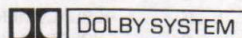


Service Manual

LW/MW/FM STEREO RADIO WITH DOUBLE-CASSETTE DECK
AND RECORD PLAYER

Stereo Music System

SG-235



for United Kingdom

Specifications

AMPLIFIER SECTION

Power Output.....	MPO	30W × 2 (THD 5%, 4Ω)
	RMS	21W × 2 (THD 5%, 4Ω)
		One channel driven
	RMS	17W × 2 (THD 5%, 4Ω)
		Both channels driven

Input Sensitivity/Impedance

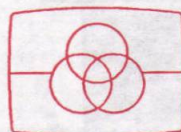
Mic.....	1 mV, 3 kΩ
Aux.....	250 mV, 47 kΩ
Tone Controls	
Bass.....	± 10 dB at 50 Hz
Treble.....	± 10 dB at 10 kHz

FM TUNER SECTION

Frequency Range.....	87.5 MHz ~ 108 MHz
Intermediate Frequency (IF)	10.7 MHz
Sensitivity.....	2.5 μV (S/N 26 dB mod. 40 kHz)
	(DIN) at 300Ω
Image Ratio	38 dB (98 MHz)
Signal/Noise Ratio.....	62 dB (at 1 kHz, 60 dB, 40 kHz)
Distortion	MONO: 0.5% (at 1 kHz, 60 dB, 40 kHz)
	STEREO: 0.6% (at 1 kHz, 60 dB, 40 kHz)
Stereo Separation.....	45 dB (at 1 kHz, 60 dB, 40 kHz)

AM TUNER SECTION

Frequency Range.....	MW: 525 kHz ~ 1605 kHz
	(571 m ~ 187 m)
	LW: 150 kHz ~ 350 kHz
	(2000 m ~ 857 m)
Intermediate Frequency (IF)	450 kHz
	468 kHz (United Kingdom)
Sensitivity.....	MW: 150 μV/m (1 MHz)
	LW: 250 μV/m (240 kHz)
Image Ratio	MW: 45 dB (1 MHz)
	LW: 37 dB (240 kHz)



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TAPE DECK SECTION (both decks A and B)

Deck System.....	Full Auto Shut Off Cassette System
Track System	4-Track, 2-Channel
Recording System	AC Bias (50 kHz) with Dolby NR System
Erasing System	AC Erase (50 kHz)
Tape Speed.....	4.75 cm/sec. (1-7/8 i.p.s.)
Frequency Response.....	30 Hz ~ 15 kHz (Normal) (DIN)
	30 Hz ~ 15 kHz (CrO ₂) (DIN)
	30 Hz ~ 16 kHz (Metal) (DIN)

Signal/Noise Ratio

Gratis schema's

Digitized by

DOLBY NR-OUT:

50 dB (Normal)	} (DIN)
52 dB (CrO ₂)	
52 dB (Metal)	

DOLBY NR-IN:

58 dB (Normal)	} (10 dB or more im-
60 dB (CrO ₂)	
60 dB (Metal)	
	proved at more than
	5 kHz) (DIN)

Wow and Flutter	0.05% (WRMS),
	±0.15% (DIN WTD)

PHONO SECTION

Turntable System	Belt-drive, Fully Automatic Turntable
	Auto start/Auto lead-in, Auto-return
Turntable Platter.....	Diameter 29 cm
Turntable Speed	33-1/3 rpm and 45 rpm
Phono-Motor	Electro-Governor DC Motor
Wow and Flutter.....	0.15% (WRMS), ±0.25% (DIN WTD)
Cartridge	Moving-Magnet cartridge (EPC36SMAD)
Stylus.....	Diamond tip (EPS43STSD)
Stylus Pressure Range	2 ~ 3g
Frequency Response	20 Hz ~ 20 kHz (DIN)
Channel Separation	15 dB
Signal/Noise Ratio.....	60 dB (DIN-B)

POWER CONSUMPTION

POWER SUPPLY:.....	130W
	AC 220V or AC 110V/120V/220V/240V,
	50/60 Hz

DIMENSIONS (W × H × D)

	375 × 285 × 383 mm
	411 × 285 × 383 mm (United Kingdom)

WEIGHT.....

	11.5 kg
	12.5 kg (United Kingdom)

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

* Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

"DOLBY" and the Double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Panasonic

Matsushita Electric Trading Co., Ltd.

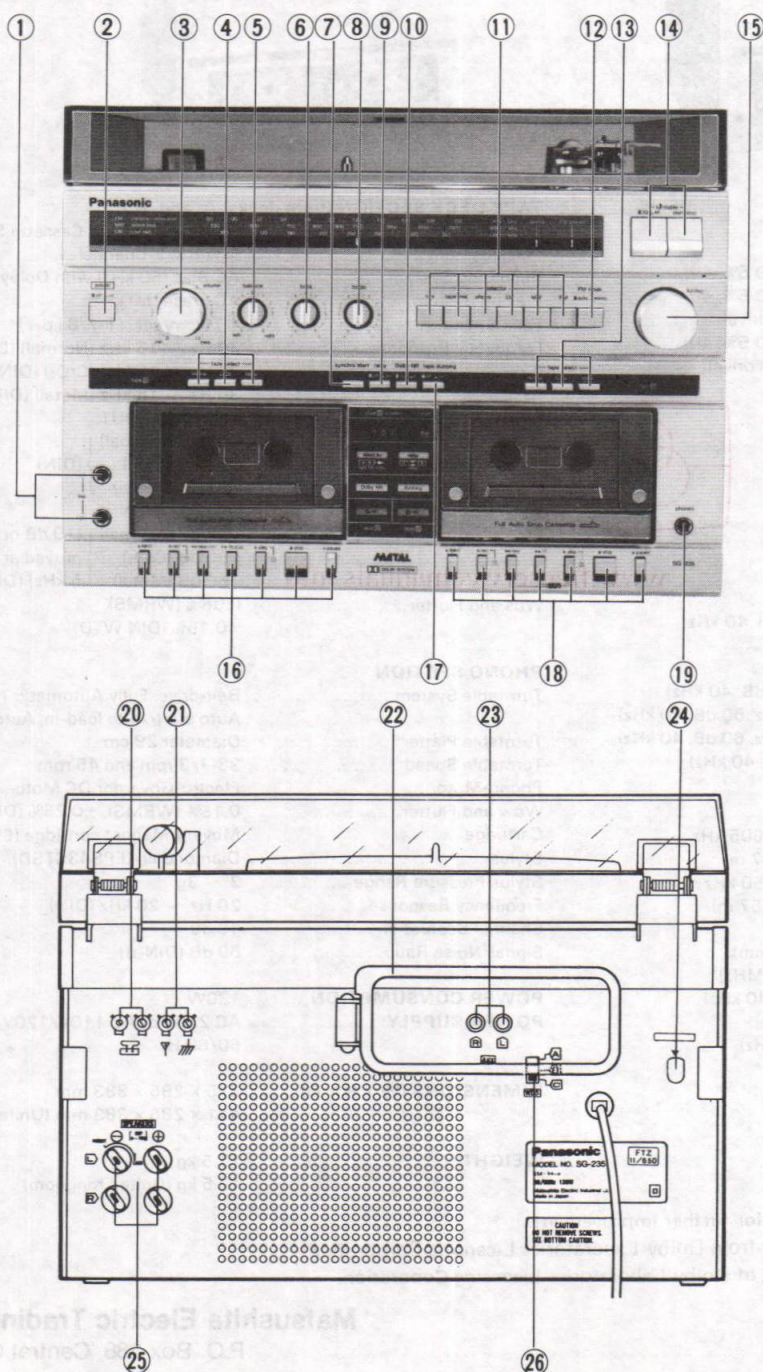
P.O. Box 288, Central Osaka Japan

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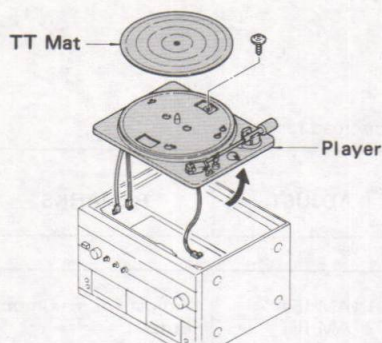
LOCATION OF CONTROLS



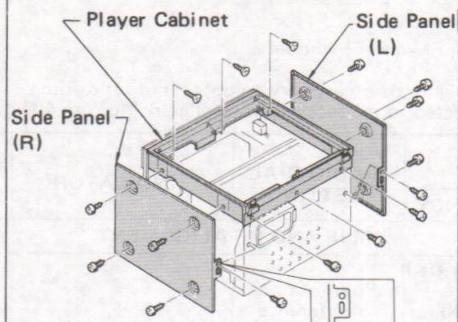
- ① Mic Jacks (Right, Left)
- ② Power Switch
- ③ Volume Control
- ④ Tape Select (Normal, CrO₂, Metal)
- ⑤ Balance Control
- ⑥ Bass Control
- ⑦ Synchro Start
- ⑧ Treble Control
- ⑨ Relay Switch
- ⑩ Dolby NR Switch
- ⑪ Function Selector (aux, tape/mic, phono, LW, MW, FM)
- ⑫ FM Mode Switch
- ⑬ Tape Select (Normal, CrO₂, Metal)
- ⑭ Turntable Select (33/45, Start/Stop)
- ⑮ Tuning Control
- ⑯ Cassette Button (eject, rec, rew/rev, ff/cue play, stop, pause)
- ⑰ Tape Dubbing Switch
- ⑱ Cassette Button (eject, rec, rew/rev, ff/cue play, stop, pause)
- ⑲ Headphone Jack
- ⑳ Ext FM Ant Terminals
- ㉑ Ext AM Ant Terminals
- ㉒ AM Loop Ant
- ㉓ Aux Jacks
- ㉔ Voltage Selector Switch
- ㉕ Speaker Terminals
- ㉖ Whistle Defeat Switch

DISASSEMBLY INSTRUCTIONS

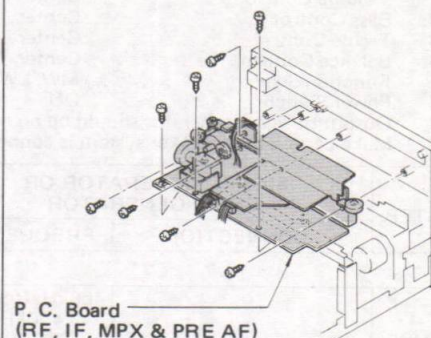
- 1 Remove Dust Cover**
2 Remove Player



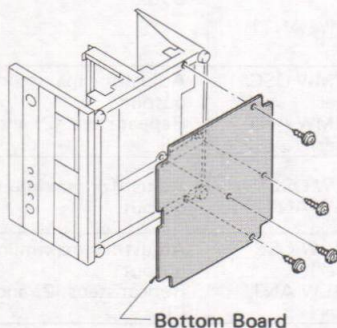
- 3 Remove Side Panel (R), (L) and Player Cabinet**



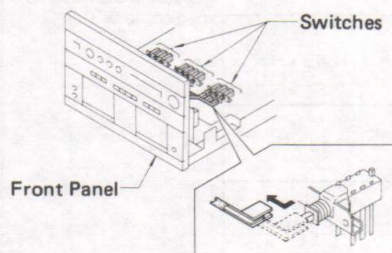
- 4 Remove RF, IF, MPX P. C. Board**



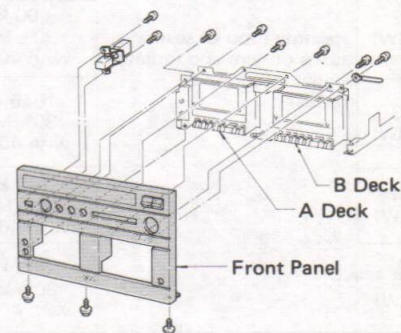
- 5 Remove Bottom Board**



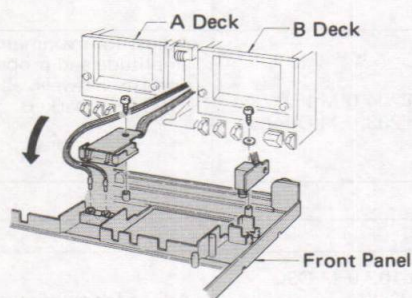
- 6 Remove Switch Operation Levers (10 pcs)**



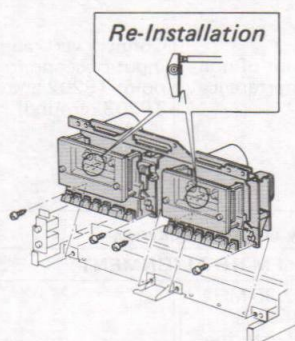
- 7 Remove Front Panel-1**



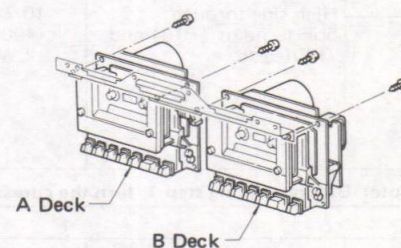
- 8 Remove Front Panel-2**



- 9 Remove Cassette Decks (A Deck + B Deck)**



- 10 Separate A Deck and B Deck**



- To Remove Record Player Refer to 1, 2.
- To Replace Parts on P. C. Board
RF, IF, MPX and PRE AF Refer to 1 ~ 4.
- AF, Tape Refer to 1 ~ 5.
- To Replace Front Panel Refer to 1 ~ 4, 6, 7, 8.
- To Remove Cassette Deck A and B Refer to 1 ~ 4, 6 ~ 10.

ALIGNMENT INSTRUCTIONS(RADIO-1)

■ Radio

Control Positions:

1. Volume Control Center (AM-IF and RF, FM-RF); Minimum (FM-IF)
2. Bass Control Center
3. Treble Control Center
4. Balance Control Center
5. Function Selector MW, LW, FM and FM mode
6. Power Switch ON
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 4 Ω dummy load resistors).

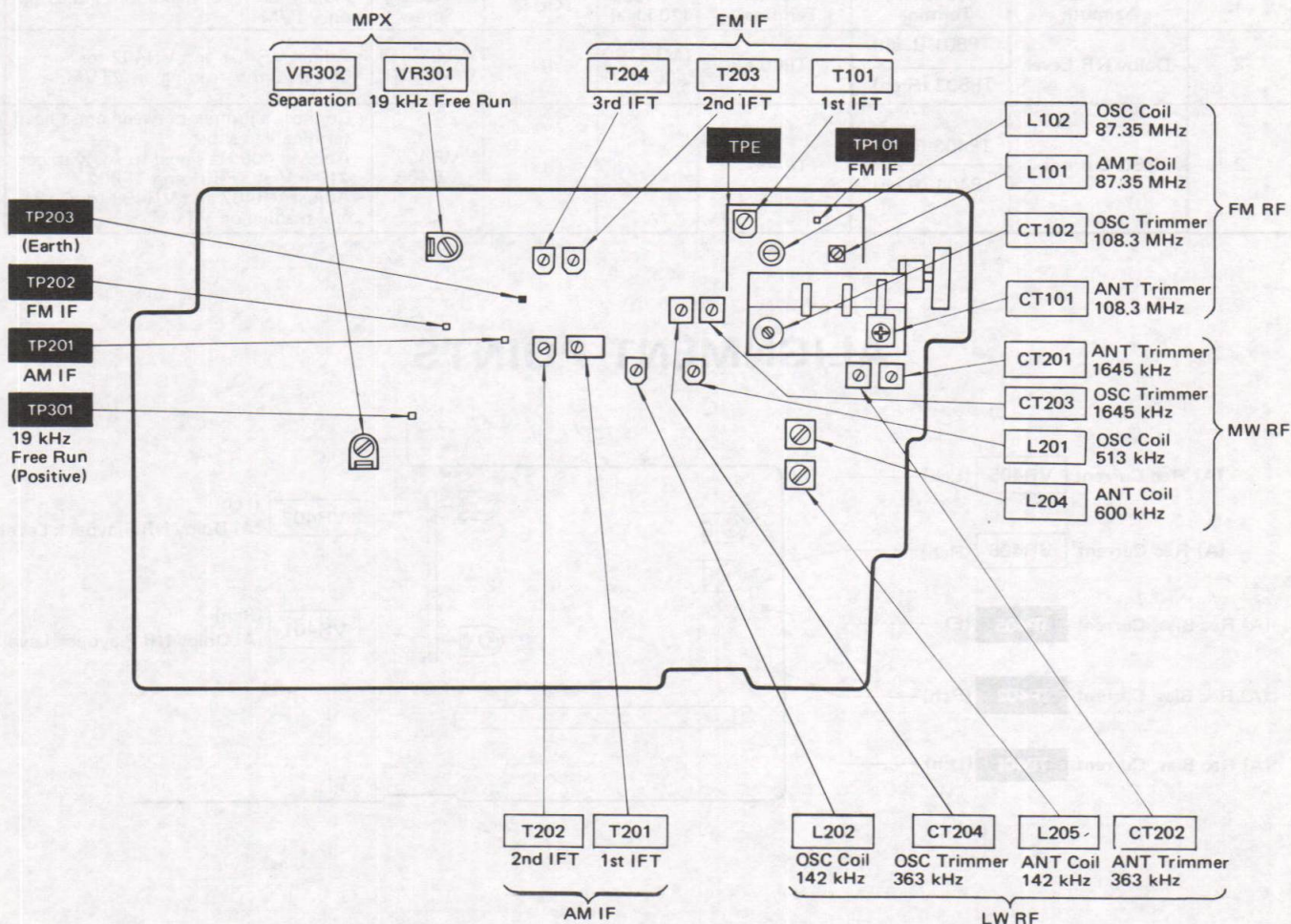
STEP	SIGNAL GENERATOR OR SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
	CONNECTION	FREQUENCY				
AM-IF AND RF ALIGNMENT						
1 (MW)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	468kHz(for UK) 450kHz 30% Mod. with 400 Hz	Point of non-interference	Output meter across speaker jack (L).	T201 (AM IF) T202 (AM IF)	Adjust for maximum output.
2 (MW)		513 kHz 30% Mod. with 400 Hz	513 kHz		L201 (MW OSC)	Adjust for maximum output.
		600 kHz 30% Mod. with 400 Hz	600 kHz		L204 (MW ANT)	
3 (MW)		1645 kHz 30% Mod. with 400 Hz	1645 kHz		CT203 (MW OSC Trimmer) CT201 (MW ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
4 (LW)		142 kHz 30% Mod. with 400 Hz	142 kHz		L202 (LW OSC) L205 (LW ANT)	• Adjust for maximum output.
5 (LW)		363 kHz 30% Mod. with 400 Hz	363 kHz		CT204 (LW OSC Trimmer) CT202 (LW ANT Trimmer)	Adjust for maximum output Repeat steps (2) and (3).
FM-IF ALIGNMENT						
1	High side through 5pF to point TP101 and TPE (earth).	10.7 MHz (400 kHz SWP).	Point of non-interference	Connect vert. amp. input of scope to point TP202 and TP203 (ground).	T101 (FM IF) T203 (FM Disc)	• Adjust for maximum amplitude and symmetrical curve. • Refer to Note. 
2					T204 (FM IF) T203 (FM Disc)	Adjust for maximum amplitude and proper linearity between about ± 100 kHz markers. 
Note: Before aligning step 1, turn the core of T204 fully counterclockwise.						
FM-RF ALIGNMENT						
1	Connect to EXT. FM antenna terminal through Dummy antenna (300 Ω balanced type)	87.35 MHz 30% Mod. with 400 Hz	87.35 MHz (Set the dial pointer to the left end of the scale. (or lower frequency edge.))	Output meter across speaker jack (L).	L102 (FM OSC Coil) L101 (FM ANT Coil)	Adjust for maximum output.
2		108.3 MHz 30% Mod. with 400 Hz	108.3 MHz (Set the dial Pointer to the right end of the scale. (or upper frequency edge.))		CT102 (FM OSC Trimmer) CT101 (FM ANT Trimmer)	Adjust for maximum output Repeat steps (1) and (2).
Notes: 1. As three output readings will be present, adjustments must be made at center frequency. 2. To correct the drift of FM band coverage (87.5 or 108 MHz) adjust the coil L102 and the trimmer CT102.						

