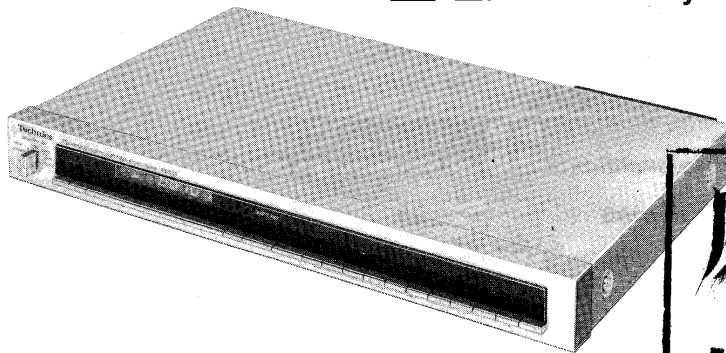


Service Manual

QUARTZ Synthesizer FM/AM Stereo Tuner

ST-S4T



[DX], [EG], [EF], [EH]
[EB], [DM], [EK], [EW]
[XA]

原本 ST-S4T (K)

持出嚴禁 [DX], [EG], [EF]
[EK], [EW], [XA]

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

Areas

* [DX] is available in Scandinavia except European and Denmark.
* [EG] is available in F.R. Germany.
* [EF] is available in France.
* [EH] is available in Holland.
* [EB] is available in Belgium.

* [DM] is available in Denmark.
* [EK] is available in United Kingdom.
* [EW] is available in Switzerland.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.

English

Specifications

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

(DIN 45 500)

■ FM TUNER SECTION

Frequency range	87.9~107.9 MHz (0.2 MHz step) 87.50~108.00 MHz (0.05 MHz step)
Sensitivity	2.0 μ V (IHF, usable)
S/N 30 dB	2.0 μ V (300 Ω), 1.0 μ V (75 Ω)
S/N 26 dB	1.8 μ V (300 Ω), 0.9 μ V (75 Ω)
S/N 20 dB	1.6 μ V (300 Ω), 0.8 μ V (75 Ω)
IHF 46 dB stereo quieting sensitivity	24.5 μ V/75 Ω
Total harmonic distortion	
MONO (normal)	0.08%
STEREO (normal)	0.1%
S/N	
MONO	70 dB (78 dB, IHF)
STEREO	65 dB (73 dB, IHF)
Frequency response	20 Hz~15 kHz, +0.5 dB~-1.5 dB
Alternate channel selectivity	
normal \pm 400 kHz	60 dB
super narrow \pm 200 kHz	22 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	70 dB
IF rejection at 98 MHz	90 dB
Spurious response rejection at 98 MHz	90 dB
AM suppression	55 dB
Stereo separation	
1 kHz	50 dB
10 kHz	40 dB
Carrier leak	
19 kHz	-30 dB (-35 dB, IHF)
38 kHz	-45 dB (-50 dB, IHF)

Channel balance (250 Hz~6,300 Hz)	\pm 1.0 dB
Limiting point	1.9 μ V
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminals	300 Ω (balanced) 75 Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	522 kHz~1611 kHz (9 kHz step) 530 kHz~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	45 dB
IF rejection at 999 kHz	40 dB

■ TIMER SECTION

Clock	Quartz-lock type 24-hour indication
Precision	Within \pm 10 sec. monthly (at 25°C)
Functions	24-hour programmable; everyday (2 times), once only (1 time)
Programmable content	On/off of program source (FM, AM)
Setting intervals	Designation of preset station 1 minute~23 hours, 59 minutes (at 1-min. intervals)

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Priority order
Memory "back-up"

Once, everyday 2, everyday 1
About 2 months (without AC power)

(3 "AA" size batteries, Panasonic UM-3 or equivalent)

Power consumption 8W

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.)

■ GENERAL

Output voltage
Batteries

0.3V (0.6V, IHF)
DC 4.5V

Deutsch

TECHNISCHE DATEN

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

(DIN 45 500)

■ UKW-TUNERTEIL

Wellenbereich 87,9 ~ 107,9 MHz (0,2 MHz step)

87,50 ~ 108,00 MHz (0,05 MHz step)

Eingangsempfindlichkeit 1,0 μ V (nutzbar nach IHF)

(Nur für Deutschland bestimmt)

2,0 μ V (nutzbar nach IHF)

(Für andere Länder)

S/R 30 dB 1,0 μ V (75 Ω)

(Nur für Deutschland bestimmt)

S/R 26 dB 0,9 μ V (75 Ω)

(Nur für Deutschland bestimmt)

S/R 20 dB 0,8 μ V (75 Ω)

(Nur für Deutschland bestimmt)

S/R 30 dB 2,0 μ V (300 Ω), 1,0 μ V (75 Ω)

(Für andere Länder)

S/R 26 dB 1,8 μ V (300 Ω), 0,9 μ V (75 Ω)

(Für andere Länder)

S/R 20 dB 1,6 μ V (300 Ω), 0,8 μ V (75 Ω)

(Für andere Länder)

Stereumschaltsschwelle bei 46 dB nach IHF 24,5 μ V/75 Ω

Gesamtklirrfaktor

Mono (normal) 0,08%

Stereo (normal) 0,1%

Geräuschabstand

Mono 70 dB (78 dB nach IHF)

Stereo 65 dB (73 dB nach IHF)

Frequenzgang 20 Hz ~ 15 kHz (+0,5 dB ~ -1,5 dB)

Trennschärfe bei Störsender

normal \pm 400 kHz 60 dB

super narrow \pm 200 kHz 22 dB

Einfangverhältnis 1,0 dB

Spiegelfrequenz-Dämpfung bei 98 MHz 70 dB

ZF-Dämpfung bei 98 MHz 90 dB

Ansprechdämpfung auf Nebenfrequenzen bei 98 MHz 90 dB

AM-Unterdrückung 55 dB

Übersprechdämpfung

1 kHz 50 dB

10 kHz 40 dB

Trägerrest

19 kHz -30 dB (-35 dB nach IHF)

38 kHz -45 dB (-50 dB nach IHF)

Kanalabweichung (250 Hz ~ 6300 Hz) \pm 1,0 dB

Begrenzereinsatz 1,9 μ V

Bandbreite

ZF-Verstärker 180 kHz

UKW-Demodulator 1000 kHz

Antennenanschluß

75 Ω (unsymmetrisch) (Nur für Deutschland bestimmt)

300 Ω (symmetrisch) (Für andere Länder)

75 Ω (unsymmetrisch) (Für andere Länder)

■ AM-TUNERTEIL

Wellenbereiche 522 kHz ~ 1611 kHz (9 kHz step)

530 kHz ~ 1620 kHz (10 kHz step)

Eingangsempfindlichkeit (S/R 20 dB) 30 μ V, 250 μ V/m

Trennschärfe (\pm 9 kHz) 55 dB

Spiegelfrequenz-Dämpfung bei 999 kHz 45 dB

ZF-Dämpfung bei 999 kHz 40 dB

■ TIMER

Uhr Quarzuhr mit 24-Stunden-Anzeige

max. 10 Sek./Monat (bei 25°C)

Genauigkeit

Funktionen 24-Stunden-Programmierung

für täglichen (2-fach)

und einmaligen Betrieb (einfach)

Programmierung Ein- und Ausschalten der Tonquelle

[FM (UKW), AM (MW)] Wahl des zu empfangenden Senders

Einschaltdauer 1 Min. bis 23 Stdn. 59 Min.

(in 1-Minuten-Intervallen)

Prioritätenfolge "once", "everyday 2", "everyday 1"

Sicherung der im Speicher enthaltenen Informationen etwa 2 Monate

(ohne Netzstromversorgung)

■ ALLGEMEINE DATEN

Ausgangsspannung 0,3 V (0,6 V, IHF)

Batterien 4,5 V

(3 Batterien der Größe AA; Panasonic UM-3 o.ä.)

Leistungsaufnahme 8W

Netzspannung

Wechselstrom 50 Hz/60 Hz, 110V/120V/220V/240V

Abmessungen (B×H×T) 430 × 53 × 300 mm

Gewicht 3,3 kg

Français

CARACTERISTIQUES

(Sujet à changement sans préavis.)

(DIN 45 500)

■ SECTION SYNTONISATEUR FM

Gamme de fréquence 87,9~107,9 MHz (0,2 MHz step)

87,50~108,00 MHz (0,05 MHz step)

Sensibilité 2,0 μ V (IHF utilisable)

S/B 30 dB 2,0 μ V (300 Ω), 1,0 μ V (75 Ω)

S/B 26 dB 1,8 μ V (300 Ω), 0,9 μ V (75 Ω)

S/B 20 dB 1,6 μ V (300 Ω), 0,8 μ V (75 Ω)

Sensibilité stéréo au seuil de 46 dB, IHF 24,5 μ V/75 Ω

Distorsion harmonique totale

MONO (normal) 0,08%

STEREO (normal) 0,1%

Signal/Bruit

MONO 70 dB (78 dB, IHF)

STEREO 65 dB (73 dB, IHF)

Réponse de fréquence	20 Hz~15 kHz, +0,5 dB~ -1,5 dB
Sélectivité alternée par canal	
normal ±400 kHz	60 dB
super narrow ±200 kHz	22 dB
Taux de capture	1,0 dB
Rejection d'image à 98 MHz	70 dB
Rejection FI à 98 MHz	90 dB
Rejection de réponse parasite à 98 MHz	90 dB
Suppression AM	55 dB
Séparation stéréophonique	
1 kHz	50 dB
10 kHz	40 dB
Fuite de porteuse	
19 kHz	-30 dB (-35 dB, IHF)
38 kHz	-45 dB (-50 dB, IHF)
Équilibrage de canaux (250 Hz~6,300 Hz)	±1,0 dB
Point de limite	1,9 μ V
Largeur de bande	
Amplificateur FI	180 kHz
Démodulateur FM	1000 kHz
Bornes d'antenne	300 Ω (symétrique) 75 Ω (asymétrique)

SECTION SYNTONISATEUR AM

Gamme de fréquence	522 kHz~1611 kHz (9 kHz step) 530 kHz~1620 kHz (10 kHz step)
Sensibilité (S/B 20 dB)	30 μ V, 250 μ V/m
Sélectivité (\pm9 kHz)	55 dB
Réjection d'image à 999 kHz	45 dB
Réjection FI à 999 kHz	40 dB

PROGRAMMATEUR

Horloge	Du type verrouillage à quartz
Précision	Affichage basé sur le système des 24 heures Marge de 0 à +10 secondes, mensuellement (à 25°C)
Fonctions	Programmations possibles sur 24 heures: tous les jours (deux fois), une fois seulement (une fois)
Éléments de programmation	Programmation de sources sonores (marche/arrêt) (FM, AM)
Intervalles de réglage	De 1 minute à 23 heures, 59 minutes (par intervalles de 1 minute)
Ordre de priorité	"once" (une fois), "everyday 2" (tous les jours 2), "everyday 1" (tous les jours 1)
Durée des fonctions de mémoire	Environ 2 mois (sans alimentation C.A.)

DIVERS

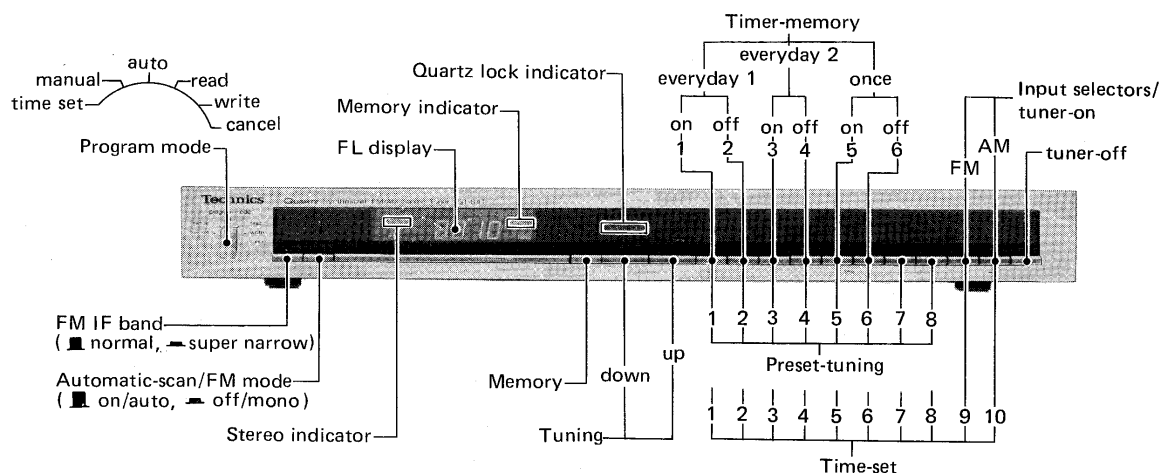
Tension de sortie	0,3 V (0,6 V, IHF)
Piles	4,5V c.c. (3 pile de type "AA", Panasonic UM-3 ou équivalent)
Consommation	8W
Alimentation	CA 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (L×H×Pr)	430 × 53 × 300 mm
Poids	3,3 kg

