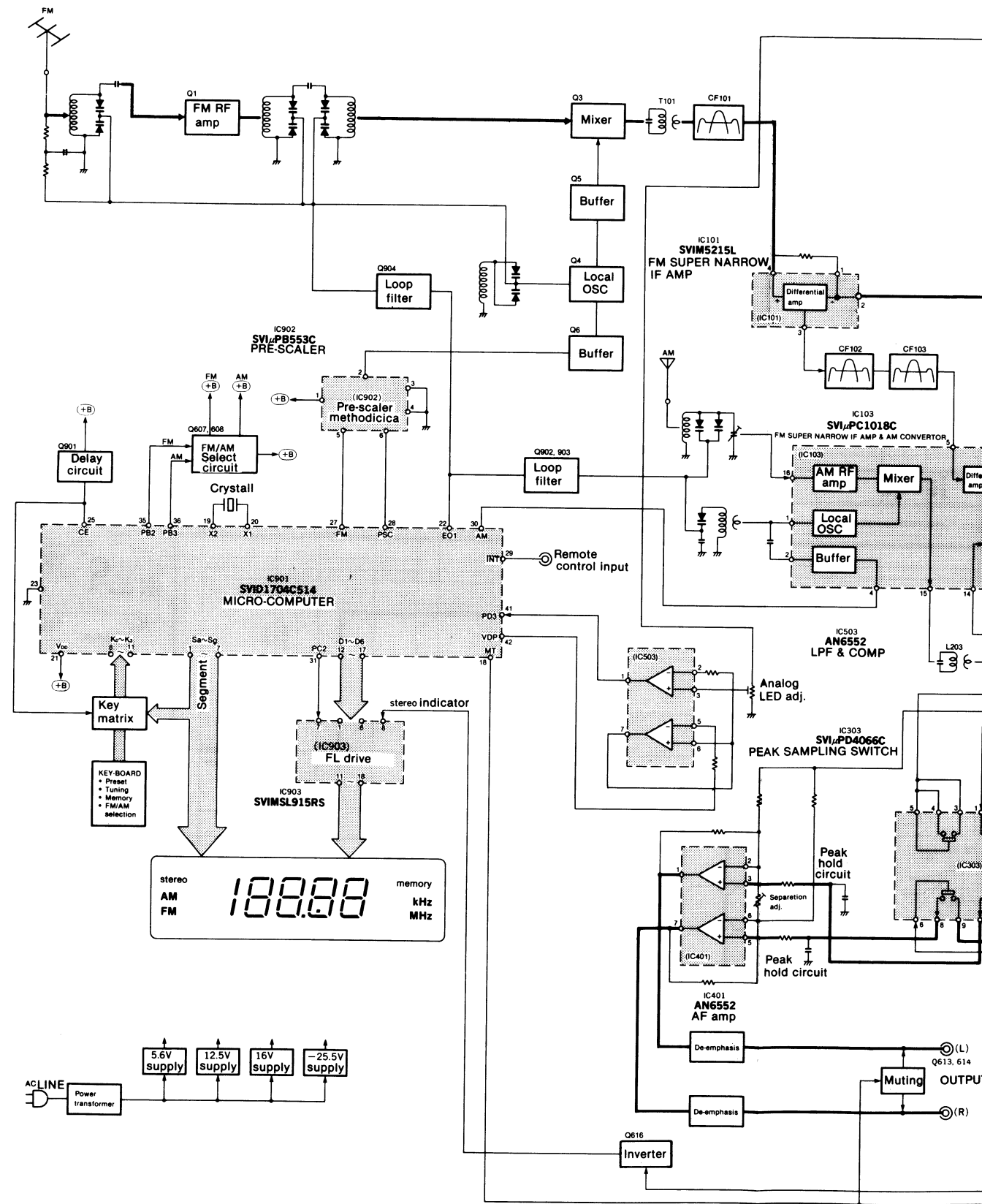


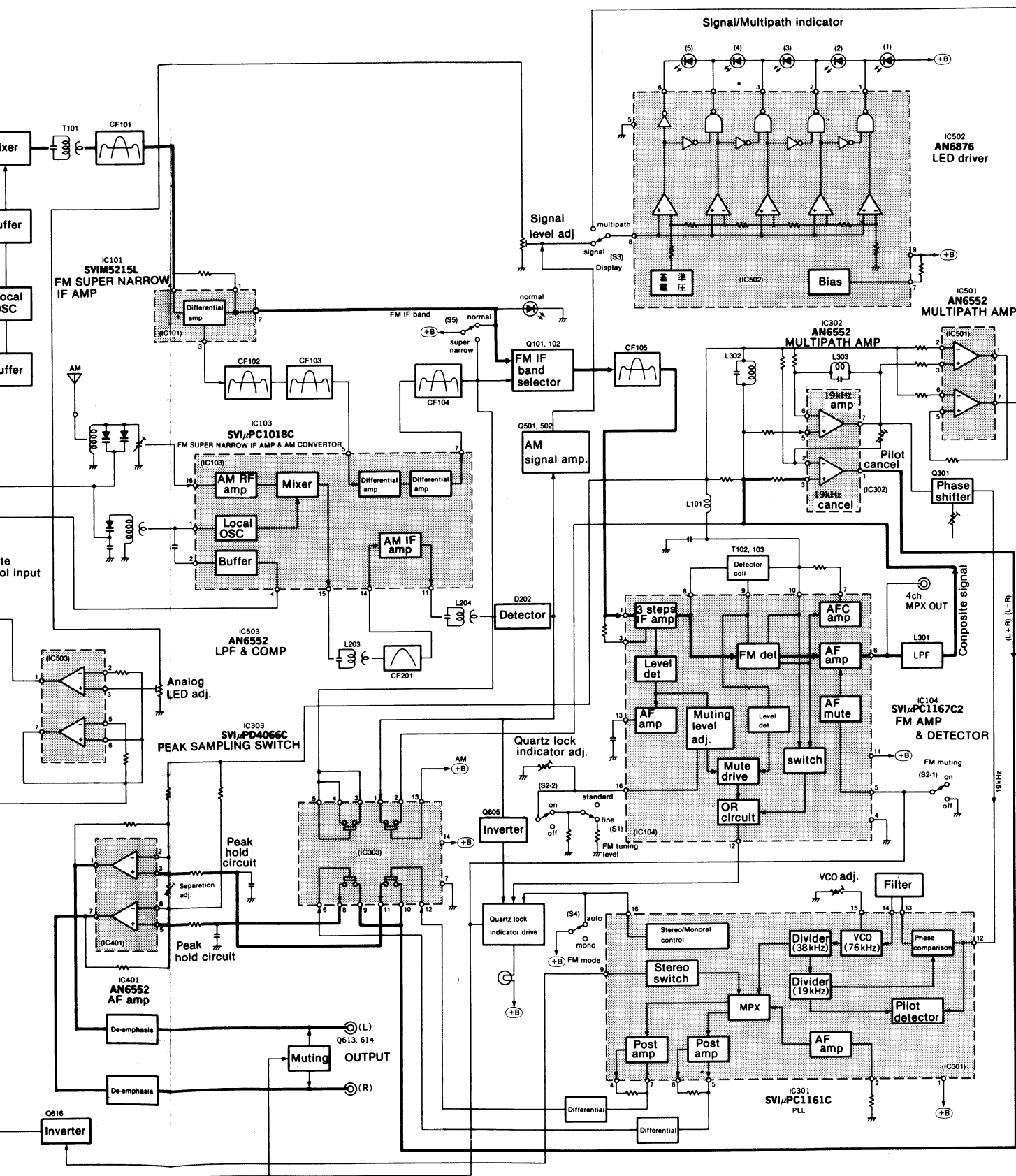


Ref. No.	Part No.	Part Name & Description
C121	ECEA1ES101	Electrolytic, 25V, 100μF
C123	ECEA1ES101	Electrolytic, 25V, 100μF
C124	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C125	ECEA50Z1	Electrolytic, 50V, 1μF
C126, 127	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C201	ECQM1H473KZ	Polyester, 50V, 0.047μF, ±10%
C203	ECCD1H180KC	Ceramic, 50V, 18pF, ±10%
C204	ECQP1471JZ	Polypropylene, 100V, 470pF, ±5%
C205	ECKD1H223ZF	Ceramic, 50V, 0.022μF, ±80%
C207	ECKD1H223ZF	Ceramic, 50V, 0.022μF, ±80%
C208, 209	ECEA1HS100	Electrolytic, 50V, 10μF
C210, 211	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C212	ECEA50ZR22	Electrolytic, 50V, 0.22μF