ALIGNMENT INSTRUCTIONS(RADIO-2)

■ FM Stereo Alignment

FREE RUNNING ALIGNMENT				
Control Positions:	Volume Control	Audible level of speaker sound		
	Treble Control	MIN		
	Bass Control	MIN		
	FM Mode Selector	FM AUTO		
	Balance Control	Center		
EQUIPMENT CONNECTION		ADJUST	REMARKS	
Connect frequency counter to TP301 and TP203 (Earth) at 98 MHz non modulation 60 dB input.		VR301 (Free Run)	Adjust VR301 for 19 kHz $\pm$ 50 Hz on frequency counter reading.	
SEPARATION ALIGNMENT				
Control Positions:	1. Stereo Modulator:	Connect Stereo Modulator to EXT. Mod. terminal of signal generator.		
	2. Signal Generator:	Modulation Rate of 19 kHz Pilot Signal 9%		
		Modulation Rate of Right and Left Signal 30%		
		Output Level 60 dB		
3. 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. Common to chassis.	Connect across speaker jack. (Imp. 4 Ω)	Connect vertical amp. input of scope to terminals of VTVM.	VR302 (Separation Control)	Adjust VR302 for minimum indication of VTVM from the left side output when the right side of stereo modulator is modulated. Adjust VR302 in the same way for the right side. Adjust for best balance between "L to R" and "R to L" separation.

ALIGNMENT POINTS



ALIGNMENT INSTRUCTIONS(CASSETTE TAPE DECK-1)

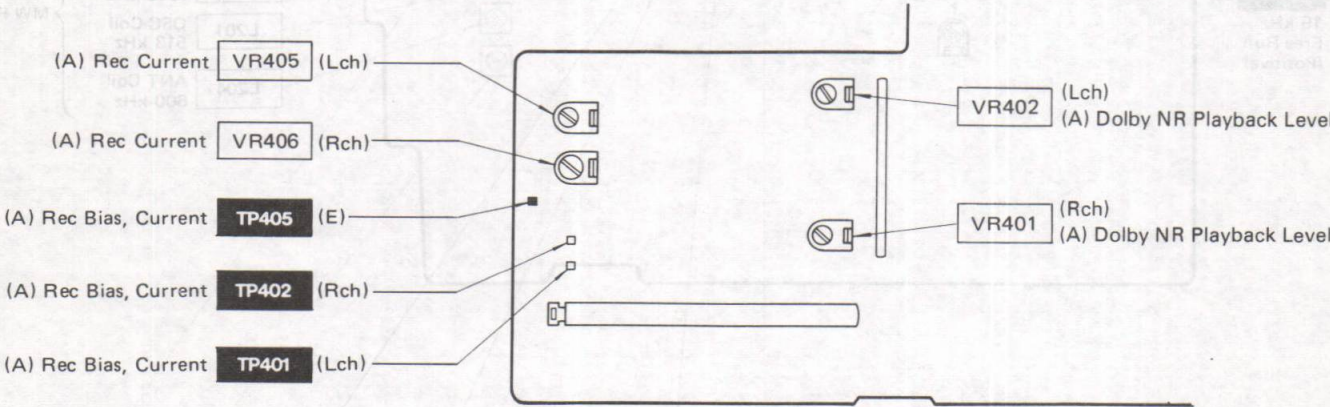
(1) Tape Deck A

AZIMUTH, DOLBY AND REC CURRENT ALIGNMENT							
Control positions:		1. Function Tape (Step 1 and 2), Aux (Step 3) 2. Tape Deck Condition Play condition (Step 1 and 2), Rec Condition (Step 3) 3. 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 (10 kHz)	OUT	Head Screw	• Adjust screw for maximum indication on VTVM.
2	Dolby NR Level	TP801 (L ch)	TP803	TMT6130 (400 Hz)	IN	VR401 (L) VR402 (R)	• Adjust VR401 and VR402 for 580 ± 20 mV reading on VTVM.
		TP802 (R ch)					
3	REC Current	TP401 (L ch)	TP405		OUT	VR405 (L) VR406 (R)	• Connect a jumper between erase head terminals to short. • Apply a 400 Hz signal to AUX to get 410 mV at TP801 and TP802. • Adjust VR405 and VR406 for 0.38 mV reading on VTVM.
		TP402 (R ch)					

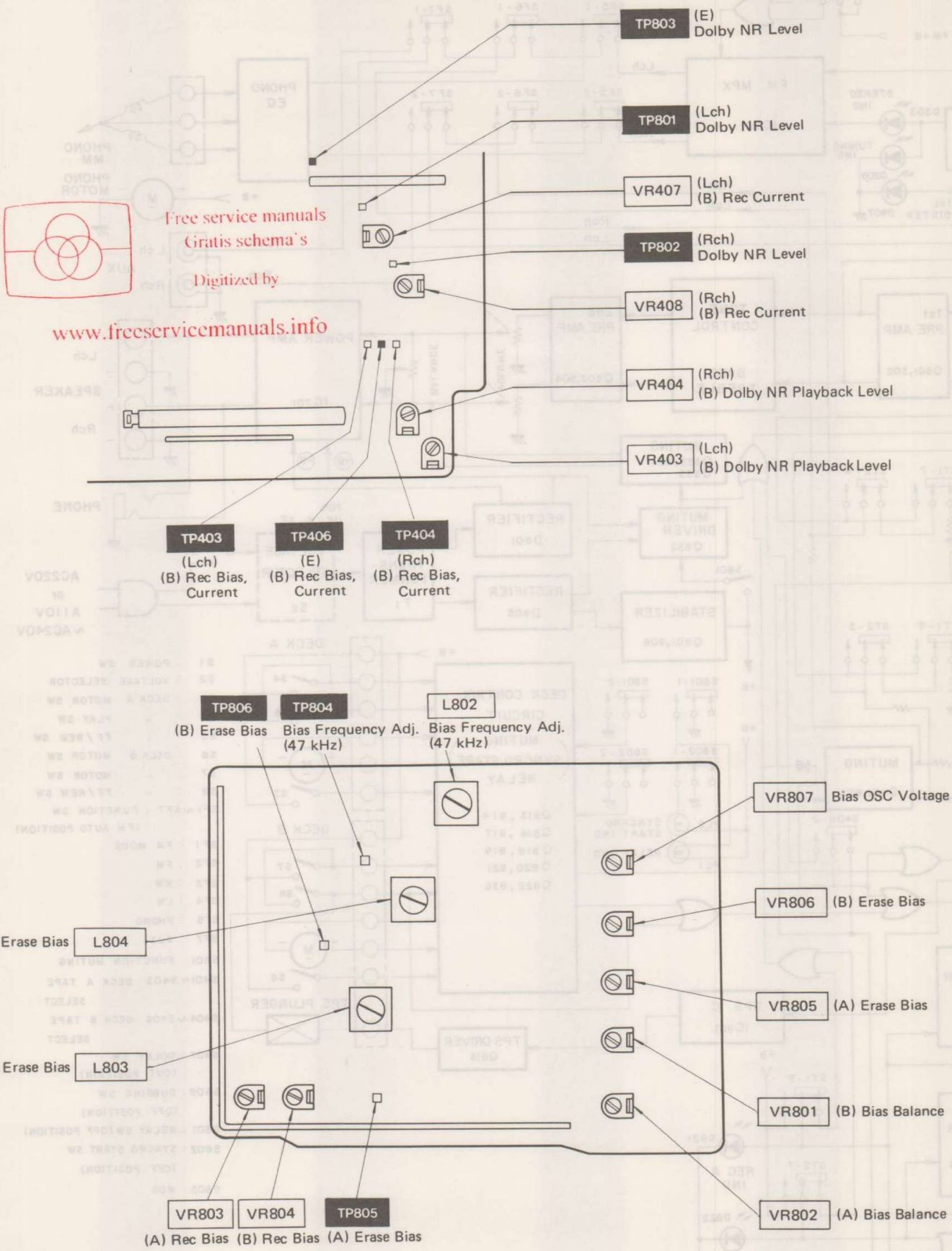
(2) Tape Deck B

AZIMUTH, DOLBY AND REC CURRENT ALIGNMENT							
Control Positions:		1. Function Tape (Step 1 and 2), Aux (Step 3) 2. Tape Deck Condition Play Condition (Step 1 and 2), Rec Condition (Step 3) 3. 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 (10 kHz)	OUT	Head Screw	• Adjust screw for maximum indication on VTVM.
2	Dolby NR Level	TP801 (L ch)	TP803	TMT6130 (400 kHz)	IN	VR403 (L) VR404 (R)	• Adjust VR401 and VR402 for 580 ± 20 mV reading on VTVM.
		TP802 (R ch)					
3	REC Current	TP403 (L ch)	TP406		OUT	VR407 VR408	• Connect a jumper between erase head terminals to short. • Apply a 400 Hz signal to AUX to get 410 mV at TP801 and TP802. • Adjust VR407 and VR408 for 0.38 mV reading on VTVM.
		TP404 (R ch)					

ALIGNMENT POINTS



ALIGNMENT POINTS



ALIGNMENT INSTRUCTIONS(CASSETTE TAPE DECK-2)

ALIGNMENT INSTRUCTIONS (CASSETTE TAPE DECK-2)

Control Positions:		1. Function	Tape
		2. Tape Deck Condition	Recording Condition
		3. Dolby	OUT
		4. WDS	B position

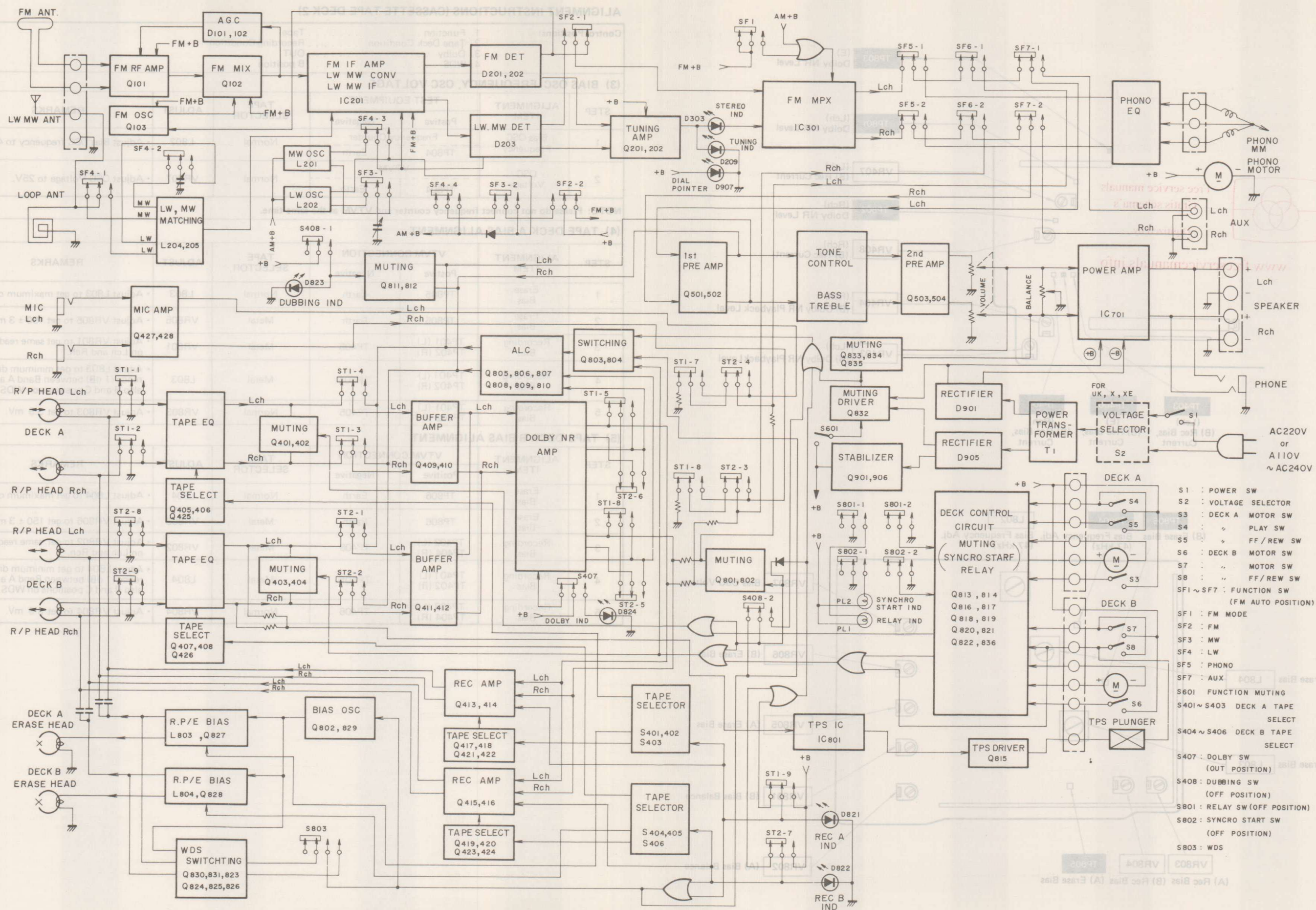
(3) BIAS OSC FREQUENCY, OSC VOLTAGE						
STEP	ALIGNMENT ITEM	TEST EQUIPMENT		TAPE SLEECTOR	ADJUST	REMARKS
		Postive	Negative			
1	Bias OSC Frequency	Frequency Counter		Normal	L802	• Adjust Bias OSC frequency to 47k Hz.
2	OSC Voltage	VTVM		Normal	VR807	• Adjust OSC Voltage to 25V.
		TP804	Earth			

NOTE: Please do not connect frequency counter and VTVM at the same time.

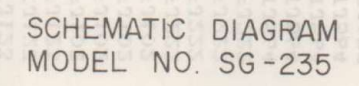
(4) TAPE DECK A BIAS ALIGNMENT						
STEP	ALIGNMENT ITEM	VTVM CONNECTION		TAPE SELECTOR	ADJUST	REMARKS
		Postive	Negative			
1	Erase Bias	TP805	Earth	Normal	L803	• Adjust L803 to get maximum output.
2	Erase Bias	TP805	Earth	Metal	VR805	• Adjust VR805 to get 150 ± 3 mV
3	Recording Bias	TP401 (L) TP402 (R)	TP405	Metal	VR801	• Adjust VR801 to get same reading on Lch and Rch.
4	Recording Bias	TP401 (L) TP402 (R)	TP405	Metal	L803	• Adjust L803 to get minimum difference (1 dB) between Band A and also B and C positions on WDS.
5	Recording Bias	TP401 (L) TP402 (R)	TP405	Normal	VR803	• Adjust VR803 to get 3.9 mV.

