

Service Manual

FM/AM/FM STEREO WITH
CASSETTE TAPE DECK

Stereo Music Centre
SG-60

DOLBY SYSTEM



SG-60

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*Noise reduction system manufactured under license from Dolby Laboratories.

Specifications

AMPLIFIER SECTION

Power Output	MPO 47W x 2 (THD 1%, 4Ω) RMS 36W x 2 (THD 1%, 4Ω) One Channel Driven RMS 27.5W x 2 (THD 1%, 4Ω) Both Channel Driven
Frequency Response	15Hz ~ 20kHz, ±1.5dB (DIN)
Power Band Width	10Hz ~ 50kHz, -3dB (DIN)
Input Sensitivity and Impedance:	
Mic	1mV, 3kΩ
AUX	150mV, 47kΩ
Phono	2.5mV, 47kΩ
Rec Out and Impedance	150mV, 2.2kΩ
Tone Controls:	
Bass	±12dB at 50Hz
Treble	±10dB at 15kHz
Loudness Control	+10dB at 50Hz (Volume at -30dB)

FM TUNER SECTION

Tuning System	Varactor Diode (6 pre-selectors and 1 manual tuning)
Frequency Range	87.5 ~ 108MHz
Intermediate Frequency (IF)	10.7MHz
Sensitivity	2.0μV (S/N 26dB, 40kHz) (DIN), 300Ω 1.4μV (S/N 26dB, 40kHz) (DIN), 75Ω 2.3μV (IHF)
Image Ratio	50dB (98MHz)
Signal/Noise Ratio	63dB (at 1kHz, 60dB, 40kHz)
Distortion:	
Mono	0.15% (at 1kHz, 60dB, 40kHz)
Stereo	0.2% (at 1kHz, 60dB, 40kHz)
Stereo Separation	40dB (at 1kHz, 60dB, 30%) 35dB (at 250Hz ~ 6.3kHz, 60dB, 40kHz) 33dB (at 6.3 ~ 10kHz, 60dB, 40kHz)
Selectivity	70dB (at 1kHz, 60dB, 40kHz)

AM TUNER SECTION

Frequency Range	MW: 525 ~ 1605kHz (572 ~ 187m) LW: 145 ~ 350kHz (2070 ~ 857m)
Intermediate Frequency (IF)	455kHz
Sensitivity	MW: 110μV/m (1MHz) LW: 220μV/m (240kHz)
Image Ratio	MW: 50dB (1MHz) LW: 35dB (240kHz)

TAPE DECK SECTION

Deck System	Full-Auto stop, shut-off cassette system
Track System	4-Track, 2-Channel
Recording System	AC Bias (50kHz) with Dolby NR system
Erasing System	AC Erase (50kHz)
Tape Speed	4.75cm/sec. (1-7/8 i.p.s.)
Frequency Response	20Hz ~ 15kHz (Normal) 20Hz ~ 16kHz (CrO2) 20Hz ~ 17kHz (Metal)

Signal/Noise Ratio:

Dolby NR-Out	DIN: 53dB (Normal) 55dB (CrO2) 57dB (Metal)
Dolby NR-In	10dB or more improved at more than 5kHz (DIN): 61dB (Normal) 63dB (CrO2) 65dB (Metal)

Erase Ratio	70dB (DIN)
Channel Separation	40dB (DIN), 50dB (at 1kHz)
Crosstalk	60dB (DIN)
Wow and Flutter	0.05% (WRMS), ±0.15% (DIN WTD)

POWER CONSUMPTION

200W

POWER SUPPLY

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

DIMENSIONS (W x H x D)

430mm x 124mm x 372mm

WEIGHT

8.5kg

*Specifications are subject to change without notice for further improvement.

 **Panasonic**

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

Technische Daten

VERSTÄRKER

Ausgangsleistung:	
Musik.	47W x 2 an 4Ω (1% Klirr)
Sinus.	36W x 2 an 4Ω (bei Aussteuerung eines Kanals, 1% Klirr)
	27,5W x 2 an 4Ω (bei Aussteuerung beider Kanäle, 1% Klirr)
Frequenzgang.	15Hz bis 20kHz, 1,5dB (DIN)
Leistungsbandbreite.	10Hz bis 50kHz, -3dB (DIN)
Eingangsempfindlichkeit und Impedanz:	
Mikrofon.	1mV, 3kΩ
AUX.	150mV, 47kΩ
Phono.	2,5mV, 47kΩ
Aufnahmeausgang und Impedanz.	150mV, 2,2kΩ
Klangregler:	
Bässe.	±12dB bei 50Hz
Höhen.	±10dB bei 15kHz
Gehörrichtige Frequenzgangkorrektur.	+10dB bei 50kHz (Lautstärkepegel -30dB)

UKW-EMPFANGSTEIL

Abstimmsystem.	Kapazitätsdiode (6 Festsendertasten plus eine Taste für manuelle Abstimmung)
Empfangsbereich.	87,5 ~ 108MHz
Zwischenfrequenz (ZF).	10,7MHz
Eingangsempfindlichkeit.	2,0μV (Fremdspannungsabstand 26dB, 40kHz) (DIN), 300Ω
	1,4μV (Fremdspannungsabstand 26dB, 40kHz) (DIN), 75Ω
	2,3μV (IHF)
Spiegelfrequenzdämpfung.	50dB (98MHz)
Fremdspannungsabstand.	63dB (bei 1kHz, 60dB, 40kHz)
Klirrfaktor:	
Mono.	0,15% (bei 1kHz, 60dB, 40kHz)
Stereo.	0,2% (bei 1kHz, 60dB, 40kHz)
Übersprechdämpfung.	40dB (bei 1kHz, 60dB, 40kHz)
	35dB (250Hz ~ 6,3kHz, 60dB, 40kHz)
	35dB (6,3 ~ 10kHz, 60dB, 40kHz)
Trennschärfe.	70dB (bei 1kHz, 60dB, 40kHz)

AM-EMPFANGSTEIL

Empfangsbereiche.	MW: 525 ~ 1,605kHz (572 ~ 187m)
	LW: 145 ~ 350kHz (2,070 ~ 857m)
Zwischenfrequenz (ZF).	455kHz
Empfindlichkeit.	MW: 110μV/m (1MHz)
	LW: 220μV/m (240kHz)
Spiegelfrequenzdämpfung.	MW: 50dB (1MHz)
	LW: 50dB (240kHz)

CASSETTEN-TONBANDGERÄT

Prinzip.	Bandenden-Abschaltautomatik bei allen Bandlauffunktionen
Spursystem.	Vierte Spur, Stereo
Aufnahmesystem.	HF-Vormagnetisierung (50kHz) mit Dolby-Rauschunterdrückung
Löschsystem.	HF-Löschung (50kHz)
Bandgeschwindigkeit.	4,75cm/s
Frequenzgang.	20 ~ 15kHz (Normal)
	20 ~ 16kHz (CrO2)
	20 ~ 17kHz (Metall)
Fremdspannungsabstand:	
Ohne Dolby.	DIN: 53dB (Normal)
	55dB (CrO2)
	57dB (Metall)
Mit-Dolby.	(Über 5kHz eine Verbesserung von mehr als 10dB) (DIN):
	61dB (Normal)
	63dB (CrO2)
	65dB (Metall)
Löschdämpfung.	70dB (DIN)
Übersprechdämpfung.	40dB (DIN), 50dB (bei 1kHz)
Stereo-Kanaltrennung.	60dB (DIN)
Gleichlaufschwankungen.	0,05% (Mittelwert, bewertet)
	±0,15% (DIN WTD)

LEISTUNGS-AUFNAHME. 200W

NETZSPANNUNG UND FREQUENZ. 110V, 120V, 220V, 240V, 50/60Hz

ABMESSUNGEN (B x H x T) 430mm x 124mm x 372mm

GEWICHT. 8,5kg

* Änderungen der technischen Daten und des Designs im Sinne ständiger Verbesserung vorbehalten.

Spécifications

SECTION AMPLIFICATEUR

Puissance de sortie.	47W x 2 (DHT 1%, 4Ω) PSM
	36W x 2 (DHT 1%, 4Ω) FET, Un canal en fonction
	27,5W x 2 (DHT 1%, 4Ω) FET, Deux canaux en fonction
Reponse de fréquence.	15Hz ~ 20kHz, ±1,5dB (DIN)
Largeur de bande passante.	10Hz ~ 50kHz, -3dB (DIN)
Impédance et sensibilité d'entrée:	
Micro.	1mV, 3kΩ
AUX.	150mV, 47kΩ
Phono.	2,5mV, 47kΩ
Impédance et sortie enr.	150mV, 2,2kΩ
Réglages de tonalité:	
Grave.	±12dB à 50Hz
Aigu.	±10dB à 15kHz
Replage de contour sonore.	+10dB à 50Hz (Volume à la position -30dB)

SECTION TUNER FM

Système d'accord.	Diode varactor (6 pre-selecteurs et 1 accord manuel)
Echelle de fréquence.	87,5 ~ 108MHz
Fréquence intermédiaire (FI).	10,7MHz
Sensibilité.	2,0μV (S/B 26dB, 40kHz) (DIN), 300Ω
	1,4μV (S/B 26dB, 40kHz) (DIN), 75Ω
	2,3μV (IHF)
Rapport d'image.	50dB (98MHz)
Rapport de signal bruit.	63dB (à 1kHz, 60dB, 40kHz)
Distorsion:	
Mono.	0,15% (à 1kHz, 60dB, 40kHz)
Stereo.	0,2% (à 1kHz, 60dB, 40kHz)
Séparation stéréo.	40dB (à 1kHz, 60dB, 40kHz)
	35dB (à 250Hz ~ 6,3kHz, 60dB, 40kHz)
	33dB (à 6,3 ~ 10kHz, 60dB, 40kHz)
Selectivité.	70dB (à 1kHz, 60dB, 40kHz)

SECTION TUNER AM

Echelle de fréquence.	PO: 525 ~ 1,605kHz (572 ~ 187m)
	GO: 145 ~ 350kHz (2,070 ~ 857m)
Fréquence intermédiaire (FI).	455kHz
Sensibilité.	PO: 110μV/m (1MHz)
	GO: 220μV/m (240kHz)
Rapport image.	PO: 50dB (1MHz)
	GO: 50dB (240kHz)

SECTION MAGNETOPHONE

Système magnetophone.	Arrêt entièrement automatique, système
Système de piste.	4 pistes, 2 canaux
Système d'enregistrement.	Polarisation Cour. Alt. (50kHz) avec système Dolby NR
Système d'effacement.	Effacement Cour. Alt. (50kHz)
Vitesse de bande.	4,75cm/s
Réponse de fréquence.	20Hz ~ 15kHz (Normale)
	20Hz ~ 16kHz (CrO2)
	20Hz ~ 17kHz (Metall)
Rapport de signal/bruit:	
Sortie Dolby Nr.	DIN: 53dB (Normale)
	55dB (CrO2)
	57dB (Metall)
Entrée Dolby Nr.	10dB au plus amélioré à plus de 5kHz (DIN):
	61dB (Normale)
	63dB (CrO2)
	65dB (Metall)
Rapport d'effacement.	70dB (DIN)
Séparation de canal.	40dB (DIN), 50dB (à 1kHz)
Diaphonie.	60dB (DIN)
Pleurage et scintillement.	0,05% (valeur eff. pondérée),
	±0,15% (DIN WTD)

CONSOMMATION DE PUISSANCE. 200W

ALIMENTATION.	Cour. Alt. 110V, 120V, 220V, 240V, 50/60Hz
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DIMENSIONS (L x H x P) 430mm x 124mm x 372mm

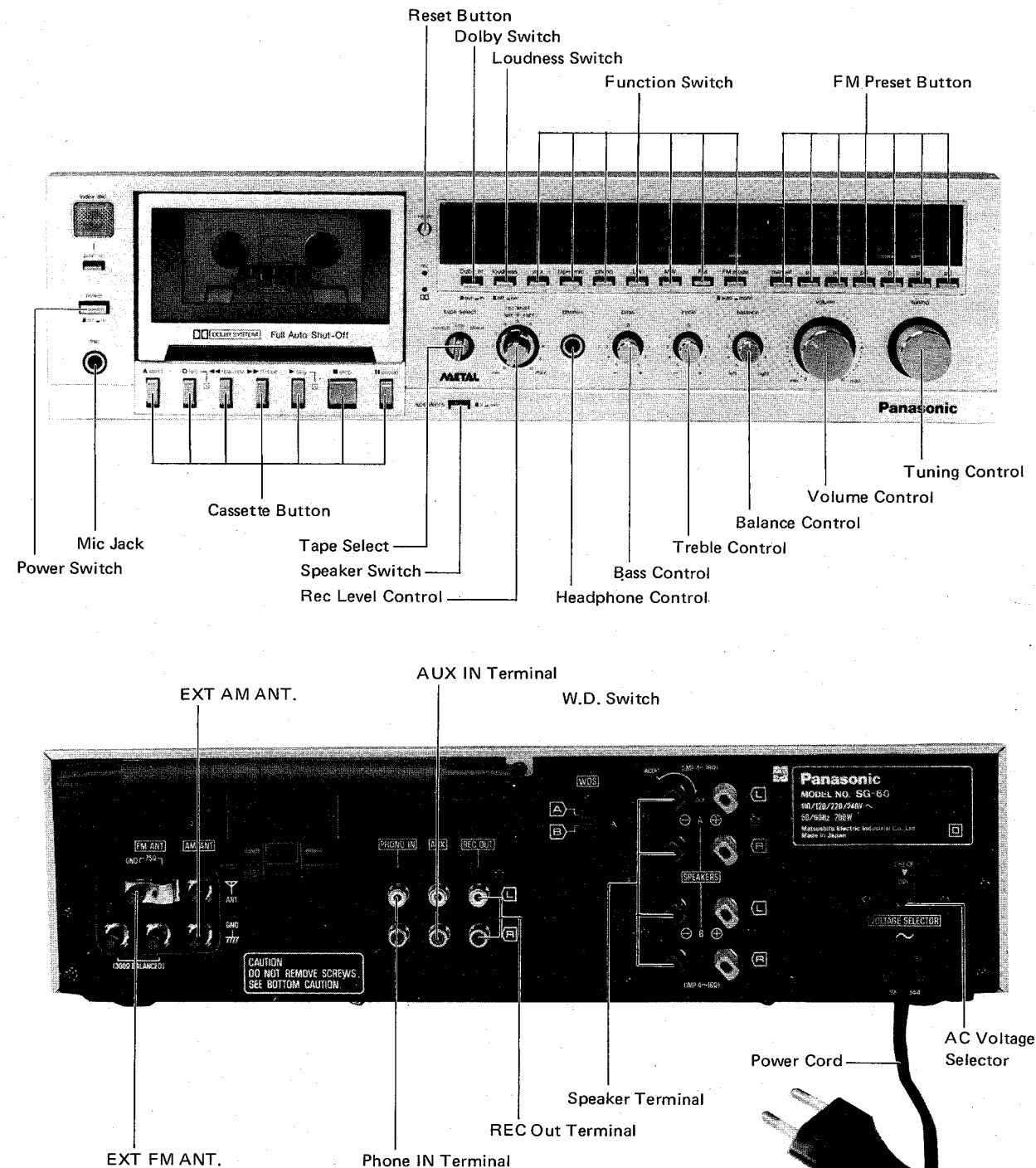
POIDS. 8,5kg

* Les spécifications de la présentation sont susceptibles d'être modifiées sans préavis par suite d'amélioration éventuelle de nos appareils.

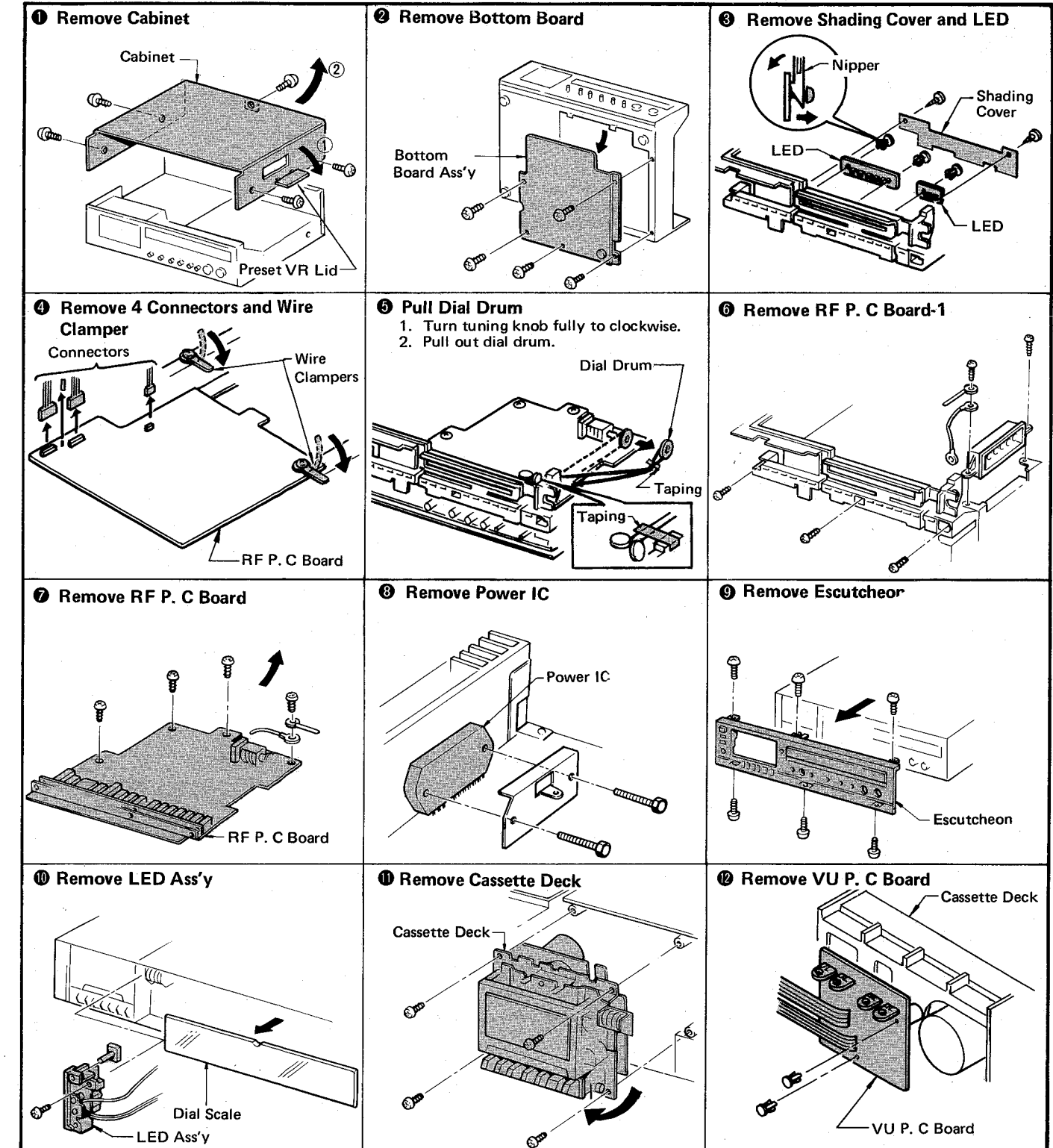
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LOCATION OF CONTROL



DISASSEMBLY INSTRUCTIONS



To Replace Parts on P. C Board:

- RF P. C Board Refer to ①, ③ ~ ⑦.
- AF P. C Board Refer to ① ~ ⑦.
- VU P. C Board Refer to ①, ⑩.
- To Replace Power IC Refer to ① ~ ⑧.
- To Remove Escutcheon Refer to ①, ⑨.
- To Remove Tape Deck Refer to ①, ⑨, ⑩, ⑪.