C214	ECEA1AS470	Electrolytic, 10V, 47μF
C215	ECCD1H150KC	Ceramic, 50V, 15pF, ±10%
C216	ECKD1H102ZF	Ceramic, 50V, 0.001μF, ±80%
C217	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C218, 219	ECKD1H223ZF	Ceramic, 50V, 0.022μF, ±80%
C301	ECEA50Z1	Electrolytic, 50V, 1μF
C302	ECEA50MR22R	Electrolytic, 50V, 0.22μF
C303	ECEA50M3R3R	Electrolytic, 50V, 3.3μF
C304	ECEA50M1R	Electrolytic, 50V, 1μF
C305	ECQP1471JZ	Polypropylene, 100V, 470pF, ±5%
C306, 307	ECCD1H181K	Ceramic, 50V, 180pF, ±10%
C308	ECEA1HS100	Electrolytic, 50V, 10μF
C309	ECEA1ES101	Electrolytic, 25V, 100μF
C310	ECQP1562JZ	Polypropylene, 100V, 5600pF, ±5%
C311	ECQS1562JZ	Polystyrene, 100V, 5600pF, ±5%
C312	ECQM1H822KZ	Polyester, 50V, 8200μF, ±10%
C313	ECEA1HS100	Electrolytic, 50V, 10μF
C401, 402	ECQM1H102KZ	Polyester, 50V, 0.001μF, ±10%
C403	ECKD1H471KB	Ceramic, 50V, 470pF, ±10%
C404	ECQM1H102KZ	Polyester, 50V, 0.001μF, ±10%
C405, 406	ECQM1H153JZ	Polyester, 50V, 0.015μF, ±5%
C407, 408	ECEA50ZR22	Electrolytic, 50V, 2.2μF
C501	ECEA25Z4R7	Electrolytic, 25V, 4.7μF
C502	ECKD1H223ZF	Ceramic, 50V, 0.022μF, ±80%
C504	ECKD1H391KB	Ceramic, 50V, 390pF, ±10%
C505	ECEA1HS100	Electrolytic, 50V, 10μF
C506	ECQM1H823KZ	Polyester, 50V, 0.082μF, ±10%
C507	ECQM1H223KZ	Polyester, 50V, 0.022μF, ±10%
C508	ECQM1H393KZ	Polyester, 50V, 0.039μF, ±10%
C509	ECEA1AS470	Electrolytic, 10V, 47μF
C510	ECEA1HS100	Electrolytic, 50V, 10μF