(5) TAPE DECK B BIAS ALIGNMENT						
STEP	ALIGNMENT ITEM	VTVM CONNECTION		TAPE SELECTOR	ADJUST	REMARKS
		Positive	Negative			
1	Erase Bias	TP806	Earth	Normal	L804	• Adjust L804 to get maximum output
2	Erase Bias	TP806	Earth	Metal	VR806	• Adjust VR806 to get 150 ± 3 mV.
3	Recording Bias	TP403 (L) TP404 (R)	TP406	Metal	VR802	• Adjust VR802 to get same reading on Lch and Rch.
4	Recording Bias	TP401 (L) TP402 (R)	TP405	Metal	L804	• Adjust L804 to get minimum difference (1 dB) between Band A and also B and C positions on WDS.
5	Recording Bias	TP403 (L) TP404 (R)	TP406	Normal	VR804	• Adjust VR804 to get 3.9 mV.

BLOCK DIAGRAM



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REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
VR507	EW03A531G54	Balance	Z404	EXRP471K104S	C-R			
VR801	EVNK6AA00B14	Bias Bal	Z901	RXAF103Z22E	C-R			
VR802	EVNK6AA00B14	Bias Bal	Z902	RXAF103A22E	C-R			
VR803	EVNK6AA00B24	Rec Bias						
VR804	EVNK6AA00B24	Rec bias						
VR805	EVNK6AA00B54	Erase Bias						
VR806	EVNK6AA00B54	Erase Bias						
VR807	EVNK6AA00B14	Bias Osc						
SWITCH			PACKING					
S1	△ SSH1057	Power Sw	PA1	SPN5168	Carton			
S2	△ ESE37205	Voltage Sw (For UK, X, XE)	PA1	SPN5170	Carton (For UK)			
S402/403	SSH330	Tape Sw	PA2	SPN4934-1	Pad, Front			
S405/406	SSH330	Tape Sw	PA2	SPN5172	Pad, Front (For UK)			
S407/408/801/802	SSH422	Select Sw	PA3	SPN4936	Pad, Rear			
S602	SSH72-2		PA3	SPN5174	Pad, Rear (For UK)			
S803	SSS118	W.D. Sw	PA4	SPN4938	Handle			
SF/S601	SSH724	Function Sw	PA4	SPN5176	Handle (For UK)			
ST1	ESD80623	Rec Sw	PA5	SPH6212	Sheet, set			
ST2	ESD80624	Rec Sw	PA5	SJP9214	Adapter, AC (For X, XE)			
			PA6	SPN4970	Pad, T/T			
			PA7	XZB83X80C05	Poly Cover			
			PA8	SQX50508	Inst Book			
VARIABLE CAPACITORS								
CV101/102/201/202 (CT101/102)	ECV4MD34X22G	Tuning Capacitor w/Trimmer						
CT201/202	SCVCTY221D31	Trimmer						
CT203/204	SCVCTY211D31	Trimmer						
CERAMIC FILTER								
TH801	RRT103	Thermister						
TH802	RRT103	Thermister						
TH803	ERT2FHK202S	Thermister						
CF201	SVF107MA53	FM CFT						
CF202	SVF107MA53	FM CFT						
THERMISTER								
TH801	RRT103	Thermister						
TH802	RRT103	Thermister						
TH803	ERT2FHK202S	Thermister						
FUSE AND LAMPS								
PL1	△ XAMR53X500	Lamp						
PL2	△ XAMR53X500	Lamp						
F901	△ XBA2C16TRO	Fuse (For UK, X, XE)						
F902	△ XBA2C50TRO	Fuse						
F903	△ XBA2C50TRO	Fuse						
F904	△ XBA2C16TRO	Fuse						
COMPONENT COMBINATION								
Z101	SXABFKB4	B.P.F.						
Z201	EXA5DL04C	C-R						
Z202	EXAF203Z471	C-R						
Z401	EXRP471K104S	C-R						
Z402	EXRP471K104S	C-R						
Z403	EXRP471L104S	C-R						

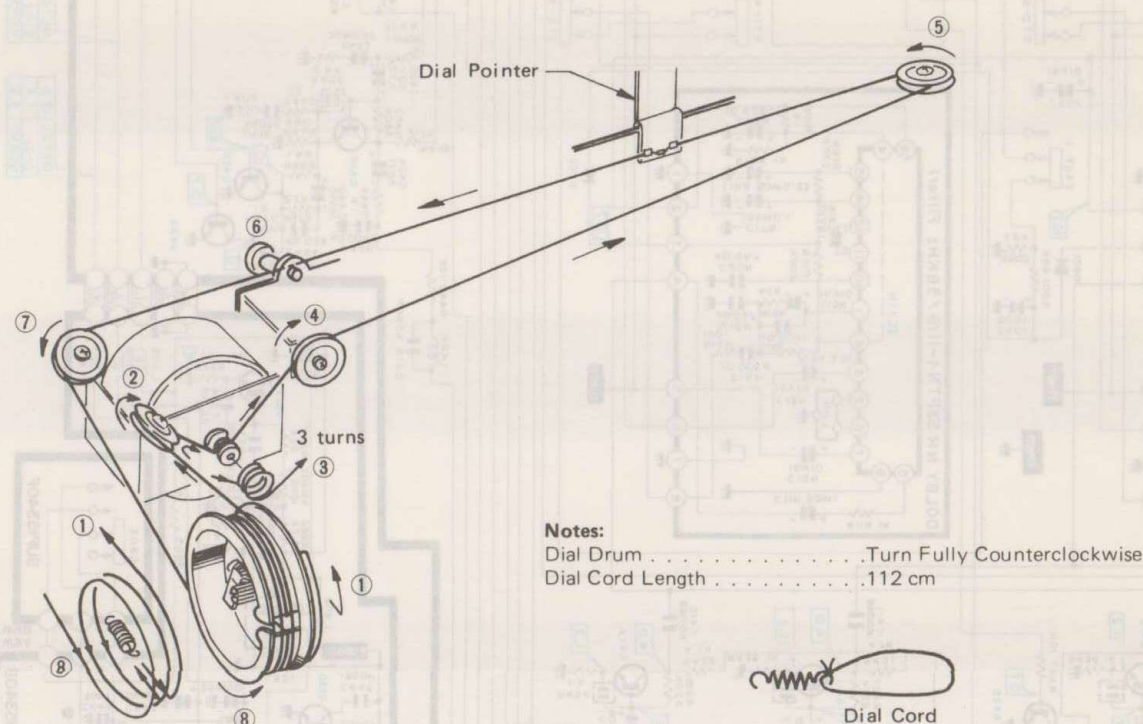
REPLACEMENT PARTS LIST

Numbering System of Resister			
Type	Wattage	Tolerance	Value
Three Letters	One or Two Letters	Two or Three Letters	Three or Four Letters
Example: E R D	2 5	T J	1 0 1
Resistor Type		Wattage	Tolerance
ERD:	Carbon Film	1: 1W	F: ±1%
ERC:	Solid	2: 2W	J: ±5%
ERX:	Metal Film	12: 1/2W	K: ±10%
ERG:	Metal Oxide Film	18: 1/8W	
ERO:	High Stability Metal Film	25: 1/4W	
ERF:	Flameproof Wire-Wound Bath-Tube		
ERQ:	Fuse Type Metal Film	50: 1/2W	
RRD:	Chip	2F: 1/4W	

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
RESISTORS					
R11H	RRD18XK102	1k	R101	ERD25FJ102	1k
R12H	RRD18XK102	1k	R102	ERD25FJ332	3.3k
R13H	RRD18XJ563	56k	R103	ERD25FJ222	2.2k
R14H	RRD18XJ563	56k	R104	ERD25FJ103	10k
R15H	ERD25TJ104	100k	R105	ERD25FJ152	1.5k
R16H	ERD25TJ104	100k	R106	ERD25TJ683	68k
R17H	RRD18XK821	820	R107	ERD25FJ103	10k
R18H	RRD18XK821	820	R108	ERD25FJ102	1k
R19H	RRD18XK822	8.2k	R109	ERD25FJ682	6.8k
R20H	RRD18XK822	8.2k	R110	ERD25TJ154	150k
R21H	RRD18XK102	1k	R111	ERD25FJ102	1k
R22H	RRD18XK102	1k	R112	ERD25TJ224	220k
R23H	RRD18XK334	330k	R113	ERD25TJ224	220k
R24H	RRD18XK334	330k	R115	ERD25FJ331	330
R25H	RRD18XJ684	680k	R116	ERD25FJ471	470
R26H	RRD18XJ684	680k	R201	ERD25FJ331	330
R27H	RRD18XK223	22k	R202	ERD25FJ182	1.8k
R28H	RRD18XK223	22k	R203	ERD25FJ682	6.8k
R29H	RRD18XJ333	33k	R204	ERD25FJ152	1.5k
R11N	RRD18XK102	1k	R205	ERD25FJ101	100
R12N	RRD18XJ332	3.3k	R206	ERD25FJ331	330
R13N	RRD18XJ473	47k	R207	ERD25FJ101	100
R14N	RRD18XK181	180	R208	ERD25FJ4R7	4.7
R15N	RRD18XK224	220k	R209	ERD25FJ470	47
R16N	RRD18XJ274	270k	R210	ERD25FJ152	1.5k
R17N	RRD18XK102	1k	R211	ERD25FJ102	1k
R18N	RRD18XK102	1k	R212	ERD25FJ102	1k
R11T	ERD25TJ104	100k	R213	ERD25TJ223	22k
R12T	ERD25TJ104	100k	R214	ERD25TJ563	56k
R13T	RRD18XK101	100	R215	ERD25FJ103	10k
R14T	RRD18XK101	100	R216	ERD25FJ681	680
R15T	RRD18XJ103	10k	R217	ERD25TJ104	100k
R16T	RRD18XJ103	10k	R219	ERD25TJ473	47k
R17T	RRD18XK102	1k	R220	ERD25FJ472	4.7k
R18T	RRD18XK102	1k	R221	ERD25FJ103	10k
R19T	RRD18XK224	220k	R225	ERD25TJ333	33k
R20T	RRD18XK224	220k	R226	ERD25FJ682	6.8k
R21T	RRD18XK224	220k	R227	ERD25TJ224	220k
R22T	RRD18XK224	220k	R228	ERD25TJ274	270k
R23T	RRD18XK822	8.2k	R231	ERD25FJ332	3.3k
R24T	RRD18XK822	8.2k	R232	ERD25TJ564	560k
R25T	RRD18XJ333	33k	R233	ERD25FJ103	10k
			R234	ERD25FJ102	1k
			R301	ERD25TJ183	18k
			R302	ERD25FJ102	1k
			R303	ERD25TJ333	33k
			R304	ERD25FJ103	10k
			R305	ERD25FJ472	4.7k

Ref. No.	Part No.	Description
R306	ERD25FJ472	4.7k
R307	ERD25TJ393	39k
R308	ERD25TJ393	39k
R309	ERD25FJ122	1.2k
R310	ERD25FJ152	1.5k
R311	ERD25FJ331	330
R312	ERD25TJ105	1M
R313	ERD25FJ103	10k
R314	ERD25FJ103	10k
R315	ERD25TJ105	1M
R401	ERD25FJ100	10
R402	ERD25FJ100	10
R403	ERD25FJ100	10
R404	ERD25FJ100	10
R409	ERD25FJ472	4.7k
R410	ERD25FJ472	4.7k
R411	ERD25FJ472	4.7k
R412	ERD25FJ472	4.7k
R413	ERD25FJ822	8.2k
R414	ERD25FJ822	8.2k
R415	ERD25FJ822	8.2k
R416	ERD25FJ822	8.2k
R417	ERD25TJ224	220k
R418	ERD25TJ224	220k
R419	ERD25TJ224	220k
R420	ERD25TJ224	220k
R421	ERD25TJ123	12k
R422	ERD25TJ123	12k
R423	ERD25TJ123	12k
R424	ERD25TJ123	12k
R425	ERD25TJ824	820k
R426	ERD25TJ824	820k
R427	ERD25TJ824	820k
R428	ERD25TJ824	820k
R429	ERD25FJ472	4.7k
R430	ERD25FJ472	4.7k
R431	ERD25FJ472	4.7k
R432	ERD25FJ472	4.7k
R433	ERD25FJ102	1k
R434	ERD25FJ102	1k
R435	ERD25FJ102	1k
R436	ERD25FJ102	1k
R437	ERD25TJ123	12k
R438	ERD25TJ123	12k
R439	ERD25TJ123	12k
R440	ERD25TJ123	12k
R441	ERD25FJ102	1k
R442	ERD25FJ102	1k
R443	ERD25FJ102	1k
R444	ERD25FJ102	1k
R445	ERD25FJ222	2.2k
R446	ERD25FJ222	2.2k
R447	ERD25FJ222	2.2k
R448	ERD25FJ222	2.2k
R449	ERD25TJ564	560k
R450	ERD25TJ564	560k
R451	ERD25TJ564	560k
R452	ERD25TJ564	560k
R453	ERD25FJ682	6.8k
R454	ERD25FJ682	6.8k
R455	ERD25FJ682	6.8k
R456	ERD25FJ682	6.8k
R457	ERD25FJ220	22
R458	ERD25FJ220	22
R459	ERD25FJ220	22
R460	ERD25FJ220	22
R461	ERD25FJ681	680
R462	ERD25FJ681	680
R463	ERD25FJ681	680
R464	ERD25FJ681	680
R465	ERD25FJ152	1.5k
R466	ERD25FJ152	1.5k
R467	ERD25FJ152	1.5k

DIAL CORD STRINGING GUIDE



HOW TO REPLACE CHIPS

1. Remove solder from chip by using solder sucker.
2. Remove chip with tweezers by rotating it while removing solder as shown in fig. 1.
3. Solder circuit board first and then solder chip in the direction of the arrow as shown in fig. 2.

Notes:

1. Do not use chip again which is removed from P.C. Board.
2. Use lead wire with insulator for replacement instead of chip jumper.

Color	Original Parts Name
Black	Chip Resistor
Brown	Chip Capacitor
Blue	Chip Jumper

Fig. 1

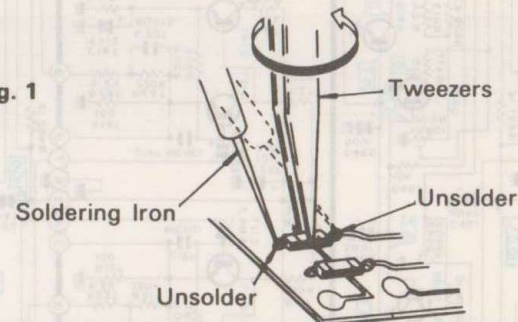
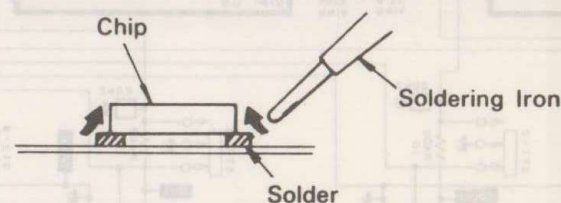


Fig. 2



REPLACEMENT PARTS LIST

NOTE:

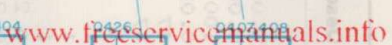
1. Important safety notice:

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

2. Parts No. listed in this Parts List are of Service Parts.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
TRANSISTORS					
Q11H	2SC2405	Phono Eq	Q820	2SC828AR	Switching
Q12H	2SC2405	Phono Eq	Q821	2SC828AR	Muting
Q13H	2SC2405	Phono Eq	Q822	2SC828AR	Muting
Q14H	2SC2405	Phono Eq	Q823	2SC1399-E	WD Switch
Q11T	2SC2405	Tape Eq	Q824	2SC1399-E	WD Switch
Q12T	2SC2405	Tape Eq	Q825	2SC1399-E	WD Switch
Q13T	2SC2405	Tape Eq	Q826	2SC1399-E	WD Switch
Q14T	2SC2405	Tape Eq	Q827	2SC1383NC-R	RP/E Bias
Q101	2SC1675-L	FM RF Amp	Q828	2SC1383NC-R	RP/E Bias
Q102	2SC1674-M	FM Mix	Q829	2SC1383NC-R	Bias OSC
Q103	2SC1675-L	FM OSC	Q830	2SC945L-P	WD Switch
Q201	2SC828AR	Switching	Q831	2SC945L-P	WD Switch
Q202	2SA722-S	Switching	Q832	2SC945L-P	Muting
Q401	2SC828AR	Muting	Q833	2SD1302-R	Muting
Q402	2SC828AR	Muting	Q834	2SD1302-R	Muting
Q403	2SC828AR	Muting	Q835	2SA722-S	Muting
Q404	2SC828AR	Muting	Q836	2SC945L-P	Switching
Q405	2SC828AR	Tape Select	Q901	2SD1275LS-P	Stabilizer
Q406	2SC828AR	Tape Select	INTEGRATED CIRCUIT		
Q407	2SC828AR	Tape Select	IC201	AN217P-BB	FM/AM IF
Q408	2SC828AR	Tape Select	IC301	AN7410N	FM PLL MPX
Q409	2SC945L-P	Buffer Amp	IC701	STK457NM	Power Amp
Q410	2SC945L-P	Buffer Amp	IC801	BA338	TPS
Q411	2SC945L-P	Buffer Amp	IC11N	NE646BN	Dolby NR
Q412	2SC945L-P	Buffer Amp	DIODES		
Q413	2SC945L-P	Rec Amp	D101	MA162A	FM ABC
Q414	2SC945L-P	Rec Amp	D102	MA162A	FM ABC
Q415	2SC945L-P	Rec Amp	D103	MA345	AFC
Q416	2SC945L-P	Rec Amp	D201	20A90	FM DET
Q417	2SC828AR	Tape Select	D202	20A90	FM DET
Q418	2SC828AR	Tape Select	D203	20A90	AM DET
Q419	2SC828AR	Tape Select	D204	MA27A2	AOC
Q420	2SC828AR	Tape Select	D205	20A90	RECT
Q421	2SC828AR	Tape Select	D207	MA162A	Switching
Q422	2SC828AR	Tape Select	D208	DS135TD	Protector
Q423	2SC828AR	Tape Select	D209	LN3136P	Tuning Ind
Q424	2SC828AR	Tape Select	D301	MA162A	Switching
Q425	2SC828AR	Tape Select	D302	MA162A	Switching
Q426	2SC828AR	Tape Select	D303	LN213RP	Stereo Ind
Q427	2SC1328-T	Mic Amp	D304	MA162A	Switching
Q428	2SC1328-T	Mic Amp	D801	MA162A	Switching
Q501	2SC1328-T	Pre Amp	D802	MA162A	Switching
Q502	2SC1328-T	Pre Amp	D803	DS135TD	Protector
Q503	2SC945L-P	Pre Amp	D804	DS135TD	Protector
Q504	2SC945L-P	Pre Amp	D805	DS135TD	Protector
Q801	2SD1302-R	Muting	D806	MA162A	Switching
Q802	2SD1302-R	Muting	D807	MA162A	Switching
Q803	2SC828AR	Switching	D808	MA162A	Switching
Q804	2SC828AR	Switching	D809	MA162A	Switching
Q805	2SC945L-P	ALC	D810	MA162A	Switching
Q806	2SC945L-P	ALC	D811	MA162A	Switching
Q807	2SC945L-P	ALC	D812	MA162A	Switching
Q808	2SC945L-P	ALC	D813	MA162A	Switching
Q809	2SC945L-P	ALC	D814	MA162A	Switching
Q810	2SC1583-F	ALC	D815	MA162A	Switching
Q811	2SC828AR	Muting	D817	DS135TD	Switching
Q812	2SC828AR	Muting	D818	DS135TD	Switching
Q813	2SD946	Motor Drive	D819	MA162A	Switching
Q814	2SD946	Motor Drive	D820	MA162A	Switching
Q815	2SD946	TPS Driver	D821	LD702UR	REC A Ind
Q816	2SC828AR	Switching			
Q817	2SC828AR	Switching			
Q818	2SC828AR	Switching			
Q819	2SC828AR	Switching			
COIL & TRANSFORMERS					
L11N	SLM9Z16-P	Filter			
L1	SSA2-1	Loop Ant			
L101	SLD4N30-M	FM Collector			
L102	SL04P28-P	FM OSC			
L103	RLQY15G5-0	R.F. Choke			
L201	SL02M16-M	MW OSC			
L202	SLD1M10-M	LW OSC			
L203	SLQX250-Y	Choke			
L204	SLA2C4-K	MW Matching			
L205	SLA1C10-K	LW Matching			
L401	SLQV393-4M	Bias Trap			
L402	SLQV393-4M	Bias Trap			
L403	SLQV393-4M	Bias Trap			
L404	SLQV393-4M	Bias Trap			
L405	SLQV222-2Y	Rec EQ Peak			
L406	SLQV222-2Y	Rec EQ Peak			
L407	SLQV222-2Y	Rec EQ Peak			
L408	SLQV222-2Y	Rec EQ Peak			
L601	SLQV270-4Y	Choke			
L801	SLQV270-4Y	Choke			
L802	SL09C4-K	Bias OSC			
L803	SL09C6-K	Bias OSC			
L804	SL09C6-K	Bias OSC			
L805	SLQV270-4Y	Choke			
L806	SLQV270-4Y	Choke			
L807	SLQV270-4Y	Choke			
T1	Δ SLT5M210-V	Power Trans			
T1	Δ SLT5M182-V2	Power Trans			
	(For UK, X, XE)				
T101	RLI4M101-M	FM 1st IFT			
T201	SLI7W104-M	AM CFT			
T201	SLI7W106-M	AM CFT			
	(For UK)				
T202	RLI2M402-M	AM 2nd IFT			
T203	RLI4M501-M	FM Disc			
T204	RLI4M502-M	FM Disc			
VARIABLE RESISTORS					
VR301	EVNK6AA00B14	Free Run			
VR302	EVNK6AA00B14	Separation			
VR401	EVNK6AA00B24	Dolby NR			
VR402	EVNK6AA00B24	Dolby NR			
VR403	EVNK6AA00B24	Dolby NR			
VR404	EVNK6AA00B24	Dolby NR			
VR405	EVNK6AA00B24	Rec Current			
VR406	EVNK6AA00B24	Rec Current			
VR407	EVNK6AA00B24	Rec Current			
VR408	EVNK6AA00B24	Rec Current			
VR501/502	EWSCAF20A54	Bass			
VR503/504	EWSCAF20A54	Treble			
VR505/506	EWJEA0090A54	Main Volume			

It's Free



REPLACEMENT PARTS LIST

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
R468	ERD25FJ152	1.5k	R712	ERD25FJ102	1k	R868	△ERD2FCG150P	15
R469	ERD25FJ272	2.7k	R713	ERD25FJ100	10	R869	△ERG1ANJP391S	390
R470	ERD25FJ272	2.7k	R714	ERD25FJ100	10	R870	△ERG1ANJP391S	390
R471	ERD25FJ272	2.7k	R715	ERC126K221	220	R871	△ERG1ANJP221S	220
R472	ERD25FJ272	2.7k	R716	ERC126K221	220	R872	△ERG1ANJP221S	220
R473	ERD25FJ102	1k	R717	ERQ12HJ101	100	R873	△ERQ12HJ220	22
R474	ERD25FJ102	1k	R801	ERD25FJ683	68k	R874	△ERQ12HJ220	22
R475	ERD25FJ102	1k	R802	ERD25FJ683	68k	R875	ERD25FJ331	330
R476	ERD25FJ102	1k	R803	ERD25FJ682	6.8k	R876	ERD25FJ331	330
R477	ERD25FJ100	10	R804	ERD25FJ682	6.8k	R877	ERD25FJ152	1.5k
R478	ERD25FJ100	10	R805	ERD25FJ103	10k	R878	ERD25FJ152	1.5k
R479	ERD25TJ274	270k	R806	ERD25FJ103	10k	R879	ERD25FJ681	680
R480	ERD25TJ274	270k	R807	ERD25FJ562	5.6k	R880	ERD25FJ681	680
R481	ERD25FJ102	1k	R808	ERD25FJ562	5.6k	R881	△ERG2ANJP820S	82
R482	ERD25FJ102	1k	R809	ERD25FJ682	6.8k	R882	△ERG2ANJP820S	82
R483	ERD25FJ103	10k	R810	ERD25FJ682	6.8k	R883	ERD25TJ223	22k
R484	ERD25TJ333	33k	R811	ERD25FJ152	1.5k	R884	△ERQ12HJ470P	47
R485	ERD25FJ103	10k	R812	ERD25TJ473	47k	R885	ERD25FJ472	4.7k
R486	ERD25FJ103	10k	R813	ERD25TJ123	12k	R886	ERD25FJ103	10k
R487	ERD25FJ103	10k	R814	ERD25TJ123	12k	R887	ERD25FJ103	10k
R488	ERD25FJ103	10k	R815	ERD25TJ104	100k	R888	ERD25TJ563	56k
R489	ERD25FJ332	3.3k	R816	ERD25TJ104	100k	R889	ERD25TJ223	22k
R490	ERD25FJ332	3.3k	R817	ERD25FJ222	2.2k	R890	ERD25TJ273	27k
R491	ERD25TJ105	1M	R818	ERD25FJ222	2.2k	R891	ERD25FJ103	10k
R492	ERD25TJ105	1M	R819	ERD25FJ102	1k	R892	ERD25FJ103	10k
R493	ERD25FJ121	120	R820	ERD25FJ102	1k	R893	ERD25FJ102	1k
R494	ERD25FJ121	120	R821	ERD25TJ473	47k	R894	ERD25FJ272	2.7k
R495	ERD25FJ682	6.8k	R822	ERD25TJ473	47k	R895	ERD25FJ222	2.2k
R496	ERD25FJ682	6.8k	R823	ERD25FJ470	47	R896	ERD25FJ222	2.2k
R497	ERD25TJ104	100k	R824	ERD25TJ473	47k	R897	ERD25FJ103	10k
R498	ERD25TJ104	100k	R825	ERD25FJ103	10k	R898	ERD25FJ332	3.3k
R499	ERD25FJ102	1k	R826	ERD25FJ103	10k	R899	ERD25FJ102	1k
R501	ERD25TJ155	1.5M	R827	△ERQ12HJ470P	47	R901	ERD25FJ222	2.2k
R502	ERD25TJ155	1.5M	R828	ERD25FJ102	1k	R902	ERD25FJ471	470
R503	ERD25FJ681	680	R829	ERD25TJ153	15k	R903	ERD25FJ152	1.5k
R504	ERD25FJ681	680	R830	ERD25TJ153	15k	R904	ERD25FJ102	1k
R505	ERD25FJ332	3.3k	R831	ERD25FJ100	10	R905	ERD25TJ153	15k
R506	ERD25FJ332	3.3k	R832	ERD25FJ100	10	R906	ERD25TJ104	100k
R507	ERD25TJ183	18k	R833	ERD25FJ103	10k	R907	△ERQ12HJ390P	39
R508	ERD25TJ183	18k	R834	ERD25FJ103	10k	R4001	ERD25FJ103	10k
R509	ERD25TJ104	100k	R835	ERD25TJ153	15k	R4002	ERD25FJ103	10k
R510	ERD25TJ104	100k	R836	ERD25TJ393	39k	R4003	ERD25FJ103	10k
R511	ERD25FJ222	2.2k	R837	ERD25FJ332	3.3k	R4004	ERD25FJ103	10k
R512	ERD25FJ222	2.2k	R838	ERD25FJ332	3.3k	R8001	ERD25FJ472	4.7k
R513	ERD25FJ222	2.2k	R839	ERD25FJ103	10k	R8002	ERD25FJ472	4.7k
R514	ERD25FJ222	2.2k	R840	ERD25FJ103	10k	R8003	ERD25FJ103	10k
R515	ERD25TJ155	1.5M	R841	ERD25FJ103	10k	R8004	ERD25FJ472	4.7k
R516	ERD25TJ155	1.5M	R842	ERD25FJ103	10k			
R517	ERD25FJ331	330	R843	△ERQ12HJ100P	10			
R518	ERD25FJ331	330	R844	ERD25TJ224	220k			
R519	ERD25FJ682	6.8k	R845	ERD25TJ224	220k			
R520	ERD25FJ682	6.8k	R846	ERD25FJ562	5.6k			
R521	ERD25FJ221	220	R847	ERD25FJ332	3.3k			
R523	ERD25FJ822	8.2k	R848	ERD25FJ102	1k			
R524	ERD25FJ822	8.2k	R849	ERD25FJ472	4.7k			
R526	ERD25TJ473	47k	R850	ERD25FJ472	4.7k			
R527	ERD25TJ473	47k	R851	ERD25FJ1R0	1			
R601	ERD25TJ473	47k	R852	ERD25FJ1R0	1			
R602	ERD25TJ473	47k	R853	ERD25TJ224	220k			
R603	ERD25TJ273	27k	R854	ERD25TJ224	220k			
R604	ERD25TJ273	27k	R855	ERD25TJ224	220k			
R605	ERD25FJ102	1k	R856	ERD25TJ224	220k			
R701	ERD25FJ102	1k	R857	ERD25FJ100	10			
R702	ERD25FJ102	1k	R858	ERD25FJ100	10			
R703	ERD25TJ333	33k	R859	ERD25FJ332	3.3k			
R704	ERD25TJ333	33k	R860	ERD25FJ332	3.3k			
R705	ERD25FJ331	330	R861	ERD25TJ223	22k			
R706	ERD25FJ331	330	R862	ERD25TJ223	22k			
R707	ERD25TJ333	33k	R863	ERD25FJ103	10k			
R708	ERD25TJ333	33k	R864	ERD25FJ103	10k			
R709	ERD25FJ332	3.3k	R865	ERD25FJ222	2.2k			
R710	ERD25FJ332	3.3k	R866	ERD25FJ272	2.7k			
R711	ERD25FJ102	1k	R867	ERD25TJ223	22k			

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		Voltage	Tolerance
ECCD:	Temperature Compensating Ceramic		C: ±0.25pF
ECKD:	High Dielectric Constant Ceramic		D: ±0.5pF
ECQM:	Polyester	OJ: 6.3V	F: ±1pF
ECQP:	Polypropylene Film	1A: 10V	J: ±5%
ECQS:	Polystyrene Film	1C: 16V	K: ±10%
ECFD:	Semiconductor Ceramic	1E: 25V	M: ±20%
ECEA:	Electrolytic	1H: 50V	P: +100, -0%
ECEB:	Electrolytic	1V: 63V	Z: +80, -20%
ECET:	Electrolytic	2H: 100V	
ECSF:	Tantalum	25: 25V	
ECUX:	Chip	50: 50V	

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
CAPACITORS					
C11H	ECEA50Z1	1	C101	ECCD1H100KC	10pF
C12H	ECEA50Z1	1	C104	ECKD1H102KB	0.001
C13H	ECUX1H102MD	0.001	C105	ECKD1H223ZF	0.022
C14H	ECUX1H102MD	0.001	C107	ECKD1H223ZF	0.022
C15H	ECUX1H470KC	470pF	C108	ECCD1H180KC	18pF
C16H	ECUX1H470KC	470pF	C109	ECCD1H040CC	4pF
C17H	ECEA50Z1	1	C110	ECCD1H070CC	7pF
C18H	ECEA50Z1	1	C111	ECKD1H181KB	180pF
C19H	ECUX1H103MD	0.01	C112	ECKD1H102KB	0.001
C20H	ECUX1H103MD	0.01	C113	ECKD1H102KB	0.001
C21H	ECUX1H332MD	0.0033	C114	ECCD1H180KC	18pF
C22H	ECUX1H332MD	0.0033	C115	ECCD1H220K	22pF
C23H	ECEA1AS221	220	C116	ECKD1H223ZF	0.022
C11N	ECEA50M1R	1	C117	ECCD1H060CC	6pF
C12N	ECEA1HS100	10	C118	ECFD1E104MD	0.1
C13N	ECEA1HS100	10	C119	ECCD1H080CC	8pF
C14N	ECQM1H472JZ	0.0047	C120	ECFD1V223KD	0.022
C15N	ECEA1HS100	10	C121	ECFD1V223KD	0.022
C16N	ECQM1H562JZ	0.0056	C201	ECCD1H470K	47pF
C17N	ECEA50MR1R	0.1	C202	ECKD1H151KB	150pF
C18N	ECEA50MR33R	0.33	C204	ECCD1H180KC	18pF
C19N	ECQM1H273JZ	0.027	C205	ECFD1V473KD	0.047
C20N	ECFD1V473KD	0.047	C206	ECFD1V223KD	0.022
C21N	ECEA1HS100	10	C207	ECFD1V223KD	0.022
C22N	ECEA1AS221	220	C209	ECFD1V223KD	0.022
C23N	ECUX1H392KR	0.0039	C210	ECKD1H223ZF	0.022
C11T	ECEA25M4R7R	4.7	C211	ECCD1H470K	47pF
C12T	ECEA25M4R7R	4.7	C212	ECFD1V103KD	0.01
C13T	ECUX1H102MD	0.001	C213	ECQS1361JZ	360pF
C14T	ECUX1H102MD	0.001	C214	ECCD1H150KC	15pF
C17T	ECEA1HS100	10	C215	ECQS1181JZ	180pF
C18T	ECEA1HS100	10	C216	ECCD1H680K	68pF
C19T	ECEA1HS100	10	C217	ECCD1H120KC	12pF
C20T	ECEA1HS100	10	C218	ECFD1V223KD	0.022
C21T	ECUX1H153MD	0.015	C219	ECFD1V223KD	0.022
C22T	ECUX1H153MD	0.015	C220	ECEA1CS330	33
C23T	ECEA1AS221	220	C221	ECKD1H223ZF	0.022
			C223	ECCD1H560K	56pF
			C224	ECEA1HS100	10
			C225	ECEA1CS330	33
			C229	ECFD1V333KD	0.033
			C231	ECKD1H103ZF	0.01
			C232	ECKD1H181KB	180pF
			C233	ECCD1H150KC	15pF
			C234	ECKD1H181KB	180pF
			C235	ECEA25Z4R7	4.7
			C236	ECEA1HS100	10
			C237	ECEA50Z1	1