ALIGNMENT INSTRUCTIONS(RADIO)-1

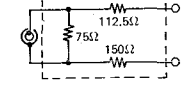
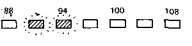
■ AM Alignment

Control Positions:						
1.	Volume Control	Maximum (AM-IF and RF, FM-RF) , FM-RF (Center), Minimum (FM-IF)				
2.	Function Selector	LW, MW, FM MONO and FM AUTO				
3.	FM Preset	MANUAL, P1, P2, P3, P4, P5 and P6				
4.	Loudness	OFF				
5.	FM Preset Volume (VRI02 ~ VRI07)	Turn Them fully counterclockwise.				
6.	Preset Volume (VRI08 ~ VR110 and 901)	Turn set to the center position.				
7.	Output of signal generator should be no higher than necessary to obtain output reading.					
8.	Make certain that speaker system is connected to the receiver when aligning. (or use 4Ω dummy load resistors.)					

STEP	SIGNAL GENERATOR OR SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUST	REMARKS
	CONNECTION	FREQUENCY				
AM-IF AND RF ALIGNMENT						
1	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. with 400 Hz	Point of non-interference	Output meter across speaker jack (L). (Imp. 4Ω)	T201 (AM CFT) T202 (AM DET)	• Adjust for maximum output.
2 (LW)		150 kHz 30% Mod. with 400 Hz	150 kHz (7.9 mm)		L2 (LW ANT Coil) L202 (LW OSC Coil)	• Adjust for maximum output by sliding coil L2 along ferrite core. • Refer to NOTE .
3 (LW)		350 kHz 30% Mod. with 400 Hz	350 kHz (84.6 mm)		CT202 (LW ANT Trimmer) CT204 (LW OSC Trimmer)	• Adjust for maximum output. • Repeat steps (2) and (3).
4 (MW)		550 kHz 30% Mod. with 400 Hz	550 kHz (9.2 mm)		L1 (MW ANT Coil) L201 (MW OSC Coil)	• Adjust for maximum output by sliding coil L1 along ferrite core. • Refer to NOTE .
5 (MW)		1500 kHz 30% Mod. with 400 Hz	1500 kHz (81.6 mm)		CT201 (MW ANT Trimmer) CT203 (MW OSC Trimmer)	• Adjust for maximum output. • Repeat steps (4) and (5).
Note: Cement antenna coil (L1 and L2) with wax after completing alignment.						
FM-IF ALIGNMENT						
1	High side through 0.01μF between point TP IN and TP E (Earth)	10.7 MHz (400 kHz SWP.)	Point of non-interference	Connect vert. amp input of scope between point TP201 and TP206 (Earth)	L3	• Adjust L3 for maximum amplitude and symmetrical curve. 
2	No connection	No signal	Free	Connect DC VTVM between TP203 and TP204.	T203 (FM Disc)	• Adjust T203 for 0 mV on VTVM reading.
Note: As three output readings will be present, adjustments must be made at center frequency.						

ALIGNMENT INSTRUCTIONS(RADIO)-2

■ FM-RF ALIGNMENT

STEP	SIGNAL GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	FM PRESET BUTTON	ADJUST	REMARKS
	CONNECTION	FREQUENCY					
1	Connect to EXT.FM Antenna terminal through dummy antenna.  FM DUMMY ANTENNA	108.3 MHz 30% Mod. with 400 Hz	108.3 MHz	Output meter across speaker jack (L)	MANUAL	VR110	Adjust for maximum output. Repeat steps (1)~(3).
2		87.35 MHz 30% Mod. with 400 Hz	87.35 MHz (0 mm)			VR102	
3						VR101	
4		92.5 MHz 30% Mod. with 400 Hz	92.5 MHz	FM dial indicator	P1	VR111	Adjust VR111 to get same lightness at 2nd and 3rd (94 MHz) LED from left end of FM dial indicator. 

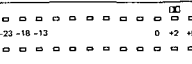
Note: To correct the drift of FM band coverage (87.5~108 MHz), adjust VR101, 102, 110 and VR111.

FM MONO DISTORTION ALIGNMENT							
1	Connect to EXT. FM antenna terminal through dummy antenna.	98 MHz 100% Mod. with 400 Hz	98 MHz	Distortion meter to speaker jack (L).		T204 (FM Disc)	Adjust for minimum distortion meter indication.

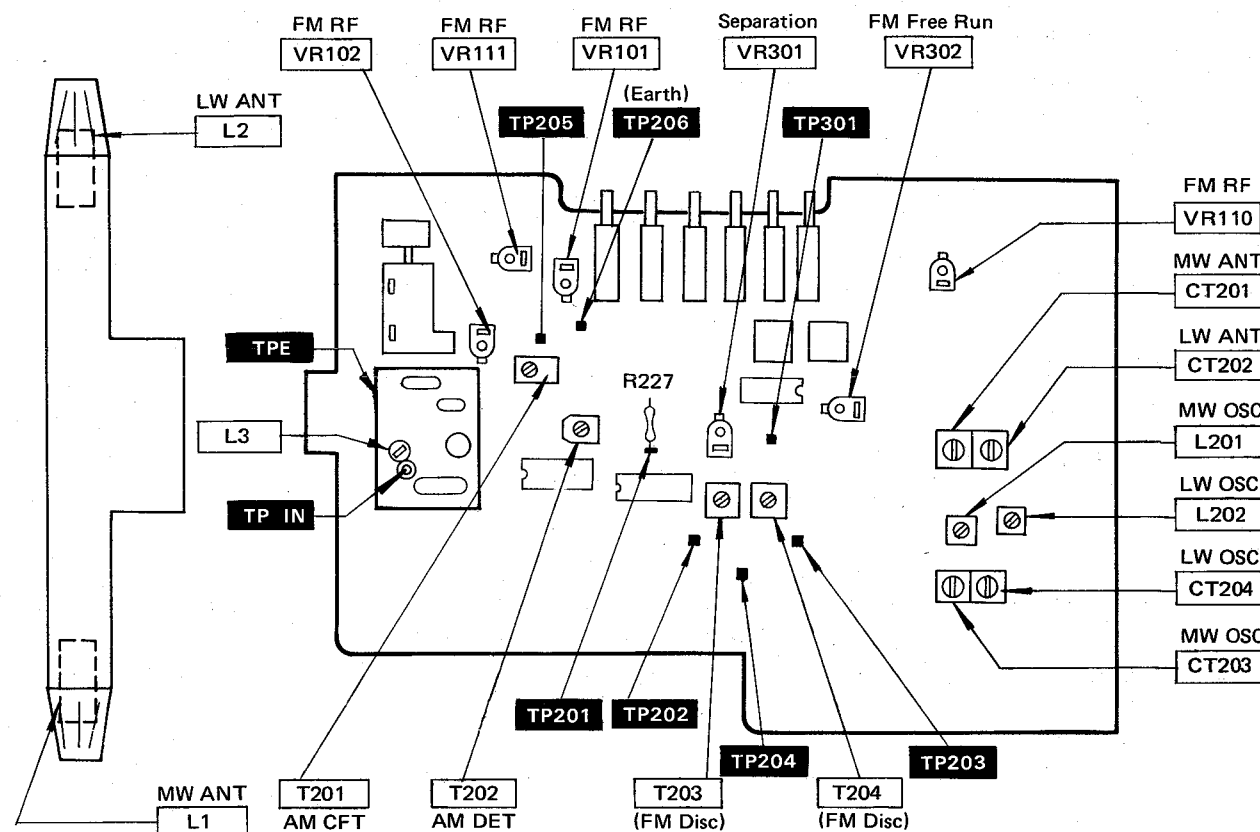
■ FM Stereo Alignment

FREE RUN ALIGNMENT				
EQUIPMENT CONNECTION			ADJUST	REMARKS
Connect frequency counter to TP301 and TP206 (Earth) at 98 MHz, non modulation with 60 dB input.			VR302	Adjust VR302 for 19 kHz $\pm$ 50Hz on frequency counter reading.
SEPARATION ALIGNMENT				
Notes:		Connect Stereo Modulator to EXT, Mod. terminal of signal generator.		
1. Stereo Modulator:		Modulation Rate of 19 kHz Pilot Signal 9%		
2. Signal Generator:		Modulation Rate of Right and Left Signal 30%		
		Output Level 60 dB		
Tuner (Balance Control):		Adjust balance control so that output level from both channels becomes equal.		
EQUIPMENT CONNECTION			ADJUST	REMARKS
SIGNAL GENERATOR	VTVM	OSCILLOSCOPE		
Connect to EXT. FM antenna terminal through dummy antenna.	Connect across speaker jack. (Imp. 4 Ω).	Connect vertical amp. input of scope to terminals of VTVM.	VR301 (Separation Control)	Adjust VR301 for minimum indication of VTVM from the left side output when the right side of stereo modulation is modulated. Adjust VR301 in the same way for the right side. Adjust for best balance between "L to R" and "R to L" separation.
Note: When aligning separation, disconnect frequency counter.				

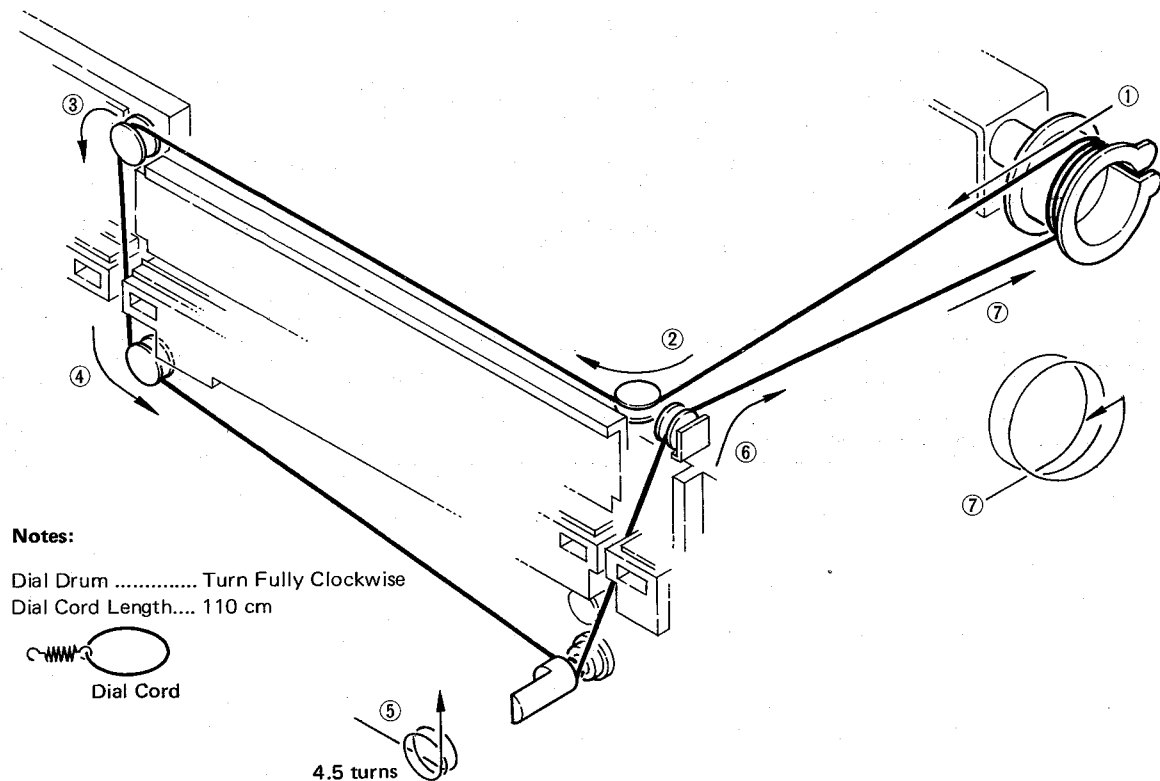
■ VU METER ALIGNMENT

STEP	VTVM CONNECTION		TAPE DECK CONDITION	DOLBY NR SWITCH	ADJUST	REMARKS
	Positive	Negative				
1	TP803	TP805	Recording	IN	REC Volume	• Apply 150 mV, 1 kHz to AUX. • Adjust Rec Volume to get 580 mV reading on VTVM.
	TP804					
2	No connection			IN	VR603 VR604	• Adjust VR603 and VR604 to light at +2 VU ( mark).
3	No connection			IN	VR601 VR602	• Attenuate the applied signal by 20 dB, then adjust VR601 and VR602 to light at -18 VU. • Repeat Steps 2 and 3. 

ALIGNMENT POINTS(RADIO)



DIAL CORD STRINGING GUIDE

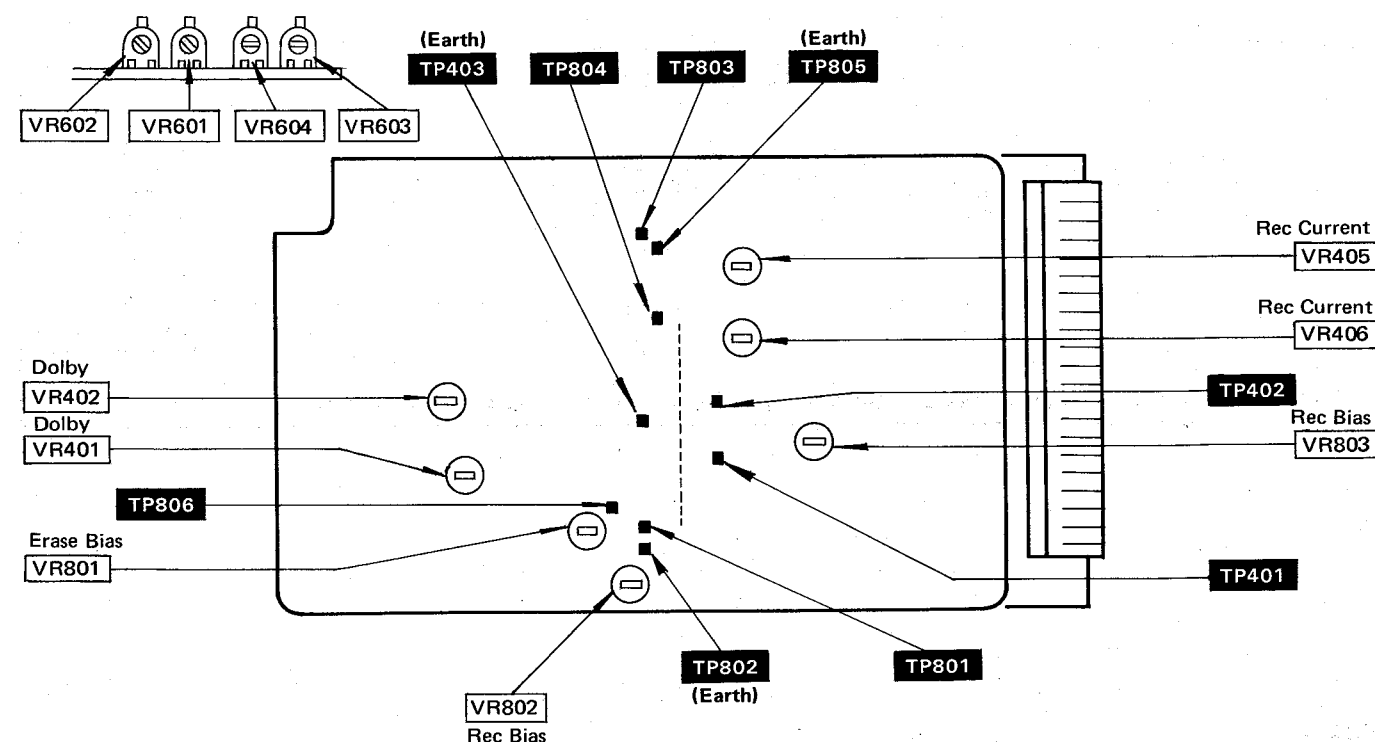


ALIGNMENT INSTRUCTIONS(CASSETTE TAPE DECK)

■ CASSETTE TAPE DECK ALIGNMENT

BIAS ALIGNMENT							
Control Positions:		1. Tape Deck Condition Recording Condition 2. Dolby Switch OUT					
STEP	ALIGNMENT ITEM	VTVM CONNECTION		TAPE SELECTOR	ADJUST	REMARKS	
		Positive	Negative				
1	Erase Bias	TP801	TP802	METAL	VR801	• Adjust VR802 and VR803 center. • Adjust VR801 to get 140 ~ 150 mV reading on VTVM.	
2	Recording Bias	TP401 (L ch)	TP403	NORMAL	VR802	• Adjust VR802 to get 3.8 mV reading on VTVM. (METAL: 9.4 ±0.4 mV)	
		TP402 (R ch)					
3	Recording Bias	TP401 (L ch)	TP403	METAL	VR803	• Adjust VR803 to get within 0.3 mV difference reading on both VTVM.	
		TP402 (R ch)					
AZIMUTH, DOLBY, REC CURRENT ALIGNMENT							
Control Positions:		1. Tape Deck Condition PLAY Condition 2. Tape Selector NORMAL					
STEP	ALIGNMENT ITEM	VTVM CONNECTION		TEST TAPE	DOLBY SWITCH	ADJUST	REMARKS
		Positive	Negative				
1	R/P Head Azimuth	Speaker Terminal	Speaker Terminal	VTT653 (10kHz)	OUT	Head Screw	• Adjust screw for max. indication on VTVM.
2	Dolby Level	TP803	TP805	TMT6130	IN	VR401	• Adjust VR401 and VR402 for 580 ±20 mV reading on VTVM.
		TP804				VR402	
3	Rec Current	TP401 (L ch)	TP403			VR405	• Connect TP801 to TP806. • Apply 1 kHz, 150 mV to AUX IN and adjust Rec level volume at Dolby level. • Adjust VR405 and VR406 for 0.46 ±0.02 mV reading on VTVM.
		TP402 (R ch)				VR406	

ALIGNMENT POINTS(CASSETTE TAPE DECK)



ANWEISUNGEN ZUM ABGLEICH(RADIO)-1

■ AM-Abgleich

Hinweise:

1. Lautstärkereglern

Maximum (AM-ZF und HF), Zentrum (FM-HF), Minimum (FM-IF)

2. Empfangsbereichschalter

LW, MW, FM MONO und FM AUTO

3. FM-Vorprogrammierung

MANUAL, P1, P2, P3, P4, P5 und P6

4. Lautheit

AUS

5. Lautstärke der FM-Vorprogrammierung (VR102 ~VR107)

Ganz im Uhrzeigersinn drehen.