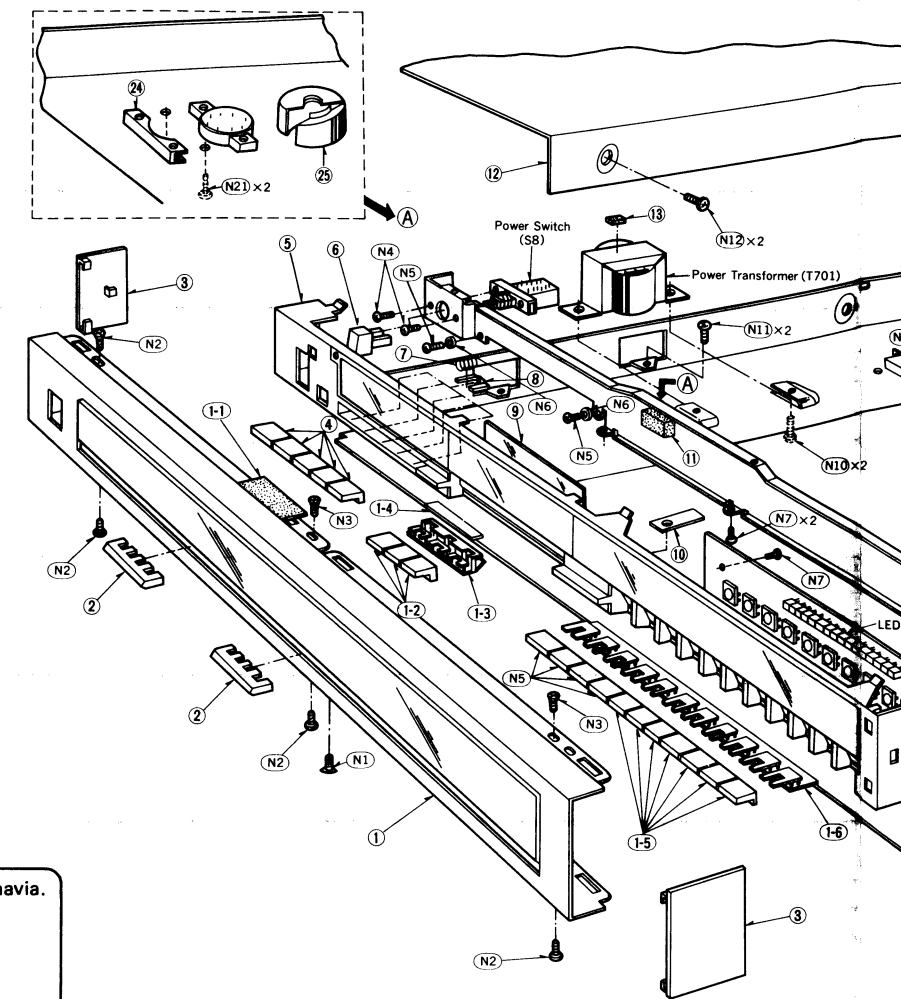
Ref. No.	Part No.	Part Name & Description
C511	ECEA25Z4R7	Electrolytic, 25V, 4.7μF
C512	ECQM1H273KZ	Polyester, 50V, 0.027μF, ±10%
C601	ECEA25Z4R7	Electrolytic, 25V, 4.7μF
C602	ECEA1HS100	Electrolytic, 50V, 10μF
C603, 604	ECEA25Z4R7	Electrolytic, 25V, 4.7μF
C605, 606	ECEA50Z1	Electrolytic, 50V, 1μF
C607, 608	ECEA50ZR22	Electrolytic, 50V, 2.2μF
C616	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C701, 702	ECKD2H102KB	Ceramic, 500V, 0.001μF, ±10%
C703, 704	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C705	ECEA1VS221	Electrolytic, 50V, 220μF
C706	ECEA1VS102	Electrolytic, 50V, 1000μF
C707	ECEA2AS010	Electrolytic, 100V, 1μF
C708	ECEA1CS222	Electrolytic, 16V, 2200μF
C709	ECEA1AS101	Electrolytic, 10V, 100μF
C710	ECEA1HS101	Electrolytic, 50V, 100μF
C711	ECEA1VS471	Electrolytic, 35V, 470μF
C712	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C713	ECEA1CS471	Electrolytic, 16V, 470μF
C714	ECEA1ES101	Electrolytic, 25V, 100μF
C715	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C716	ECEA1AS470	Electrolytic, 10V, 47μF
C717, 718	EECW1R8A3R3S	Gold-Capacitor, 1.8V, 3.3μF
C719	EECW1R8A3R3S	Gold-Capacitor, 1.8V, 3.3μF
C720	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C901	ECEA1AS470	Electrolytic, 10V, 47μF
C902	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C903	ECQM1H103KZ	Polyester, 50V, 0.01μF, ±10%
C904	ECEA50M4R7R	Electrolytic, 50V, 4.7μF
C905	ECQM1H473KZ	Polyester, 50V, 0.047μF, ±10%
C906	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C907	ECQM1H103KZ	Polyester, 50V, 0.01μF, ±10%
C908	ECEA1VS221	Electrolytic, 35V, 220μF
C910	ECEAQS471	Electrolytic, 6.3V, 470μF
C911	ECCD1H180KC	Ceramic, 50V, 18pF, ±10%
C912	ECCD1H070DC	Ceramic, 50V, 7pF, ±0.5pF
C913	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C914	ECEAQS102	Electrolytic, 6.3V, 1000μF
C915, 916	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C917	ECKD1H102ZF	Ceramic, 50V, 0.001μF, ±80%
C919, 920	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%
C921	ECQM1H153KZ	Polyester, 50V, 0.015μF, ±10%
C922	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±80%

■ BLOCK DIAGRAM





EXPLODED VIEW



Areas

- * [E] and [EX] are available in Switzerland and Scandinavia.
- * [EK] is available in United Kingdom.
- * [EG] is available in F.R. Germany.
- * [EF] is available in France.
- * [EH] is available in Holland.
- * [EB] is available in Belgium.
- * [EA] is available in Austria.