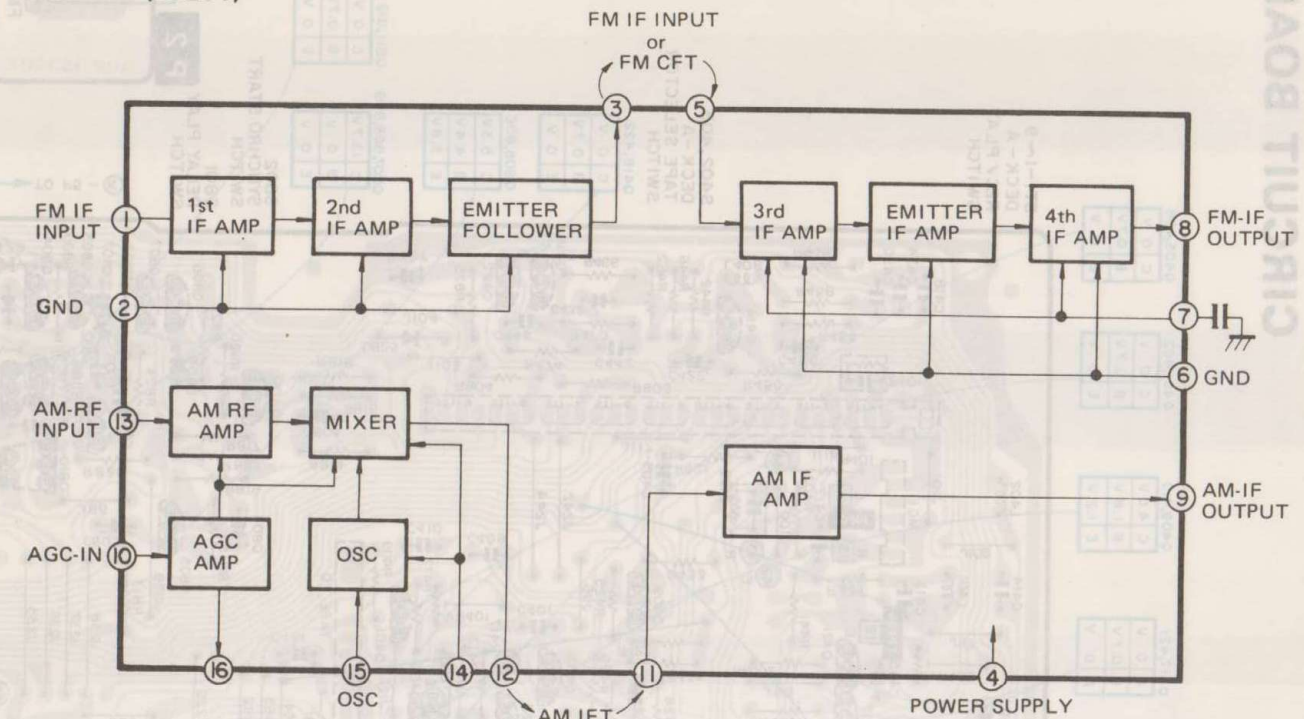
Ref. No.	Part No.	Description
C238	ECEA25Z4R7	4.7
C239	ECFD1V223KD	0.022
C301	ECEA1HS100	10
C302	ECFD1V473KD	0.047
C303	ECQS1471JZ	470pF
C304	ECEA50MR47R	0.47
C305	ECEA50MR22R	0.22
C306	ECEA50MR47R	0.47
C307	ECFD1V103KD	0.01
C308	ECFD1V103KD	0.01
C309	ECEA50Z1	1
C310	ECEA50Z1	1
C311	ECKD1H471KB	470pF
C312	ECKD1H471KB	470pF
C313	ECEA1AS221	220
C314	ECEA50Z1	1
C315	ECKD1H102KB	0.001
C316	ECKD1H102KB	0.001
C401	ECQM1H103JZ	0.01
C402	ECQM1H103JZ	0.01
C403	ECQM1H103JZ	0.01
C404	ECQM1H103JZ	0.01
C405	ECEA50Z1	1
C406	ECEA50M1R	1
C407	ECEA50Z1	1
C408	ECEA50Z1	1
C409	ECQM1H683KV	0.068
C410	ECQM1H683KV	0.068
C411	ECQM1H683KV	0.068
C412	ECQM1H683KV	0.068
C413	ECKD1H561KB	560pF
C414	ECKD1H561KB	560pF
C415	ECKD1H561KB	560pF
C416	ECKD1H561KB	560pF
C417	ECQM1H472JZ	0.0047
C418	ECQM1H472JZ	0.0047
C419	ECQM1H472JZ	0.0047
C420	ECQM1H472JZ	0.0047
C421	ECEA50Z1	1
C422	ECEA50Z1	1
C423	ECEA50Z1	1
C424	ECEA50M1R	1
C425	ECEA50Z2R22	0.22
C426	ECEA50Z2R22	0.22
C427	ECEA50Z2R22	0.22
C428	ECEA50MR22R	0.22
C429	ECEA50MR47R	0.47
C430	ECEA50MR47R	0.47
C431	ECEA50MR47R	0.47
C432	ECEA50MR47R	0.47
C433	ECQM1H563KV	0.056
C434	ECQM1H563KV	0.056
C435	ECQM1H563KV	0.056

REPLACEMENT PARTS LIST

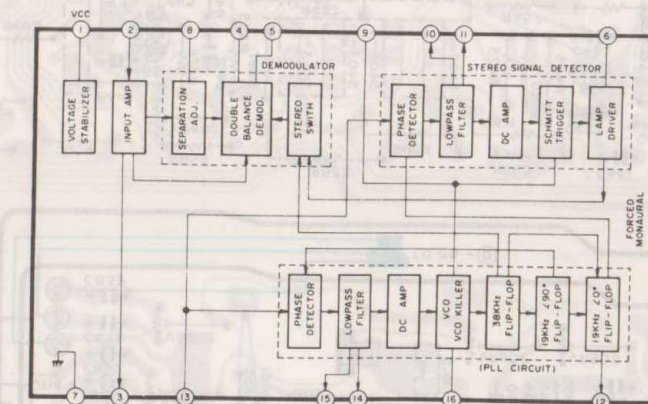
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
C456	ECEA50Z1	1	C822	ECEA50ZR33	0.33			
C457	ECKD1H102KB	0.001	C823	ECEA50ZR33	0.33			
C458	ECKD1H102KB	0.001	C824	ECFD1H222KD	0.0022			
C459	ECEA1ES101	100	C825	ECFD1V333KD	0.033			
C460	ECKD1H223ZF	0.022	C826	ECEA1CS471	470			
C461	ECEA1ES470	47	C827	ECEA1ES220	22			
C462	ECEA1ES470	47	C828	ECEA1ES220	22			
C463	ECEA50Z1	1	C829	ECKD1H331KB	330pF			
C464	ECEA50Z1	1	C830	ECKD1H331KB	330pF			
C465	ECEA50Z1	1	C831	ECKD1H331KB	330pF			
C466	ECEA50Z1	1	C832	ECKD1H331KB	330pF			
C501	ECEA50ZR22	0.22	C833	ECQ51822JZ	8200pF			
C502	ECEA50ZR22	0.22	C834	ECQ51822JZ	8200pF			
C503	ECKD1H102KB	0.001	C835	ECKD1H102KB	0.001			
C504	ECKD1H102KB	0.001	C836	ECKD1H102KB	0.001			
C505	ECEA50ZR22	0.22	C837	ECQM1H153JZ	0.015			
C506	ECEA50ZR22	0.22	C838	ECQM1H153JZ	0.015			
C509	ECQM1H473JZ	0.047	C839	ECKD1H152KB	0.0015			
C510	ECQM1H473JZ	0.047	C840	ECKD1H152KB	0.0015			
C511	ECQM1H222JZ	0.0022	C841	ECQ51561JZ	560pF			
C512	ECQM1H222JZ	0.0022	C842	ECQ51561JZ	560pF			
C513	ECFD1V183KD	0.018	C843	ECQP1152JZ	0.0015			
C514	ECFD1V183KD	0.018	C844	ECQP1152JZ	0.0015			
C515	ECEA50M1R	1	C845	ECQ51561JZ	560pF			
C516	ECEA50M1R	1	C846	ECQP1152JZ	0.0015			
C517	ECKD1H102ZF	0.001	C847	ECEA1ES101	100			
C518	ECKD1H102ZF	0.001	C848	ECEA1ES101	100			
C519	ECEA50M1R	1	C849	ECEA1HN010S	1			
C520	ECEA50M1R	1	C850	ECEA1HN010S	1			
C521	ECEA1CS221	220	C851	ECQP1103JZ	10000pF			
C522	ECKD1H223ZF	0.022	C852	ECKD1H102KB	0.001			
C523	ECCD1H470K	47pF	C853	ECQM1H682JZ	0.0068			
C524	ECCD1H470K	47pF	C854	ECQM1H153JZ	0.015			
C601	ECEA1ES470	47	C855	ECEA50Z1	1			
C602	ECEA1CS221	220	C856	ECEA1ES470	47			
C703	ECEA50ZR47	0.47	C857	ECQM1H103JZ	0.01			
C704	ECEA50ZR47	0.47	C858	ECQM1H103JZ	0.01			
C705	ECKD1H471KB	470pF	C861	ECEA1ES220	22			
C706	ECKD1H471KB	470pF	C862	ECKD1H223ZF	0.022			
C707	ECCD1H100KC	10pF	C864	ECKD1H223ZF	0.022			
C708	ECCD1H100KC	10pF	C865	ECEA50Z1	1			
C709	ECEA1HS470	47	C866	ECKD1H103ZF	0.001			
C710	ECEA1HS470	47	C901	ECQM1H224JZ	0.22			
C711	ECEA1ES470	47	C902	ECEA1ES222EV	2200			
C712	ECEA1ES470	47	C903	ECEA1ES222EV	2200			
C713	ECQM1H104KS	0.1	C904	ECEA1VS102	1000			
C714	ECQM1H104KS	0.1	C905	ECKD1H103ZF	0.01			
C715	ECQM1H104KS	0.1	C906	ECKD1H103ZF	0.01			
C716	ECQM1H104KS	0.1	C907	ECKD1H103ZF	0.01			
C718	ECEA1ES101	100	C908	ECKD1H103ZF	0.01			
C719	ECCD1H180KC	18pF	C909	ECKD1H102KB	0.001			
C720	ECCD1H180KC	18pF	C910	ECEA1ES101	100			
C801	ECEA50Z1	1	C911	ECEA50ZR1	0.1			
C802	ECEA1HS100	10	C912	ECEA1CS221	220			
C803	ECEA50Z1	1						
C804	ECEA50Z1	1						
C805	ECEA50Z1	1						
C806	ECEA50Z1	1						
C807	ECEA1ES220	22						
C808	ECKD1H102KB	0.001						
C809	ECKD1H102KB	0.001						
C810	ECKD1H223ZF	0.022						
C811	ECEA1CS471	470						
C812	ECKD1H102KB	0.001						
C813	ECKD1H223ZF	0.022						
C814	ECKD1H103ZF	0.01						
C815	ECKD1H103ZF	0.01						
C816	ECEA25N4R7	4.7						
C817	ECEA1HN010S	1						
C818	ECEA25Z4R7	4.7						
C819	ECEA25Z4R7	4.7						
C820	ECEA1ES220	22						
C821	ECEA50Z1	1						

IC BLOCK DIAGRAM

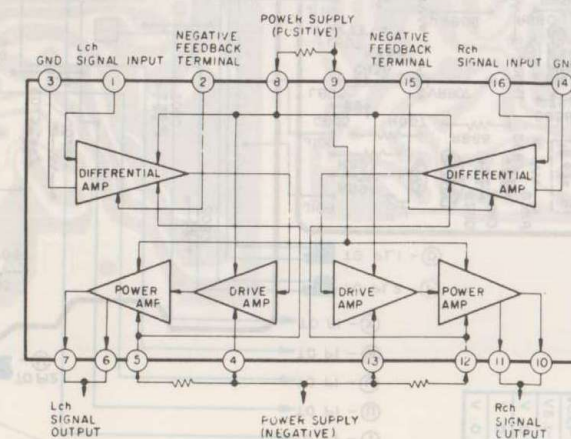
AN217P (IC201)



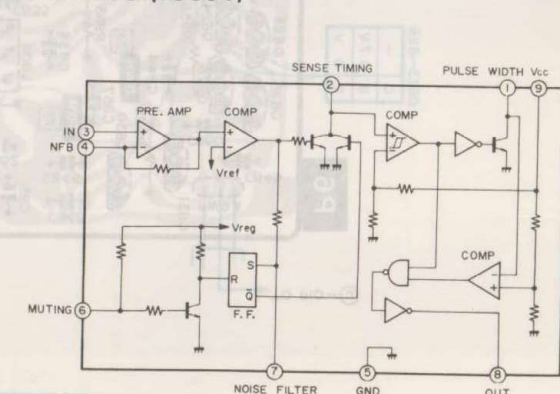
AN7410N (IC701)



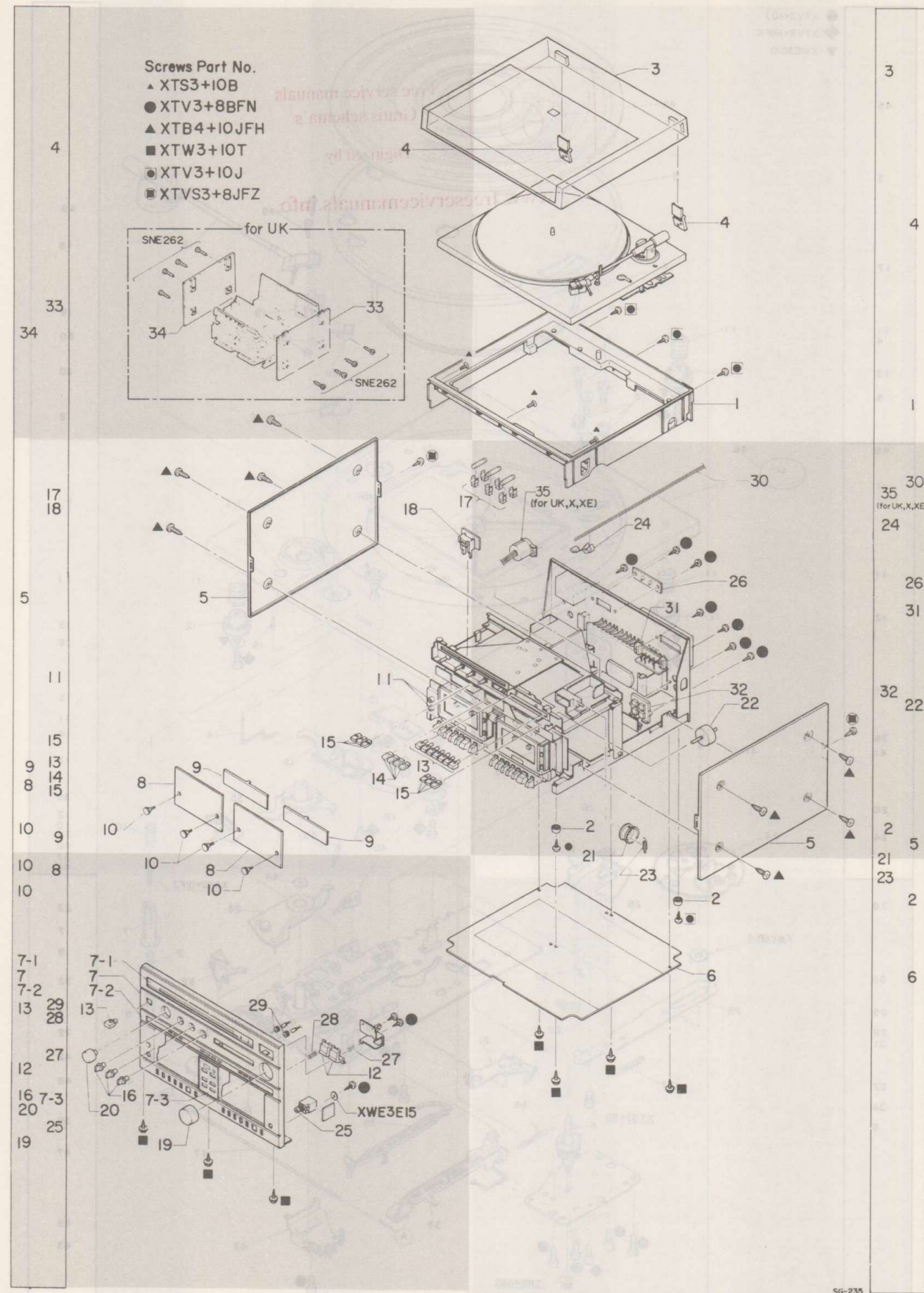
STK457MM (IC701)



BA338 (IC801)