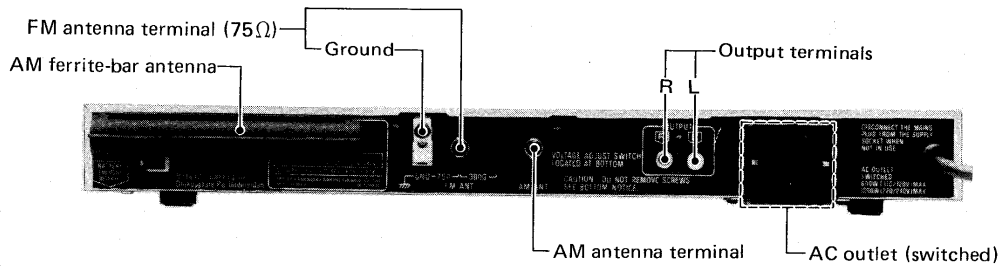
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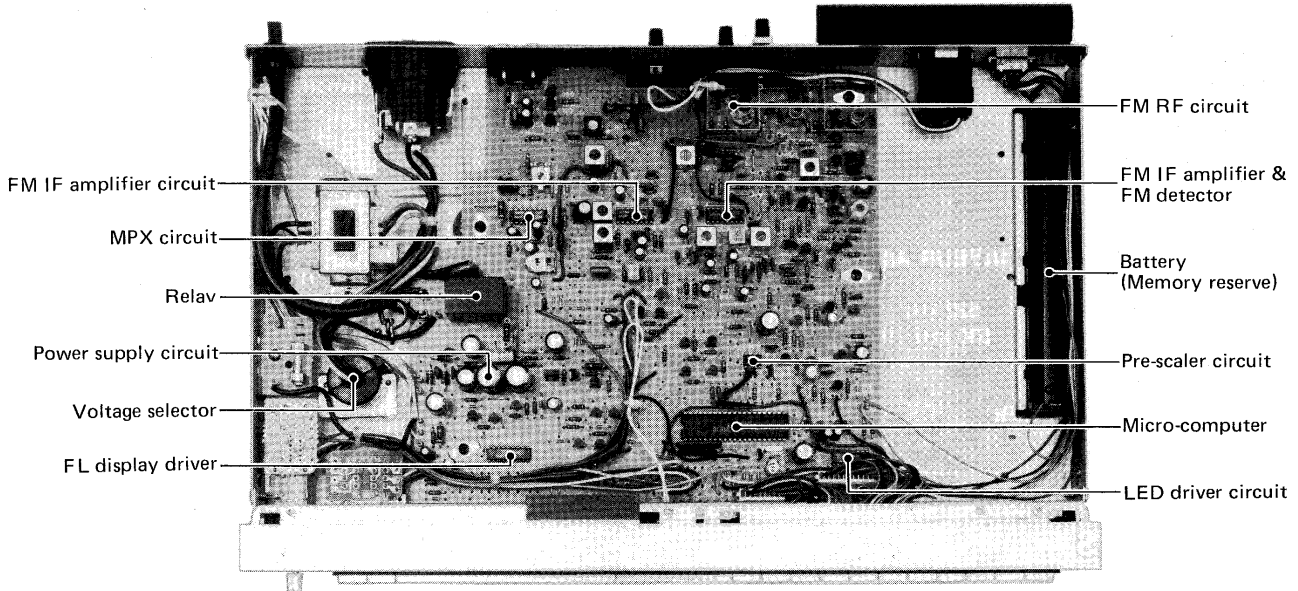
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LOCATION OF CONTROLS





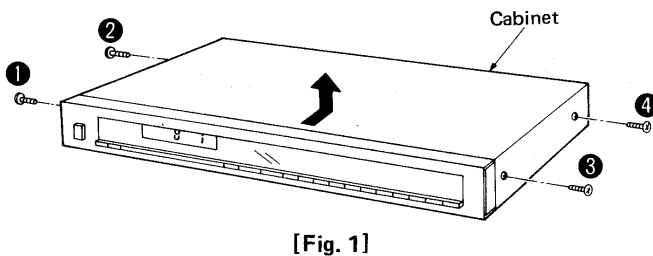
• Voltage selector switch located at bottom.



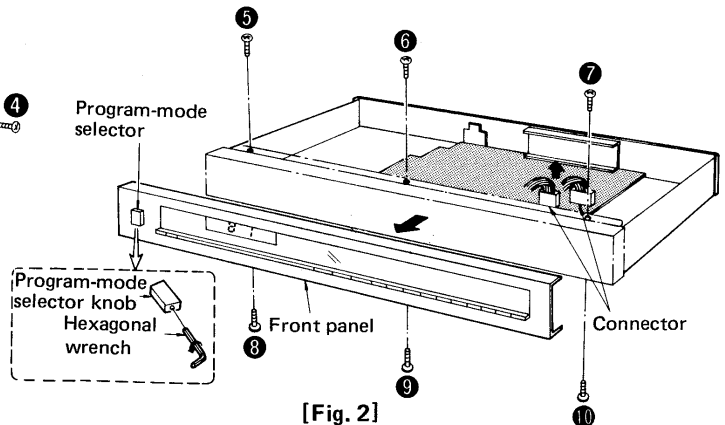
■ DISASSEMBLY INSTRUCTIONS

• How to check the printed circuit board

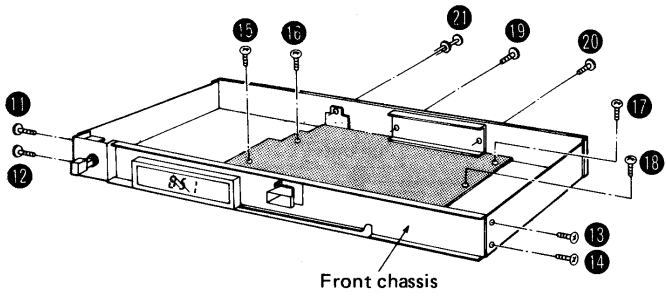
1. Remove the 4 setscrews (Fig. 1 : ① ~ ④) on the side of the cabinet.
2. Remove the 2 connector. (Refer to Fig. 2)
3. Remove the program-mode selector knob use a 3-mm hexagonal wrench since the knobs are secured with 3-mm bolts. (Refer to Fig. 2)
4. Remove the 6 setscrews (Fig. 2 : ⑤ ~ ⑩) of the front panel.
5. Remove the front panel.
6. Remove the 4 setscrews (Fig. 3 : ⑪ ~ ⑭) on the side of the chassis.
7. Remove the 4 setscrews (Fig. 3 : ⑮ ~ ⑰) of the printed circuit board.
8. Remove the 3 setscrews (Fig. 3 : ⑱ ~ ㉑) of the antenna and output terminal plate.
9. Remove the front chassis with printed circuit board. (Refer to Fig. 4)



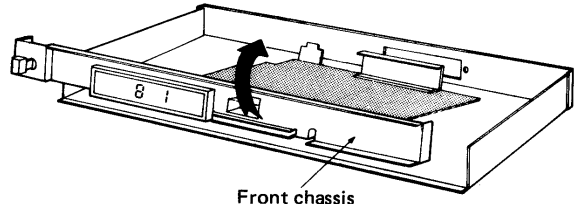
[Fig. 1]



[Fig. 2]



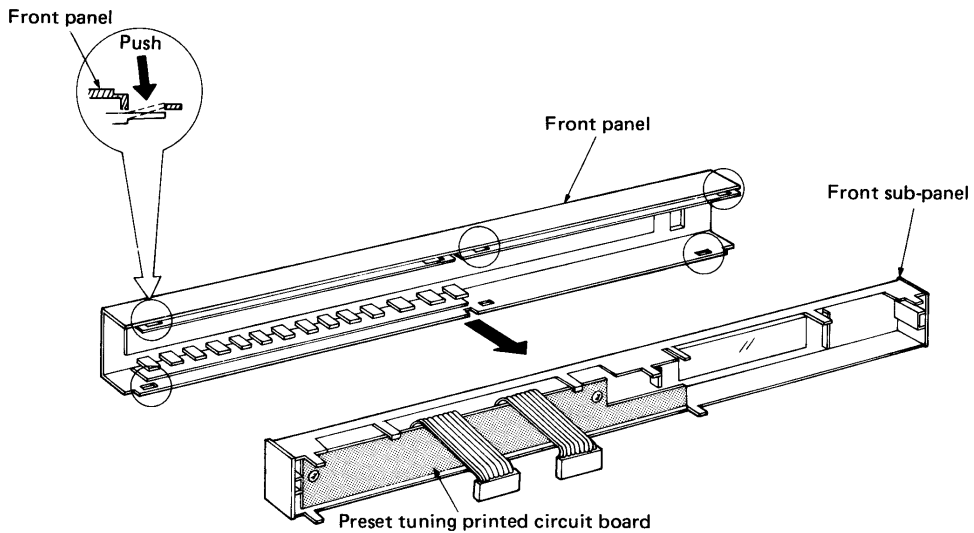
[Fig. 3]



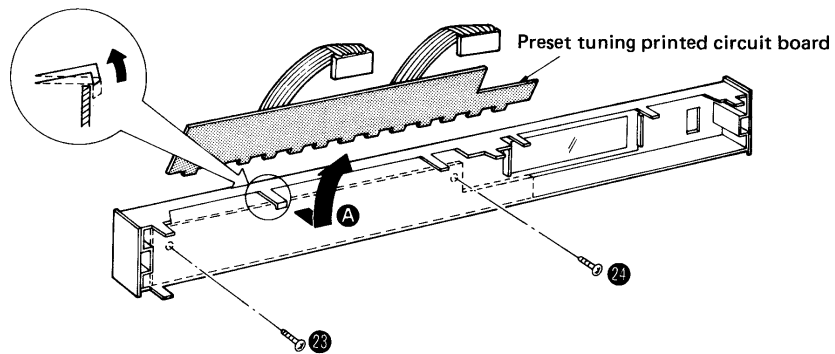
[Fig. 4]

● **How to remove the preset tuning printed circuit board.**

1. Remove the cabinet and front panel (Refer to the procedures 1 to 5 of "How to check" for printed circuit board.)
2. 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. (Refer to Fig. 5)
3. Remove the 2 setscrews (Fig. 6 : 23 , 24) of the preset tuning circuit board.
4. The claws projected (at 2 portions) from the front sub-panel.
5. Move the preset tuning printed circuit board in the direction of arrow **A** in Fig. 6.

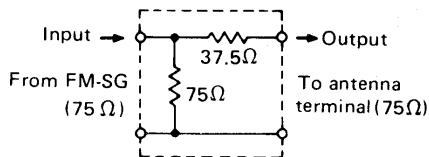
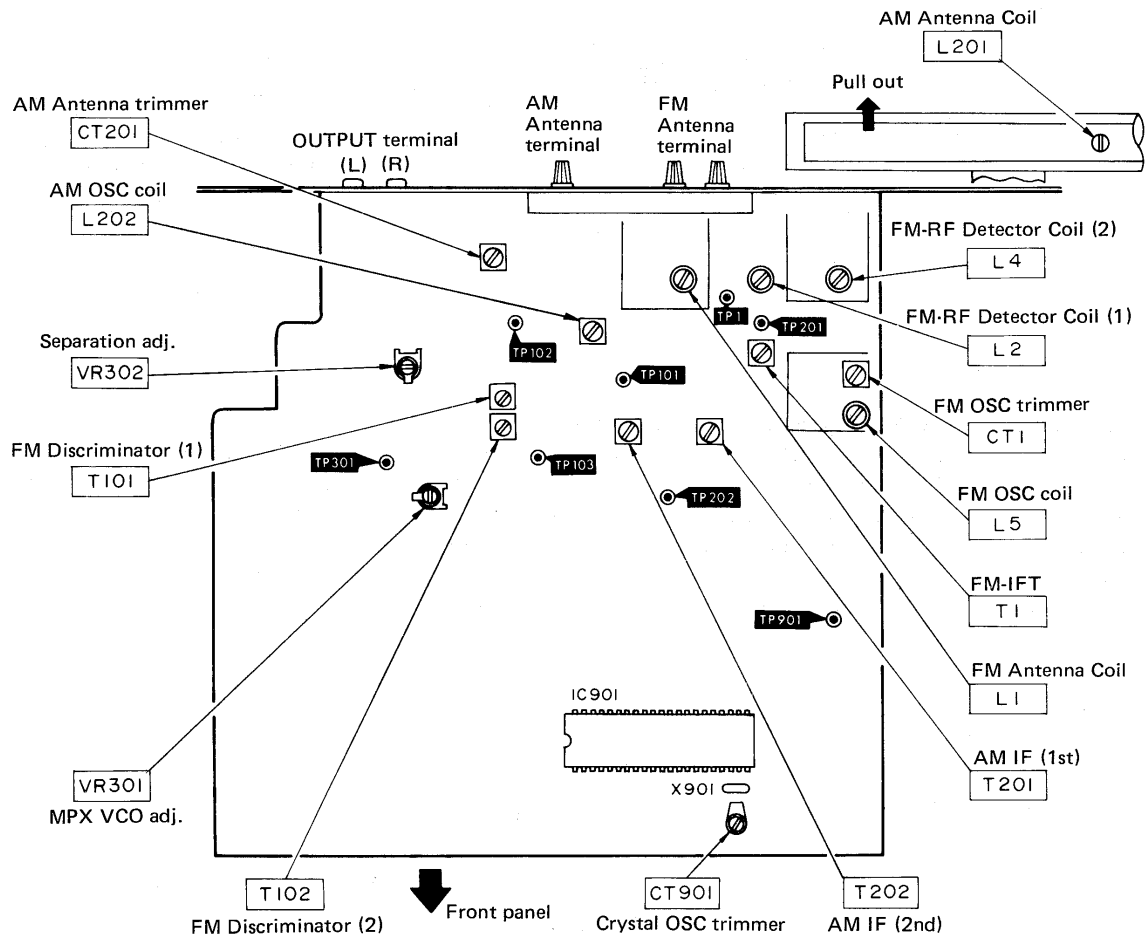


[Fig. 5]



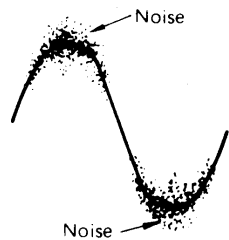
[Fig. 6]

MEASUREMENTS AND ADJUSTMENTS



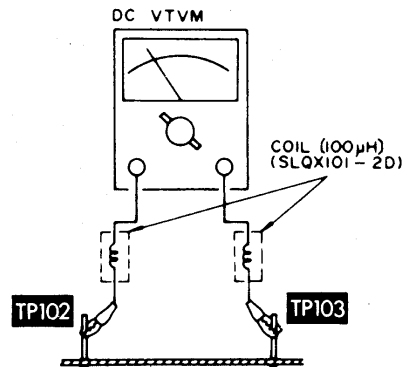
(75Ω FM dummy antenna)

[Fig. 7]
(Abb. 7)

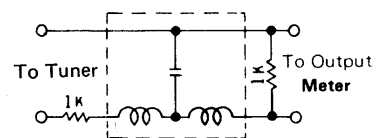


AF output wave form

[Fig. 9]
(Abb. 9)



[Fig. 8]
(Abb. 8)



Low Pass Filter
($f_c = 15\text{kHz} \sim 19\text{kHz}$)

[Fig. 10]
(Abb. 10)

- Set FM/AM allocation selector to "FM 0.05 MHz/AM 9 kHz steps" position.