6. Lautstärke der Vorprogrammierung (VR108 ~VR110 und 901)

Bis zur Mitte drehen.

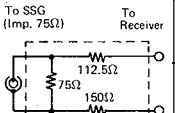
7. Der Ausgang des Messers sollte nicht höher als nötig sein, um den Ausgangswert zu erhalten.

8. Sich vergewissern, ob die Lautsprecheranlage während des Abgleichs an den Tuner angeschlossen ist (oder künstliche Antennenwiderstände von 4Ω verwenden).

SCHRITTE	MESSOSZILLATOR oder WOBELGENERATOR		EINSTELLUNG DER ABSTIMM-SKALA	AMZEIGE (RVM oder SKOP)	EINSTELLEN	BEMERKUNGEN
	ANSCHLUSS	FREQUENZ				
AM-ZF-ABGLEICH UND HF-ABGLEICH						
1		455 kHz 30% Mod. mit 400 Hz	Punkt der Nicht-interferenz		T201 (AM CFT) T202 (AN DET)	• Aufmaximalen Ausgang einstellen.
2 (LW)		150 kHz 30% Mod. mit 400 Hz	150 kHz (7,9 mm)		L2 (LW-Antennenspule) L202 (LW-Schwingspule)	• Durch Verschieben der Spule L2 entlang dem Ferritkern auf maximalen Ausgang einstellen. • Siehe Hinweis .
3 (LW)	Aus mehreren Drahtwindungen eine Schleife bilden und das Signal in die Schleife des Receivers abstrahlen.	350 kHz 30% Mod. mit 400 Hz	350 kHz (84,6 mm)	Ausgangsmessinstrument über Ausgangsbuchse (L). (Imp. 4 Ω)	CT202 (LW-Antennentrimmer) CT204 (LW-Schwingtrimmer)	• Auf maximalen Ausgang einstellen. • Schritte (2) und (3) wiederholen.
4 (MW)		550 kHz 30% Mod. mit 400 Hz	550 kHz (9,2 mm)		L1 (MW-Antennenspule) L201 (MW-Schwingspule)	• Durch Verschieben der Spule L1 entlang dem Ferritkern auf maximalen Ausgang einstellen. • Siehe Hinweisung .
5 (MW)		1500 kHz 30% Mod. mit 400 Hz	1500 kHz (81,6 mm)		CT201 (MW-Antennentrimmer) CT203 (MW-Schwingtrimmer)	• Auf maximalen Ausgang einstellen. • Schritte (4) und (5) wiederholen.
Hinweis: Die Antennenspule (L1 und L2) nach dem Abgleich mit Wachs beschichten.						
FM-ZF-ABGLEICH						
1	Hohe Seite durch 0,01 µF zwischen Punkt TP IN und TP E (Erde).	10,7 MHz (400 kHz SWP.)	Punkt der Nicht-Interferenz	Vertikalen Verstärkereingang des Skop zwischen Punkt TP201 und TP206 (Erde) anschliessen.	L3	• L3 auf maximale Amplitude und symmetrische Kurve einstellen. 
2	Kein Anschluss	Kain Signal	Frei	DC RVM zwischen TP203 und TP204 anschliessen.	T203 (FM Disc)	• T203 auf 0 mV auf der RVM-Anzeige
Hinweis: Da drei Ausgangsanzeigen vorliegen, müssen die Einstellungen bei Mittenfrequenz durchgeführt werden.						

ANWEISUNGEN ZUM ABGLEICH(RADIO)-2

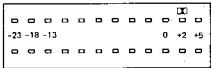
■ FM-ZF-Abgleich

SCHRITT	MESSOSZILLATOR		EINSTELLUNG DER ABSTIMM-SKALA	ANZEIGE (RVM oder SKOP)	UKW-VORPROGRAMMIERUNGSTASTE	EINSTELLEN	BEMERKUNGEN
	ANSCHLUSS	FREQUENZ					
1		108,3 MHz 30% Mod. mit 400 Hz	108,3 MHz			VR110	• Auf maximalen Aus- gang einstellen. • Schritte (1) bis (3) wiederholen.
2	Über Hilfsanten- ne mit EXT, FM- Antennenklemme verbinden.	87,35 MHz 30% Mod. mit 400 Hz	87,35 MHz (0 mm)	Ausgangsmes- sinstrument über Lautsprecher- buchse (L).	MANUAL	VR102	
3						VR101	
4	FM-HIL FSANTENNE	92,5 MHz 30% Mod. mit 400 Hz	92,5 MHz	UKW-Anzeige	P1	VR111	• VR111 für gleiche Leichte am 2. und 3. (94 MHz) LED vom linken Ende des UKW-Anzeigers einstellen. 
Hinweis: Zur Korrektur der Verschiebung des UKW-Bandbereichs (87,5 ~ 108 MHz) VR101, 102, 110 und VR111 einstellen.							
UKW-MONO-VERZERRUNGSABGLEICH							
1	Über Hilfsanten- ne mit EXT-FM- Antennenklemme verbinden.	98 MHz 100% Mod. mit 400 Hz	98 MHz	Verzerrungsmes- ser zur Laut- sprecherbuchse (L).		T204 (FM Disc)	• Auf minimale Anzeige des Ver- zerrungsmessers einstellen.

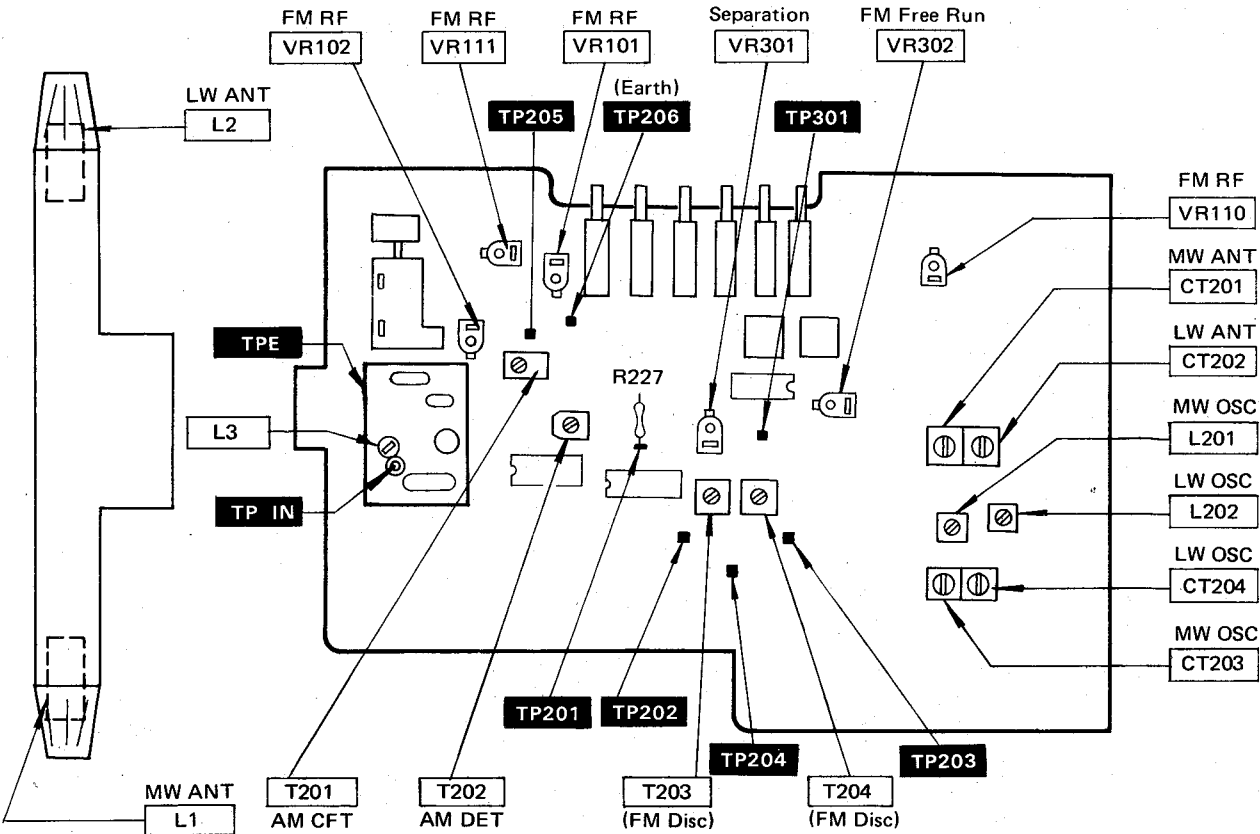
■ UKW-STEREO-ABGLEICH

FREI-RENNEN-ABGLEICH				
GERÄTE-ANSCHLUSS			EINSTELLEN	BEMERKUNGEN
Frequenz-Zähler an TP301 und TP206 (Erde) bei 98 MHz, kein Modulation mit 60 dB Eingang anschliessen.			VR302	VR302 auf 19 kHz ± 50 Hz am Frequenz-Zähler einstellen.
TREMMUNGSABGLEICH				
Hinweise:		Stereo-Modulator an EXT. Mod. Anschluss des Messoszillator anschliessen.		
1. Stereo-Modulator:		Modulation des 19 kHz-Pilottons9%		
2. Messoszillator:		Modulation des rechten und linken Tons30%		
		Ausgangspegel60 dB		
3. Tuner (Balance):		Balanceregler so einstellen, dress der Ausgang beider Kanä identisch ist.		
GERÄTE-ANSCHLUSS			EINSTELLEN	BEMERKUNGEN
MESSOSZILLATOR	RVM	EINSTELLEN		
Über Hilfsantenne an EXT, FM-Antennen-klemme anschliessen.	Über Laut-sprecher-buchse anschliessen (Imp. 4Ω)	Vertikalen Verstärkereingang des SKOP mit den Anschlüsse des RVM verbinden.	VR301 (Trennungs-regler)	VR301 auf minimale Anzeige des RVM vom linken Ausgang einstellen, wenn die rechte Seite des Stereo-Modulators moduliert wird. VR301 in gleicher Weise für die rechte Seite einstellen Optimale Balance zwischen „L nach R“ und „R nach L“ einstellen.
Hinweis: Beim Trennungsabgleich den Frequenzzähler ausschalten.				

■ VU-METERABGLEICH

SCHRITTE	RVM-ANSCHLUSS		TONBAND-GERÄT	DOLBY SCHALTER	EINSTELLEN	BEMERKUNGEN
	Positiv	Negativ				
1	TP803	TP805	REC	IN	Rec Lautstärke	• 150 mV, 1 kHz au AUX anlegen. • Das Rec Stärke so einstellen, daß Ablesewert auf RVM 580 mV ist.
	TP804					
2	Kein Anschluß			IN	VR603 VR604	• VR603 und VR604 so einstellen, daß ein Ablesewert von +2 VU () Markeirung) anzünden.
3	Kein Anschluß		IN	VR601 VR602	• Das angesetzte Signal um 20 dB herabsetzen, und dann VR601 und VR602 so einstellen, daß ein Ablesewert von -18 VU anzünden. • Operation 2 und 3 wiederholen. 	

ABGLEICHPUNKTE(RADIO)



ANWEISUNGEN ZUM ABGLEICH(KASSETTEN-TONBAND)

■ Abgleich des Kassetten-Tonbandes

VERZERRUNGSABGLEICH						
Hinweise: 1. Tonbandgerät auf RECORDING (Aufnahme) einstellen. 2. DOLBY-Schalter auf OUT (Aus) stellen.						
SCHRITT	ABGLEICH- OBJEKT	RVM-ANSCHLUSS		BANDWAHL	EINSTELLEN	BEMERKUNGEN
		Positiv	Negativ			
1	Lösch-Strom	TP801	TP802	METAL	VR801	• VR802 und VR803 auf Zentrum einstellen. • VR801 auf 140 ~150 mV Anzeige auf RVM einstellen.
2	Aufnahmenver- zerrung	TP401 (L ch) TP402 (R ch)	TP403	NORMAL	VR802	• VR802 auf 3.8 mV Anzeige auf RVM einstellen. (METAL: 9,4 ±0,4 mV)
3	Aufnahmenver- zerrung	TP401 (L ch) TP402 (R ch)		METAL	VR803	• VR803 innerhalb 0,3 mV Unterschied, Anzeige auf RVM einstellen.

ABGLEICH DES AZIMUTH, DOLBY, UND AUFNAHMESTROMS

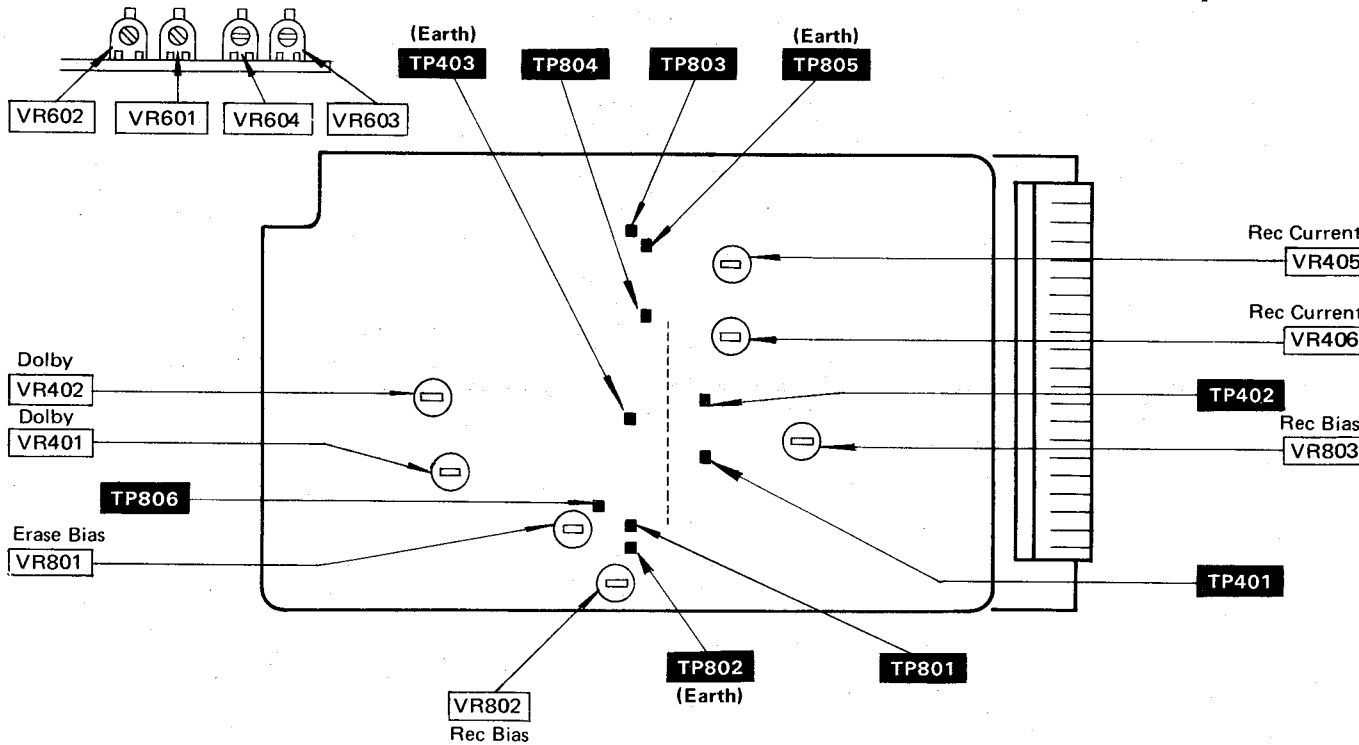
Hinweise:

1. Tonbandgerät auf PLAY einstellen.

2. Bandwahl: NORMAL

SCHRITTE	ABGLEICH- OBJEKT	RVM-ANSCHLUSS		TESTBAND	DOLBY- SCHALTER	EIN- STELLEN	BEMERKUNGEN
		Positiv	Negativ				
1	R/P-Kopf Azimuth	Lautsprecher Anschluss	Lautsprecher Anschluss	VTT653 (10kHz)	OUT	Kopt- schraube	• Schraube auf maximale Anzeige am RVM einstellen. RVM einstellen.
2	Dolby Pegel	TP803	TP805	TMT6130	IN	VR401	• VR401 und VR402 auf 580 mV Anzeige am einstellen.
		TP804				VR402	
3	Aufnahme- Strom	TP401	TP403			VR405	• TP801 an TP806 anschliessen. • 1 kHz, 150 mV and das AUX IN setzen und das Rec Stärke- niveau auf das Dolby Niveau stellen.
		TP402				VR406	• VR405 und VR406 auf Able- sewert 0,46 ±0,02 mV auf RVM stellen.

ABGLEICHPUNKTE(CASSETTEN-TONBAND)



INSTRUCTIONS D'ALIGNEMENT-1

■ Alignement de AM

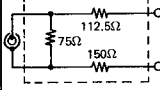
Remarques:

1. Contrôle de volume Au maximum (AM-IF et RF), au centre (FM-RF), au minimum (FM-IF)
2. Sélecteur de gamme LW, MW, FM MONO et FM AUTO
3. Présélection FM MANUAL, P1, P2, P3, P4, P5 et P6
4. Enveloppe sonore OFF
5. Volume de présélection FM (VR102 ~ 107) Tourner tout à fait dans le sens contraire des aiguilles d'une montre.
6. Volume (VR108, 109, 110 et VR901) Tourner la commande jusqu'au point central.
7. La sortie du générateur de signaux ne doit pas être supérieure à celle nécessaire pour obtenir la lecture de sortie.
8. S'assurer que les enceintes sont raccordées au récepteur quand on effectue l'alignement.