PARTS LOCATION OF CABINET AND CHASSIS



REPLACEMENT PARTS LIST OF CABINET AND CHASSIS

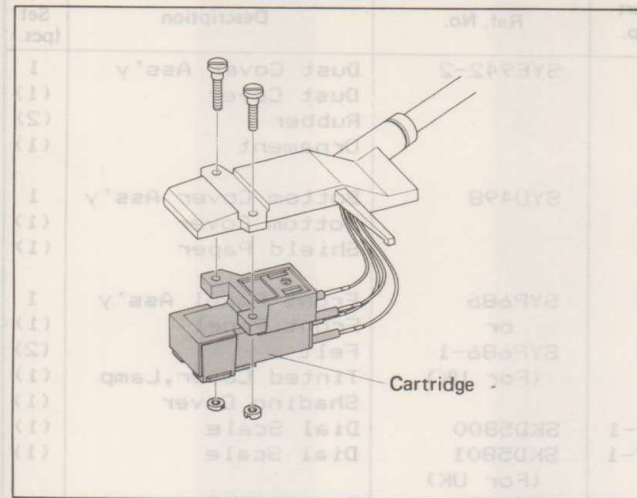
Ref. No.	Part No.	Description	Per Set (pcs.)
1	SKM7000	Player Cabinet	1
2	SKL52-1	Foot	2
3	SYE942-2	Dust Cover Ass'y	1
4	SBH9128	Hing	2
5	SKE394	Side Cover	2
	(Except UK)		
6	SYU498	Bottom Cover Ass'y	1
7	SYP686	Front Panel Ass'y	1
7	SYP686-1	Front Panel Ass'y	1
	(For UK)		
7-1	SKD5800	Dial Scale	(1)
7-1	SKD5801	Dial Scale	(1)
	(For UK)		
7-2	SGX1456	Ornament A	(1)
7-3	SGX1404-1	Ornament B	(1)
8	SGE1454	Cassette Lid	1
9	SGX1396	Ornament, Cassette	2
10	SNE284-1	Screw, Cassette Lid	4
11	XCJS6PA4	Jack, Microphone	2
12	SBC494	Button, Tuntable	2
13	SBC496-1	Button, Selector	8
14	SBC498-1	Button, Push (Blue)	4
15	SBC498-2	Button, Push	6
16	SBN1048-2	Knob, Function	3
17	ΔSJF110	Fuse Holder	8
18	SDP5100-1	Dial Pointer	1
19	SBN1002-3	Knob, Tuning	1
20	SBN1010-1	Knob, Volume	1
21	RDD323ZA	Drum, Dial	1
22	SDT9306	Shaft, Dial	1
23	RDS3090A	Spring, Dial	1
24	ΔSHR127	Clamp, Power Cord	1
24	ΔSHR129	Clamp, Power Cord	1
	(For UK)		
25	XCJ6P21E	Jack, Headphone	1
26	SJF3204	Terminal, Aux	1
27	SUS418	Spring A	1
28	SUS420	Spring B	1
29	RHG211	Rubber, Lamp	2
30	ΔSJA138	Power Cord	1
30	ΔSJA136	Power Cord	1
	(For UK)		
31	SJF4414	Terminal, Antena	1
32	SJF9422	Terminal, Speaker	1
33	SYK1984	Side Panel	1
	(For UK)	(Dark Wood)	
33	SYK1984-1	Side Panel, Right	1
	(For UK)	(Teak)	
34	SYK1986	Side Panel, Left	1
	(For UK)	(Dark Wood)	
34	SYK1986-1	Side Panel, Left	1
	(For UK)	(Teak)	
35	ΔSUV172	Voltage Select Cover	1
	(For UK, X, XE)		

Items of Assembly Part.

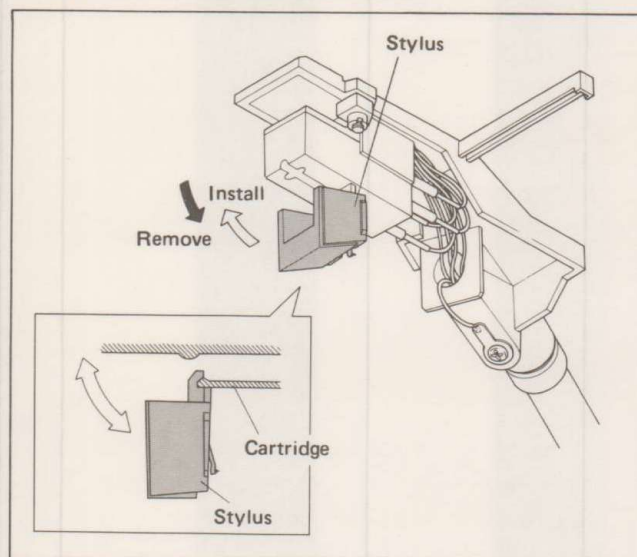
Part No.	Ref. No.	Description	Per Set (pcs.)
3	SYE942-2	Dust Cover Ass'y	1
		Dust Cover	(1)
		Rubber	(2)
		Ornament	(1)
6	SYU498	Bottom Cover Ass'y	1
		Bottom Cover	(1)
		Shield Paper	(1)
7	SYP686	Front Panel Ass'y	1
	or	Front Panel	(1)
7	SYP686-1	Felt	(2)
	(For UK)	Tinted Cover, Lamp	(1)
		Shading Cover	(1)
7-1	SKD5800	Dial Scale	(1)
7-1	SKD5801	Dial Scale	(1)
	(For UK)		
7-2	SGX1456	Ornament A	(1)
7-3	SGX1404-1	Ornament B	(1)

SERVICING THE RECORD PLAYER

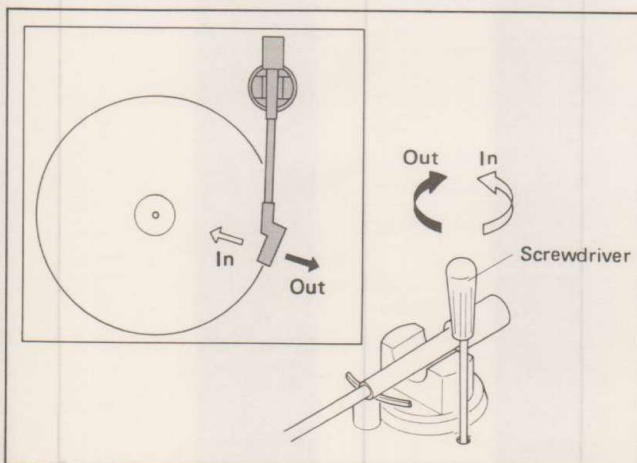
■ CARTRIDGE REPLACEMENT



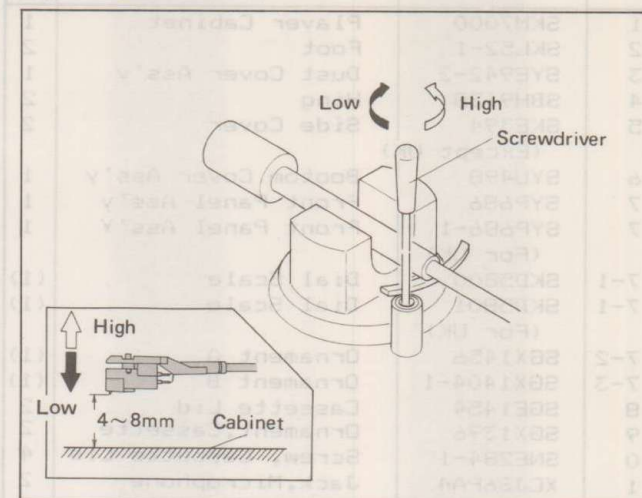
■ STYLUS REPLACEMENT



■ STYLUS DROP POINT ADJUSTMENT

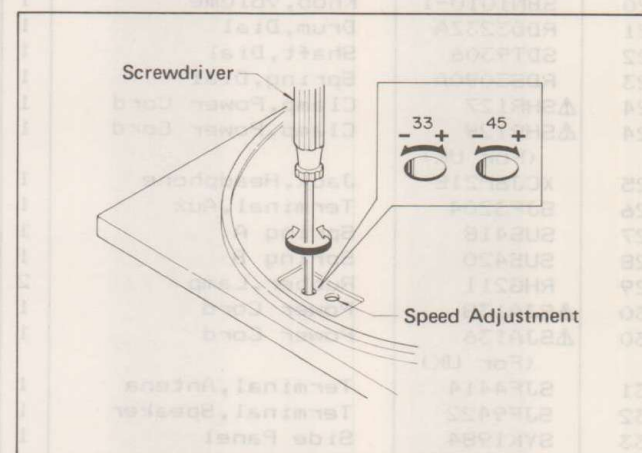


■ TONE ARM LIFTING HEIGHT ADJUSTMENT

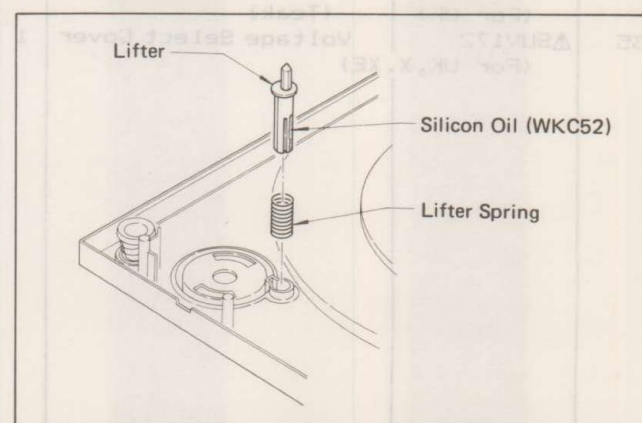


■ MOTOR SPEED ADJUSTMENT

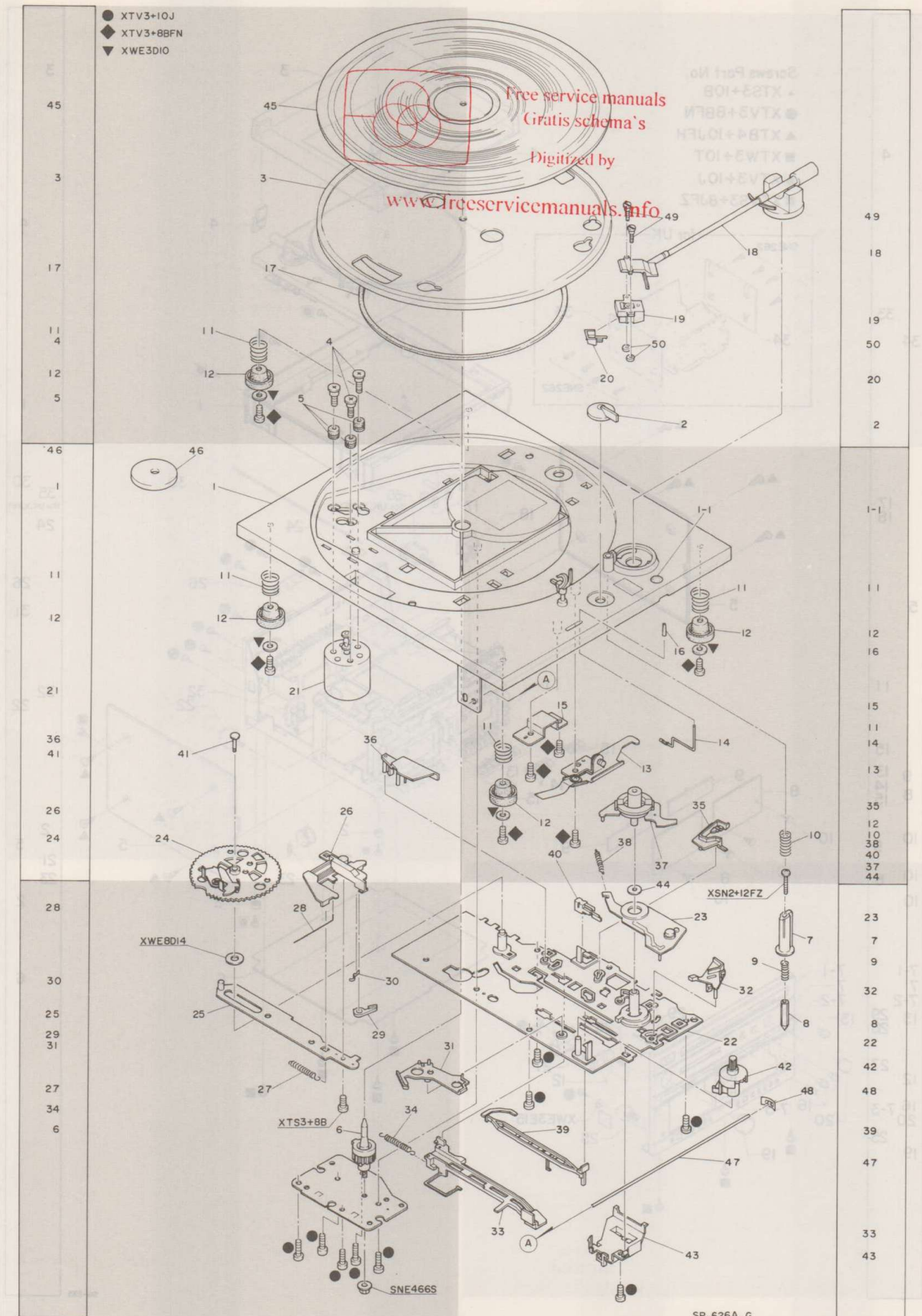
Adjust the screw when the turntable rotation going out of normal speed.



■ OIL-DAMPED CUEING OF TONE ARM LIFFER



EXPLODED VIEW OF RECORD PLAYER



REPLACEMENT PARTS LIST OF RECORD PLAYER

Ref. No.	Part No.	Description	Per Set	Ref. No.	Part No.	Description	Per Set
1	SJY484	Player Board Ass'y	1				
1-1	SFGK170-01	Rubber Cap	(1)				
2	SJY5126-1	Knob	1				
3	SJY3040	Turntable	1				
4	SJY9168	Screw	3				
5	SHG9092	Rubber Cushion	3				
6	SJY404	T/T Shaft Ass'y	1				
7	SJY5196-2	Lifter	1				
8	SJY90034	Lifter Pin	1				
9	SJY90160	Spring	1				
10	SUS84-2	Spring	1				
11	SJY9234	T/T Spring	4				
12	SJY9244	Rubber Cushion	4				
13	SJY414	Sliding Board Ass'y	1				
14	SJY90172-1	Cueing Lever	1				
15	SJY90178	Cueing Lever Plate	1				
16	SJY5050	Cueing Knob	1				
17	SFGB321-1	T/T Belt	1				
18	EPA642SMCD-1	Tone Arm	1				
19	EPC36SMAD	Cartridge	1				
20	EPS43STSD	Stylus	1				
21	MMC140N	Motor Ass'y	1				
22	SJY464	Base Plate	1				
23	SJY406	PU Moving Plate	1				
24	SJY486	Main Gear Ass'y	1				
25	SJY398	Operating Plate	1				
26	SJY90014-1	Bracket	1				
27	SJY90066-1	Spring	1				
28	SJY90068-1	Spring	1				
29	SJY90016	Operating Plate	1				
30	SJY90018	Plate Spring	1				
31	SJY90020	Index Lever	1				
32	SJY90022-1	Clamp Plate	1				
33	SJY90096	Start Plate	1				
34	SJY90070	Spring	1				
35	SJY90098	Operating Plate	1				
36	SJY90028-4	Operating Plate	1				
37	SJY90030-1	Tone Arm Plate	1				
38	SJY90072	Spring	1				
39	SJY90032-1	Actuating Plate	1				
40	SSP66	Switch	1				
41	SHR9174	Stopper Pin	1				
42	SJY90100	Lever	1				
43	SJY90102-1	Bracket	1				
44	SNW622-3	Washer	1				
45	SJY4022	Rubber Mat	1				
46	SJY5018-1	EP Adaptor	1				
47	SUM118-1	Start Rod	1				
48	XNK2	Washer	1				
49	XXHS26-CBAV	Screw	2				
50	XNE442	Nut	2				