AM TUNER ADJUSTMENT

Setting and Equipment used					
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. Pull the AM ferrite-bar antenna (L201) outward. 6. Use a non-metal screwdriver for the adjustment. 7. Set broadcast selector to "AM" position. 8. Program-mode selector switch to "manual" 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.	T201 (1st IFT) T202 (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

Equipment used					
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. 7).			Preparation of FM signal generator (FM-SG) 1. Connect stereo modulator to FM-SG. 2. Apply SG output to antenna terminal of the set through 300Ω 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).		
Setting					
1. Set IF band selector to "normal" position 2. Set broadcast selector to "FM" position			3. Auto scan/FM mode switch to "off/FM mono" position. 4. Program-mode selector switch to "manual" position.		
FM SIGNAL GENERATOR		DISPLAY FREQUENCY	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
CONNECTION	FREQUENCY				
Step No.	CRYSTAL OSC ADJUSTMENT				
5	No-Signal	87.5 MHz	Connect DC VTVM to TP4 terminal.	L5 (OSC coil)	Adjust L5 to 3V.
6			<ul style="list-style-type: none"> • Connect frequency counter to TP901 terminal. • Check the color marking of ceramic filter (CF101 ~ 104). (All 4 filters are of same color.) 	CT901 (Crystal OSC Trimmer)	When blue-marked ceramic filter is used, adjust the output frequency from TP901 to 98.1752 MHz. Also, adjust the frequency to 98.2252MHz in orange-marked, and to 98.2002 MHz in red-marked.

Step No.	FM SIGNAL GENERATOR		DISPLAY FREQUENCY	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
	CONNECTION	FREQUENCY				
FM-IF ADJUSTMENT						
7	—	No-Signal	100.00 MHz	Connect DC VTVM between TP102 and TP103 through choke coil. (Refer to Fig. 8)	T101 (Discr. IFT)	Adjust T101 core so that voltage measured in signal mode is 0V in 300mV range.
FM-RF ADJUSTMENT						
8	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna.	87.50 MHz	87.50 MHz	Connect DC VTVM to TP1 terminal.	L5 (OSC Coil)	Adjust L5 (OSC Coil) to 3 ± 0.1V
9		90.00MHz (100% Mod. with 400 Hz) weak input	90.00 MHz	Connect scope to "OUTPUT" terminals of the set.	L1 (ANT Coil) L2 (RF DET Coil 1st) L4 (RF DET Coil 2nd) T1 (IFT)	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. 9). 3. Repeat the steps (9) and (10) until the frequency correctly matches the broadcasts frequency display.
10		106.00 MHz (100% Mod. with 400 Hz)	106.00 MHz	Connect scope to "OUTPUT" terminals of the set.	CT1 (OSC Trimmer)	
FM MONO DISTORTION ADJUSTMENT						
11	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna.	100.00 MHz (100% Mod. with 400Hz)	100.00 MHz	* Connect DC VTVM between TP102 and TP103 through choke coil. (Refer to Fig. 8) * Connect distortion analyser to "OUTPUT" terminal of the set.	T101 (Discr. IFT) T102 (Discr. IFT)	1. Adjust T101 core so that voltage measured in signal mode is 0V in 300mV range. 2. Adjust T102 core so that distortion of right and left channels are minimized.
FM MPX PILOT (VCO) ADJUSTMENT						
12	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna. (Monaural signal)	100.00 MHz (Non-modulated)	100.00 MHz	Connect frequency counter (through 100kΩ) to TP301 terminal.	VR301 (VCO)	1. Set the auto scan/FM mode switch to "on/FM auto". 2. Adjust VR301 to 19 kHz ± 30 Hz.
STEREO DISTORTION ADJUSTMENT						
13	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna. (Pilot 10% Mod. stereo signal)	100.00 MHz (100% Mod. with 400 Hz) (L mode)	100.00 MHz	Connect distortion analyser to "OUTPUT" terminals of the set through low-pass filter. (fc= 15 kHz ~ 19 kHz) (Fig. 10)	T1 (IFT)	1. Set the auto scan/FM mode switch to "on/FM auto". 2. Re-adjust T1 within ±90° from the preset core position so that the distortion of L ch is minimized. 3. Re-check the steps 7, 9, 10 and 11
SEPARATION ADJUSTMENT						
14	Connect FM-SG to FM antenna terminal through 75Ω FM dummy antenna. (Pilot 10% Mod. stereo signal)	100.00MHz (100% Mod. with 1 kHz) (L or R mode)	100.00 MHz	Connect AC VTVM to "OUTPUT" terminals of the set through low-pass filter (fc = 15 kHz ~ 19 kHz) (Fig. 10)	VR302 (Separation)	1. Set the auto scan/FM mode switch to "on/FM auto". 2. Adjust VR302 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.

MESSUNGEN UND JUSTIERUNGEN Deutsch

- FM/AM Wellenverteilungs-Wahlschalter auf Position "FM 0.05 MHz/AM 9 kHz" stellen.

AM (MW)-EINSTELLUNG

Stellungen und zu benutzende Geräte

1. Elektronische Voltmeter für Wechsel- und Gleichstrom (VTVM)
2. AM-(MW)-Meßsender (AM-SG)
3. Netzspannung auf ihren Sollwerthalten.
4. Der Ausgang des Meßsenders darf nicht höher sein als unbedingt notwendig für eine gute Ablesung.
5. Die AM-Ferritsablenne (L201) herausziehen.
6. Einen nichtmetallischen Schraubenzieher für die Einstellungen verwenden.
7. Bereichsschalter . . . AM
8. Den Programm-Betriebsart-Wahlschalter auf "manual" einstellen.

AM (MW)-MESSENDER		ANZEIGE-FREQUENZ DURCH VOR-EINSTELLUNG	VORBEREITUNG	ABGLEICHSPUNKTE	ABGLEICHsverFAHREN	
ANSCHLUSS	FREQUENZ					
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".	T201 (1. IFT) T202 (2. IFT)	Die Eingangsfrequenz und die Einstellungspunkte so adjustieren, daß der Ausgang den maximalen Wert erreicht.
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)	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)	1. Auf max. Ausgang abgleichen. 2. Die Schritte (3) und (4) wiederholen, bis die Frequenz genau mit der Skalanzeige übereinstimmt.

FM (UKW)-EINSTELLUNG

Verwendete Einrichtungen

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. 7)

Vorbereitung AM UKW-Messender (FM-SG)

1. Stereo-Modulator an FM-SG anschließen.
2. SG-Ausgang über 300-Ohm UKW Kunstantenne an den Antenneneingang des Gerätes schließen.
3. Der normale Eingang des Gerätes beträgt 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. Sendersuchlauf-/UKW-Betriebsartenschalter auf "off/FM mono" einstellen.
4. Den Programm-Betriebsart-Wahlschalter auf "manual" einstellen.

FM-MESSENDER		ANZEIGE-FREQUENZ DURCH VOR-EINSTELLUNG	VORBEREITUNG	ABGLEICHSPUNKTE	ABGLEICHsverFAHREN
ANSCHLUSS	FREQUENZ				
KRISTALLSCHWINGEREINSTELLUNG					
5	Kein Signal	87.5 MHz	Zwischen TP1 und Erdung Gleichstrom-Voltmeter schließen.	L5 (Osc. Spule)	L5 so justieren, daß die vom Gleichstrom-Voltmeter gemessene Spannung 3V. beträgt.
6			• Signal frequenzmesser an TP901 schließen. • Die Farbmarkierung der keramischen Filter (CF101 ~ 104) überprüfen. (Alle vier Filter haben) die gleiche Farbe.	CT901 (Kristallschwinger-trimmer)	Wenn blaue keramikfilter benutzt werden, die Ausgangsfrequenz von TP901 auf 98.1752MHz, bei rosa Filtern, die Frequenz auf 98.2252MHz und die roten Filtern, die Frequenz auf 98.2002MHz einstellen.

FM (UKW) MESSENDER		ANZEIGE-FREQUENZ DURCH VOR EINSTELLUNG	VORBEREITUNG	ABGLEICHSPUNKTE	ABGLEICHVERFAHREN
ANSCHLUSS	FREQUENZ				
UKW-ZF-ABGLEICH					
7	Kein Signal	100.00 MHz	Ein Gleichstromröhren-voltmeter zwischen TP102 und TP103 über eine Drosselspule verbinden. (Siehe Abb. 8)	T101 (Diskriminator FT)	Den Kern von T101 so justieren, daß die gemessene Spannung im signallosen Modus 0V im 300mV Bereich beträgt.
UKW-HF-ABGLEICH					
8	87.50 MHz	87.50 MHz	Zwischen TP1 und Erdung Gleichstrom-Voltmeter schließen.	L5 (Osc. Spule)	L5 so justieren, daß die vom Gleichstrom-Voltmeter gemessene Spannung $3V \pm 0.1V$ beträgt.
9	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	90.00 MHz (400 Hz Modulat., 100%)	Oszilloskop über den Ausgang "OUTPUT" schließen.	L2 (HF Det. Spule 1) L4 (HF Det. Spule 2) L1 (Ant. Spule) T1 (IFT)	1. Einen schwachen Eingang geben, bei dem Geräusch in der Ausgangswellenform enthalten wird. 2. So einstellen, daß die Ausgangswellenform vertikal symmetrisch wird. (Abb. 9) 3. Die Einstellung von (9) und (10) wiederholen, bis die Frequenz mit der Skala übereinstimmt.
101		106.00 MHz (400 Hz Modulat., 100%)	Oszilloskop über den Ausgang "OUTPUT" schließen.	CT1 (Osc. Trimmer)	
ABGLEICH AUF MIN. VERZERRUNG IN STELLUNG UKW-MONO					
11	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	100.00 MHz (400 Hz Modulat., 100%)	<ul style="list-style-type: none"> Ein Gleichstromröhren-voltmeter zwischen TP102 und TP103 über eine Drosselspule verbinden. (Abb. 8) Verzerrungsmesser an rechten und linken kanäle Ausgangsklemme "OUTPUT" 	T101 (Diskriminator FT) T102 (Diskriminator FT)	<ol style="list-style-type: none"> Den Kern von T101 so justieren, daß die gemessene Spannung im signallosen Modus 0V im 300mV Bereich beträgt. T102 Kern für minimale Verzerrung der rechten und linken Kanäle justieren.
UKW-MPX-PILOTABGLEICH (VCO)					
12	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. (Mono-Signal)	100.00 MHz (Unmodulierte Welle)	Signal frequenzmesser an TP301 schließen. (durch 100k Ω)	VR301 (VCO)	<ol style="list-style-type: none"> Sendersuchlauf-/UKW-Betriebsartenschalter auf "on/FM auto" einstellen. VR301 so abgleichen, daß Ausgangsfrequenz von TP301 19 kHz \pm 30 Hz.
STEREO-VERZERRUNGSABGLEICH					
13	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. (Stereo-Pilotsignal 10% moduliert.)	100.00 MHz (400 Hz Modulat., 100%) L-Betriebsart	Tiefpaßfilter ($f_c = 15 \sim 19$ kHz) über Verzerrungsmesser an Ausgangsklemme "OUTPUT" des Gerätes schließen. (Abb. 10)	T1 (IFT)	<ol style="list-style-type: none"> Sendersuchlauf-/UKW-Betriebsartenschalter auf "on/FM auto" einstellen. Den schon eingestellten T1 erneut, innerhalb von $\pm 90^\circ$ von der voreingestellten Kernposition einstellen, sodaß die Verzerrung des linken Kanals minimalisiert wird. Die Schritte 7, 9, 10 und 11 noch einmal überprüfen.
TRENNUNG-ABGLEICH					
14	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. (Stereo-Pilotsignal 10% moduliert.)	100.00 MHz (400 Hz Modulat., 100%) L-order R-Betriebsart	Tiefpaßfilter ($f_c = 15 \sim 19$ kHz) über Wechselstrom-voltmeter an Ausgangsklemme "OUTPUT" des Gerätes schließen. (Abb. 10)	VR302	<ol style="list-style-type: none"> Sendersuchlauf-/UKW-Betriebsartenschalter auf "on/FM auto" einstellen. VR302 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.

MESURAGES ET RÉGLAGES Français

- Régler le sélecteur d'attribution FM/AM sur la position "FM 0.05MHz/AM 9kHz".

REGLAGE DE AM

Réglage et équipement utilisé

1. Voltmètres électronique de courant alternatif et de courant continu (VTVM)
2. Générateur du signal AM (AM-SG)
3. Conservez la tension du secteur à la tension nominale.
4. Le signal du générateur ne doit pas être plus élevé qu'il n'est nécessaire à obtenir une lecture en sortie.
5. Retirer l'antenna à tige de ferrite (L201) de la modulation d'amplitude.
6. Utiliser un tournevis non-métallique pour la réglage.
7. Sélecteur de gamme AM
8. Placer le sélecteur de mode de programme sur la position "manual"

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. T201 (1 transfo F1) T202 (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 le fréquence s'aligne correctement avec l'affichage du cadran.