ETAPE	GENERATEUR DE SIGNAUX ou DE BALAYAGE		POSITION DU CURSEUR SUR LE CADRAN	VOLTMETRE OU OSCILLOSCOPE	AJUSTAGE	REMARQUES
	CONNEXION	FREQUENCE				
ALIGNEMENT DE F.I. ET H.F. EN AM						
1	façonner: une boucle de quelques tours de fil et rayonner le signal dans la boucle du récepteur.	455 kHz module à 30% sur 400 Hz	Point sans interférence	Voltmètre sur la prise du haut-parleur gauche (L) (Imp. 4Ω).	T201 (2ème TFI sur AM) T202 (3ème TFI sur AM)	• Régler pour une sortie maximale.
2 (LW)		150 kHz module à 30% sur 400 Hz	150 kHz (7.9 mm)		L2 (Bobine d'antenne GO) L202 (Bobine de l'oscillateur GO)	• Régler pour une sortie Maximale en déplaçant la bobine L2 sur le noyau de ferrite. • Se référer à remarque.
3 (LW)		350 kHz module à 30% sur 400 Hz	350 kHz (84.6 mm)		CT202 (Compensateur d'antenne GO) CT204 (Compensateur de l'oscillateur GO)	• Régler pour une sortie maximale. • Répéter les étapes (2) et (3).
4 (MW)		550 kHz module à 30% sur 400 Hz	550 kHz (9.2 mm)		L1 (Bobine d'antenne OM) L201 (Bobine de l'oscillateur OM)	• Régler pour une sortie maximale en déplaçant la bobine L1 sur le noyau de ferrite. • Se référer à remarque.
5 (MW)		1500 kHz module à 30% sur 400 Hz	1500 kHz (81.6 mm)		CT201 (Compensateur d'antenne QM) CT203 (Compensateur de l'oscillateur QM)	• Régler pour une sortie maximale. • Répéter les étapes (4) et (5).
Remarque: Cimenter la bobine (L1 et L2) d'antenne à la cire après avoir terminé l'alignement.						
FM-IF ALIGNMENT						
1	Côté haut connecté par 0,01μF entre les points TP IN et TP E (masse).	10.7 MHz (400 kHz SWP.)	Point de non-interférence	Connecter l'entrée d'amp. vert. d'oscilloscope entre les points TP201 et TP206 (masse).	L3	• Ajuster L3 pour avoir une amplitude maximale et une courbe symétrique. 
2	Pas de connexion	Pas de signal	Libre	Connecter le voltmètre électron. à cour. cont. entre TP203 et TP204.	T203 (FM Disc)	• Régler T203 pour obtenir la lecture de 0 mV au voltmètre électron.
Remarque: Comme on aura trois lectures de sortie présentes, les réglages doivent être faits à la fréquence centrale.						

INSTRUCTIONS D'ALIGNEMENT-2

■ Alignement de FM-RF

ETAPE	GENERATEUR DE SIGNAUX		POSITION DU CURSEUR SUR LE CADRAN	VOLTMETRE ou OSCILLOSCOPE	BOUTON DE PRESELEC- TION	REGLAGE	REMARQUES
	CONNEXION	FREQUENCE					
1		108.3 MHz module à 30% sur 400 Hz	108.3 MHz		MANUAL	VR110	• Régler pour obtenir la sortie maximale. • Répéter les opérations (1) ~ (3).
2	Connecter la borne d'antenne FM EXT. par l'intermédiaire de l'antenne fictive.	87.35 MHz module à 30% sur 400 Hz	87.35 MHz (0 mm)	Voltmètre sur la prise du haut-parleur gauche (L).		VR102	
3						To SSG (Imp. 75Ω)	
4	 FM-HILFSAN TENNE	92,5 MHz module à 30% sur 400 Hz	92,5 MHz	Indicateur de FM	P1	VR111	
Remarque: Pour corriger la dérive de la gamme de fréquence FM (87,5 ~ 108 MHz), régler VR101, 102, 110 et VR111.							
ALIGNMENT DE LA DISTORSION SUR FM MONO							
1	Connecter à la borne d'antenne EXT. FM via le circuit de couplage.	98 MHz module à 100% sur 400 Hz	98 MHz	Distorsionmètre à la prise du haut-parleur gauche (L).		T204 (FM Disc)	• Régler pour une lecture minimale du di distorsionmètre.

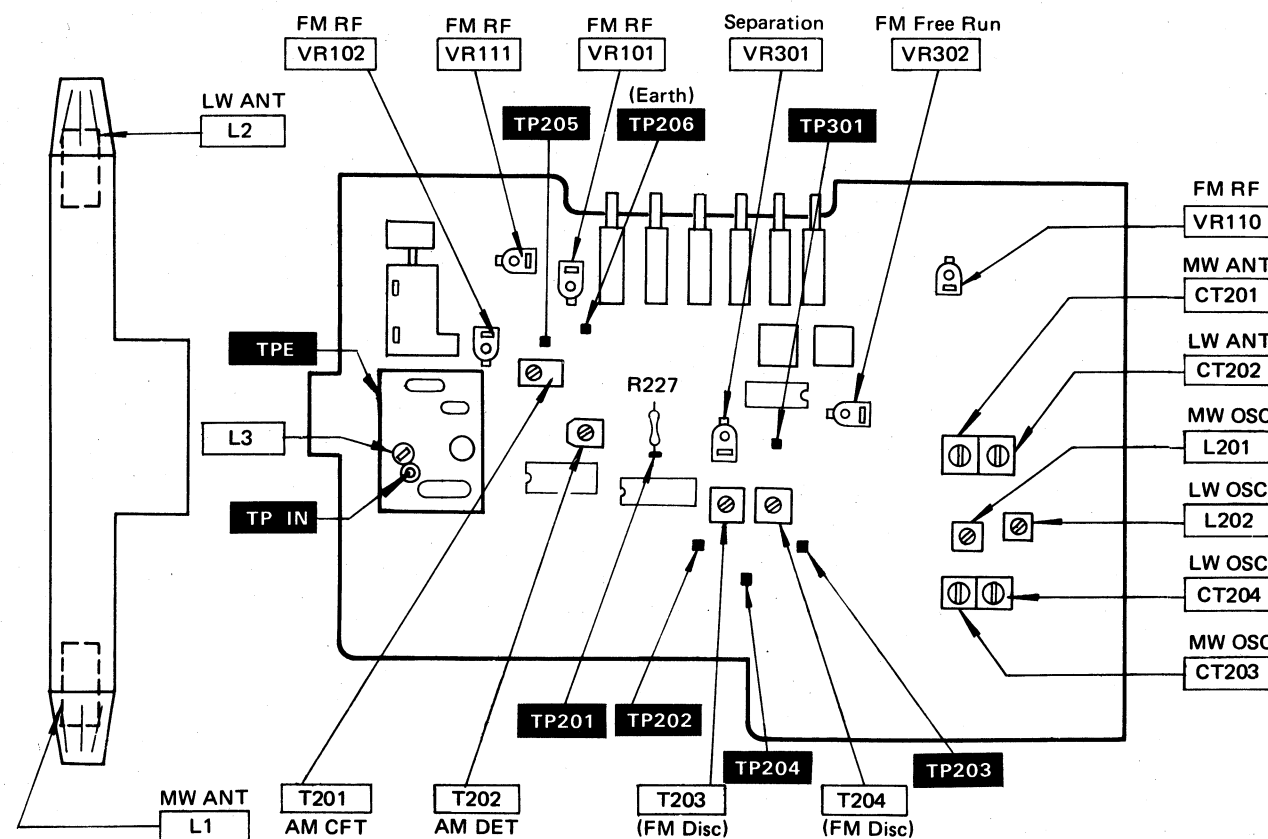
■ Alignement stéréo FM

ALIGNEMENT DE LA LIBRE COURSE				
CONNEXION DES INSTRUMENTS			REGLAGE	REMARQUES
Brancher un fréquencemètre à TP301 et TP206 (Masse) à 98 MHz modulé à non sur entrée de 60 dB.			VR302	Ajuster VR302 pour une lecture de 19 kHz ± 50 Hz sur le fréquencemètre.
ALIGNEMENT DE LA DIAPHONIE				
Remarques:				
1. Modulateur stéréo:		Connecter le modulateur stéréo à la borne Mod. Ext. du générateur de signaux.		
2. Générateur de signaux:		Taux de modulation du signal pilot de 19 kHz . . . 9%		
		Taux de modulation des signaux gauche et droit30%		
		Niveau de sortie60 dB		
3. Tuner (contrôle d'équilibrage): Régler le contrôle d'équilibrage de sorte que la sortie des deux canaux soit égale.				
CONNEXION DES INSTRUMENTS			REGLAGE	REMARQUES
GENERATEUR DE SIGNAUX	VOLTMETRE	OSCILLOSCOPE		
Connecter à la borne d'antenne EXT. FM via le circuit de couplage.	Connecter à la prise de hautparleur. (Imp. 4Ω)	Connecter la sonde verticale à la sonde du voltmètre.	VR301 (Commande de séparation)	Régler VR301 pour une lecture minimale sur le canal lorsque le signal module est sur le canal droit. Régler VR301 de la même manière pour le canal droit. Régler pour un équilibrage parfait entre gauche et droit et pour une meilleure séparation, il faut débrancher le fréquencemètre.
Remarque: Pour l'alignement de la séparation, il faut débrancher le fréquencemètre.				

■ ALIGNMENT D'INDICATEUR VU

ETAP	CONNECTION DU VOLTMETRE ELECTRON		MAGNETO-PHONE	COMMUTATEUR DOLBY NR	REGLAGE	REMARQUES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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1	TP803	TP805	REC	IN	Niveau volume d'enregistrement	• Appliquer 150 mV, 1 kHz à la borne AUX. • Ajuster le volume du niveau d'enregistrement pour obtenir la lecture 580 mV sur le voltmètre életron.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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2	Pas de connexion				IN	VR603 VR604	• Ajuster VR603 et VR604 pour illuminer la +2VU (marque ).																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
3	Pas de connexion			IN	VR601 VR602	• Atténuer le signal appliqué de 20 dB, puis ajuster VR601 et VR602 pour illuminer la lecture -18 VU. • Répéter les étapes 2 et 3 ci-dessus. 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POINTS D'ALIGNEMENT (RADIO)

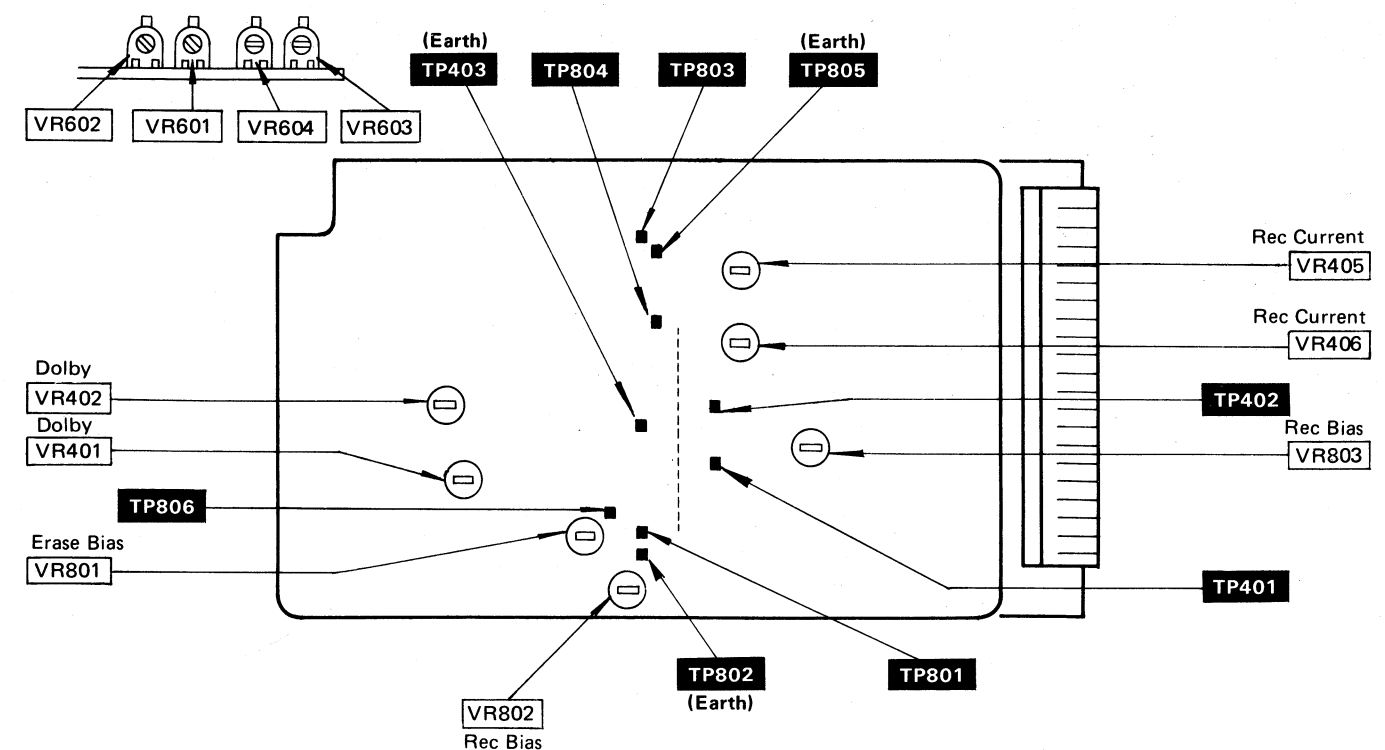


INSTRUCTIONS D'ALIGNEMENT(MAGNETOPHONE)

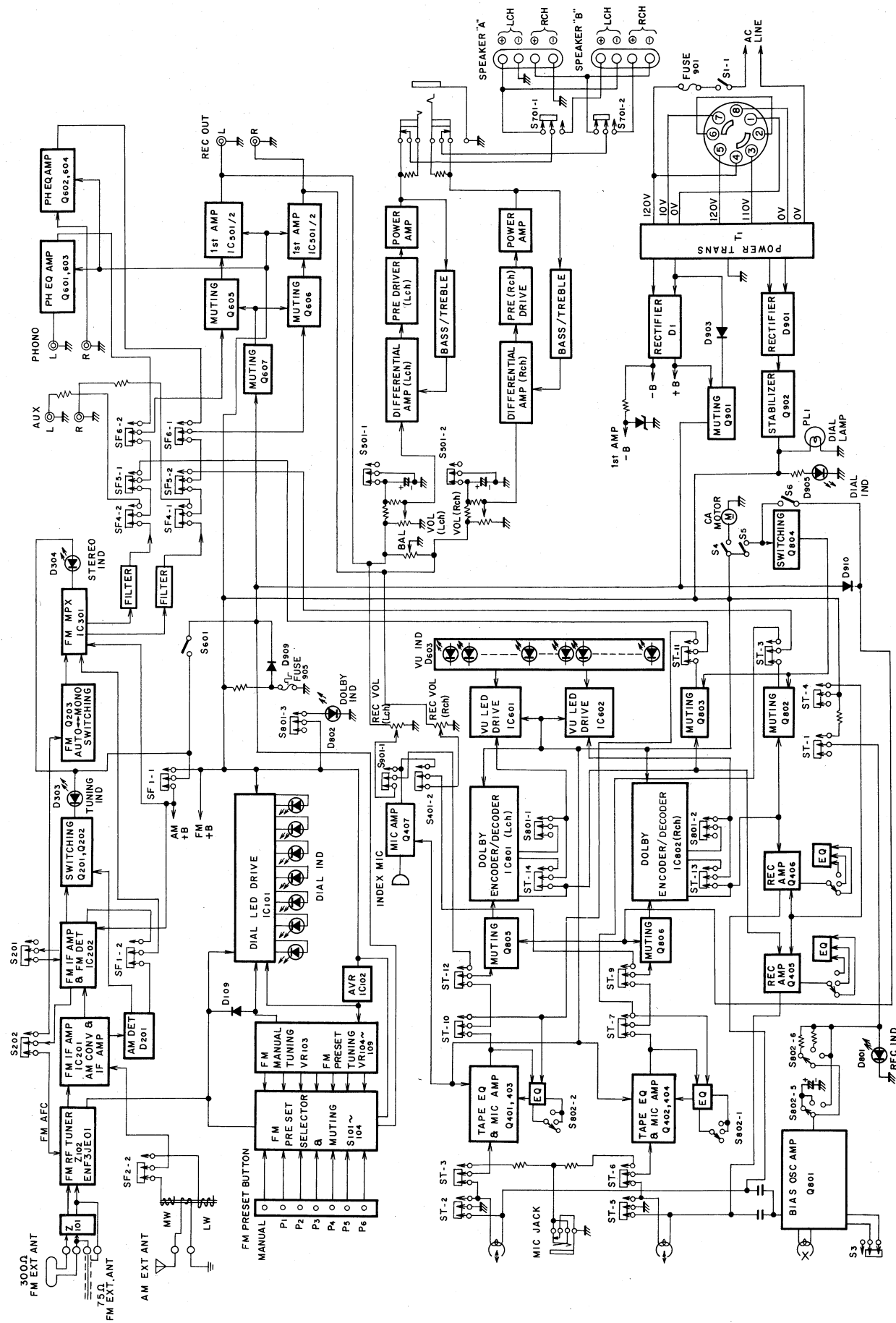
■ Alignement du Magnétophone à cassette

TENSION DE ALIGNEMENT							
Position des commandes: 1. Condition du magnétophone Condition d'enregistrement 2. Commutateur Dolby SORTI							
ETAPE	ARTICLE DE ALIGNMENT	CONNEXION DU VOLTMETRE		SELECTEUR DE BANDE	REGLAGE	REMARQUES	
		Positif	Négatif				
1	Courant D'effacement	TP801	TP802	METAL	VR801.	• Régler VR802 et VR803 au centrer. • Regler VR802 pour obtenir l'indica tion 140 ~ 150 mV au voltmètre életron.	
2	Polarisation d'enregistre ment	TP401 (L ch)	TP403	NORMAL	VR802	• Régler VR802 pour obtenir l'indica tion 3.8 mV au voltmètre életron. (METAL: 9.4 ±0.4 mV)	
		TP402 (R ch)					
3	Polarisation d'enregistre ment	TP401 (L ch)	TP403	METAL	VR803	• Régler VR803 pour obtenir dans 0.3 mV diffèrent au voltmètre életron.	
		TP402 (R ch)					
ALIGNEMENT AZIMUT, DOLBY, COURANT REC							
Position des commandes: 1. Condition du magnétophone Condition de reproduction PLAY 2. Sélecteur de bande NORMAL							
ETAPE	ARTICLE DE ALIGNMENT	CONNEXION DU VOLTMETRE		BANDE D'ESSAI	COMMUTATEUR DE DOLBY	REGLAGE	REMARQUES
		Positif	Négatif				
1	Azimet tête Enr./Rep.	Borne de haut-parleur (Borne)	Borne de haut-parleur (Borne)	VTT653 (10kHz)	OUT	Vis de tête	• Régler la vis pour obtenir l'indication au voltmètre életron.
2	Niveau Dolby	TP803	TP805	TMT6130		VR401	• Régler VR401 et VR402 pour obtenir l'indication 580 ±20 mV au voltmètre életron.
		TP804				VR402	
3	Courant Rec.	TP401	TP403		IN	VR405	• Connecter TP801 à TP806. • Appliquer 1 kHz, 150 mV au AUX IN et ajuster le bouton de niveau d'enregistrement au niveau Dolby. • Ajuster VR405 et VR106 pour obtenir la lecture 0,46 ±0,02 mV sur le voltmètre électronique.
		TP402				VR406	