REPLACEMENT PARTS LIST OF CASSETTE TAPE DECK

Ref. No.	Part No.	Description	Per Set	Ref. No.	Part No.	Description	Per Set
1	QMN2554	Lever Shaft	1	69	QBN1739	Spring	1
2	QSB0253M	Leaf Switch	3	70	QML3580	Selection Lever	1
3	SMQ3720	Eject Button Ass'y	1	71	QBT1895	Lever Spring	1
4	SMQ3722	Record Button Ass'y	1	72	QML3582	Pause Lock Lever	1
5	SMQ3724	Rew/Rev Button Ass'y	1	73	QBT1896	Spring	1
6	SMQ3726	FF/Cue Button Ass'y	1	74	QBS1128	Lock Pin	1
7	SMQ3728	Play Button Ass'y	1	75	QBC1357	Pressure Spring	1
8	SMQ3730	Stop Button Ass'y	1	76	QMZ1239	Flywheel Retainer	1
9	SMQ3732	Pause Button Ass'y	1	77	QXF0164	Flywheel Ass'y	1
10	QBP1874	Spring	1	78	QBW2049	Poly Washer	1
11	QDR1139	Supply Reel Table	1	79	QXP0607	FF Pulley Ass'y	1
12	QBC1372	Reel Table Spring	1	80	QXG1047	Take up Gear Ass'y	1
13	QMB1336	Supply Reel Hub	1	81	QDP1823	Connection Pulley	1
14	QBW2008	Poly Washer	7	82	QDG1199	Auto Stop Gear	1
15	QBW2012	Poly Washer	3	83	QDG1200	Cam Gear	1
16	QXD1143	Take up Reel Ass'y	1	86	QBG1689	Rubber Cushion	2
17	QML3594	Release Arm	1	87	QDB0281	Capstan Belt	1
18	QBN1746	Spring	1	88	QDB0273	FF Belt	1
19	QML3604	Driving Lever	1	89	QDB0274	Take up Belt	1
20	QML3605	Detection Lever	1	90	QBP1875	Lever Spring	1
21	QMR1821	Connection Rod	1	91	QMR1823	Obstruction Rod	1
22	QBT1682	Spring	1	92	QML3593	Lock Arm	1
23	QML3603	Erase Safety Lever	1	93	QBT1597	Rod Spring	1
24	QMR1822	Eject Rod	1	94	QBW2026	Washer	1
25	QBN1747	Spring	1	100	SMQ4562	Tape Counter	1
26	QXL1382	Idler Lever Ass'y	1	101	SMQ3760	Counter Belt	1
27	QXI0111	Take up Idler Ass'y	1	103	QDG1102	Holder Gear	2
28	QBT1893	Spring	1	105	SGE1508	Chassis Cover Ass'y	1
29	QXL1383	FF Arm Ass'y	1	109	SUS368	Eject Spring	1
30	QXI0113	FF Idler Ass'y	1	110	SYE930-2	Holder Ass'y	1
31	QXI0112	Rewind Idler Ass'y	1	111	QXU0177A	Motor Ass'y	1
32	QXL1355	Main Lever Ass'y	1	113	SNE478	Push Washer	1
33	QBT1894	Main Lever Spring	1				
34	QML3592	Change Lever	1				
35	QBN1741	Change Lever Spring	1				
36	QML3586	Lift Lever	1				
37	QXL1354	Sub Lever Ass'y	1				
38	QML3588	FF Lever	1				
39	QBN1748	FF Spring	1				
40	QDP1828	FF Pulley	1				
41	QXL1381	Roller Ass'y	1				
42	QBN1742	Release Spring	1				
43	QBN1743	Roller Spring	1				
44	QWY4122Z	Record/Playback Head	1				
45	QWY2138Z	Erase Head	1				
46	QBC1278	Spring	1				
47	QBCA0008	Erase Head Spring	1				
48	QMZ1241	Head Spacer	1				
49	QBN1740	Head Pressure Spring	1				
50	QMK1840	Head Base Plate	1				
51	QBT1892	Head Release Spring	1				
52	QMN2550	Roller	1				
53	QBP1873	Pressure Spring	1				
54	QDK1017	Steel Ball	3				
55	QMZ1240	Sub Head Base Plate	1				
56	QML3591	Brake Arm	1				
57	QBT1597	Brake Arm Spring	1				
58	QMA3858	Head Adjust Plate	1				
59	QDG1201	Main Gear	1				
60	QBN1745	Main Gear Spring	1				
61	QDG1202	Sub Gear	1				
62	QBN1744	Sub Gear Spring	1				
63	QML3581	Sub Control Lever	1				
64	QML3583	Main Control Lever	1				
65	QML3584	Operation Lever	1				
66	QMR1820	Record Rod	1				
67	QMR1824	Control Rod	1				
68	QXL1360	Selection Arm Ass'y	1				

This diagram illustrates the exploded view of a mechanical assembly, likely a pump or motor component. The parts are numbered from 1 to 113, with some parts having multiple instances. The assembly is organized into several sub-assemblies, each labeled with a code:

- XSN26+6**: A sub-assembly consisting of parts 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113.
- XSN26+12**: A sub-assembly consisting of parts 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113.
- XSN26+10**: A sub-assembly consisting of parts 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113.
- XSN26+8**: A sub-assembly consisting of parts 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113.
- XSN26+6S**: A sub-assembly consisting of parts 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113.
- XSN26+10B**: A sub-assembly consisting of parts 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113.
- XSN26+6B**: A sub-assembly consisting of parts 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113.
- XSN26+6C**: A sub-assembly consisting of parts 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113.
- XSN26+6D**: A sub-assembly consisting of parts 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101,

REPLACEMENT PARTS LIST OF CASSETTE TAPE DECK

Ref. No.	Part No.	Description	Per Set	Ref. No.	Part No.	Description	Per Set
1	QMN2554	Lever Shaft	1	69	QBN1739	Spring	1
2	QSB0253M	Leaf Switch	3	70	QML3580	Selection Lever	1
3	SMQ3720	Eject Button Ass'y	1	71	QBT1895	Lever Spring	1
4	SMQ3722	Record Button Ass'y	1	72	QML3582	Pause Lock Lever	1
5	SMQ3724	Rew/Rev Button Ass'y	1	73	QBT1896	Spring	1
6	SMQ3726	FF/Cue Button Ass'y	1	74	QBS1128	Lock Pin	1
7	SMQ3728	Play Button Ass'y	1	75	QBC1357	Pressure Spring	1
8	SMQ3730	Stop Button Ass'y	1	76	QMZ1239	Flywheel Retainer	1
9	SMQ3732	Pause Button Ass'y	1	77	QXF0164	Flywheel Ass'y	1
10	QBP1874	Spring	1	78	QBW2049	Poly Washer	1
11	QDR1139	Supply Reel Table	1	79	QXP0607	FF Pulley Ass'y	1
12	QBC1372	Reel Table Spring	1	80	QXG1047	Take up Gear Ass'y	1
13	QMB1336	Supply Reel Hub	1	81	QDP1823	Connection Pulley	1
14	QBW2008	Poly Washer	7	82	QDG1199	Auto Stop Gear	1
15	QBW2012	Poly Washer	3	83	QDG1200	Cam Gear	1
16	QXD1143	Take up Reel Ass'y	1	86	QBG1689	Rubber Cushion	2
17	QML3594	Release Arm	1	87	QDB0281	Capstan Belt	1
18	QBN1746	Spring	1	88	QDB0273	FF Belt	1
19	QML3604	Driving Lever	1	89	QDB0274	Take up Belt	1
20	QML3605	Detection Lever	1	90	QBP1875	Lever Spring	1
21	QMR1821	Connection Rod	1	91	QMR1823	Obstruction Rod	1
22	QBT1682	Spring	1	92	QML3649	Lock Arm B	1
23	QML3603	Erase Safety Lever	1	93	QBT1597	Rod Spring	1
24	QMR1822	Eject Rod	1	94	QBW2026	Washer	1
25	QBN1747	Spring	1	96	QME0157	Plunger	1
26	QXL1382	Idler Lever Ass'y	1	97	QBC1358	Release Spring	1
27	QXI0111	Take up Idler Ass'y	1	98	QML3616A	Lock Release Lever	1
28	QBT1893	Spring	1	99	QBW2083	Poly Washer	1
29	QXL1383	FF Arm Ass'y	1	103	QDG1102	Holder Gear	2
30	QXI0113	FF Idler Ass'y	1	105	SGE1508	Chassis Cover Ass'y	1
31	QXI0112	Rewind Idler Ass'y	1	109	SUS368	Eject Spring	1
32	QXL1355	Main Lever Ass'y	1	110	SYE930-2	Holder Ass'y	1
33	QBT1894	Main Lever Spring	1	111	QUX0177A	Motor Ass'y	1
34	QML3592	Change Lever	1	113	SNE478	Push Washer	1
35	QBN1741	Change Lever Spring	1				
36	QML3586	Lift Lever	1				
37	QXL1354	Sub Lever Ass'y	1				
38	QML3588	FF Lever	1				
39	QBN1748	FF Spring	1				
40	QDP1828	FF Pulley	1				
41	QXL1381	Roller Ass'y	1				
42	QBN1742	Release Spring	1				
43	QBN1743	Roller Spring	1				
44	QWY4122Z	Record/Playback Head	1				
45	QWY2138Z	Erase Head	1				
46	QBC1278	Spring	1				
47	QBCA0008	Erase Head Spring	1				
48	QMZ1241	Head Spacer	1				
49	QBN1740	Head Pressure Spring	1				
50	QMK1840	Head Base Plate	1				
51	QBT1892	Head Release Spring	1				
52	QMN2550	Roller	1				
53	QBP1873	Pressure Spring	1				
54	QDK1017	Steel Ball	3				
55	QMZ1240	Sub Head Base Plate	1				
56	QML3591	Brake Arm	1				
57	QBT1597	Brake Arm Spring	1				
58	QMA3858	Head Adjust Plate	1				
59	QDG1201	Main Gear	1				
60	QBN1802	Main Gear Spring	1				
61	QDG1202	Sub Gear	1				
62	QBN1744	Sub Gear Spring	1				
63	QML3581	Sub Control Lever	1				
64	QML3583	Main Control Lever	1				
65	QML3584	Operation Lever	1				
66	QMR1820	Record Rod	1				
67	QMR1824	Control Rod	1				
68	QXL1360	Selection Arm Ass'y	1				

ANWEISUNGEN ZUM ABGLEICH (KASSETTEN-TONBAND)-1

(1) Tape Deck A

AZIMUTH, DOLBY, REC-STROM-ABGLEICH							
Einstellungen: 1. Betriebsart Band (Schritt 1 und 2), Aux (Schritt 3) 2. Tape Deck Stellung "Play" Stellung (Schritt 1 und 2) "Rec" Stellung (Schritt 3) 3. Bandwahlschalter NORMAL							
SCHRITT	ABGLEICH- OBJEKT	RÖHRENVOLTMETER (RVM)-ANSCHLUSS		TESTBAND- PEGEL	DOLBY- SCHALTER	EINSTELLEN	BEMERKUNGEN
		positiv	negativ				
1	Aufnahme/ Wiedergabekopf- azimuth	Lautsprecher- klemme	Lautsprecher- klemme	VTT653 (10 kHz)	OUT	Kopfschraube	• Die Schraube so einstellen, daß das Röhrenvoltmeter den Höchstwert anzeigt.
2	Dolby-NR- pegel	TP801 (linker Kanal) TP802 (rechter Kanal)	TP803	VTT6130 (400 kHz)	IN	VR401 (links) VR402 (rechts)	• VR401 und VR402 so einstellen, daß das Röhrenvoltmeter 580 ± 20 mV anzeigt.
3	Aufnahmestrom	TP401 (linker Kanal) TP402 (rechter Kanal)	TP405		OUT	VR405 (links) VR406 (rechts)	• Eine Leitungsbrücke zwischen den Löschkopfterminalen und Kurz verbinden. • Ein 400 Hz Signal an AUX anlegen, um an TP801 und TP802 410 mV zu erhalten. • VR405 und VR406 so einstellen, daß das Röhrenvoltmeter $0,38 \pm 0,02$ mV anzeigt.

(2) Tape Deck B

AZIMUTH, DOLBY, REC-STROM-ABGLEICH							
Einstellungen: 1. Betriebsart Band (Schritt 1 und 2), Aux (Schritt 3) 2. Tape Deck Stellung "Play"-Stellung (Schritt 1 und 2), "Rec"-Stellung (Schritt 3) 3. Bandwahlschalter NORMAL							
SCHRITT	ABGLEICH- OBJEKT	RÖHRENVOLTMETER (RVM)-ANSCHLUSS		TESTBAND- PEGEL	DOLBY- SCHALTER	EINSTELLEN	BEMERKUNGEN
		positiv	negativ				
1	Aufnahme/ Wiedergabekopf- azimuth	Lautsprecher- klemme	Lautsprecher- klemme	TMT653 (10 kHz)	OUT	Kopfschraube	• Die Schraube so einstellen, daß das Röhrenvoltmeter den Höchstwert anzeigt.
2	Dolby-NR- pegel	TP801 (linker Kanal) TP802 (rechter Kanal)	TP803	TMT6130 (400 kHz)	IN	VR403 (links) VR404 (rechts)	• VR403 und VR404 so einstellen, daß das Röhrenvoltmeter 580 ± 20 mV anzeigt.
3	Aufnahmestrom	TP403 (linker Kanal) TP404 (rechter Kanal)	TP406		OUT	VR407 VR408	• Eine Leitungsbrücke zwischen den Löschkopfterminalen und Kurz verbinden. • Ein 400 Hz Signal an AUX anlegen, um an TP801 und TP802 410 mV zu erhalten. • VR407 und VR408 so einstellen, daß das Röhrenvoltmeter 0,38 ± 0,02 anzeigt.

ANWEISUNGEN ZUM ABGLEICH(RADIO)-2

SCHRITT	MESSOSZILLATOR oder WOBBLGENERATOR		EINSTELLUNG DER ABSTIMMSKALA	ANZEIGEN STRUMENT	EINSTELLEN	BEMERKUNGEN
	ANSCHLUSS	FREQUENZ				
FM-IF-ABGLEICH						
1	Oberer Bereich über 5 pF zu den Meßpunkten TP101 und TPE (Erde).	10,7 MHz (400kHz Hub).	Punkt ohne Störung	Den Vertikalampplitudeneingang des Oszilloskops mit den Meßpunkten TP202 und TP203 (Erde)verbinden.	T101 (UKW-ZF) T203 (UKW-Disc)	• Auf maximale Amplitude und symmetrische Kurve einstellen. • Siehe Anmerkung
2					T204 (UKW-ZF) T203 (UKW-Disc)	• Auf maximale Amplitude und richtige Linearität zwischen den Marken von etwa ±100 kHz einstellen.
Bemerkung: Vor Ausführung des Schrittes 1 die Kerne des T204 ganz gegen den Uhrzeigersinn drehen.						
FM-RF-ABGLEICH						
1	Über eine künstliche Antenne (300Ω balanciert) an die UKW- außenantennen- klemme(EXT.FM) anschließen.	87,35 MHz 30% Mod. bei 400 Hz	87,35 MHz (Den Skalenzeiger auf das linke Ende der Skala (oder auf die untere Frequenz- grenze einstellen.	Ausgangsleistungs- messer über die linke (L) Lautsprecher- klemme	L102 (UKW-OSZILLATOR- SPULE) L101 (UKW-ANTENNEN- SPULE)	Auf maximalen Ausgang einstellen.
2		108,3 MHz 30% Mod. bei 400 Hz	108,3 MHz (Den Skalenzeiger auf das rechte Ende der Skala (oder auf die obere Frequenz- grenze einstellen.		CT102 (UKW-OSZILLATOR- TRIMMER) CT101 (UKW-ANTENNEN- TRIMMER)	Auf maximalen Ausgang einstellen. Die Schritte (1) und (2) wiederholen.
Bemerkungen: 1. Da drei Ausgangsanzeigen vorliegen, müssen die Einstellungen bei Mittenfrequenz durchgeführt werden. 2. Um Abgleiten der FM-Skala (87,5 oder 108 MHz) zu korrigieren, die Spule L 102 und den Trimmer CT102 miteinander abstimmen.						

■ UKW Stereoabgleich

FREILAUF-ABGLEICH				
Einstellungen:		Lautstärkeregler Lautsprecher-Hörlautstärke Höhenregler MIN Baßregler MIN Wellenbereichswahlschalter FM AUTO Balanceregler Mittenstellung		
GERÄTEANSCHLUSS			EINSTELLEN	BEMERKUNGEN
Den Frequenzzähler an TP301 und TP203 (Erde) bei 98 MHz anschließen; ohne Modulation bei 60 dB Eingang.			VR301	Den VR301 auf 19 kHz ± 50 Hz Anzeige auf dem Frequenzzähler einstellen.
TRENNUNGS-ABGLEICH				
Einstellungen:		1. Stereo-Modulator: Stereo-Modulator mit EXT, Mod. Ausgang des Meßoszillators verbinden. 2. Meßoszillator: Modulationsrate von 19 kHz Leitsignal 9% Modulationsrate des linken und rechten Signals 30% Ausgangspegel 60 dB 3. Tuner (Balanceregler): Die Balance so einstellen, daß die Ausgangspegel beider Kanäle gleich werden.		
GERÄTEANSCHLUSS			EINSTELLEN	BEMERKUNGEN
MESSOSZILLATOR	RÖHRENVOLTMETER	OSZILLOSKOP		
Mit EXT. FM Antennen-eingang mit Kunst-antenne verbinden. Gleich mit Chassis.	Über Lautsprecherbuchsen verbinden (Imp. 4 Ω)	Den vertikalen Amplituden-eingang des Oszilloskops mit den Eingängen des Röhrenvoltmeters verbinden	VR302 (Trennungs-regelung)	VR302 auf Minimumanzeige des Röhrenvoltmeters vom linken Ausgang einstellen, wenn die rechte Seite des Stereo-Modulators moduliert ist. VR302 auf die gleiche Weise für die rechte Seite einstellen. Die beste Balance zwischen "L zu R" und "R zu L" Trennung einstellen.

ANWEISUNGEN ZUM ABGLEICH (KASSETTEN-TONBAND)-2

Einstellungen: 1. Betriebsart Band
2. Tape Deck Stellung Aufnahmestellung
3. Dolby OUT
4. WDS B

(3) Vormagnetisierung, Oszillator (OSZ)-Frequenz, OSZ-Spannung

SCHRITT	ABGLEICH- OBJEKT	TESTGERÄT		BANDWAHL- SCHALTER	EINSTELLEN	BEMERKUNGEN
		positiv	negativ			
1	Vormagnetisier- OSZ-Frequenz	Frequenzzähler		NORMAL	L802	• Vormagnetisier-OSZ-Frequenz auf 47 kHz einstellen.
		TP804	Erde			
2	OSZ-Spannung	Röhrenvoltmeter		NORMAL	VR807	• OSZ-Spannung auf 25V einstellen.
		TP804	Erde			

Bemerkung: Nicht Frequenzzähler und Röhrenvoltmeter gleichzeitig anschließen.