REGLAGE DE FM

Equipment utilisé

1. Générateur du signal FM (FM-SG)
2. Commande de réglage stéréophonique (ou vu-mètre de séparation).
3. Jauge de distorsion.
4. Oscilloscope.
5. Voltmètres électronique de courant alternatif et de courant continu (VTVM).
6. Compteur de fréquence (19kHz et 108MHz mesurable).
7. Antenne fictive FM, 75 ohms (Fig. 7)

Préparation du générateur de signal FM (FM-SG)

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, 300 ohms.
3. L'entrée standard de l'appareil est de 60 dB (1 mV), 400 Hz, 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.)

Conditions de l'appareil

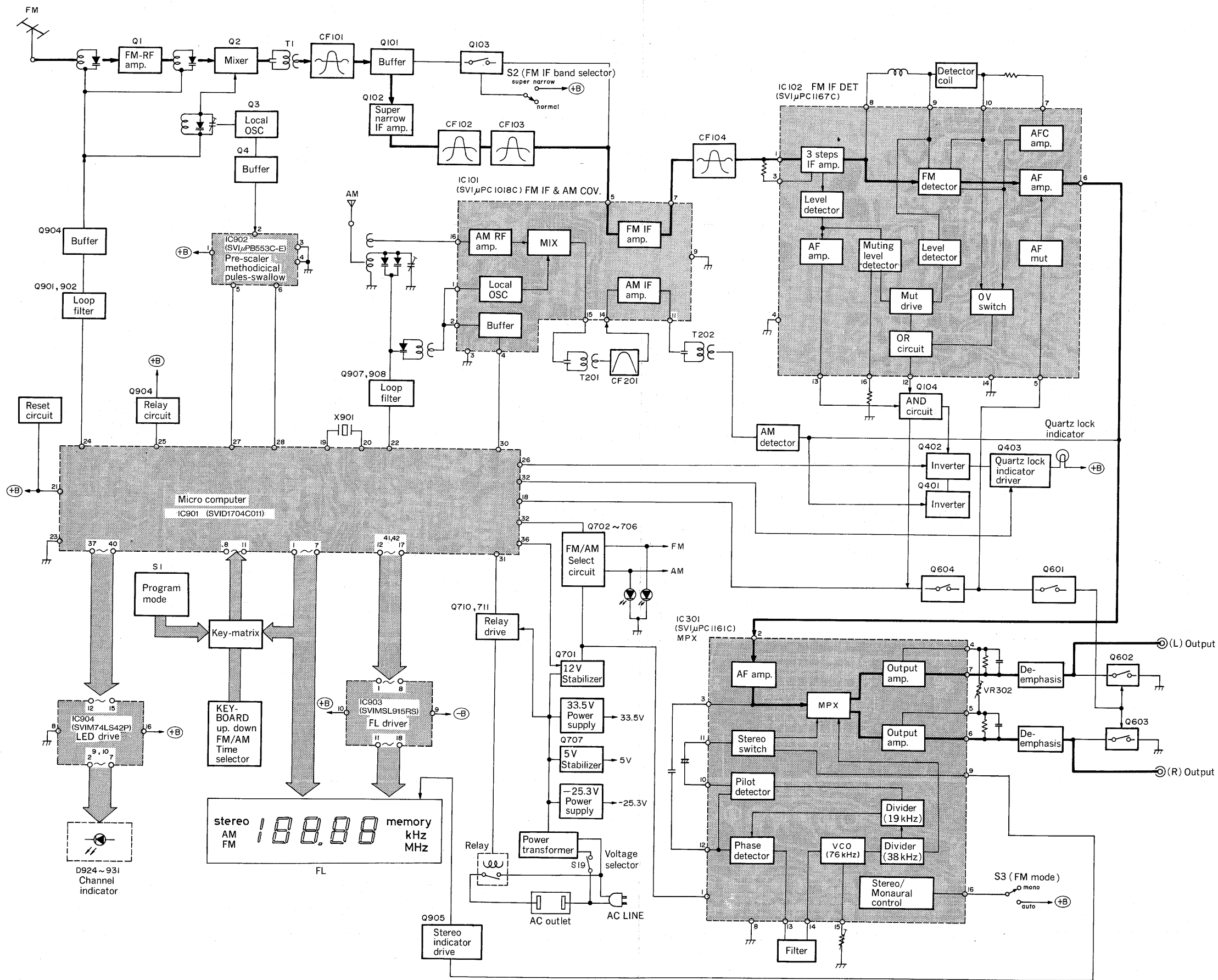
1. Placer le sélecteur de l'antenne FM sur la position "normal".
2. Sélecteur d'entrée sur la position "FM".
3. Sélecteur de mode "automatic-san/FM mode" . . . off/FM mono.
4. Placer le sélecteur de mode de programme sur la position "manual".

FM GENERATEUR		FREQUENCE D'AFFICHAGE PAR PREREGLAGE	PREPARATIONS	ELEMENTS REGLES	PROCEDURE DE REGLAGE
BRANCHEMENT	FREQUENCE				
5			Brancher le voltmètre à courant continu entre TP1 et la prise de terre.	L5 (Bobin Osc.)	Régler L5 de telle sorte que le voltage mesuré par le voltmètre à courant continu soit de 3V.
6	Sans Signal	87.5 MHz	<ul style="list-style-type: none"> • Brancher le compteur de fréquence entre TP901 et la prise de terre. • Vérifier la couleur de filtes céramiques (CF101 à CF104) Les quatre filtres sont de la même couleur. 	CT901 (Trimmer de l'osc à cristal)	Quand un filtre céramique marqué en bleu est utilise, régler la fréquence de sortie de TP901 à 98.1752MHz. Régler aussi la fréquence des filtres oranges à 98.2252MHz et des filtres rouges à 98.2002MHz.

FM GENERATEUR		FREQUENCE D'AFFICHAGE PAR PREREGLAGE	PREPARATIONS	ELEMENTS REGLES	PROCEDURE DE REGLAGE
BRANCHEMENT	FREQUENCE				
REGLAGE DE FI-FM					
7	—	Sans Signal	100.00 MHz	Brancher le voltmètre électronique a.c.c. aux bornes TP102 et TP103 (Voir la Fig. 8)	T101 (Transfo FI discri.) Régler le noyau T101 de telle sorte que le voltage mesuré dans le mode sans signal, soit de 0V dans la gamme des 300mV.
REGLAGE DE RF-FM					
8		87.50 MHz	87.50 MHz	Brancher le voltmètre à courant continu entre TP1 et la prise de terre.	L5 (Bobine Osc.) Régler L5 de telle sorte que le voltage mesuré par le voltmètre à courant continu soit de $3 \pm 0.1V$.
9	Branchez sur la prise d'antenne FM à travers une antenne fictive FM	90.00 MHz (modulé à 100% par 400 Hz)	90.00 MHz	Oscilloscope sur prise de sortie du tuner.	L2 (1er détecteur) L4 (2e détecteur) L1 (Bobin Ant.) T1 (IFT)
10		106.00 MHz (modulé à 100% par 400 Hz)	106.00 MHz	Oscilloscope sur prise de sortie du tuner.	CT1 (Trimmer Osc.) 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. 9) 3. Refaire les réglages (9) et (10) jusqu'à ce que la fréquence corresponde correctement avec l'échelle du cadran.
REGLAGE DE LA DISTORSION FM EN MONO					
11	Branchez sur la prise d'antenne FM à travers une antenne fictive FM	100.00 MHz (modulé à 100% par 400 Hz)	100.00 MHz	<ul style="list-style-type: none"> Brancher le voltmètre électronique a.c.c. aux bornes TP102 et TP103. (Voir la Fig. 8) Brancher le compteur de distorsion à la borne de sortie (OUTPUT) du canal gauche et droit de l'appareil. 	T101 (Transfo FI discri.) T102 (Transfo FI discri.) 1. Régler le noyau T101 de telle sorte que le voltage mesuré dans le mode sans signal, soit de 0V dans la gamme des 300mV. 2. Régler le noyau T102 de telle sorte que la distorsion des canaux droit et gauche soit la plus faible
REGLAGE (VCO) PILOTE MULTIPLEX FM					
12	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. (Signal monoscoustique)	100.00 MHz (Non modulé)	100.00 MHz	Brancher le compteur de fréquence à TP302 (Par l'intermédiaire de 100kΩ)	VR301 1. Sélecteur de mode "automati-cscan/FM"... on/FM auto. 2. Régler VR301 de telle sorte que la fréquence de sortie de TP301 soit de 19 kHz. $\pm 30Hz$.
REGLAGE DE LA DISTORSION STEREO					
13	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. (Signal stéréo pilote à 10% de modulation)	100.00 MHz (modulé à 100% par 400 Hz) (Mode G)	100.00 MHz	Brancher le filter passe-bas ($f_c = 15 \sim 19 kHz$) à la borne de sortie (OUTPUT) de l'appareil par un compteur de distorsion. (Fig. 10)	T1 1. Sélecteur de mode "automati-cscan/FM"... on/FM auto. 2. Réajuster le T101 déjà réglé. à $\pm 90%$ de la position préajustée du noyau de telle sorte que la distorsion du canal gauche soit minimale. 3. Vérifier les étapes 7, 9, 10 et 11.
REGLAGE DE LA SEPARATION DES CANAUX					
14	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. (Signal stéréo pilote à 10% de modulation)	100.00 MHz (modulé à 100% par 400 Hz) (Mode G ou D.)	100.00 MHz	Brancher le filter passe-bas ($f_c = 15 \sim 19 kHz$) à la borne de sortie (OUTPUT) de l'appareil par un voltmètre à courant alternatif. (Fig. 10)	VR302 1. Sélecteur de mode "automati-cscan/FM"... on/FM auto. 2. Régler VR302 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.

ST-S4T ST-S4T

■ BLOCK DIAGRAM



REPLACEMENT PARTS LIST (Electric Parts)

- Notes:**
- Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
 - 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.
 - Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description
INTEGRATED CIRCUITS		
IC101	RVIUPC1018CF	IC, FM IF/AM RF Amplifier and AM Converter
IC102	SVIUPC1167C2	IC, FM IF Detector
IC301	SVIUPC1161C	IC, FM Multiplex
IC901	SVID1704C011	IC, Micro-Computer
IC902	SVIUPB553AC	IC, Pre-Scaler
IC903	SVIMSL915RS	IC, FL Driver
IC904	SVIM74LS42P	IC, LED Driver
TRANSISTORS		
Q1	2SK195-H2	Transistor, FM RF Amplifier
Q2	2SC1674-M	Transistor, FM Mixer
Q3, 4, 101, 102	2SC1675-L	Transistor, FM Oscillator and Buffer IF Amplifier
Q103, 601, 702, 703, 706, 904, 905	2SA733-P1	Transistor, Switching and Muting
Q104, 401 ~ 403, 602 ~ 604, 704, 705, 708, 709, 711, 901 ~ 903, 907, 908, 961	2SC945-Q	Transistor, Switching, Quartz Lock IND and Loop Filter
Q701	2SD882-P	Transistor, Regulator
Q707	2SC1815-Y	Transistor,
Q981, 982	2SC1684-R	Transistor,
DIODES		
D1 ~ 4	MA320G1-N	Diode, Variable Capacitor (for FM)
D101 ~ 103, 203, 204, 301, 401 ~ 403, 601, 602, 705, 711, 712, 903 ~ 923, 935, 982	MA162A	Diode, Switching
D210	SVDBB312E	Diode, Variable Capacitor (for AM)
D202, 934	20A90	Diode, Switching
D701 ~ 704	SVDSR1K2	Rectifier
D707	SVDMZ307A	Diode, 7V Zener
D708	SVDMZ306C	Diode, 6V Zener
D709	SVDEQA0113RA	Diode, 13V Zener
D710	SVDMZ333A	Diode, 33V Zener
D901, 902	MA162A	Diode, Switching
D924 ~ 933	SVDGL-9PR4	Light Emitting Diode, Red
D981	SVDMZ303A	Diode, 3V Zener
COIL and TRANSFORMERS		
L1	SLA4P55-P	Coil, FM Antenna
L2	SLD4P53-P	Coil, FM Detector
L3	RLQY15G5-Y	Coil, Choke
L4	SLD4P43	Coil, FM Detector
L5	SLO4N21	Coil, FM Local Oscillator
L101	SLQX101-3M	Coil, Choke
L201	SLF2C33-1	Coil, AM Bar Antenna
L202	SLO2C29-P	Coil, AM Local Oscillator
L301	SLM1C61-P	Coil
T1	SLI4C109	Transformer, FM IF
T101	SLI4C529-Z	Transformer, FM Discriminator
T102	SLI4C531-Z	Transformer, FM Discriminator
T201	SLI2C127	Transformer, AM IF
T202	SLI2C413	Transformer, AM IF
T701	△ SLT5J121-1W	Transformer, Power Source