POINTS D'ALIGNEMENT (MAGNETOPHONE)



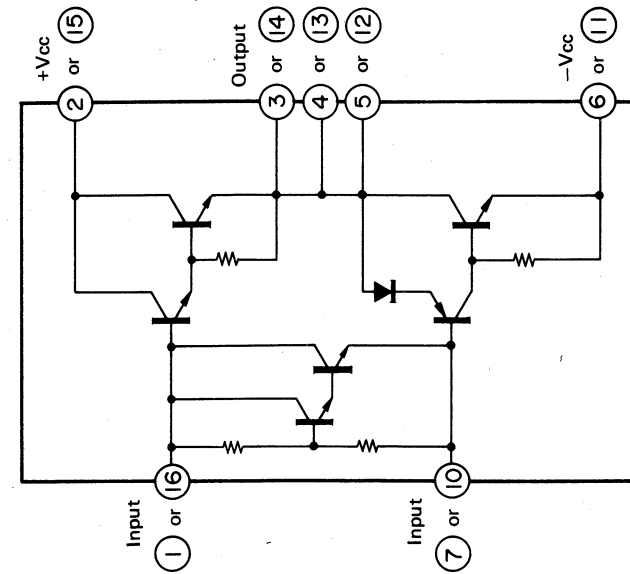
BLOCK DIAGRAM



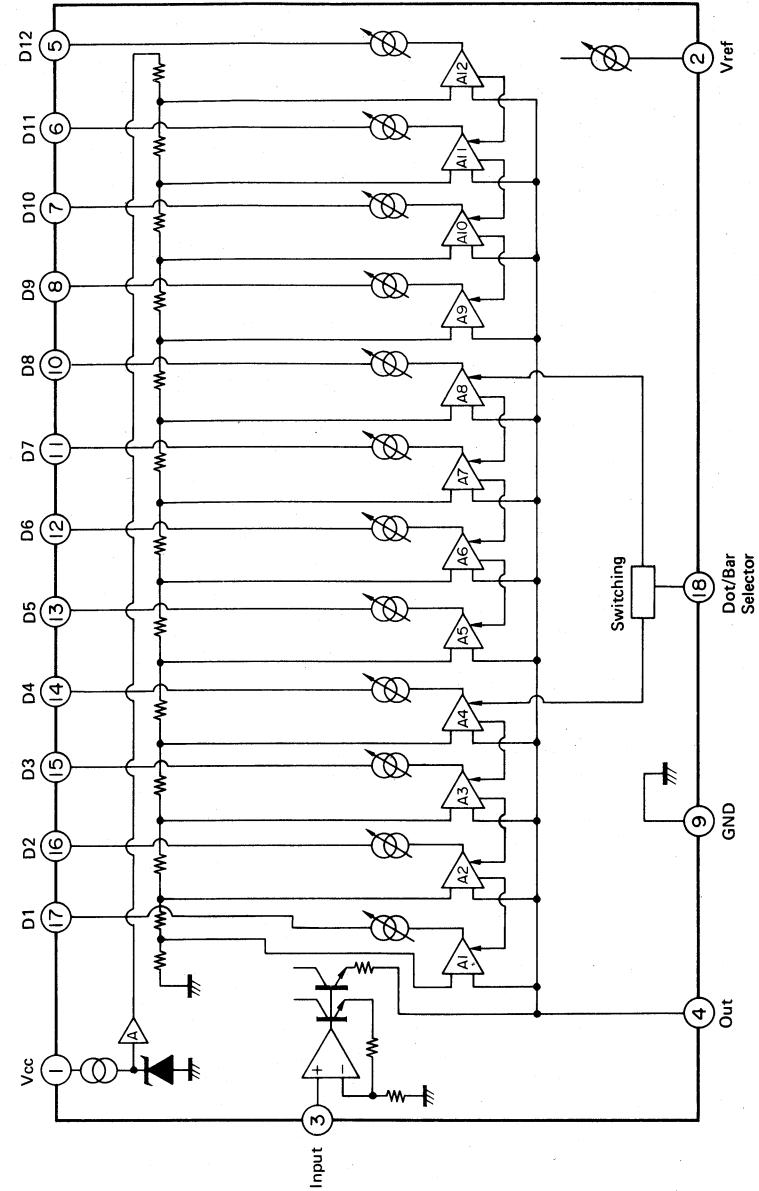
IC BLOCK DIAGRAMS

[Refer to Common Service Manual (ORDER NO. TSD-8001-362).]

IC701 STK2025K

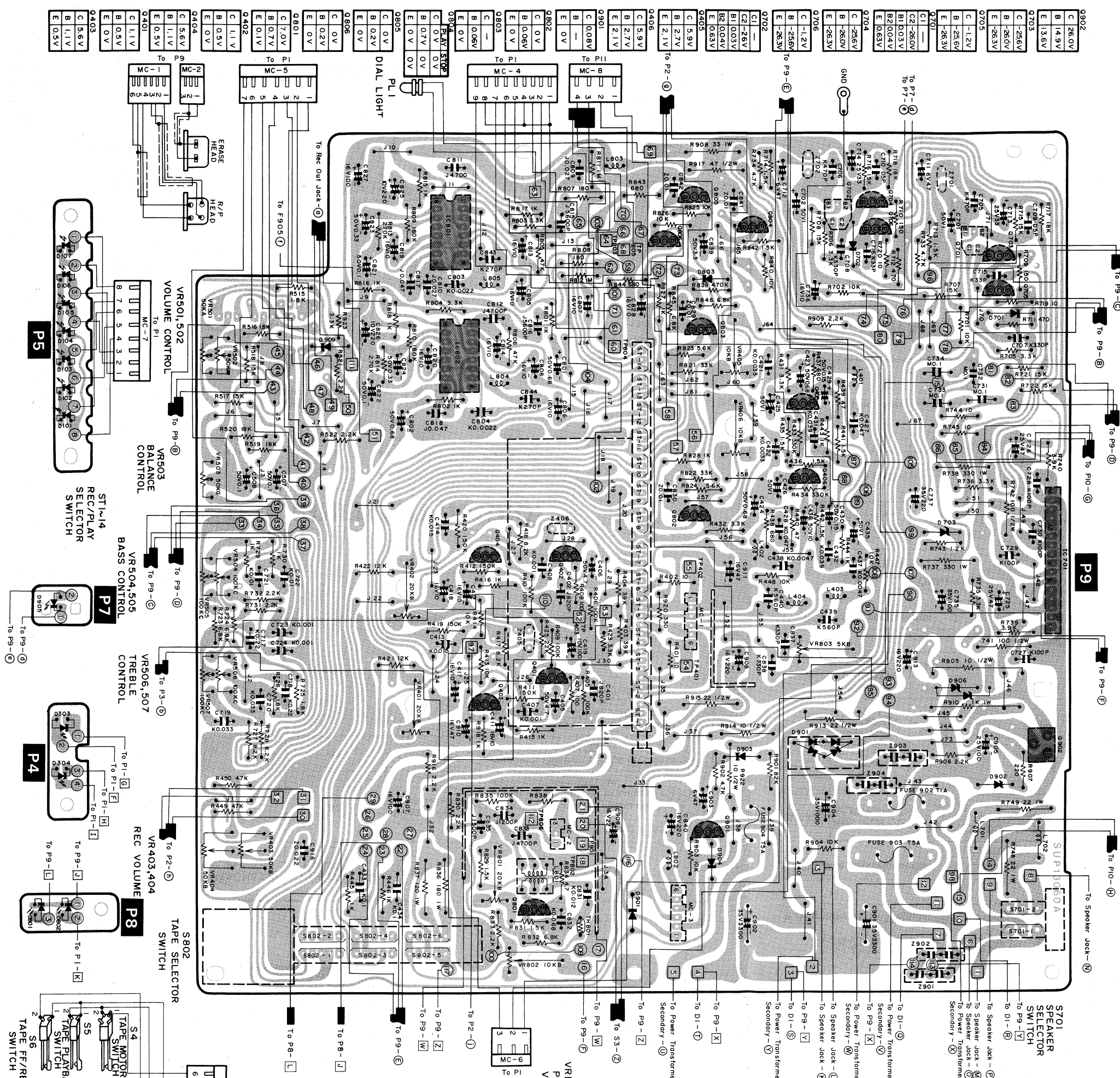
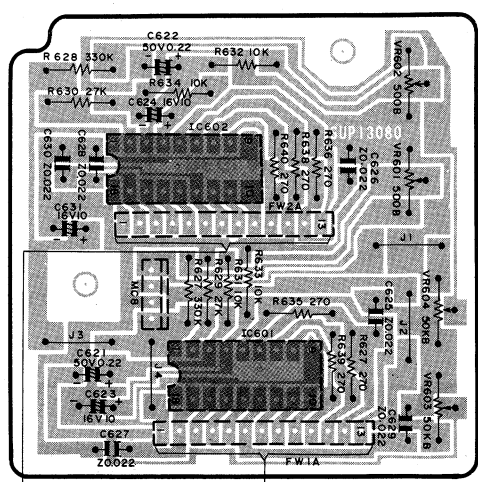
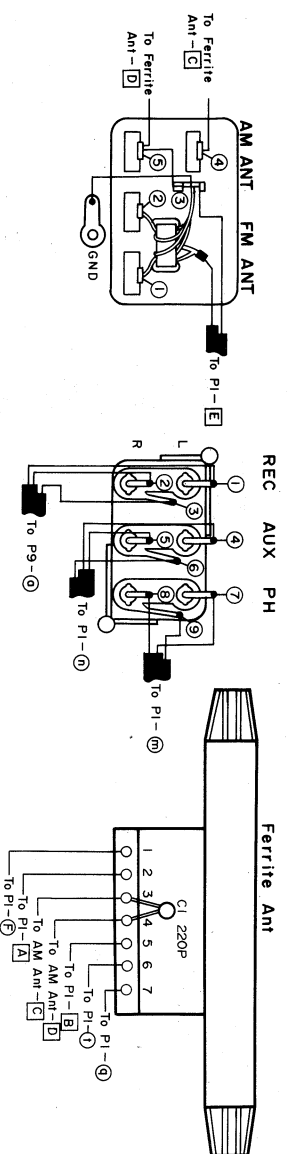


IC601, 602 BA682A



CIRCUIT BOARD AND WIRING

IC601, 602																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
13.4V	6.2V	0V	0.03V	12.2V	12.2V	12.2V	0V	8.7V	9.8V	11.0V	12.2V	8.7V	9.9V	11.0V	12.2V	0.7V	
IC701																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
1.2V	28.0V	0V	0V	0V	28.0V	1.2V	—	—	-1.2V	-28.0V	0V	0V	28.0V	1.2V			
IC801, 802																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
5.6V	5.7V	6.0V	5.6V	5.6V	5.7V	4.9V	—	0V	5.6V	5.6V	5.6V	—	6.0V	6.0V	11.0V		



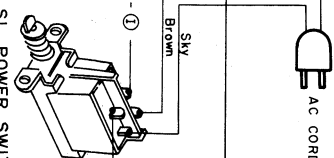
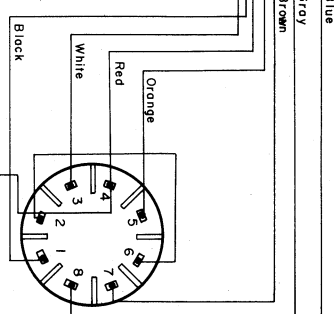
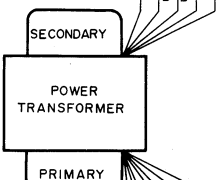
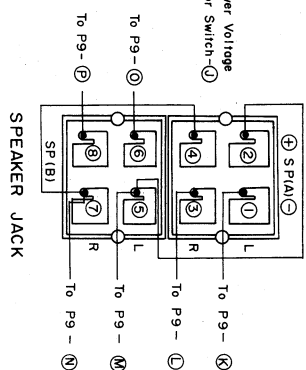
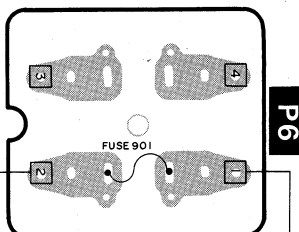
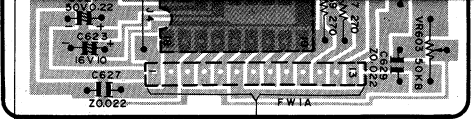
*This diagram might be modified without notice for further development of technology.

AND WIRING CONNECTION

VULLED) METER
0 2 3 4 5 6 7 8 9 10 11 12 13
0 0 0 0 0 0 0 0 0 0 0 0 0

IC201	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
AM	0V	0V	0V	6.9V	1.0V	0V	1.0V	6.9V	9.2V	1.5V	0.8V	9.1V	0.7V	1.5V	9.2V	0.7V
FM	0V	0V	0V	6.5V	1.0V	0V	1.0V	6.6V	0.6V	0.9V	0.9V	0.6V	0.9V	0.8V	0.8V	0.5V

IC301	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
AM	12.8V	2.9V	5.7V	7.1V	7.1V	12.7V	0V	0.3V	6.5V	2.1V	4.0V	2.1V	2.1V	2.1V	6.1V	6.1V
FM	12.5V	2.5V	5.7V	6.9V	6.9V	12.5V	0V	0.3V	6.5V	2.1V	2.5V	2.1V	2.5V	2.1V	2.9V	2.9V



q601	
C	1.2 V
B	0.57V
E	0.06V

Q602	
C	1.2V
B	0.57V
E	0.06V

Q603	
C	7.2 V
B	1.2 V

E	1.2V
Q604	
C	7.2V

B	1.2V
E	1.2V

Q201

C	0.1V
B	0.56V
E	0V

Q202	
C	0 V
B	0.1 V
E	3.0 V

Q 203	
C	0V
B	0.7V
E	0V

IC501	
1	2.5V
2	3.5V
3	1.5V
4	-15V
5	0V
6	2.5V
7	1.7V
8	12.5V

Q605	
C	0 V
B	0.2 V
E	0 V

8 - K

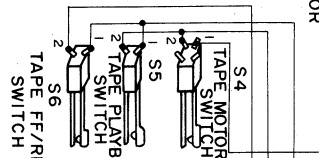
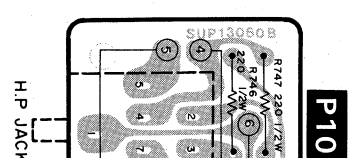
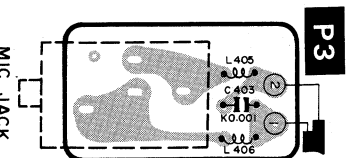
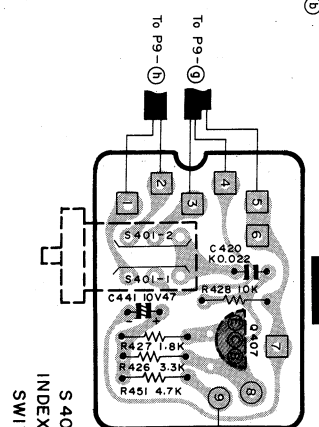
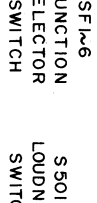
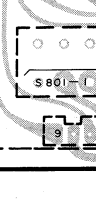
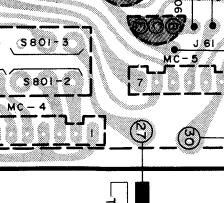
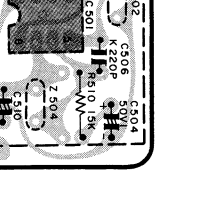
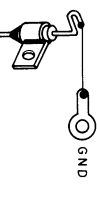
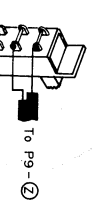
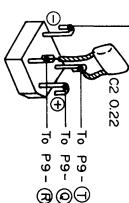
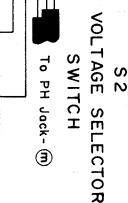
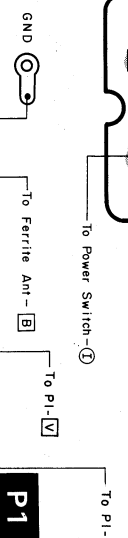
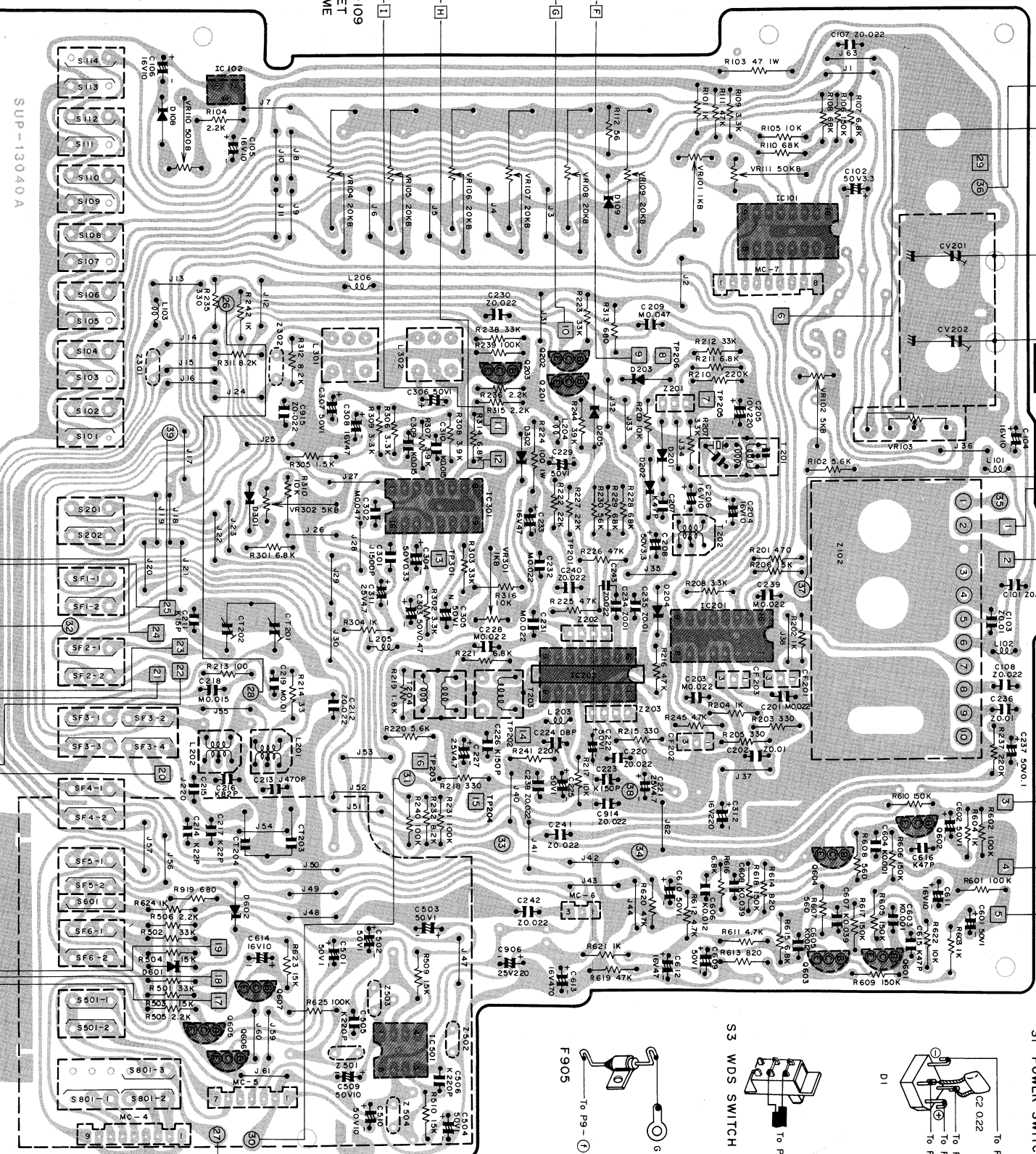
Q606	
C	0 V
B	0.2 V
E	0 V