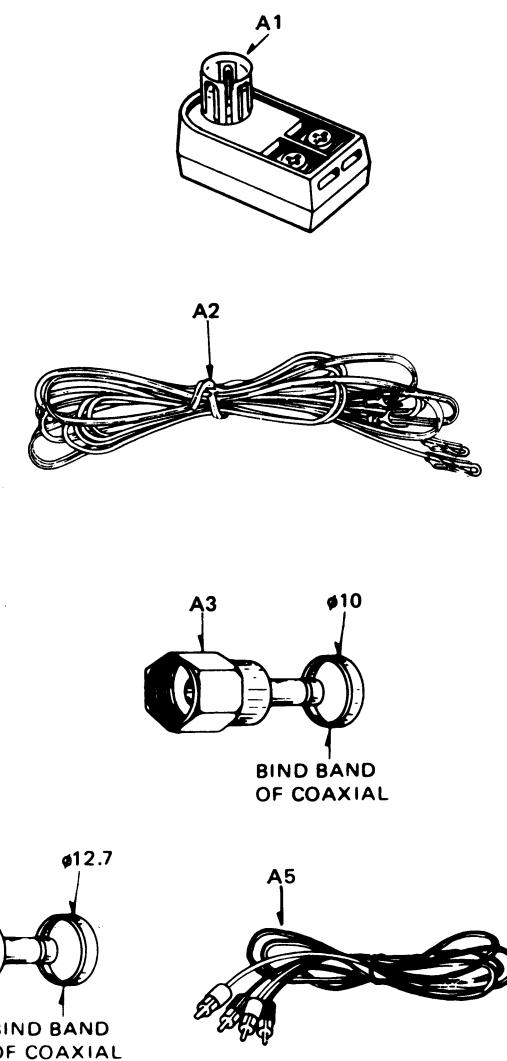
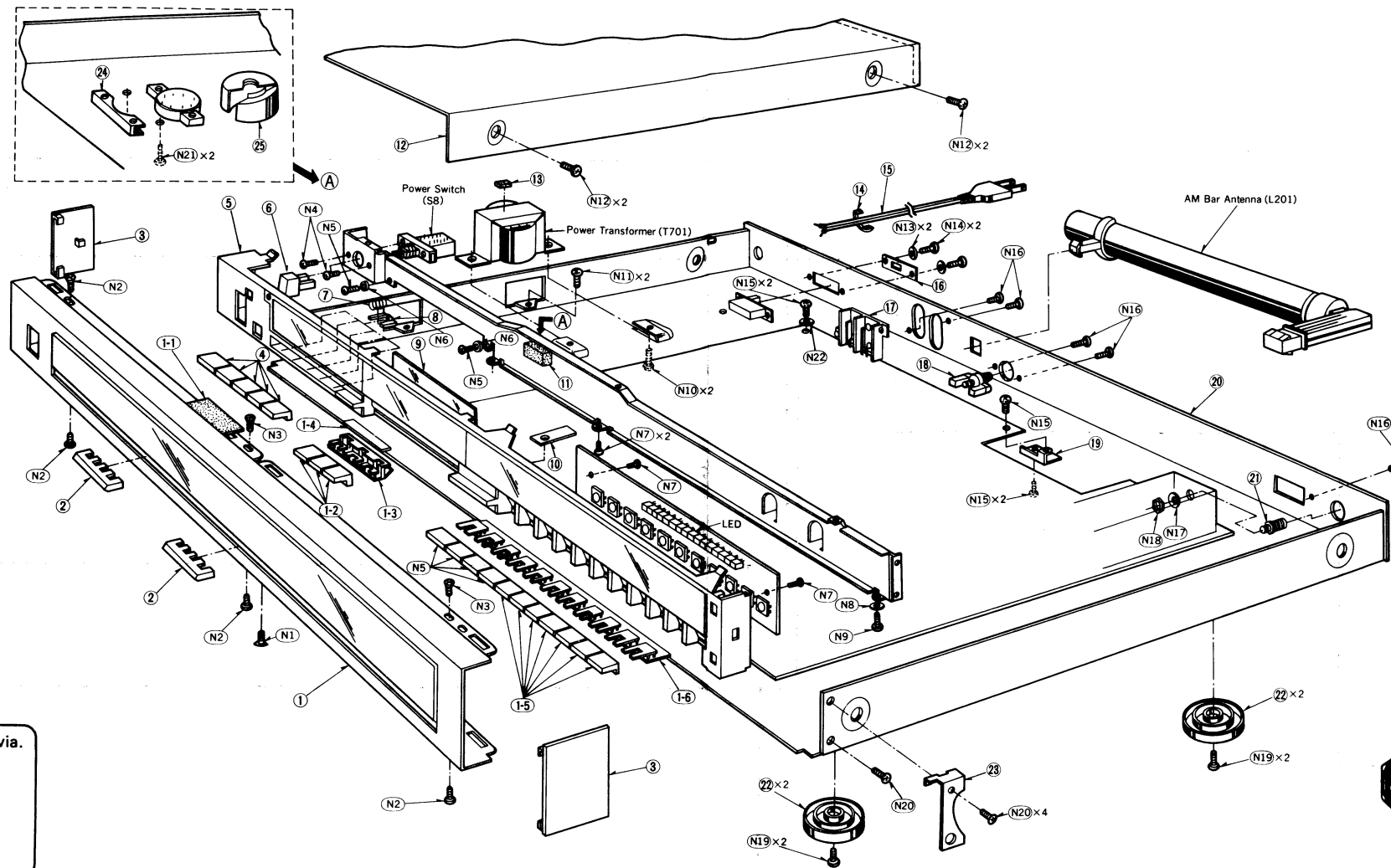
REPLACEMENT PARTS LIST ...Cabinet & Chassis Parts