Ref. No.	Part No.	Part Name & Description
CERAMIC FILTERS		
CF101, 104	SVFE107MM-A	Ceramic Filter, FM 10.7MHz, Red
	SVFE107MM-B	Ceramic Filter, FM 10.68MHz, Blue
	SVFE107MM-C	Ceramic Filter, FM 10.72MHz, Orange
CF102, 103	SVFE107M22-A	Ceramic Filter, FM 10.7MHz, Red
	SVFE107M22-B	Ceramic Filter, FM 10.675MHz, Blue
	SVFE107M22-C	Ceramic Filter, FM 10.725MHz, Orange
	(Use pair rands as same as CF101, CF103, and CF104)	
CF201	SVFSFP450HT	Ceramic Filter, AM 450kHz
CRYSTAL		
X901	SVQ43U452	Crystal, 4.5MHz Counter Oscillator
FLUORESCENT DISPLAY TUBE		
FL	SAD7MT09UZA	Flurescent Display Tube
VARIABLE RESISTORS		
VR301	EVTS3MA00B53	VCO Adjustment 5kΩ (B)
VR302	EVTS3MA00B55	Separation Adjustment, 500kΩ (B)
VARIABLE CAPACITORS		
CT1	SVGTY121B269	Trimmer, FM Local Oscillator
CT201	SVCTY122D221	Trimmer, AM Antenna
CT901	ECV1ZW06X32E	Trimmer, Crystal Oscillator
COMPONENT COMBINATIONS		
Z101	EXRP103P471T	Component Combination, 0.01μF, 470Ω
Z201	EXRP203Z104T	Component Combination, 0.02μF, 100kΩ
Z301, 302	EXRP181K473T	Component Combination, 180pF, 470kΩ
Z901	EXBP87104K	Component Combination, 100kΩ (x 7)
Z902	EXFP7331MW	Component Combination, 330pF, (x 7)
LAMP		
PL401	△ XAMR38S200B	Lamp, Quartz Lock 40mA (6.3V)
FUSE		
F1	△ XBA2C08TR0	Fuse, T800mA (250V)
SWITCHES		
S1	SSR93-1	Switch, Program Mode
S2, 3	SSH2007	Switch, FM IF Selector, FM Mode
S4 ~ 17	SSG7	Switch, Memory, Tuning Preset, Mode FM Signal Strength, Power
S18	ESD14116	Switch, AM Allocation Selection
S19	△ ESE372	Switch, Voltage Adjustment
LIQUID ELECTROLYTE DOUDIE LAYER CAPACITOR		
C914 ~ 916	EECW1R8A3R3S	Liquid Electrolyte Double Layer 1.8V, 3.3F

Ref. No.	Part No.	Part Name & Description		
RELAY				
RLY701	△ S5Y81	Relay, AC Outlet		
RESISTORS				
R1	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R2	ERD25TJ273	Carbon,	1/4W, 27kΩ,	± 5%
R3, 4	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R5	ERD25FJ100	Carbon,	1/4W, 10Ω,	± 5%
R6	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R7	ERD25FJ221	Carbon,	1/4W, 220Ω,	± 5%
R8	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R9	ERD25TJ474	Carbon,	1/4W, 470kΩ,	± 5%
R10	ERD25FJ221	Carbon,	1/4W, 220Ω,	± 5%
R11	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R12	ERD25FJ102	Carbon,	1/4W, 1kΩ,	± 5%
R13	ERD25FJ221	Carbon,	1/4W, 220Ω,	± 5%
R14	ERD25TJ473	Carbon,	1/4W, 47kΩ,	± 5%
R15	ERD25FJ103	Carbon,	1/4W, 10kΩ,	± 5%
R16	ERD25FJ222	Carbon,	1/4W, 2.2kΩ,	± 5%
R17	ERD25FJ472	Carbon,	1/4W, 4.7kΩ,	± 5%
R18	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R101	ERD25FJ392	Carbon,	1/4W, 3.9kΩ,	± 5%
R102	ERD25FJ102	Carbon,	1/4W, 1kΩ,	± 5%
R103	ERD25FJ101	Carbon,	1/4W, 100Ω,	± 5%
R104	ERD25FJ182	Carbon,	1/4W, 1.8kΩ,	± 5%
R105	ERD25FJ681	Carbon,	1/4W, 680Ω,	± 5%
R106	ERD25FJ471	Carbon,	1/4W, 470Ω,	± 5%
R107	ERD25FJ103	Carbon,	1/4W, 10kΩ,	± 5%
R108, 109	ERD25FJ682	Carbon,	1/4W, 6.8kΩ,	± 5%
R110	ERD25FJ332	Carbon,	1/4W, 3.3kΩ,	± 5%
R111	ERD25FJ222	Carbon,	1/4W, 2.2kΩ,	± 5%
R112	ERD25FJ561	Carbon,	1/4W, 560Ω,	± 5%
R113	ERD25FJ102	Carbon,	1/4W, 1kΩ,	± 5%
R114, 115	ERD25FJ331	Carbon,	1/4W, 330Ω,	± 5%
R116	ERD25FJ682	Carbon,	1/4W, 6.8kΩ,	± 5%
R117	ERD25FJ182	Carbon,	1/4W, 1.8kΩ,	± 5%
R118	ERD25TJ183	Carbon,	1/4W, 18kΩ,	± 5%
R119	ERD25TJ273	Carbon,	1/4W, 27kΩ,	± 5%
R120	ERD25TJ274	Carbon,	1/4W, 270kΩ,	± 5%
R121	ERD25FJ101	Carbon,	1/4W, 100Ω,	± 5%
R122	ERD25TJ333	Carbon,	1/4W, 33kΩ,	± 5%
R123, 124	ERD25TJ183	Carbon,	1/4W, 18kΩ,	± 5%
R125	ERD25TJ563	Carbon,	1/4W, 56kΩ,	± 5%
R126	ERD25TJ105	Carbon,	1/4W, 1MΩ,	± 5%
R127	ERD25TJ273	Carbon,	1/4W, 27kΩ,	± 5%
R128	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R129	ERD25FJ562	Carbon,	1/4W, 5.6kΩ,	± 5%
R201	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R202	ERD25FJ102	Carbon,	1/4W, 1kΩ,	± 5%
R204, 205	ERD25FJ103	Carbon,	1/4W, 10kΩ,	± 5%
R206	ERD25TJ473	Carbon,	1/4W, 47kΩ,	± 5%
R207	ERD25TJ123	Carbon,	1/4W, 12kΩ,	± 5%
R208	ERD25FJ471	Carbon,	1/4W, 470Ω,	± 5%
R209	ERD25FJ821	Carbon,	1/4W, 820Ω,	± 5%
R210	ERD25FJ562	Carbon,	1/4W, 5.6kΩ,	± 5%
R212	ERD25FJ470	Carbon,	1/4W, 47Ω,	± 5%
R301	ERD25TJ333	Carbon,	1/4W, 33kΩ,	± 5%
R302	ERD25TJ223	Carbon,	1/4W, 22kΩ,	± 5%
R303	ERD25TJ184	Carbon,	1/4W, 180kΩ,	± 5%
R304, 305	ERD25TJ223	Carbon,	1/4W, 22kΩ,	± 5%
R310	ERD25TJ102	Carbon,	1/4W, 1kΩ,	± 5%
R311	ERD25TJ153	Carbon,	1/4W, 15kΩ,	± 5%
R312	△ ERD50FJ470	Carbon,	1/2W, 47Ω,	± 5%
R313, 314	ERD25FJ332	Carbon,	1/4W, 3.3kΩ,	± 5%
R315, 316	ERD25TJ333	Carbon,	1/4W, 33kΩ,	± 5%
R317	ERD25TJ473	Carbon,	1/4W, 47kΩ,	± 5%
R319	ERD25FJ103	Carbon,	1/4W, 10kΩ,	± 5%
R320	ERD25TJ273	Carbon,	1/4W, 27kΩ,	± 5%
R401	ERD25TJ333	Carbon,	1/4W, 33kΩ,	± 5%

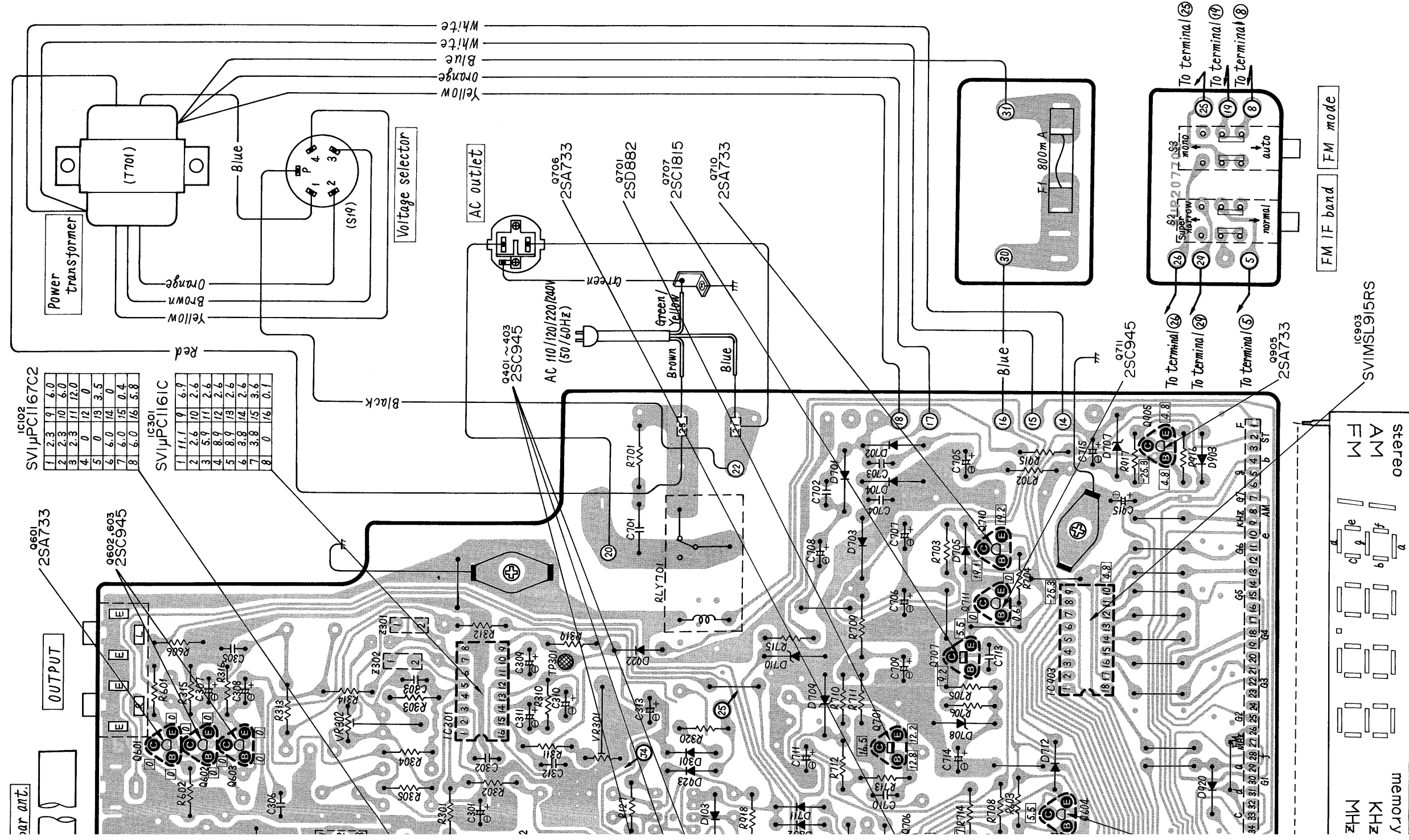
Ref. No.	Part No.	Part Name & Description		
R403	ERD25FJ562	Carbon,	1/4W, 5.6kΩ,	± 5%
R404	ERD25FJ682	Carbon,	1/4W, 6.8kΩ,	± 5%
R405	ERD25TJ273	Carbon,	1/4W, 27kΩ,	± 5%
R407	ERD25TJ823	Carbon,	1/4W, 82kΩ,	± 5%
R409	ERD25FJ103	Carbon,	1/4W, 10kΩ,	± 5%
R411	ERD50FJ820	Carbon,	1/4W, 82Ω,	± 5%
R412	ERD25TJ183	Carbon,	1/4W, 18kΩ,	± 5%
R413	ERD25FJ103	Carbon,	1/4W, 10kΩ,	± 5%
R601	ERD25FJ102	Carbon,	1/4W, 1kΩ,	± 5%
R602	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R603	ERD25TJ563	Carbon,	1/4W, 56kΩ,	± 5%
R606	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R701	△ ERD12FJ101	Carbon,	1/2W, 100Ω,	± 5%
R702	△ ERD50FJ471	Carbon,	1/2W, 470Ω,	± 5%
R703, 704	ERD25FJ103	Carbon,	1/4W, 10kΩ,	± 5%
R705	ERD25FJ102	Carbon,	1/4W, 1kΩ,	± 5%
R706	ERD25FJ101	Carbon,	1/4W, 100Ω,	± 5%
R708	ERD25FJ103	Carbon,	1/4W, 10kΩ,	± 5%
R709	△ ERQ12HJ330	Fuse Type Metallic,	1/2W, 33Ω,	± 5%
R710	ERD25FJ152	Carbon,	1/4W, 1.5kΩ,	± 5%
R711	ERD25FJ2R2	Carbon,	1/4W, 2.2Ω,	± 5%
R712, 713	ERD25FJ101	Carbon,	1/4W, 100Ω,	± 5%
R714	ERD25FJ470	Carbon,	1/4W, 47Ω,	± 5%
R715	△ ERD50FJ102	Carbon,	1/2W, 1kΩ,	± 5%
R717, 718	ERD25FJ222	Carbon,	1/4W, 2.2kΩ,	± 5%
R719, 720	ERD25FJ103	Carbon,	1/4W, 10kΩ,	± 5%
R721	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R722	ERD25TJ823	Carbon,	1/4W, 82kΩ,	± 5%
R723, 724	ERD25TJ153	Carbon,	1/4W, 15kΩ,	± 5%
R725	ERD25FJ221	Carbon,	1/4W, 220Ω,	± 5%
R901	ERD25FJ682	Carbon,	1/4W, 6.8kΩ,	± 5%
R902	ERD25FJ103	Carbon,	1/4W, 10kΩ,	± 5%
R903	ERD25TJ223	Carbon,	1/4W, 22kΩ,	± 5%
R904	ERD25FJ102	Carbon,	1/4W, 1kΩ,	± 5%
R905	ERD25FJ561	Carbon,	1/4W, 560Ω,	± 5%
R906	ERD25FJ102	Carbon,	1/4W, 1kΩ,	± 5%
R907	ERD25FJ562	Carbon,	1/4W, 5.6kΩ,	± 5%
R908	ERD25FJ152	Carbon,	1/4W, 1.5kΩ,	± 5%
R909	ERD25FJ682	Carbon,	1/4W, 6.8kΩ,	± 5%
R910	ERD25FJ271	Carbon,	1/4W, 270Ω,	± 5%
R911	ERD25FJ101	Carbon,	1/4W, 100Ω,	± 5%
R912, 913	ERD25TJ473	Carbon,	1/4W, 47kΩ,	± 5%
R914	ERD25TJ473	Carbon,	1/4W, 47kΩ,	± 5%
R915	ERD25TJ683	Carbon,	1/4W, 68kΩ,	± 5%
R916, 917	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R918	ERD25FJ272	Carbon,	1/4W, 2.7kΩ,	± 5%
R919	ERD25FJ822	Carbon,	1/4W, 8.2kΩ,	± 5%
R920	ERD25TJ153	Carbon,	1/4W, 15kΩ,	± 5%
R921	ERD25FJ471	Carbon,	1/4W, 470Ω,	± 5%
R922	ERD25FJ331	Carbon,	1/4W, 330Ω,	± 5%
R923	ERD25TJ823	Carbon,	1/4W, 82kΩ,	± 5%
R924, 925	ERD25FJ122	Carbon,	1/4W, 1.2kΩ,	± 5%
R926	ERD25TJ184	Carbon,	1/4W, 180kΩ,	± 5%
R961	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R962	ERD25FJ102	Carbon,	1/4W, 1kΩ,	± 5%
R963	ERD25FJ103	Carbon,	1/4W, 10kΩ,	± 5%
R981	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
R982	ERD25TJ563	Carbon,	1/4W, 56kΩ,	± 5%
R983	ERD25TJ104	Carbon,	1/4W, 100kΩ,	± 5%
CAPACITORS				
C1	ECEA50Z3R3	Electrolytic,	50V, 3.3μF	
C2	ECCD1H220K	Ceramic,	50V, 22pF,	±10%
C3	ECCD1H050CC	Ceramic,	50V, 5pF,	±0.25pF
C4	ECKD1H102ZF	Ceramic,	50V, 0.001μF,	+80%
C5	ECKD1H102MD	Ceramic,	50V, 0.001μF,	+20%
C6	ECCD1H070DC	Ceramic,	50V, 7pF,	±0.5pF
C7, 8	ECKD1H102ZF	Ceramic,	50V, 0.001μF,	+80%
C9	ECCD1H0R5CC	Ceramic,	50V, 0.5μF,	±0.25pF
C10	ECKD1H102ZF	Ceramic,	50V, 0.001μF,	+80%
C11	ECCD1H070DC	Ceramic,	50V, 7pF,	±0.5pF