Q607	
C	0.2V
B	0V
E	0.3V

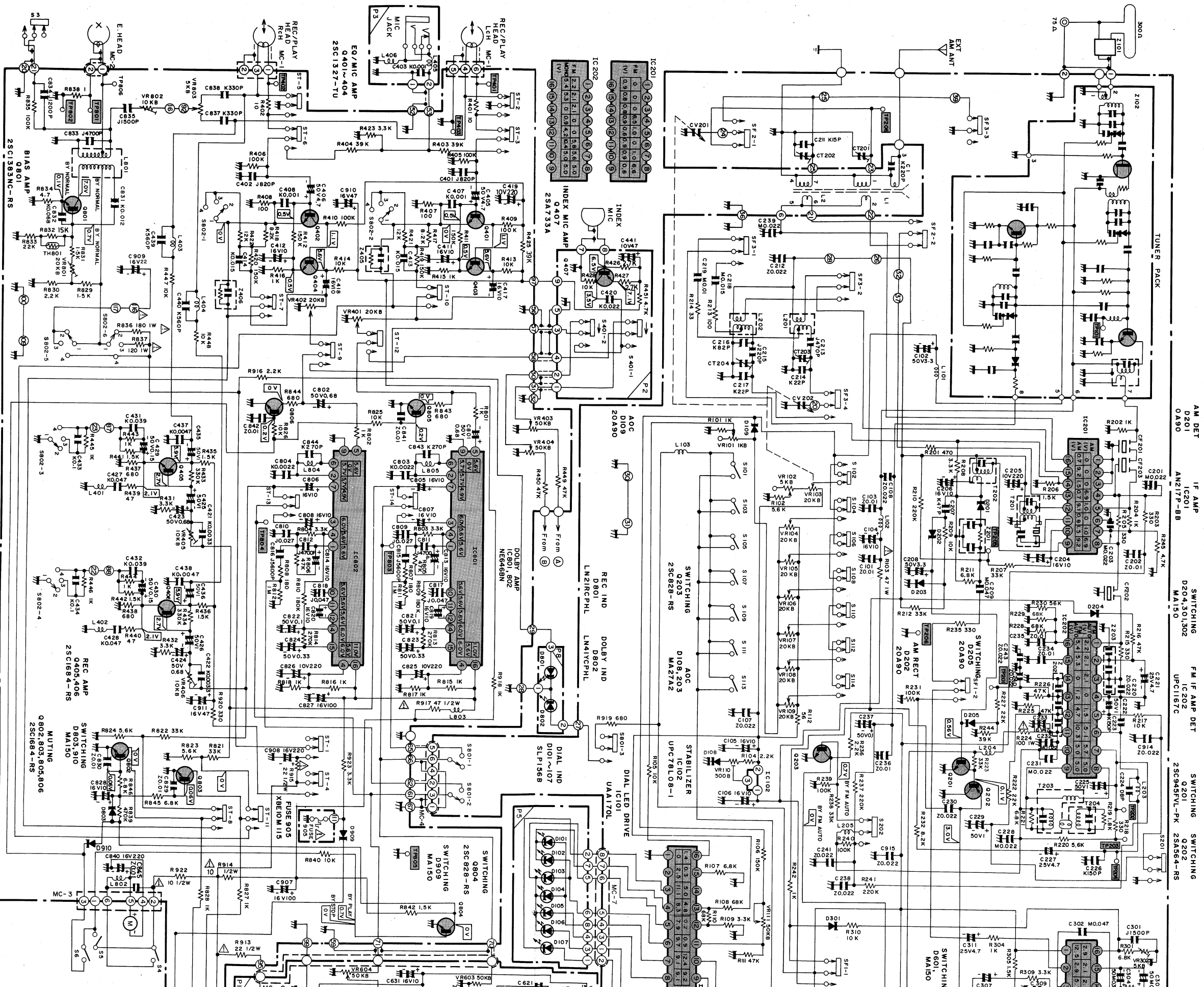
S801 DOLBY NR SWITCH

S601 FUNCTION SELECTOR SWITCH
S501 LOUDNES SWITCH

S101~114 PRESET SELECTOR SWITCH
S201, 202 FM MODE SELECTOR SWITCH



SCHEMATIC DIAGRAM



C	836	837	401	406	910	412	414	219	420	216	215	217	841	801	843	803	206	103	807	809	811	101	817	819	821	823	825	827	237	105	910	845	311	621	840	907	301	303	305	307																																																																																																																																																																											
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R	401	402	403	405	407	408	417	419	415	447	448	916	801	825	802	803	805	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
	401	402	403	405	407	408	417	419	415	447	448	916	801	825	802	803	805	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
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SW	834	835	833	831	832	439	441	309	213	213	102	214	841	801	843	803	206	103	807	809	811	101	817	819	821	823	825	827	237	105	910	845	311	621	840	907	301	303	305	307																																																																																																																																																																											
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L, T	834	835	833	831	832	439	441	309	213	213	102	214	841	801	843	803	206	103	807	809	811	101	817	819	821	823	825	827	237	105	910	845	311	621	840	907	301	303	305	307																																																																																																																																																																											
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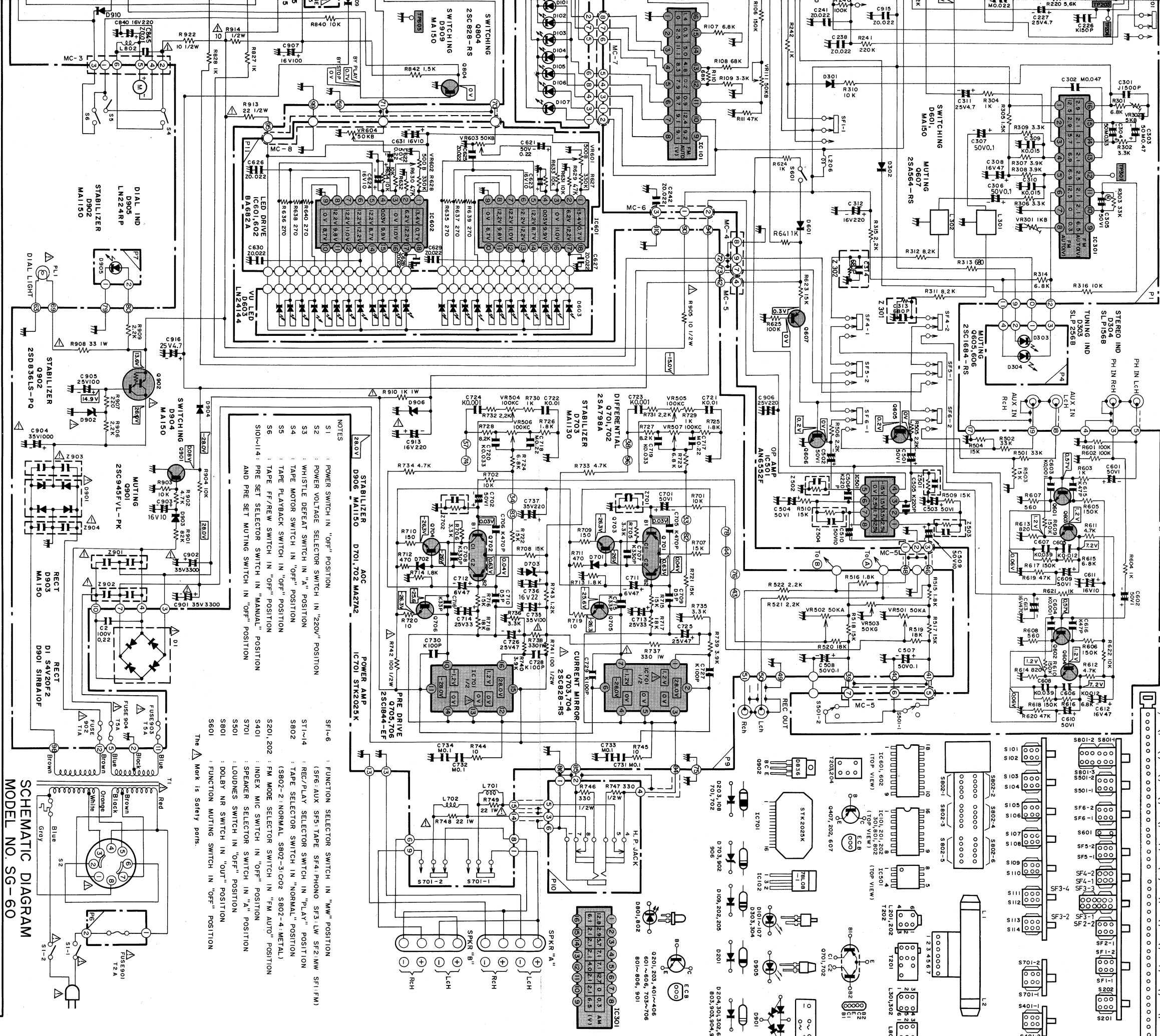
MATIC DIAGRAM

ITCHING

FM MPX
IC301
LA33505

PH EQ AMP
6E01~604
25C1527-TU

511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000



SCHEMATIC DIAGRAM
MODEL NO. SG-60

- NOTES
- S1 : POWER SWITCH IN "OFF" POSITION
 - S2 : POWER VOLTAGE SELECTOR SWITCH IN "250V" POSITION
 - S3 : WHISTLE DEFEAT SWITCH IN "A" POSITION
 - S4 : TAPE MOTOR SWITCH IN "OFF" POSITION
 - S5 : TAPE PLAYBACK SWITCH IN "OFF" POSITION
 - S6 : TAPE FF/REW SWITCH IN "OFF" POSITION
 - S10-14 : PRE SET SELECTOR SWITCH IN "MANUAL" POSITION
 - S10-14 : PRE SET SELECTOR SWITCH IN "OFF" POSITION
- The Δ Mark is Safety parts.

220	241	304	301	308	302	307	308	639	303	315	312	313	314	311	623	903	905	904	903	902	901	2	745	747											
240	106	107	242	108	110	310	111	622	627	637	306				623	905	729	506	504	723	501	503	607	617	619	515	618	608	519	612	616	618	746		
							109	628	629	637					623	905	730	725	722	733			509	701	522	521	715	739	526	620					
840	914	837						632	637	633	638						910	782	726				706	710	515	712	714	716	719	718	741	742		744	
922	828	842	913					634			636						907	906	728				902	901		743		726				748			
8201			54	SF-1		5601																													
55			55																																
56			56																																

REPLACEMENT PARTS LIST

NOTE:

1. Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
2. Parts No. listed in this Parts List are of Service Parts.

Ref. No.	Part No.	Description	Per Set (pcs.)
TRANSISTORS			
Q201	2SC945L	Switching	1
Q202	2SA666AI-R	Switching	1
Q203	2SC1328-T	Switching	1
Q401, 402	2SC1328-T	EQ/Mic Amp	2
Q403, 404	2SC1328-T	EQ/Mic Amp	2
Q405, 406	2SC1684-R	Rec. Amp	2
Q407	2SA733A	Mic Amp	1
Q601, 602	2SC1328-T	PH EQ Amp	2
Q603, 604	2SC1328-T	PH EQ Amp	2
Q605, 606	2SC1684-R	Muting	2
Q607	2SA666AI-R	Muting	1
Q701, 702	2SA798AFG-2	Differential	2
Q703, 704	2SC1328-T	Current Mirror	2
Q705, 706	2SC1844	Pre Drive	2
Q801	2SC1383NC-Q	Bias Amp	1
Q802, 803	2SC1684-R	Muting	2
Q804	2SC1328-T	Switching	1
Q805, 806	2SC1684-R	Muting	2
Q901	2SC945L	Muting	1
Q902	2SD836LS	Stabilizer	1
INTEGRATED CIRCUITS			
IC101	UAA170L	Dial LED Drive	1
IC102	UPC78L08-1	Stabilizer	1
IC201	AN217P	IF Amp	1
IC202	UPC1167C	FM IF Amp, Det	1
IC301	LA3350S	FM MPX	1
IC501	AN6552	OP Amp	1
IC601, 602	BA682A	LED Drive Amp	2
IC701	STK2025K	Power Amp	1
IC801, 802	NE646BN	Dolby Amp	2

Ref. No.	Part No.	Description	Per Set (pcs.)
DIODES			
D1 Δ	S4VB20F2	Rect	1
D101, 102	SLP156B	Preset	2
D103, 104	SLP156B	Preset	2
D105, 106	SLP156B	Preset	2
D107	SLP156B	Preset	1
D108	MA27A2	AOC	1
D109	2OA90	AOC	1
D201	2OA90	AM Det	1
D202	2OA90	AM Rect	1
D203	MA27A2	AOC	1
D204	MA150	Switching	1
D205	2OA90	Switching	1
D301, 302	MA150	Switching	2
D303	SLP256B	Tuning	1
D304	SLP156B	Stereo Indicator	1
D601, 602	MA150	Switching	2
D603	LN24144	VU LED	1
D701, 702	MA27A2	AOC	2
D703	MA1130	Stabilizer	1
D801	LN21RCPHL	Rec Indicator	1
D802	LN41YCPHL	Dolby Indicator	1
D803	MA150	Switching	1
D901 Δ	SIRBA10	Rect	1
D902	MA1150	Stabilizer	1
D903	MA150	Rect	1
D904	MA150	Switching	1
D905	LN224RP	Dial LED	1
D906	MA1150	Stabilizer	1
D909	MA150	Switching	1
D910	MA150		1
THERMISTER			
TH801	ERTD2FHK202S	Thermister	1
LAMPS AND FUSES			
PL1 Δ	XAMR76P300	Lamp	1
F901 Δ	XBA2C20TR0	Fuse 250V T2A	1
F902 Δ	XBA2C10TR0	Fuse 250V T1A	1
F903, 904 Δ	XBA2C50TR0	Fuse 250V T5A	2
F905	XBE10M115	Fuse, Thermal	1

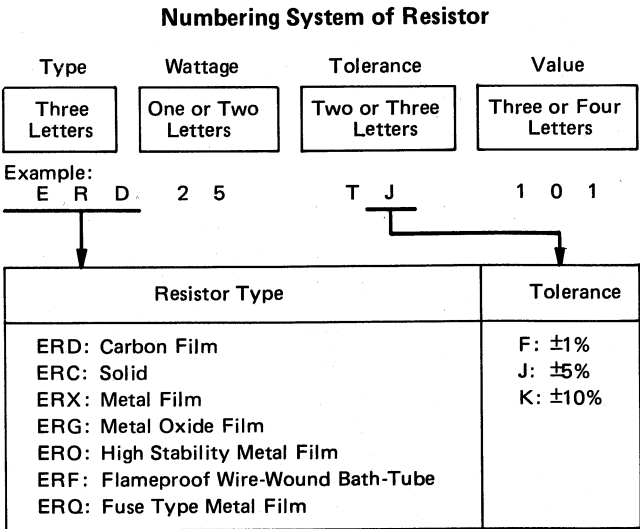
REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)
COILS AND TRANSFORMERS			
L1, 2	SLF6E2-0	Ant. Coil, LW/MW	1
L101	SLQZ101-2D	RFC Coil	1
L102, 103	RLQY15G5-0	RFC Coil	2
L201	SL02M6-M	OSC Coil, MW	1
L202	SL01M8-M	OSC Coil, LW	1
L203	SLQU270-2K	RFC Coil	1
L204	SLQZ101-2D	RFC Coil	1
L205, 206	RLQY15G5-0	RFC Coil	2
L301, 302	SLM9Z12-M	MPX Filter	2
L401, 402	SLQU222-2Y	REC EQ Peak Coil	2
L403, 404	SLQV393-4M	Bias Trap Coil	2
L405, 406	RLQY75S2-0	RFC Coil	2
L701, 702	SLQY80S-20	SP Coil	2
L801	SL09Z38-K	OSC Coil, Bias	1
L802, 803	SLQU270-2K	RFC Coil	2
L804, 805	SLQV393-4M	Bias Trap Coil	2
T1 Δ	SLT5U20-W	Power Transformer	1
T201	RLI7W105-M	CFT, AM	1
T202	RLI2M402-M	IFT, AM 2nd	1
T203	SLI4C512-K	Disc Coil, FM	1
T204	SLI4C514-K	Disc Coil, FM	1
CF201, 202	SVF107MA53	CFT, FM	2
CF203	SVF107MA53	CFT, FM	1
Z101	SLAA4W1-3	Balun	1
COMPONENT COMBINATIONS			
Z201	EXAF203Z471B	C-R	1
Z202, 203	EXF3SL04C	C-C	2
Z405, 406	EXRP472P682S	C-R	2
Z501, 502	EXRP151K473S	C-R	2
Z503, 504	EXRP100K473S	C-R	2
Z701, 702	EXRP331K333S	C-R	2
Z901, 902	EXRFS203Z	C-C	2
Z903, 904	EXRFS203Z	C-C	2