- Notes:**
- Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
 - Important safety notice: Components identified by Δ make have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
 - \square -marked parts are used for black type only, while \circ -marked parts are for silver type only.
 - Parts other than \square and \circ -marked are used for both black and silver types. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Black type model No. : ST-S6(K)

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
CABINET and CHASSIS PARTS					
1	\circ SGWTS6E	Front Panel Ass'y	5	\circ SGXTS6E	Front Sub Panel Ass'y
1	\square SGWTS6KE	Front Panel Ass'y (Black)	5	\square SGXTS6KE	Front Sub Panel Ass'y (Black)
1-1	SHG6063-1	Spacer, Front Panel Ass'y	6	SBC337	Button, Power Source Switch
1-2	SBC343	Button, Tuning and Memory	7	SUS231-1	Spring, Button
1-3	SHR9541	Holder, Button	8	SBZ601	Holder, Button
1-4	SHS3229-2	Spacer, Holder	9	SHR5113	Filter, FL
1-5	SBC341	Button, FM/AM Preset Tuning, Selector	10	SUW1821	Bracket, Front Sub Panel Ass'y
1-6	SHR9543	Holder, Button	11	SHG657	Rubber, FL
2	SGX7007	Ornament Button	12	\circ SKCTS6E	Cabinet Cover
3	\circ SGX7003-1	Ornament, Left and Right Side	12	\square SKCTS6KE	Cabinet Cover (Black)
3	\square SGX7003	Ornament, Left and Right Side (Black)	13	SHG647	Rubber, Power Transformer
4	SBC341	Button, FM IF Band, Mode, Display Muting, Frequency Shift	14	SHR127	Bushing, AC Cord
			14 [EK] only	SHR129	Bushing, AC Cord
			15	SJA88	AC Cord
			15 [EK] only	QFC1205M	AC Cord

■ EXPLODED VIEW



- Areas**
- * [E] and [EX] are available in Switzerland and Scandinavia.
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■ REPLACEMENT PARTS LIST
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Black type model No. : ST-S6(K)

Ref. No.	Part No.	Part Name & Description
CABINET and CHASSIS PARTS		
1	\circ SGWTS6E	Front Panel Ass'y
1	\square SGWTS6KE	Front Panel Ass'y (Black)
1-1	SHG6063-1	Spacer, Front Panel Ass'y
1-2	SBC343	Button, Tuning and Memory
1-3	SHR9541	Holder, Button
1-4	SHS3229-2	Spacer, Holder
1-5	SBC341	Button, FM/AM Preset Tuning, Selector
1-6	SHR9543	Holder, Button
2	SGX7007	Ornament Button
3	\circ SGX7003-1	Ornament, Left and Right Side
3	\square SGX7003	Ornament, Left and Right Side (Black)
4	SBC341	Button, FM IF Band, Mode, Display Muting, Frequency Shift