Continued on page 23

ST-S4T

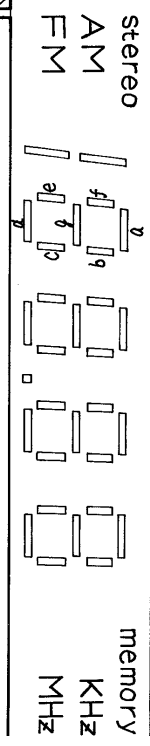
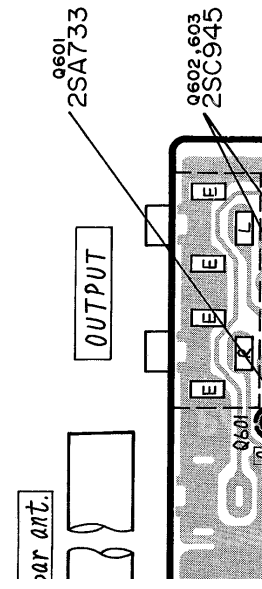
• Terminal guide of transistors, diodes and IC's

SV1μPC1018C SV1μPC1167C2 SV1μPC1161C SV1M74LS42P	SV1μPB553C-E
SVIMSL915RS	2SA733, 2SC945 2SC1674, 2SC1675 2SC1684, 2SC1815
2SD882	MA320GIN
2SK195	SVDBB312
Gate Drain Source	A1 K A2 A1 ← → A2 o ← → oK
SVID1704C011	
SVDMZ □ □ □ □ □	



IC102	
SV1μPC1167C2	
1	2.3
2	2.3
3	2.3
4	0
5	0
6	6.0
7	6.0
8	6.0
9	6.0
10	6.0
11	12.0
12	0
13	3.5
14	0
15	0.4
16	5.8

IC301	
SV1μPC1161C	
1	11.1
2	2.6
3	5.9
4	8.9
5	8.9
6	3.8
7	6.0
8	0
9	6.9
10	2.6
11	2.6
12	2.6
13	2.6
14	2.6
15	3.6
16	0.1



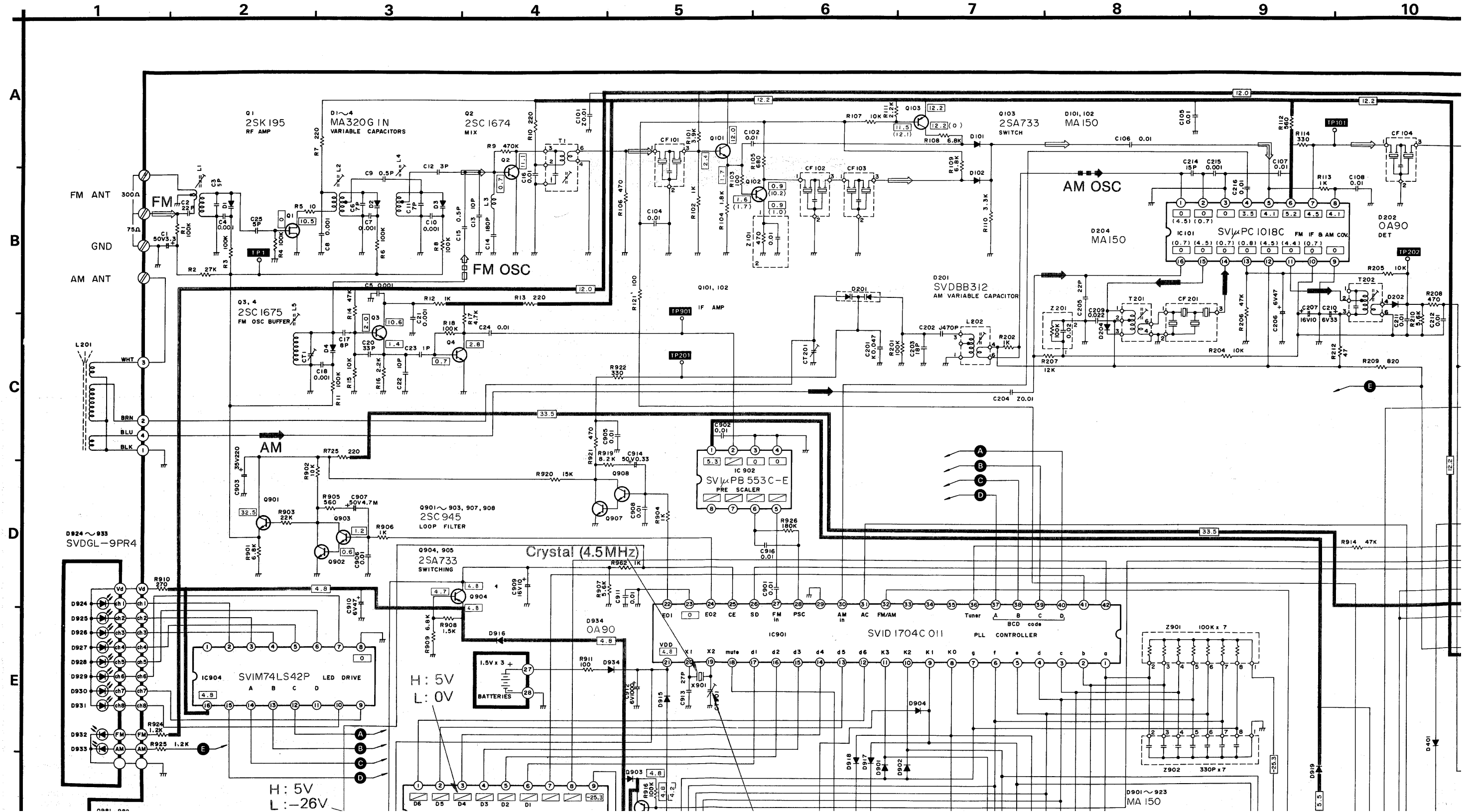
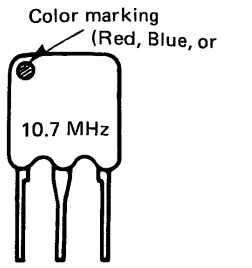
■ **SCHEMATIC DIAGRAM** (This schematic diagram may be modified at any time with the development of new technology.)

..... MODEL **ST-S4T**

■ **PRECAUTIONS FOR REPAIR**

● **Ceramic filters (CF101 ~ CF104)**

The ceramic filters for FM-IF circuit are available in 3 ranks. In this set, be sure to use ceramic filters of the same rank in pair. Since the ceramic filters are different in rank, the use of diodes (D901, D902) and the crystal adjusting frequency must vary in accordance with the rank of ceramic filter. (Refer to "Crystal Osc Adjustment" on page 7.)



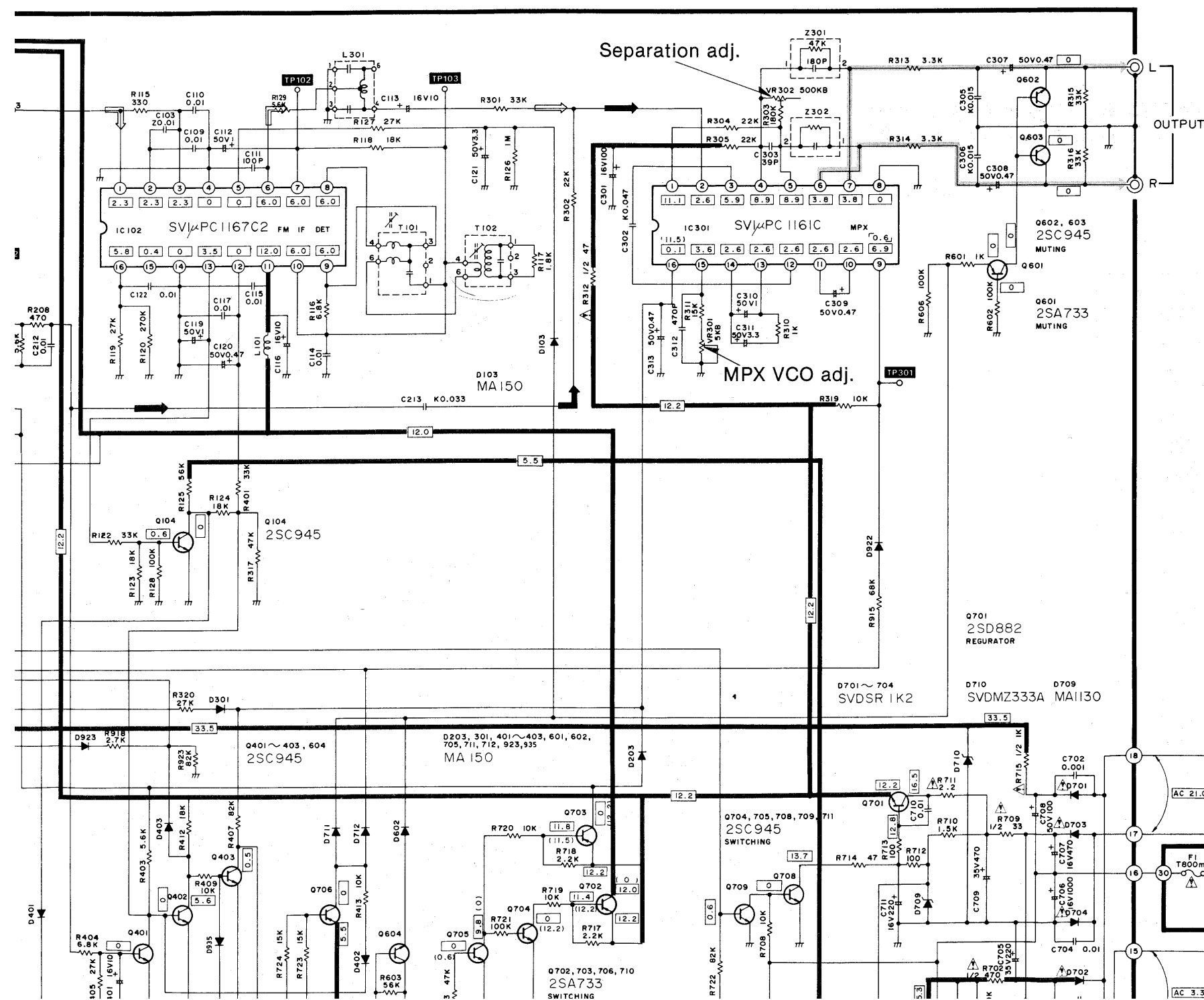
ing
, Blue, or Orange)

RANK (color)	D901	D902	ADJUSTMENT FREQUENCY	CENTER FREQUENCY
Red	X	X	98.2002 MHz	10.700 MHz
Orange	○	X	98.2252 MHz	10.725 MHz
Blue	○	○	98.1752 MHz	10.675 MHz

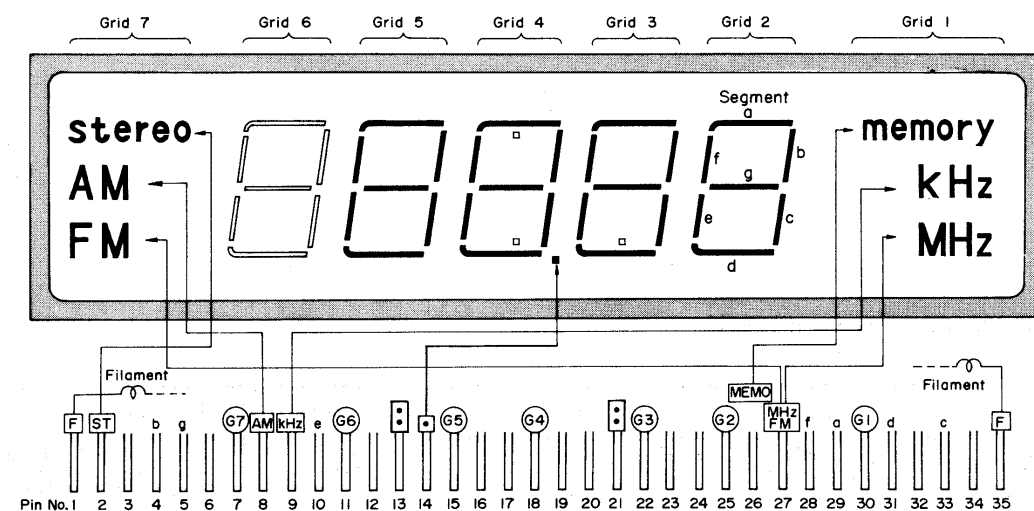
Note: ○ Mark Diode is used.
X Mark Diode is not used.