Ref. No.	Part No.	Description	Per Set (pcs.)
VARIABLE RESISTORS			
VR101	EVTS3MA00B13	Preset 1k Ω B	1
VR102	EVTS3MA00B53	Preset 5k Ω B	1
VR104, 105	SVV40	Preset 20k Ω B	2
VR106, 107	SVV40	Preset 20k Ω B	2
VR108, 109	SVV40	Preset 20k Ω B	2
VR110	EVTS3MA00B52	Preset 500 Ω B	1
VR111	EVTS3MA00B54	Preset 50k Ω B	1
VR301	EVTS3MA00B13	Preset 1k Ω B	1
VR302	EVTS3MA00B53	Preset 5k Ω B	1
VR401, 402	EVTS3MA00B24	Preset 20k Ω B	2
VR403, 404	EWKANAF27B54	REC Volume 50k Ω B	1
VR405, 406	EVTS3MA00B14	Preset 10k Ω B	2
VR501, 502	EWKG7A063A54	Volume 50k Ω A	1
VR503	EVHF0A528G54	Balance 50k Ω G	1
VR504, 505	EWKEUAC63C15	Bass 100k Ω C	1
VR506, 507	EWKEUAC63C15	Treble 100k Ω C	1
VR601, 602	EVTS0AA00B52	Preset 500 Ω B	2
VR603, 604	EVTS0AA00B54	Preset 50k Ω B	2
VR801	EVTS3MA00B24	Preset 20k Ω B	1
VR802	EVTS3MA00B14	Preset 10k Ω B	1
VR803	EVTS3MA00B53	Preset 5k Ω B	1
VARIABLE CAPACITORS			
CT201, 202	SCVCTY211D31	Trimmer	1
CT203, 204	SCVCTY211D31	Trimmer	1
CV201, 202 (VR103)	SCVCE21W114	Tuning Capacitor with Variable Resistor	1
SWITCHES			
S1 Δ	ESB70294	Power	1
S2 Δ	ESE37205	Voltage Selector	1
S3	SSS102	WDS	1
S101 ~ 114	SSH714	Preset	1
S401	SSH122	Mic SW	1
S701	SSH120	SP SW	1
S802	SSR160	Tape Selector	1
ST1 ~ 14	ESD81575	Rec/Play SW	1
SF	SSH904	Function	1

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)
TUNER			
Z102	ENF3JE01	FM RF Tuner	1
PACKINGS			
PC1	SPN4278	Carton Box	1
PC2	SPN4280-2	Pad	1
PC3	SPP130	Set Cover	1
OTHERS			
1	SSA267	ANT Feeder	1
2	SOX50254	Instruction Book	1
3	SPT1HCZNRAZ1	Demonstration Tape	1



Ref. No.	Part No.	Description	Per Set (pcs.)
RESISTORS			
R101	ERD25FJ102	1kΩ 1/4W	1
R102	ERD25FJ562	5.6kΩ 1/4W	1
R103	ERG1ANJP470	47Ω 1W	1
R104	ERD25FJ222	2.2kΩ 1/4W	1
R105	ERD25FJ103	10kΩ 1/4W	1
R106	ERD25TJ154	150kΩ 1/4W	1
R107	ERD25FJ682	6.8kΩ 1/4W	1
R108	ERD25TJ683	68kΩ 1/4W	1
R109	ERD25FJ332	3.3kΩ 1/4W	1
R110	ERD25TJ683	68kΩ 1/4W	1
R111	ERD25TJ473	47kΩ 1/4W	1
R112	ERD25FJ560	56Ω 1/4W	1
R201	ERD25FJ471	470Ω 1/4W	1
R202	ERD25FJ102	1kΩ 1/4W	1
R203	ERD25FJ331	330Ω 1/4W	1
R204	ERD25FJ102	1kΩ 1/4W	1
R205	ERD25FJ331	330Ω 1/4W	1
R206	ERD25FJ152	1.5kΩ 1/4W	1
R207	ERD25TJ333	33kΩ 1/4W	1
R208	ERD25FJ332	3.3kΩ 1/4W	1
R209	ERD25FJ103	10kΩ 1/4W	1
R210	ERD25TJ224	220kΩ 1/4W	1
R211	ERD25FJ682	6.8kΩ 1/4W	1
R212	ERD25TJ333	33kΩ 1/4W	1
R213	ERD25FJ101	100Ω 1/4W	1
R214	ERD25FJ330	33Ω 1/4W	1
R215	ERD25FJ331	330Ω 1/4W	1
R216	ERD25TJ473	47kΩ 1/4W	1
R217	ERD25FJ103	10kΩ 1/4W	1
R218	ERD25FJ331	330Ω 1/4W	1
R219	ERD25FJ182	1.8kΩ 1/4W	1
R220	ERD25FJ562	5.6kΩ 1/4W	1
R221	ERD25FJ682	6.8kΩ 1/4W	1

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)
R222	ERD25TJ223	22kΩ 1/4W	1
R223	ERD25TJ333	33kΩ 1/4W	1
R224	ERG1ANJP101	100Ω 1W	1
R225, 226	ERD25TJ473	47kΩ 1/4W	2
R227	ERD25TJ223	22kΩ 1/4W	1
R228, 229	ERD25TJ683	68kΩ 1/4W	1
R230	ERD25TJ563	56kΩ 1/4W	1
R231	ERD25TJ104	100kΩ 1/4W	1
R232	ERD25FJ822	8.2kΩ 1/4W	1
R235	ERD25FJ331	330Ω 1/4W	1
R236	ERD25FJ222	2.2kΩ 1/4W	1
R237	ERD25TJ224	220kΩ 1/4W	1
R238	ERD25TJ333	33kΩ 1/4W	1
R239, 240	ERD25TJ104	100kΩ 1/4W	2
R241	ERD25TJ224	220kΩ 1/4W	1
R242	ERD25FJ102	1kΩ 1/4W	1
R244	ERD25TJ393	39kΩ 1/4W	1
R245	ERD25FJ472	4.7kΩ 1/4W	1
R301	ERD25FJ682	6.8kΩ 1/4W	1
R302	ERD25FJ332	3.3kΩ 1/4W	1
R303	ERD25TJ333	33kΩ 1/4W	1
R304	ERD25FJ102	1kΩ 1/4W	1
R305	ERD25FJ152	1.5kΩ 1/4W	1
R306	ERD25FJ332	3.3kΩ 1/4W	1
R307, 308	ERD25FJ392	3.9kΩ 1/4W	2
R309	ERD25FJ332	3.3kΩ 1/4W	1
R310	ERD25FJ103	10kΩ 1/4W	1
R311, 312	ERD25FJ822	8.2kΩ 1/4W	2
R313	ERD25FJ102	1kΩ 1/4W	1
R314	ERD25FJ682	6.8kΩ 1/4W	1
R315	ERD25FJ222	2.2kΩ 1/4W	1
R316	ERD25FJ103	10kΩ 1/4W	1
R401, 402	ERD25FJ100	10Ω 1/4W	2
R403, 404	ERD25TJ393	39kΩ 1/4W	2
R405, 406	ERD25TJ104	100kΩ 1/4W	2
R407, 408	ERD25FJ101	100Ω 1/4W	2
R409, 410	ERD25TJ104	100kΩ 1/4W	2
R411, 412	ERD25TJ154	150kΩ 1/4W	2
R413, 414	ERD25FJ103	10kΩ 1/4W	2
R415, 416	ERD25FJ102	1kΩ 1/4W	2
R417, 418	ERD25FJ822	8.2kΩ 1/4W	2
R419, 420	ERD25TJ154	150kΩ 1/4W	2
R421, 422	ERD25TJ123	12kΩ 1/4W	2
R423	ERD25FJ332	3.3kΩ 1/4W	1
R425	ERD25TJ223	22kΩ 1/4W	1
R426	ERD25FJ332	3.3kΩ 1/4W	1
R427	ERD25FJ182	1.8kΩ 1/4W	1
R428	ERD25FJ103	10kΩ 1/4W	1
R431, 432	ERD25FJ332	3.3kΩ 1/4W	2
R433, 434	ERD25TJ334	330kΩ 1/4W	2
R435, 436	ERD25FJ152	1.5kΩ 1/4W	2
R437, 438	ERD25FJ681	680Ω 1/4W	2
R439, 440	ERD25FJ470	47Ω 1/4W	2

Ref. No.	Part No.	Description	Per Set (pcs.)
R441, 442	ERD25FJ152	1.5kΩ 1/4W	2
R443, 444	ERD25FJ102	1kΩ 1/4W	2
R445, 446	ERD25FJ102	1kΩ 1/4W	2
R447, 448	ERD25FJ103	10kΩ 1/4W	2
R449, 450	ERD25TJ473	47kΩ 1/4W	2
R451	ERD25FJ472	4.7kΩ 1/4W	1
R501, 502	ERD25TJ333	33kΩ 1/4W	2
R503, 504	ERD25TJ153	15kΩ 1/4W	2
R505, 506	ERD25FJ222	2.2kΩ 1/4W	2
R509, 510	ERD25TJ153	15kΩ 1/4W	2
R515, 516	ERD25FJ182	1.8kΩ 1/4W	2
R517, 518	ERD25TJ153	15kΩ 1/4W	2
R519, 520	ERD25TJ183	18kΩ 1/4W	2
R521, 522	ERD25FJ222	2.2kΩ 1/4W	2
R601, 602	ERD25TJ104	100kΩ 1/4W	2
R603, 604	ERD25FJ102	1kΩ 1/4W	2
R605, 606	ERD25TJ154	150kΩ 1/4W	2
R607, 608	ERD25FJ561	560Ω 1/4W	2
R609, 610	ERD25TJ154	150kΩ 1/4W	2
R611, 612	ERD25FJ472	4.7kΩ 1/4W	2
R613, 614	ERD25FJ821	820Ω 1/4W	2
R615, 616	ERD25FJ682	6.8kΩ 1/4W	2
R617, 618	ERD25TJ154	150kΩ 1/4W	2
R619, 620	ERD25TJ473	47kΩ 1/4W	2
R621	ERD25FJ102	1kΩ 1/4W	1
R622	ERD25FJ103	10kΩ 1/4W	1
R623	ERD25TJ153	15kΩ 1/4W	1
R625	ERD25TJ104	100kΩ 1/4W	1
R627, 628	ERD25TJ334	330kΩ 1/4W	2
R629, 630	ERD25TJ273	27kΩ 1/4W	2
R631, 632	ERD25FJ103	10kΩ 1/4W	2
R633, 634	ERD25FJ103	10kΩ 1/4W	2
R635, 636	ERD25FJ271	270Ω 1/4W	2
R637, 638	ERD25FJ271	270Ω 1/4W	2
R639, 640	ERD25FJ271	270Ω 1/4W	2
R701, 702	ERD25FJ103	10kΩ 1/4W	2
R705, 706	ERD25FJ332	3.3kΩ 1/4W	2
R707, 708	ERD25TJ153	15kΩ 1/4W	2
R709, 710	ERD25FJ151	150Ω 1/4W	2
R711, 712	ERD25FJ471	470Ω 1/4W	2
R713, 714	ERD25FJ152	1.5kΩ 1/4W	2
R715, 716	ERD25TJ153	15kΩ 1/4W	2
R717, 718	ERD25TJ183	18kΩ 1/4W	2
R719, 720	ERD25FJ100	10Ω 1/4W	2
R721, 722	ERD25TJ153	15kΩ 1/4W	2
R723, 724	ERD25FJ682	6.8kΩ 1/4W	2
R725, 726	ERD25FJ182	1.8kΩ 1/4W	2
R727, 728	ERD25FJ822	8.2kΩ 1/4W	2
R729, 730	ERD25FJ102	1kΩ 1/4W	2
R731, 732	ERD25FJ222	2.2kΩ 1/4W	2
R733, 734	ERD25FJ472	4.7kΩ 1/4W	2
R735, 736	ERD25FJ332	3.3kΩ 1/4W	2
R737, 738	ERG1ANJP331	330Ω 1W	2

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Ref. No.	Part No.	Description	Per Set (pcs.)
R739, 740	ERD25FJ392	3.9k Ω 1/4W	1				
R741, 742 Δ	ERQ12HJ101	100 Ω 1/2W	2				
R743	ERD25FJ122	1.2k Ω 1/4W	1				
R744, 745	ERD25FJ100	10 Ω 1/4W	2				
R746, 747	ERD50FJ331	330 Ω 1/2W	2				
R748, 749 Δ	ERG1ANJP220	22 Ω 1W	2				
R801, 802	ERD25FJ102	1k Ω 1/4W	2				
R803, 804	ERD25FJ332	3.3k Ω 1/4W	2				
R805, 806	ERD25TJ473	47k Ω 1/4W	2				
R807, 808	ERD25FJ181	180 Ω 1/4W	2				
R809, 810	ERD25TJ184	180k Ω 1/4W	2				
R811, 812	ERD25TJ105	1M Ω 1/4W	2				
R813, 814	ERD25TJ274	270k Ω 1/4W	2				
R815, 816	ERD25FJ102	1k Ω 1/4W	2				
R817, 818	ERD25FJ102	1k Ω 1/4W	2				
R821, 822	ERD25TJ333	33k Ω 1/4W	2				
R823, 824	ERD25FJ562	5.6k Ω 1/4W	2				
R825, 826	ERD25FJ103	10k Ω 1/4W	2				
R827, 828	ERD25FJ102	1k Ω 1/4W	2				
R829	ERD25FJ152	1.5k Ω 1/4W	1				
R830	ERD25FJ222	2.2k Ω 1/4W	1				
R831	ERD25FJ152	1.5k Ω 1/4W	1				
R832	ERD25FJ682	6.8k Ω 1/4W	1				
R833	ERD25FJ222	2.2k Ω 1/4W	1				
R834	ERD25FJ4R7	4.7 Ω 1/4W	1				
R835	ERD25TJ104	100k Ω 1/4W	1				
R836 Δ	ERG1ANJP181	180 Ω 1W	1				
R837 Δ	ERG1ANJP121	120 Ω 1W	1				
R838	ERD25FJ1R0	1 Ω 1/4W	1				
R839	ERD25TJ474	470k Ω 1/4W	1				
R840	ERD25FJ103	10k Ω 1/4W	1				
R842	ERD25FJ152	1.5k Ω 1/4W	1				
R843, 844	ERD25FJ681	680 Ω 1/4W	2				
R845, 846	ERD25FJ682	6.8k Ω 1/4W	2				
R901	ERD25TJ823	82k Ω 1/4W	1				
R902	ERD25FJ472	4.7k Ω 1/4W	1				
R903, 904	ERD25FJ103	10k Ω 1/4W	2				
R905 Δ	ERQ12HJ100	10 Ω 1/2W	1				
R906	ERD25FJ222	2.2k Ω 1/4W	1				
R907	ERD25FJ221	220 Ω 1/4W	1				
R908 Δ	ERQ1CJ330	33 Ω 1W	1				
R909	ERD25FJ222	2.2k Ω 1/4W	1				
R910 Δ	ERG1ANJP102	1k Ω 1W	1				
R913 Δ	ERQ12HJ220	22 Ω 1/2W	1				
R914 Δ	ERQ12HJ100	10 Ω 1/2W	1				
R915 Δ	ERQ12HJ220	22 Ω 1/2W	1				
R916	ERD25FJ222	2.2k Ω 1/4W	1				
R917 Δ	ERQ12HJ470	47 Ω 1/2W	1				
R918	ERD25FJ102	1k Ω 1/4W	1				
R919 Δ	ERD25FJ681	680 Ω 1/4W	1				
R920	ERD25FJ331	330 Ω 1/4W	1				
R922	ERQ12HJ100	10 Ω 1/2W	1				
R923	ERD25FJ332	3.3k Ω 1/4W	1				

REPLACEMENT PARTS LIST

Numbering System of Capacitor

Type	Voltage	Value	Tolerance
Four Letters	One or Two Letters	Two to Five Letters	One or Two Letters
Example: E C K D	1 H	3 3 3	M D
Capacitor Type			Tolerance
ECCD: Temperature Compensating Ceramic			C: $\pm 0.25\text{pF}$
ECKD: High Dielectric Constant Ceramic			D: $\pm 0.5\text{pF}$
EQCM: Polyester			F: $\pm 1\text{pF}$
EQCS: Polystyrene Film			J: $\pm 5\%$
ECFD: Semiconductor Ceramic			K: $\pm 10\%$
ECEA: Electrolytic			M: $\pm 20\%$
ECEB: Electrolytic			P: $+100, -0\%$
ECET: Electrolytic			Z: $+80, -20\%$
ECSF: Tantalum			

Ref. No.	Part No.	Description	Per Set (pcs.)
CAPACITORS			
C1	ECCD1H221K	220PF 50V	1
C2	EQCM1H224MZ	0.22 μF 50V	1
C101	ECKD1H103ZF	0.01 μF 50V	1
C102	ECEA50Z3R3	3.3 μF 50V	1
C103	ECKD1H103ZF	0.01 μF 50V	1
C104, 105	ECEA1HS100	10 μF 50V	2
C106	ECEA1HS100	10 μF 50V	1
C107, 108	ECKD1H223ZF	0.022 μF 50V	2
C201	ECFD1E223MD	0.022 μF 25V	1
C202	ECKD1H103ZF	0.01 μF 50V	1
C203	ECFD1E223MD	0.022 μF 25V	1
C204	ECEA1HS100	10 μF 50V	1
C205	ECEA1AS221	220 μF 10V	1
C206	ECEA1HS100	10 μF 50V	1
C207	ECCD1H270K	27PF 50V	1
C208	ECEA50Z3R3	3.3 μF 50V	1
C209	ECFD1E473MD	0.047 μF 25V	1
C211	ECCD1H150K	15PF 50V	1
C212	ECKD1H223ZF	0.022 μF 50V	1
C213	EQCS1471JZ	470PF 125V	1
C214	ECCD1H220K	22PF 50V	1
C215	EQCS1221JZ	220PF 125V	1
C216	ECCD1H820K	82PF 50V	1
C217	ECCD1H270K	27PF 50V	1
C218	ECFD1E153MD	0.015 μF 25V	1
C219	ECFD1E103MD	0.01 μF 25V	1
C220	ECKD1H223ZF	0.022 μF 50V	1
C221	ECEA25Z4R7	4.7 μF 25V	1
C222	ECEA50Z1	1 μF 50V	1
C223	ECCD1H151K	150PF 50V	1
C224	ECCD1H080D	8PF 50V	1