Ref. No.	Part No.	Part Name & Description
5	\circ SGXTS6E	Front Sub Panel Ass'y
5	\square SGXTS6KE	Front Sub Panel Ass'y (Black)
6	SBC337	Button, Power Source Switch
7	SUS231-1	Spring, Button
8	SBZ601	Holder, Button
9	SHR5113	Filter, FL
10	SUW1821	Bracket, Front Sub Panel Ass'y
11	SHG657	Rubber, FL
12	\circ SKCTS6E	Cabinet Cover
12	\square SKCTS6KE	Cabinet Cover (Black)
13	SHG647	Rubber, Power Transformer
14	SHR127	Bushing, AC Cord
14 [EK] only	SHR129	Bushing, AC Cord
15	Δ SJA88	AC Cord
15 [EK] only	QFC1205M	AC Cord

Ref. No.	Part No.	Part Name & Description
16	SHR5073-1	Cover, Allocation Switch
17	SJF3431-3N	Terminal Board, Output
18	SJF4103	Terminal Board, Antenna
19	SUW1641-1	Bracket, PCB
20	SGPTS6E	Rear Panel Ass'y
20 [EK, EG, EF, EB, EH] only	SGPTS6E1	Rear Panel Ass'y
21	SJSA67-1	Socket
22	SKL227	Foot
23	SUW1815	Bracket, Front Panel Ass'y
24	SMN1635	Bracket, Voltage Adjustor Switch
25	SUV473	Cover, Voltage Adjustor Switch
SCREWS, WASHERS and NUT		
N1	\circ XSS3+8BNS	Screw, \oplus 3 x 8
N1	\square XSS3+8BVS	Screw, \oplus 3 x 8 (Black)
N2	XTB3+8BFZ	Screw, Tapping \oplus 3 x 8
N3	XTS3+8BFZ	Screw, Tapping \oplus 3 x 8
N4	XSS3+6S	Screw, \oplus 3 x 6
N5	XSN3+6S	Screw, \oplus 3 x 6
N6	XWA3B	Washer, Spring ϕ 3
N7	XTB3+8BFZ	Screw, Tapping \oplus 3 x 8
N8	XSN3+8BNS	Screw, \oplus 3 x 8
N9	XWA3BFN	Washer, Spring ϕ 3
N10	XTB3+10BFZ	Screw, Tapping \oplus 3 x 10
N11	XTB3+8BFZ	Screw, Tapping \oplus 3 x 8

Ref. No.	Part No.	Part Name & Description
N12	\circ XTB4+8BFN	Screw, Tapping \oplus 4 x 8
N12	\square XTB4+8BFZ	Screw, Tapping \oplus 4 x 8 (Black)
N13	XSN3+5BVS	Screw, \oplus 3 x 5
N14	XWA3BFZ	Washer, Spring ϕ 3
N15	XTB3+8BFZ	Screw, Tapping \oplus 3 x 6
N16	XTBS3+8BFZ1	Screw, Tapping with Detent \oplus 3 x 8
N17	XWC9B	Washer, External Toothed Lock ϕ 9
N18	XNG9E	Nut, ϕ 9
N19	XTB3+10BFZ	Screw, Tapping \oplus 3 x 10
N20	XTS3+8BFZ	Screw, Tapping \oplus 3 x 8
N21	XTB3+16BFZ	Screw, Tapping \oplus 3 x 16
N22	XWC3B	Washer, External Toothed Lock ϕ 3
ACCESSORIES		
A1	TJB525102	Plug, 300-ohm \rightarrow 75-ohm Impedance Conversion
A2	SSA267	Cord, FM Feeder Antenna
A3	SJSA68-1	Plug, F-Type/Ring (Large)
A4	SJSA74	Plug, Coaxial (W/Bind Band) for "5C-2V"
A5	SJP2129-5	Cord, Stereo Pin-Type Connection
A6	SQF10759	Instructions Book, Printed Matter
PACKING PARTS		
P1	SPP647	Polyethylene Bag
P2	SPS3029	Pad, Front
P3	SPS3031-4	Pad, Rear
P4	\circ SPG3053	Carton Box
P4 [EF] only	\circ SPG3069	Carton Box
P4	\square SPG3059	Carton Box