When frequency is not indicated, FL (display tube), FL driver, digit circuit, and micro-computer must be checked by oscilloscope. In this case, take care not to allow shortcircuit between IC terminals or application of voltage from measuring instrument to IC terminals.

11 12 13 14 15 16 17



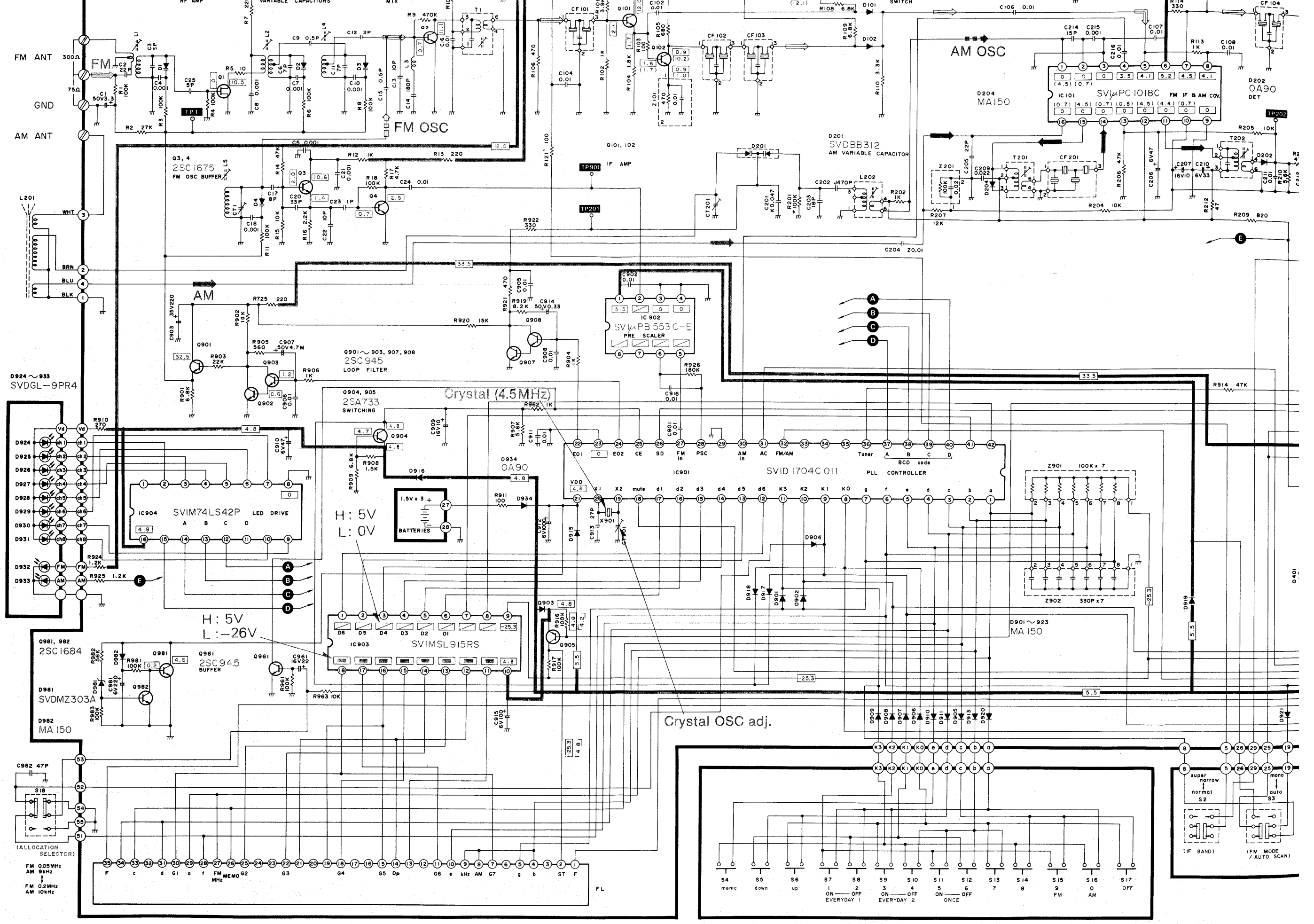
• Fluorescent Display Tube (FL)

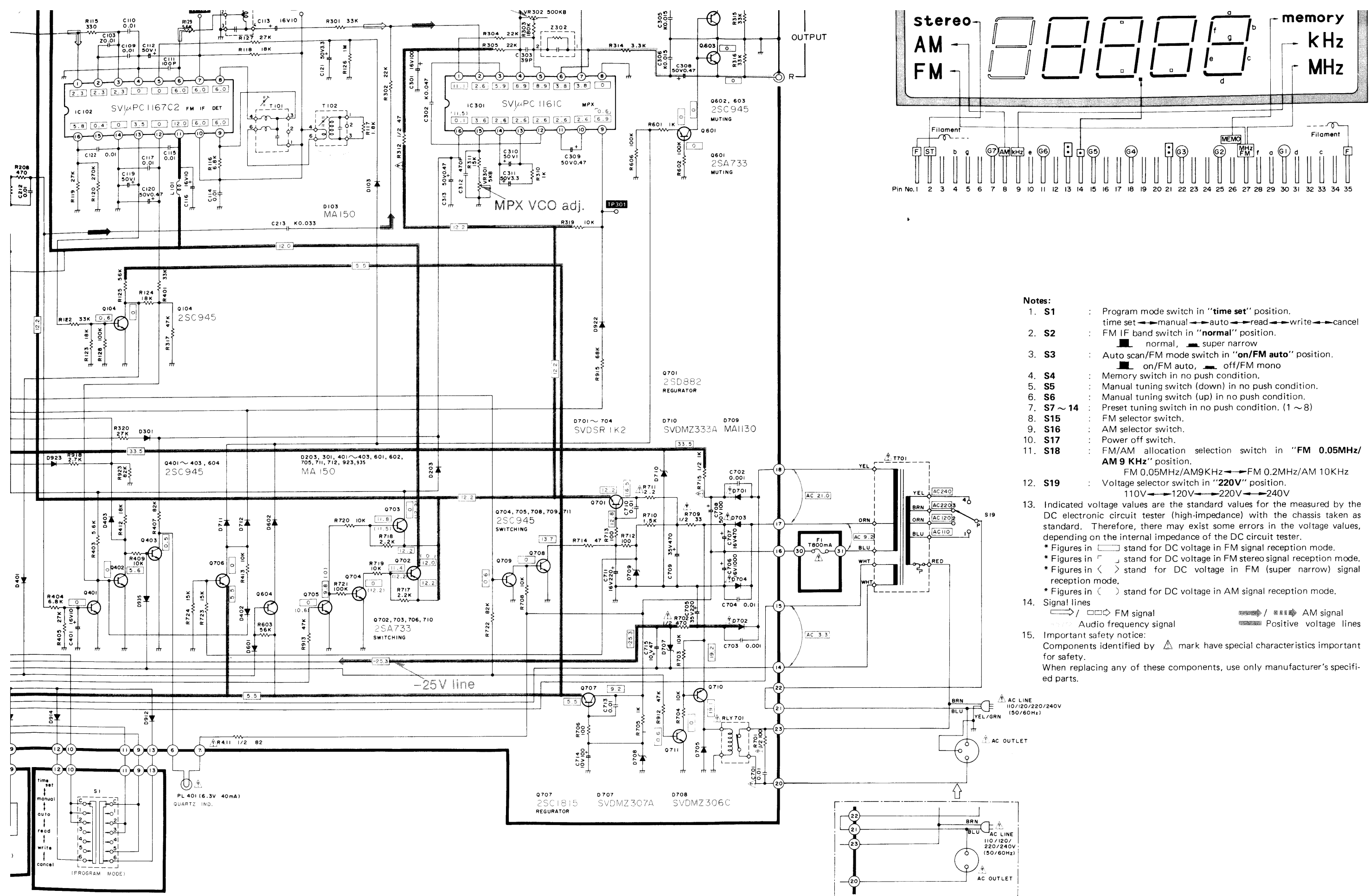


Notes:

- S1** : Program mode switch in "time set" position. time set → manual → auto → read → write → cancel
 - S2** : FM IF band switch in "normal" position. normal, super narrow
 - S3** : Auto scan/FM mode switch in "on/FM auto" position. on/FM auto, off/FM mono
 - S4** : Memory switch in no push condition.
 - S5** : Manual tuning switch (down) in no push condition.
 - S6** : Manual tuning switch (up) in no push condition.
 - S7 ~ 14** : Preset tuning switch in no push condition. (1 ~ 8)
 - S15** : FM selector switch.
 - S16** : AM selector switch.
 - S17** : Power off switch.
 - S18** : FM/AM allocation selection switch in "FM 0.05MHz/AM 9 KHz" position. FM 0.05MHz/AM9KHz → FM 0.2MHz/AM 10KHz
 - S19** : Voltage selector switch in "220V" position. 110V → 120V → 220V → 240V
13. Indicated voltage values are the standard values for the 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 reception mode.
 * Figures in ▭ stand for DC voltage in FM stereo signal reception mode.
 * Figures in < > stand for DC voltage in FM (super narrow) signal reception mode.
 * Figures in () stand for DC voltage in AM signal reception mode.
14. Signal lines
 → / □ → FM signal
 → / ▭ → Audio frequency signal
 → / ■ → Positive voltage lines
15. Important safety notice:

B
C
D
E
F
G
H



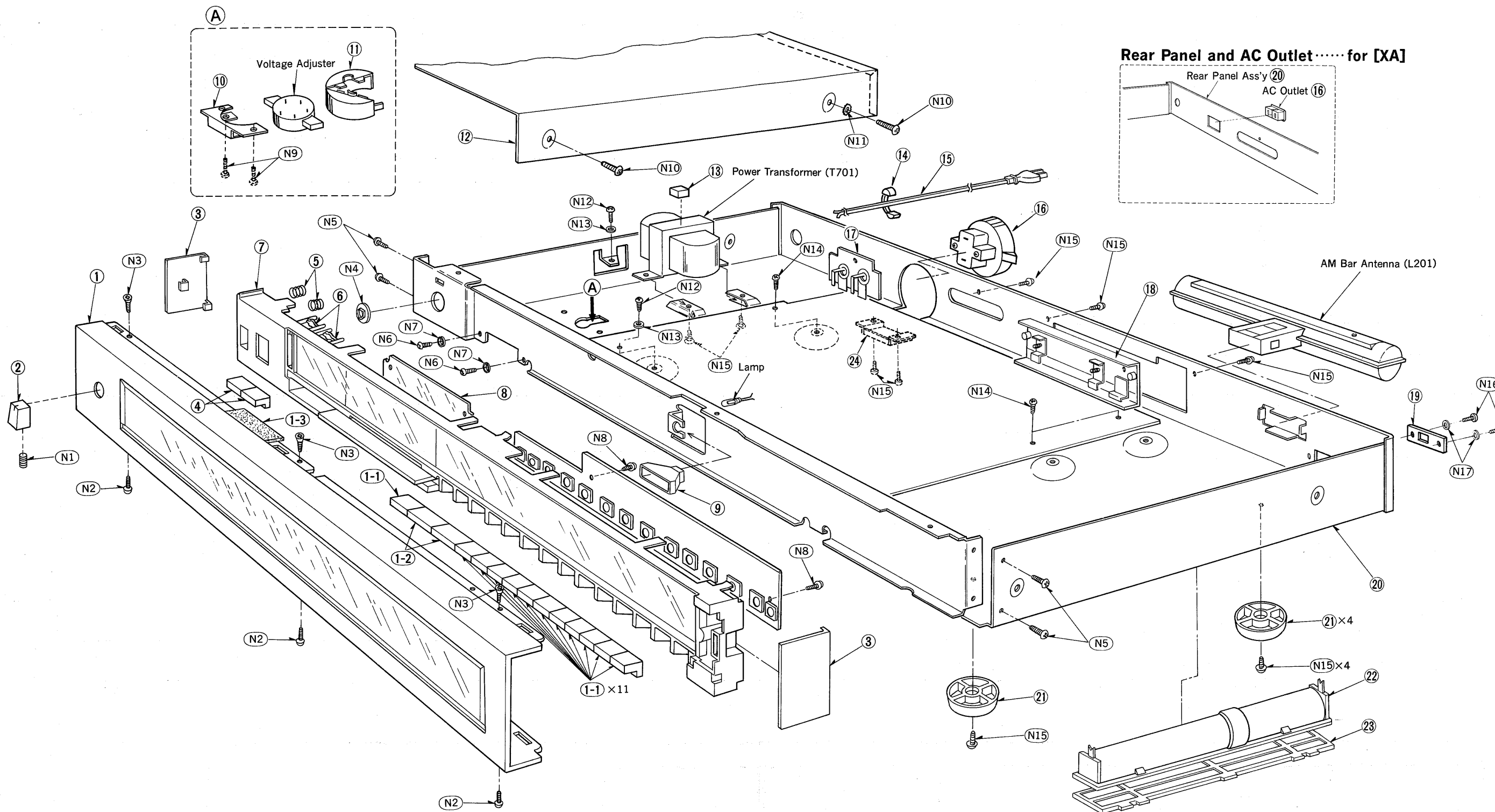


- Notes:**
- S1** : Program mode switch in "time set" position.
time set → manual → auto → read → write → cancel
 - S2** : FM IF band switch in "normal" position.
normal, super narrow
 - S3** : Auto scan/FM mode switch in "on/FM auto" position.
on/FM auto, off/FM mono
 - S4** : Memory switch in no push condition.
 - S5** : Manual tuning switch (down) in no push condition.
 - S6** : Manual tuning switch (up) in no push condition.
 - S7 ~ 14** : Preset tuning switch in no push condition. (1 ~ 8)
 - S15** : FM selector switch.
 - S16** : AM selector switch.
 - S17** : Power off switch.
 - S18** : FM/AM allocation selection switch in "FM 0.05MHz/AM 9 KHz" position.
FM 0.05MHz/AM9KHz → FM 0.2MHz/AM 10KHz
 - S19** : Voltage selector switch in "220V" position.
110V → 120V → 220V → 240V
13. Indicated voltage values are the standard values for the 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 reception mode.
 * Figures in ◻ stand for DC voltage in FM stereo signal reception mode.
 * Figures in < stand for DC voltage in FM (super narrow) signal reception mode.
 * Figures in () stand for DC voltage in AM signal reception mode.
14. Signal lines
 → / □ □ □ FM signal
 → / → → → AM signal
 → → → Audio frequency signal
 → → → Positive voltage lines
15. 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.

Continued from page 16

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
C12	ECCD1H030C	Ceramic, 50V, 3pF, ±0.25pF	C302	ECQM1H473KZ	Polyester, 50V, 0.047μF, ±10%
C13	ECCD1H100K	Ceramic, 50V, 10pF, ±10%	C303	ECCD1H390K	Ceramic, 50V, 39pF, ±10%
C14	ECCD1H181K	Ceramic, 50V, 180pF, ±10%	C305, 306	ECQM1H153KZ	Polyester, 50V, 0.015μF, ±10%
C15	ECCD1H0R5CC	Ceramic, 50V, 0.5μF, ±0.25pF	C307, 308	ECEA50ZR47	Electrolytic, 50V, 0.47μF
C16	ECKD1H103ZF	Ceramic, 50V, 0.01μF, ±0.5pF	C309	ECEA50ZR47	Electrolytic, 50V, 0.47μF
C17	ECCD1H080DC	Ceramic, 50V, 8pF, ±0.5pF	C310	ECEA50Z1	Electrolytic, 50V, 1μF
C18	ECKD1H102ZF	Ceramic, 50V, 0.001μF, +80%	C311	ECEA50Z3R3	Electrolytic, 50V, 3.3μF
C20	ECCD1H330KC	Ceramic, 50V, 33pF, ±10%	ECQP1471JZ	Polypropylene, 100V, 470pF, ±5%	
C21	ECKD1H102ZF	Ceramic, 50V, 0.001μF, +80%	C313	ECEA50ZR47	Electrolytic, 50V, 0.47μF
C22	ECCD1H100KC	Ceramic, 50V, 10pF, ±10%	C401	ECEA1HS100	Electrolytic, 16V, 10μF
C23	ECCD1H010CC	Ceramic, 50V, 1pF, ±0.25pF	C701	▲ ECKDKC103PF	Ceramic, 400VAC, 0.01μF, ±100%
C24	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%	C702, 703	ECKD2H102KB	Ceramic, 500V, 0.001μF, ±10%
C25	ECCD1H050C	Ceramic, 50V, 5pF, ±0.25pF	C704	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%
C101, 102	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%	C705	ECEA1VS221	Electrolytic, 35V, 220μF
C103, 104	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%	C706	ECEA1CS102	Electrolytic, 16V, 1000μF
C105, 106	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%	C707	ECEA1CS471	Electrolytic, 16V, 470μF
C107, 108	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%	C708	ECEA1HS101	Electrolytic, 50V, 100μF
C109, 110	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%	C709	ECEA1VS471	Electrolytic, 35V, 470μF
C111	ECCD1H101K	Ceramic, 50V, 10pF, ±10%	C710	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%
C112	ECEA50Z1	Electrolytic, 50V, 1μF	C711	ECEA1CS221	Electrolytic, 16V, 220μF
C113	ECEA1CN100S	Non-Polar Electrolytic, 16V, 10μF	C713	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%
C114, 115	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%	C714	ECEA1AS101	Electrolytic, 10V, 100μF
C116	ECEA1HS100	Electrolytic, 16V, 10μF	C715	ECEA1AS470	Electrolytic, 10V, 47μF
C117	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%	C901, 902	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%
C119	ECEA50Z1	Electrolytic, 50V, 1μF	C903	ECEA1VS221	Electrolytic, 35V, 220μF
C120	ECEA50ZR47	Electrolytic, 50V, 0.47μF	C905, 906	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%
C121	ECEA50Z3R3	Electrolytic, 50V, 3.3μF	C907	ECEA50M4R7R	Electrolytic, 50V, 4.7μF
C122	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%	C908	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%
C201	ECQM1H473KZ	Polyester, 50V, 0.047μF, ±10%	C909	ECEA1HS100	Electrolytic, 16V, 10μF
C202	ECQP1471JZ	Polypropylene, 100V, 470pF, ±5%	C910	ECEA1AS470	Electrolytic, 6.3V, 47μF
C203	ECCD1H180KC	Ceramic, 50V, 18pF, ±10%	C911	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%
C204	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%	C912	ECEA0JS102	Electrolytic, 6.3V, 1000μF
C205	ECCD1H220K	Ceramic, 50V, 22pF, ±10%	C913	ECCD1H270KC	Ceramic, 50V, 27pF, ±10%
C206	ECEA1AS470	Electrolytic, 6.3V, 47μF	C914	ECEA50MR33R	Electrolytic, 50V, 0.33μF
C207	ECEA1HS100	Electrolytic, 16V, 10μF	C915	ECEA1AS101	Electrolytic, 6.3V, 100μF
C209	ECKD1H223ZF	Ceramic, 50V, 0.022μF, +80%	C916	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%
C210	ECEA1CS330	Electrolytic, 6.3V, 33μF	C961	ECEA1ES220	Electrolytic, 16V, 22μF
C211, 212	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%	C981	ECEA1AS221	Electrolytic, 6.3V, 220μF
C213	ECQM1H333KZ	Polyester, 50V, 0.033μF, ±10%			
C214	ECCD1H150KC	Ceramic, 50V, 15pF, ±10%			
C215	ECKD1H102ZF	Ceramic, 50V, 0.001μF, +80%			
C216	ECKD1H103ZF	Ceramic, 50V, 0.01μF, +80%			
C301	ECEA1ES101	Electrolytic, 16V, 100μF			

EXPLODED VIEW



REPLACEMENT PARTS LIST (Cabinet and Chassis Parts)

- Notes:**
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
 2. 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.
 3. \blacksquare -marked parts are used for black only, while \circ -marked parts are for silver type only.
 4. Parts other than \blacksquare - and \circ -marked are used for both black and silver types.
 5. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Areas

- * [DX] is available in Scandinavia except European and Denmark.
- * [EG] is available in F.R. Germany.
- * [EF] is available in France.
- * [EH] is available in Holland.
- * [EB] is available in Belgium.
- * [DM] is available in Denmark.
- * [EK] is available in United Kingdom.
- * [EW] is available in Switzerland.
- * [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.

Ref. No.	Part No.	Part Name & Description
CABINET and CHASSIS PARTS		
1	○ SGWTS4TE	Front Panel Ass'y
1	⊗ SGWTS4TKE	Front Panel Ass'y (Black)
1-1	SBC341	Button, Memory, FM/AM Preset Tuning, Selector
1-2	SBC343	Button, Tuning
1-3	LSHG6063-1	Spacer, Front Panel Ass'y
2	SBN997	Knob, Program Mode Switch
3	○ SGX7003-1	Ornament, Left and Right Side
3	⊗ SGX7003	Ornament, Left and Right Side (Black)
4	SBC341	Button, FM IF Band, Auto Scan/FM Mode
5	SUS231-1	Spring, Button
6	SBZ601	Holder, Button
7	○ SGXTS4TE	Front Sub Panel Ass'y
7	⊗ SGXTS4TKE	Front Sub Panel Ass'y (Black)
8	SHR5113-1	Filter, FL
9	SHG1383-1	Holder, Lamp
10	SMN1635	Bracket, Voltage Adjustment Switch
11 [XA except]	SUV473	Cover, Voltage Adjustment Switch
12	○ SKCTS4TE	Cabinet Cover
12	⊗ SKCTS4TKE	Cabinet Cover (Black)
13	SHG647	Rubber, Power Transformer
14	SHR131	Bushing, AC Cord
14 [DM] only	SHR127	Bushing, AC Cord
14 [XA] only	RHR111	Bushing, AC Cord
15	▲ SJA103-1	AC Cord
15 [DM] only	▲ SJA97	AC Cord
15 [EK] only	▲ QFC1206M	AC Cord
15 [EW] only	▲ SJA119	AC Cord
16	▲ SJS9309	Socket, AC Outlet
16 [DM] only	▲ SJS9311	Socket, AC Outlet
16 [EK] only	▲ SJS9321	Socket, AC Outlet
16 [EW] only	▲ SJS9307	Socket, AC Outlet
16 [XA] only	▲ SJS A66-2	Socket, AC Outlet
17	SJF3207-5N	Terminal Board
18	SJF4419-4	Terminal Board, Antenna
18 [EG] only	SJF4311-4	Terminal Board, Antenna
19	SHR5073-1	Stopper, Allocation Switch
20 [DX] only	SGPTS4TE1	Rear Panel Ass'y
20 [EG] only	SGPTS4TE2	Rear Panel Ass'y
20 [DM] only	SGPTS4TE3	Rear Panel Ass'y
20 [EK] only	SGPTS4TE4	Rear Panel Ass'y
20 [EW] only	SGPTS4TE5	Rear Panel Ass'y
20 [XA] only	SGPTS4TE6	Rear Panel Ass'y
20 [EF, EH, EB] only	SGPTS4TE8	Rear Panel Ass'y
21	SKL227	Foot

Ref. No.	Part No.	Part Name & Description
22	SYE697	Battery Case
23	SJB9001	Battery Cover
24 [DX, EG, EF, EH, EB, DM] only	SUH555	Bracket, AC Outlet
SCREWS, WASHERS and NUT		
N1	XXES4D5FZS	Screw
N2	XTBS3+8BFZ1	Screw, Tapping with Detent $\varnothing 3 \times 8$
N3	XTS3+8BFZ	Screw, Tapping $\varnothing 3 \times 8$
N4	SNE4021	Nut
N5	XTS3+8B	Screw, Tapping $\varnothing 3 \times 8$
N6	XSN3+6S	Screw, $\varnothing 3 \times 6$
N7	XWA3B	Washer, Spring $\varnothing 3$
N8	XTB3+8BFZ	Screw, Tapping $\varnothing 3 \times 8$
N9	XTB3+14BFZ	Screw, Tapping $\varnothing 3 \times 14$
N10	○ XTB4+8BFN	Screw, Tapping $\varnothing 3 \times 8$
N10	⊗ XTB4+8BFZ	Screw, Tapping $\varnothing 3 \times 8$
N11	○ XWC4B	Washer, External Toothed Lock $\varnothing 4$
N11	⊗ XWC4BFZ	Washer, External Toothed Lock $\varnothing 4$
N12	XTN3+8B	Screw, Tapping $\varnothing 3 \times 8$
N13	XWG3	Washer, Plain $\varnothing 3$
N14	XTBS3+8BFZ1	Screw, Tapping with Detent $\varnothing 3 \times 8$
N15	XTB3+10BFZ	Screw, Tapping $\varnothing 3 \times 10$
N16	XSN3+6BVS	Screw, $\varnothing 3 \times 6$
N17	XWA3BFZ	Washer, Spring $\varnothing 3$
ACCESSORIES		
A1	SSA267	Cord, FM Feeder Antenna
A2	SJP2129-5	Cord, Stereo Pin-Type Connection
A3 [XA] only	▲ RJP120ZBS	Plug Adapter, AC Power
A4 [EK] only	▲ SJP5309	Plug Adapter, AC Power
A5 [EG] only	▲ SQF10827	Instructions Book, Printed Matter
A5 [EK] only	▲ SQF10829	Instructions Book, Printed Matter
A5 [XA] only	▲ SQF10831	Instructions Book, Printed Matter
A5	▲ SQF10969	Instructions Book, Printed Matter
PACKING PARTS		
P1	SPP647	Polyethylene Bag
P2	SPS3029-3	Pad, Front
P2 [XA] only	SPS3029	Pad, Front
P3	SPS3031-6	Pad, Rear
P3 [XA] only	SPS3031-4	Pad, Rear
P4	○ SPG3099	Carton Box
P4 [XA] only	○ SPG3171	Carton Box
P4 [EG] only	⊗ SPG3105	Carton Box (Only for F.R. Germany of black type)
P4 [EF] only	SPG3103	Carton Box

Accessories