Ref. No.	Part No.	Description	Per Set (pcs.)
C225	ECEA50Z1	1 μF 50V	1
C226	ECCD1H151K	150PF 50V	1
C227	ECEA25Z4R7	4.7 μF 25V	1
C228	ECFD1E223MD	0.022 μF 25V	1
C229	ECEA50Z1	1 μF 50V	1
C230	ECKD1H223ZF	0.022 μF 50V	1
C231, 232	ECED1E223MD	0.022 μF 25V	2
C233	ECEA1ES470	47 μF 25V	1
C234, 235	ECKD1H103ZF	0.01 μF 50V	2
C236	ECKD1H103ZF	0.01 μF 50V	1
C237	ECEA50MR1R	0.1 μF 50V	1
C238	ECKD1H223ZF	0.022 μF 50V	1
C239	ECFD1E223MD	0.022 μF 25V	1
C240, 241	ECKD1H223ZF	0.022 μF 50V	2
C242, 243	ECKD1H223ZF	0.022 μF 50V	2
C301	EQCS1152JZ	1500PF 125V	1
C302	ECFD1E473MD	0.047 μF 25V	1
C303	ECEA50MR47R	0.47 μF 50V	1
C304	ECEA50MR33R	0.33 μF 50V	1
C305	ECEA1HN010	1 μF 50V	1
C306, 307	ECEA50Z1	1 μF 50V	2
C308	ECEA1ES470	47 μF 25V	1
C309, 310	EQCM1H153KZ	0.015 μF 50V	2
C311	ECEA25Z4R7	4.7 μF 25V	1
C312	ECEA1CS221	220 μF 16V	1
C313, 314	ECKD1H681KB	680PF 50V	2
C401, 402	EQCS1821JZ	820PF 125V	2
C403	ECKD1H102KB	0.001 μF 50V	1
C405, 406	ECEA50M4R7R	4.7 μF 50V	2
C407, 408	ECKD1H102KB	0.001 μF 50V	2
C411, 412	ECEA1HS100	10 μF 50V	2
C413, 414	EQCM1H153KZ	0.015 μF 50V	2
C417, 418	ECEA1HS100	10 μF 50V	2
C419	ECEA1AS101	100 μF 10V	1
C420	EQCM1H223KZ	0.022 μF 50V	1
C421, 422	EQCM1H332KZ	0.0033 μF 50V	2
C423, 424	ECEA50MR68R	0.68 μF 50V	2
C425, 426	ECEA50Z1	1 μF 50V	2
C427, 428	EQCM1H473KZ	0.047 μF 50V	2
C429, 430	ECEA50MR15R	0.15 μF 50V	2
C431, 432	EQCM1H393KZ	0.039 μF 50V	2
C433, 434	EQCM1H104KZ	0.1 μF 50V	2
C435, 436	ECEA1HS100	10 μF 50V	2
C437, 438	EQCM1H472KZ	0.0047 μF 50V	2
C439, 440	ECKD1H561KB	560PF 50V	2
C441	ECEA1AS470	47 μF 10V	1
C501, 502	ECEA50M1R	1 μF 50V	2
C503, 504	ECEA50Z1	1 μF 50V	2
C505, 506	ECCD1H221K	220PF 50V	2
C507, 508	ECEA50MR1R	0.1 μF 50V	2
C509, 510	ECEA1HS100	10 μF 50V	2
C601, 602	ECEA50Z1	1 μF 50V	2
C603, 604	EQCM1H102KZ	0.001 μF 50V	2

REPLACEMENT PARTS LIST

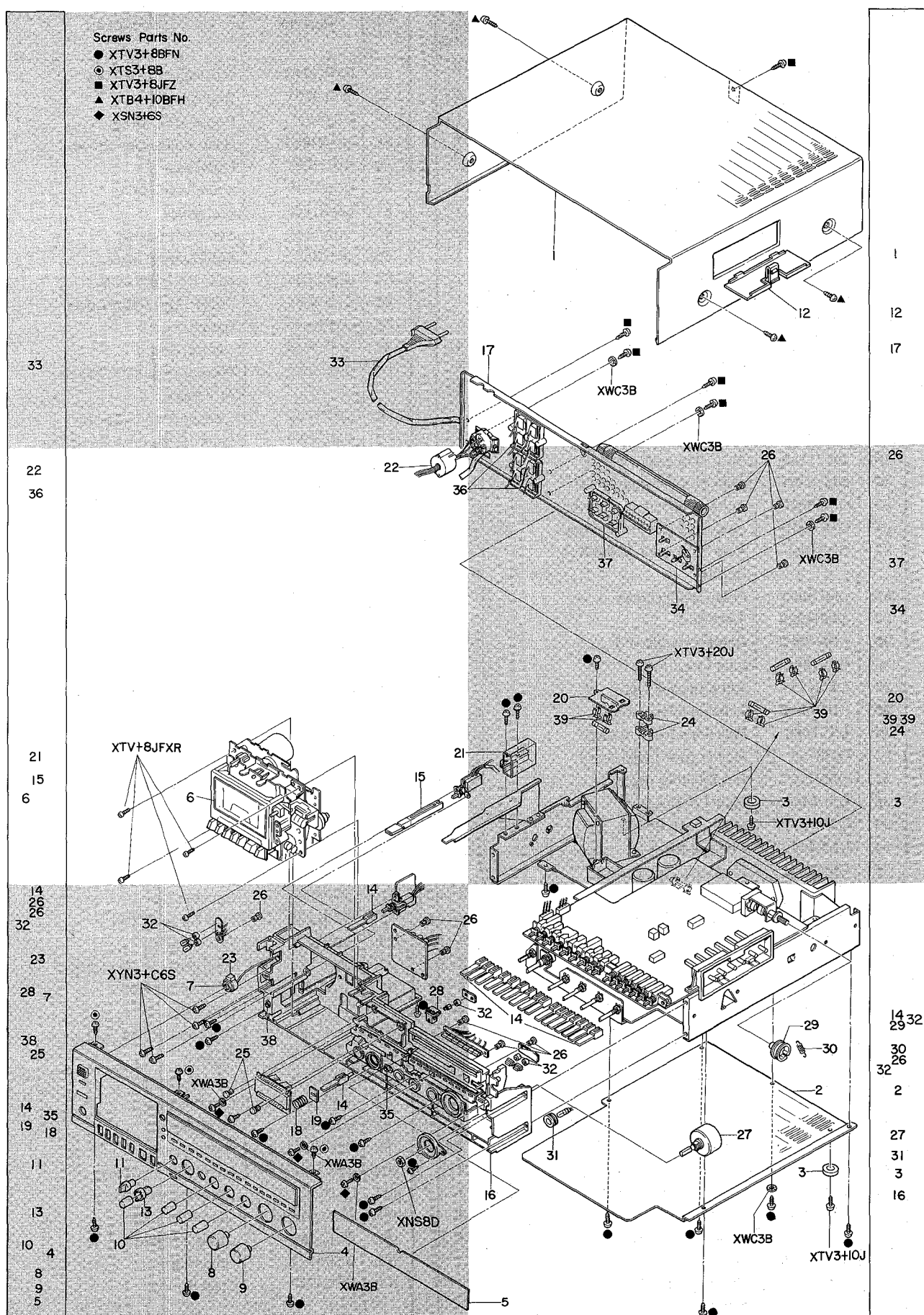
Ref. No.	Part No.	Description	Per Set (pcs.)
C605, 606	ECQM1H123KZ	0.012 μ F 50V	2
C607, 608	ECQM1H393KZ	0.039 μ F 50V	2
C609, 610	ECEA50Z1	1 μ F 50V	2
C611	ECEA1HS100	10 μ F 50V	1
C612	ECEA1ES470	47 μ F 25V	1
C613	ECEA1CS471	470 μ F 16V	1
C614	ECEA1HS100	10 μ F 50V	1
C615, 616	ECCD1H470K	47PF 50V	2
C621, 622	ECEA50MR22R	0.22 μ F 50V	2
C623, 624	ECEA1HS100	10 μ F 50V	2
C625, 626	ECKD1H223ZF	0.022 μ F 50V	2
C627, 628	ECKD1H223ZF	0.022 μ F 50V	2
C629, 630	ECKD1H223ZF	0.022 μ F 50V	2
C631	ECEA1HS100	10 μ F 50V	1
C701, 702	ECEA50Z1	1 μ F 50V	2
C705, 706	ECCD1H471K	470PF 50V	2
C707, 708	ECCD1H331K	330PF 50V	2
C709, 710	ECCD1H050D	5PF 50V	2
C711, 712	ECCA1AS470	470 μ F 10V	2
C713, 714	ECEA1VS330	33 μ F 35V	2
C715, 716	ECCD1H330K	33PF 50V	2
C717, 718	ECQM1H224KZ	0.22 μ F 50V	2
C719, 720	ECQM1H333KZ	0.033 μ F 50V	2
C721, 722	ECQM1H103KZ	0.01 μ F 50V	2
C723, 724	ECQM1H102KZ	0.001 μ F 50V	2
C725, 726	ECEA1ES470	47 μ F 25V	2
C727, 728	ECCD1H101K	100PF 50V	2
C729, 730	ECCD1H101K	100PF 50V	2
C731, 732	ECQM1H104MZ	0.1 μ F 50V	2
C733, 734	ECQM1H104MZ	0.1 μ F 50V	2
C735	ECEA1VS101	100 μ F 35V	1
C736	ECEA1HS100	10 μ F 50V	1
C737	ECEA1VS221	220 μ F 35V	1
C801, 802	ECEA50MR68R	0.68 μ F 50V	2
C803, 804	ECQM1H222KZ	0.0022 μ F 50V	2
C805, 806	ECEA1HS100	10 μ F 50V	2
C807, 808	ECEA1HS100	10 μ F 50V	2
C809, 810	ECQM1H273JZ	0.027 μ F 50V	2
C811, 812	ECQS1472JZ	4700PF 125V	2
C813, 814	ECEA1HS100	10 μ F 50V	2
C815, 816	ECQS1562JZ	5600PF 125V	2
C817, 818	ECQM1H473JZ	0.047 μ F 125V	2
C819, 820	ECEA1HS100	10 μ F 50V	2
C821, 822	ECEA50MR1R	0.1 μ F 50V	2
C823, 824	ECEA50MR33R	0.33 μ F 50V	2
C825, 826	ECEA1AS221	220 μ F 10V	2
C827	ECEA1ES101	100 μ F 25V	1
C828	ECEA1HS100	10 μ F 50V	1
C829, 830	ECKD1H103ZF	0.01 μ F 50V	2
C831	ECQM1H123KZ	0.012 μ F 50V	1
C832	ECQM1H683KZ	0.068 μ F 50V	1
C833	ECQS1472JZ	4700PF 125V	1
C834	ECQS1122JZ	1200PF 125V	1

Ref. No.	Part No.	Description	Per Set (pcs.)
C835	ECQS1152JZ	1500PF 125V	1
C837, 838	ECCD1H331K	330PF 50V	2
C840	ECEA1CS221	220 μ F 16V	1
C841, 842	ECKD1H103ZF	0.01 μ F 50V	2
C843, 844	ECKD1H271KB	270PF 50V	2
C901, 902	ECET35R332	3300 μ F 35V	2
C903	ECEA1AS101	100 μ F 10V	1
C904	ECEA1VS102	1000 μ F 35V	1
C905	ECEA1ES101	100 μ F 25V	1
C906	ECEA1ES221	220 μ F 25V	1
C907	ECEA1ES101	100 μ F 25V	1
C908	ECEA1CS221	220 μ F 16V	1
C909	ECEA1HS100	10 μ F 50V	1
C910, 911	ECEA1ES470	47 μ F 25V	2
C913	ECEA1ES221	220 μ F 25V	1
C914, 915	ECKD1H223ZF	0.022 μ F 50V	2
C916	ECKD1H223ZF	0.022 μ F 50V	1

REPLACEMENT PARTS LIST OF CABINET AND CHASSIS

Ref. No.	Part No.	Description	Per Set (pcs.)	Ref. No.	Part No.	Description	Per Set (pcs.)
1	SKA3580	Cabinet	1				
2	SYU434	Bottom Board Ass'y	1				
3	SKU52	Foot	2				
4	SYP518	Escutcheon Ass'y	1				
5	SKD5261	Dial Scale	1				
6	SYE820	Cassette Lid Ass'y	1				
7	SJM118	Microphone	1				
8	SBN1010	Knob, Volume	1				
9	SBN1012	Knob, Tuning	1				
10	SBN1006	Knob, Control	4				
11	SBN990-1	Knob, Select	1				
12	SKE376	Preset VR Lid	1				
13	SBN1016	Knob, Rec Level	1				
14	SBC458	Bottom, Function	18				
15	SYE806	Bottom, Power	1				
16	SXE210	Front Chassis	1				
17	SMN1344	Bracket, Jack (Except DEMKO)	1				
17	SMN1344-2	Bracket, Jack (for DEMKO)	1				
18	SUS374	Spring	1				
19	SUD274	Spacer	1				
20	SMX230	△ Insulator Cover	1				
21	SUV216	△ Power Switch Cover	1				
22	SUV172	△ Voltage Select Cover	1				
23	SHG9170	Rubber, Mic	1				
24	SHR134	△ Power Cord Clamp	2				
25	SHR9112	Latch	2				
26	SHR969ZA	Latch	10				
27	SDT93004	Tuning Shaft	1				
28	SDA84	Bracket, Pointer	1				
29	SDD19K	Drum	1				
30	RDS3090A	Spring, Dial	1				
31	SHG9100	Rubber, Lamp	1				
32	SJY5162	Spacer	5				
33	SJA138	△ AC Cord	1				
34	SJF4502	Terminal, ANT	1				
35	XCJS6PE12	Jack, Headphone	1				
36	SJF9410	Jack, Speaker	2				
37	SJF3604	Jack, AUX	1				
38	XCJS6PA4	Jack, MIC	1				
39	SJF110	Fuse Holder	8				

PARTS LOCATION OF CABINET AND CHASSIS



REPLACEMENT PARTS LIST OF CASSETTE TAPE DECK(QUN1939)

Ref. No.	Part No.	Description	Per Set (pcs.)	Ref. No.	Part No.	Description	Per Set (pcs.)
1	QMN2554	Operation Lever Shaft	1	55	QMZ1240	Sub Head Base Plate	1
2	QSB0253M	Leaf Switch	3	56	QML3591	Brake Arm	1
3	SMQ3720	Eject Button Ass'y	1	57	QBT1597	Brake Arm Spring	1
4	SMQ3722	Record Button Ass'y	1	58	QMA3858	Head Adjustment Plate	1
5	SMQ3724	Rewind/Review Button Ass'y	1	59	QDG1201	Main Gear	1
6	SMQ3726	Fast Forward/Cue Button Ass'y	1	60	QBN1745	Main Gear Spring	1
7	SMQ3728	Playback Button Ass'y	1	61	QDG1202	Sub Gear	1
8	SMQ3730	Stop Button Ass'y	1	62	QBN1744	Sub Gear Spring	1
9	SMQ3732	Pause Button Ass'y	1	63	QML3581	Sub Control Lever	1
10	QBP1874	Cassette Pressure Spring	1	64	QML3583	Main Control Lever	1
11	QDR1139	Supply Reel Table	1	65	QML3584	Record Operation Lever	1
12	QBC1372	Reel Table Spring	1	66	QMR1820	Record Rod	1
13	QMB1336	Supply Reel Table Hub	1	67	QMR1824	Control Rod	1
14	QBW2008	Poly Washer	7	68	QXL1360	Record/Playback Selection Arm Ass'y	1
15	QBW2012	Poly Washer	3	69	QBN1739	Selection Lever Spring	1
16	QXD1143	Take up Reel Table Ass'y	1	70	QML3580	Record/Playback Selection Lever	1
17	QML3594	Auto Stop Release Arm	1	71	QBT1895	Record/Playback Selection Lever Spring	1
18	QBN1746	Auto Stop Lever Spring	1	72	QML3582	Pause Lock Lever	1
19	QML3604	Auto Stop Driving Lever	1	73	QBT1896	Lever Release Spring	1
20	QML3605	Auto Stop Detection Lever	1	74	QBS1128	Lock Pin	1
21	QMR1821	Auto Stop Connection Rod	1	75	QBC1357	Lock Pin Pressure Spring	1
22	QBT1682	Auto Stop Connection Rod Spring	1	76	QMZ1239	Flywheel Thrust Retainer	1
23	QML3603	Erase Safety Lever	1	77	QXF0164	Flywheel Ass'y	1
24	QMR1822	Eject Rod	1	78	QBW2049	Poly Washer	1
25	QBN1747	Connection Spring	1	79	QXP0607	Fast Forward Connection Pulley Ass'y	1
26	QXL1382	Idler Lever Ass'y	1	80	QXG1047	Take up Gear Ass'y	1
27	QXI0111	Take up Idler Ass'y	1	81	QDP1823	Connection Pulley	1
28	QBT1893	Take up Idler Spring	1	82	QDG1199	Auto Stop Gear	1
29	QXL1383	Fast Forward Arm Ass'y	1	83	QDG1200	Cam Gear	1
30	QXI0113	Fast Forward Idler Ass'y	1	84	MMI6A2HKPD	Motor	1
31	QXI0112	Rewind Idler Ass'y	1	85	QDP1831A	Motor Pulley	1
32	QXL1355	Main Lever Ass'y	1	86	QBG1689	Rubber Cushion	2
33	QBT1894	Main Lever Spring	1	87	QDB0281	Capstan Belt	1
34	QML3592	Change Lever	1	88	QDB0273	Fast Forward Belt	1
35	QBN1741	Change Lever Spring	1	89	QDB0274	Take up Belt	1
36	QML3586	Head Base Plate Lift Lever	1	90	QBP1875	Obstruction Lever Spring	1
37	QXL1354	Sub Lever Ass'y	1	91	QMR1823	Obstruction Rod	1
38	QML3588	Fast Forward Lever	1	92	QML3593	Lock Arm	1
39	QBN1748	Fast Forward Spring	1	93	QBT1597	Obstruction Rod Spring	1
40	QDP1828	Fast Forward Pulley	1	94	QBW2026	Washer	1
41	QXL1381	Pressure Roller Ass'y	1	100	SMQ3238	Tape Counter	1
42	QBN1742	Pressure Roller Release Spring	1	101	SMQ1988	Counter Belt	1
43	QBN1743	Pressure Roller Spring	1	102	SBC460	Reset Button	1
44	QWY4122Z	Record/Playback Head	1	103	QDG1102	Holder Gear	2
45	QWY2138Z	Erase Head	1	104	SGE1268	Reset Button Cover	1
46	QBC1278	Record/Playback Head Spring	1	105	QXH0327	Chassis Cover Ass'y	1
47	QBCA0008	Erase Head Spring	1	106	QKF6015KB	Cassette Holder	1
48	QMZ1241	Head Spacer	1	107	SGE1266	Cassette Plate	1
49	QBN1740	Head Pressure Spring	1	108	QBP1771	Holder Spring	2
50	QMK1840	Head Base Plate	1	109	QBN1749	Eject Spring	1
51	QBT1892	Head Release Spring	1				
52	QMN2550	Roller	1				
53	QBP1873	Head Base Plate Pressure Spring	1				
54	QDK1017	Steel Ball	3				

EXPLODED VIEW OF CASSETTE TAPE DECK (QUN1939)