(4) TAPE DECK A VORMAGNETISIERUNGS-ABGLEICH

SCHRITT	ABGLEICH- OBJEKT	RÖHRENVOLTMETER VERBINDUNG		BANDWAHL- SCHALTER	EINSTELLEN	BEMERKUNGEN
		positiv	negativ			
1	Vormagneti- sierungsstrom für Löschung	TP805	Erde	NORMAL	L803	• L803 so einstellen, daß maximaler Ausgang erzielt wird.
2	Vormagneti- sierungsstrom für Löschung	TP805	Erde	METAL	VR805	• VR805 so einstellen, daß das Röhrenvoltmeter 150 ± 3 mV anzeigt.
3	Vormagneti- sierungsstrom für Aufnahme	TP401(links) TP402(rechts)	TP405	METAL	VR801	• VR801 so einstellen, daß der linke und rechte Kanal die gleichen Werte ergeben.
4	Vormagneti- sierungsstrom für Aufnahme	TP401(links) TP402(rechts)	TP405	METAL	L803	• L803 so einstellen, um Mindestunterschiede (1 dB) zwischen den Bandposition A, B und C am WDS zu bekommen.
5	Vormagneti- sierungsstrom für Aufnahme	TP401(links) TP402(rechts)	TP405	NORMAL	VR803	• VR803 so einstellen, daß 3,7 mV angezeigt werden.

(5) TAPE DECK B VORMAGNETISIERUNGS-ABGLEICH

SCHRITT	ABGLEICH- OBJEKT	RÖHRENVOLTMETER- VERBINDUNG		BANDWAHL- SCHALTER	EINSTELLEN	BEMERKUNGEN
		positiv	negativ			
1	Vormagneti- sierungsstrom für Löschung	TP806	Erde	NORMAL	L804	• L804 so einstellen, daß maximaler Ausgang erzielt wird.
2	Vormagneti- sierungsstrom für Löschung	TP806	Erde	METAL	VR806	• VR806 so einstellen, daß das Röhrenvoltmeter 150 ± 3 mV anzeigt.
3	Vormagneti- sierungsstrom für Aufnahme	TP403(links) TP404(rechts)	TP406	METAL	VR802	• VR802 so einstellen, daß der linke und rechte Kanal die gleichen Werte ergeben.
4	Vormagneti- sierungsstrom für Aufnahme	TP403(links) TP404(rechts)	TP406	METAL	L804	• L804 so einstellen, um Mindestunterschiede (1 dB) zwischen den Bandposition A, B und C am WDS zu bekommen.
5	Vormagneti- sierungsstrom für Aufnahme	TP403(links) TP404(rechts)	TP406	NORMAL	VR804	• VR804 so einstellen, daß 3,7 mV angezeigt werden.

TECHNISCHE DATEN

VERSTÄKER

Ausgangsleistung	2 x 30W an 4 Ω (5% Klirr)
Musik	2 x 21W an 4 Ω (5% Klirr)
Sinus	bei Aussteuerung eines Kanals 2 x 17W an 4 Ω (5% Klirr) bei Aussteuerung beider Kanäle

Eingangsempfindlichkeit

und impedanz:	
Mikrofon	1 mV, 3 k Ω
Aux.	250 mV, 47 k Ω

Klangregler:

Bässe	± 10 dB bei 50 Hz
Höhen	± 10 dB bei 10 kHz

UKW-EMPFANGSTEIL

Empfangsbereich	87,5 ~ 108 MHz
Zwischenfrequenz (ZF)	10,7 MHz
Eingangsempfindlichkeit	2,5 μ V (Fremdspannungsabstand 26 dB, Hub 40 kHz)(DIN) bei 300 Ω

(*Die Antennen-Impedanz das in der
Deutschland verkauften Modells
beträgt 75 Ω)

Spiegelfrequenzdämpfung	38 dB (98 MHz)
Fremdspannungsabstand	62 dB (bei 1 kHz, 60 dB, 40 kHz)
Klirrfaktor	Mono: 0,5% (bei 1 kHz, 60 dB 40 kHz) Stereo: 0,6% (bei 1 kHz, 60 dB 40 kHz)

Übersprechdämpfung	45 dB (bei 1 kHz, 60 dB, 40 kHz)
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AM-EMPFANGSTEIL

Empfangsbereiche	MW; 525 ~ 1605 kHz (571 ~ 187 m) LW; 150 ~ 350 kHz (2.000 ~ 857 m)
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Zwischenfrequenz (ZF)	450 kHz
Empfindlichkeit	MW; 150 μ V/m (1 MHz) LW; 250 μ V/m (240 kHz)
Spiegelfrequenzdämpfung	MW; 45 dB (1 MHz) LW; 37 dB (240 kHz)

CASSETTEN-TONBANDGERÄT (beide Decks A und B)

Prinzip	Bandenden-Abschaltautomatik bei allen Bandlaufaktionen
Spursystem	Viertelspur, Stereo

Aufnahmesystem	HF-Vormagnetisierung (50 kHz) mit Dolby Rauschunterdrückung
Löschsystem	HF-Löschung (50 kHz)
Bandgeschwindigkeit	4,75 cm/s
Frequenzgang	Normalband; 30 ~ 15.000 Hz CrO ₂ -Band; 30 ~ 15.000 Hz Metalband; 30 ~ 16.000 Hz

Fremdspannungsabstand

Ohne Dolby NR;		
50 dB (Normal)	} (DIN)	
52 dB (CrO ₂)		
52 dB (Metal)		
Mit-Dolby NR;		
58 dB (Normal)	} (über 5 kHz eine Verbesserung von mehr als 10 dB)	
60 dB (CrO ₂)		
60 dB (Metal)		(DIN)
Gleichlaufschwankungen		0,05% (Mittelwert, bewertet), $\pm 0,15\%$ (DIN, bewertet)

PHONO

Plattenspiellersystem	Riemenantrieb, Automatischer Plattenspieler Auto-Start/Automatisches Einsetzen in die Einlauffrille
Plattenteller	Durchmesser 29 cm
Plattentellerdrehzahl	33-1/3 U/min. und 45 U/min.
Phono-Motor	Elektronische geregelter Gleichstrommotor
Gleichlaufschwankungen	0,15% (Mittelwert, bewertet) $\pm 0,25\%$ (DIN, bewertet)
Tonabnehmer	Magnetodynamischer Stereo- Tonabnehmer (EPC-36SMAD)
Abtastdiamant	Diamantspitze (EPS-43STD)

Auflagekraftbereich des Abtastdiamanten	2 ~ 3 g
Frequenzgang	20 Hz ~ 20 kHz (DIN)
Kanaltrennung	15 dB
Fremdspannungsabstand	60 dB (DIN-B)
LEISTUNGS-AUFNAHME	130 W

NETZPANNUNG UND

-FREQUENZ	220V oder 110/120/220/240V, 50/60 Hz
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ABMESSUNGEN

(B x H x T)	375 x 285 x 383 mm
GEWICHT	11,5 kg

*Änderungen der technischen Daten im Sinne der Weiteren Verbesserung jederzeit vorbehalten.

ANWEISUNGEN ZUM ABGLEICH(RADIO)-1

■ Radio

Einstellungen:

1. Lautstärkeregler Mittelstellung (ML/LW-ZF und HF, UKW-ZF);
ganz zurückgedreht (UKW-ZF)
2. Baßregler Mittelstellung
3. Höhenregler Mittelstellung
4. Balanceregler Mittelstellung
5. Funktionswahlschalter LW, MW und UKW-Betrieb
6. Netzschalter ON
7. Der Ausgang des Meßsenders sollte nur so hoch sein, daß dieser angezeigt wird.
8. Beim Abgleich darauf achten, daß die Lautsprecherboxen an den Receiver angeschlossen sind (oder Ersatzlastwiderstände mit 4 Ω verwenden).

SCHRITT	MESSOSZILLATOR oder WOBBELGENERATOR		EINSTELLUNG DER ABSTIMMSKALA	ANZEIGEI NSTRUMENT	EINSTELLEN	BEMERKUNGEN
	ANSCHLUSS	FREQUENZ				
AM-ZF-ABGLEICH UND HF-ABGLEICH						
1 (MW)	Eine Schleife aus mehreren Draht-windungen bilden, und das Signal der Schleife des Empfängers zuleiten	468 kHz (für UK) 450 kHz 30% Mod. mit 400 Hz	Punkt ohne Störung	Ausgangsleistungs- messer über die linke (L) Lautsprecher- klemme	T201 (MW/LW-ZF) T202 (MW/LW-ZF)	Auf maximalen Ausgang einstellen.
2 (MW)		513 kHz 30% Mod. bei 400 Hz	513 kHz		L201 (MW-OSZILLATOR)	Auf maximalen Ausgang einstellen.
		600 kHz 30% Mod. bei 400 Hz	600 kHz		L204 (MW-ANTENNE)	
3 (MW)		1645 kHz 30% Mod. bei 400 Hz	1645 kHz		CT203 (MW OSZ-Trimmer) CT201 (MW ANT-Trimmer)	Auf maximalen Ausgang einstellen. Die Schritte (2) und (3) wiederholen.
4 (LW)		142 kHz 30% Mod. bei 400 Hz	142 kHz		L202 (LW-OSZILLATOR) L205 (LW-ANTENNE)	Auf maximalen Ausgang einstellen.
5 (LW)		363 kHz 30% Mod. bei 400 Hz	363 kHz		CT204 (LW OSZ-Trimmer) CT202 (LW ANT-Trimmer)	Auf maximalen Ausgang einstellen. Die Schritte (2) und (3) wiederholen.

INSTRUCTIONS D' ALIGNMENT(MAGNETOPHONE)-1

(1) Magnétophone A

ALIGNMENT D'AZIMUT, DE DOLBY ET DE COURANT							
Positions des commandes:		1. Sélecteur de fonction Tape (paliers 1 et 2), AUX (palier 3) 2. Mode Reproduction (paliers 1 et 2), enregistrement (palier 3) 3. Sélecteur de bande NORMAL					
PALIER	POINT A ALIGNER	CONNEXION DU VOLTMETRE ELECTRONIQUE		BANDE D'ESSAI	CONTACTEUR DE DOLBY	REGLER	REMARQUES
		Borne positive	Borne négative				
1	Azimut de tête d'enr./rep.	Borne d'enceinte	Borne d'enceinte	VTT653 (10 kHz)	OUT (ar.)	vis de tête	• Régler pour une indication maximum sur le voltmètre électronique.
2	Niveau de Dolby	TP801(can. gche) TP802(can. drt)	TP803	VTT6130 (400 kHz)	IN (mar.)	VR401 (gche) VR402(drte)	• Agir sur VR401 et VR402 pour que l'indication du voltmètre électronique soit de $580 \pm 20\text{mV}$.
3	Courant d'enr.	TP401(can. gche) TP402(can. drt)	TP405		OUT (ar.)	VR405 (gche) VR406(drte)	• Brancher un cavalier entre les bornes de la tête d'effacement et la masse. • Injecter un signal de 400Hz à AUX pour obtenir 410 mV à TP801 et TP802. • Agir sur VR405 et VR406 pour une indication de 0,38 mV sur le voltmètre électronique.

(2) Magnétophone B

ALIGNEMENT D'AZIMUT, DE DOLBY ET DE COURANT							
Positions des commandes:		1. Sélecteur de fonction Tape (paliers 1 et 2), AUX (palier 3) 2. Mode Reproduction (paliers 1 et 2), enregistrement (palier 3) 3. Sélecteur de bande NORMAL					
PALIER	POINT A ALIGNER	CONNEXION DU VOLTMETRE ELECTRONIQUE		BANDE D'ESSAI	CONTACTEUR DE DOLBY	REGLER	REMARQUES
		Borne positive	Borne négative				
1	Azimut de tête d'enr./rep.	Borne d'enceinte	Borne d'enceinte	TMT653 (10 kHz)	OUT (ar.)	vis de tête	• Régler pour une indication maximum sur le voltmètre électronique.
2	Niveau de Dolby	TP801(can. gche) TP802(can. drt)	TP803	TMT6130 (400 kHz)	IN (mar.)	VR403(gche) VR404(drte)	• Agir sur VR403 et VR404 pour que l'indication du voltmètre électronique soit de $580 \pm 20\text{mV}$.
3	Courant D'enr.	TP403(can. gche) TP402(can. drt)	TP406		OUT (ar.)	VR407(gche) VR408(drte)	• Brancher un cavalier entre les bornes de la tête d'effacement et la masse. • Injecter un signal de 400Hz à AUX pour obtenir 410 mV à TP801 et TP802. • Agir sur VR407 et VR408 pour une indication de 0,38 mV sur le voltmètre électronique.

INSTRUCTIONS D' ALIGNMENT(RADIO)-2

PALIER	GENERATEUR DE SIGNAUX OU DE BALAYAGE		INDICATION DU CARDAN D'ACCORD	VISUALISATION	REGLER	REMARQUES
	CONNEXION	FREQUENCE				
ALIGNMENT DE FI DE FM						
1	Position haute par 5 pF sur TP101 et TPE (masse).	10,7 MHz (400 kHz de balayage)	Point de non interférence	Brancher l'entrée de l'amplificateur vert. de l'oscilloscope sur TP202 et TP203 (masse).	T101 (FI de FM) T203 (disque FM)	Régler sur l'amplitude maximum et une corbe symétrique.
2					T204 (FI de FM) T203 (disque FM)	Régler sur l'amplitude maximum et une puissance linéaire à peu près entre les repères de ± 100 kHz.

Note: Avant de procéder à l'alignement 1, faire complètement tourner le noyau de T204 dans le sens inverse des aiguilles d'une montre.

ALIGNMENT DE RF ED FM						
1	Brancher sur la borne d'antenne EXT. FM au moyen d'une antenne fictive de 300 ohms dissymétrique.	87,35 MHz à 30% de modulation sous 400 Hz	87,35 MHz (Amener l'aiguille du cadran à l'extrême gauche des graduations ou sur la fréquence la plus basse.)	Appareil de mesure de sortie branché sur la prise de haut- parleur gche.	L202 (bobine d'OSC de FM) L101 (bobine d'ant. FM)	Régler pour une sortie maximum
2		108,3 MHz à 30% de modulation sous 400 Hz	108,3 MHz (Amener l'aiguille du cadran à l'extrême droite des graduations ou sur la fréquence la plus haute.)		CT102 (trimmer d'OSC de FM) CT101 (trimmer d'ant. FM)	Régler pour une sortie maximum. Recommencer les paliers (1) et (2).

Notes: 1. Etant donné que trois indications de sortie sont visualisées, le réglage doit être réalisé sur la fréquence centrale.
2. Pour corriger la dérive de gamme FM (87,5 ou 108 MHz), régler la bobine L102 ainsi que le trimmer CT102.

■ Alignement de FM stéréo

ALIGNEMENT EN MODE CONTINU				
Positions des commandes: Commande de volume Son audible. Commande d'aigués Minimum Commande des graves Minimum Sélecteur de mode FM FM AUTO Commande d'équilibrage Mediane				
CONNEXION D'APPAREILLAGE			REGLAGE	REMARQUES
Brancher un compteur de fréquences sur TP301 et TP203 (masse) à une entrée de 60 dB non moduée à 98 MHz.			VR301 (mode continu)	Amener VR301 à 19 kHz ± 50 Hz sur l'affichage du compteur de fréquences.
ALIGNMENT DE SEPARATION				
Position des commandes: 1. Modulateur stéréo: 2. Générateur de signaux:			Brancher un modulateur stéréo sur la borne EXT Mod du générateur de signaux. Taux de modulation du signal pilote de 19 kHz 9% Taux de modulation des signaux droits et gauches 30% Niveau de sortie 60 dB	
CONNEXION D'APPAREILLAGE			REGLER	REMARQUES
GENERATEUR DE SIGNAUX	VOLTMETRE ELECTRONIQUE	OSCILLOSCOPE		
Brancher sur la borne d'antenne EXT. FM au moyen d'une antenne fictive de 300 ohms dissymétrique commune au châssis.	Brancher sur la prise de haut-parleur(4Ω d'imp.)	Brancher l'entrée de l'amplificateur vert. de l'oscilloscope sur les bornes du volt-mètre électronique	VR302 (commande de séparation)	Agir sur VR302 de manière à ce que l'indication du voltmètre électronique soit minimale au niveau de la sortie gauche lorsque la sortie droite du modulateur stéréo est modulée. Agir sur VR302 de la même manière pour la sortie droite. Régler sur le meilleur équilibre entre les séparations gauche/droite et droite/gauche.

INSTRUCTIONS D' ALIGNMENT(MAGNETOPHONE)-2

Positions des commandes:	1. Sélecteur de fonction Tape
	2. Mode Enregistrement
	3. Dolby OUT (arrêt)
	4. WDS B

(3) FREQUENCE DE POLARISATION ET TENSION DE L'OSCILLATEUR

PALIER	POINT A ALIGNER	APPAREILLAGE D'ESSAI		SELECTEUR DE BANDE	REGLER	REMARQUES
		Borne Positive	Borne négative			
1	Fréquence de polarisation de l'osc.	Compteur de fréquences		NORMAL	L802	• Régler la fréquence de polarisation de l'osc à 47 kHz.
		TP804	Masse			
2	Tension de l'osc.	Voltmètre électronique		NORMAL	VR807	• Régler la tension de l'osc. à 25 V.
		TP804	Masse			

NOTE: Prière de ne pas bracher le compteur de fréquences et le voltmètre électronique en même temps.

(4) ALIGNMENT DE PREMAGNETISATION DU MAGNETOCASSETTE A

PALIER	POINT A ALIGNER	CONNEXION DU VOLTMETRE ELECTRONIQUE		SELECTEUR DE BANDE	REGLER	REMARQUES
		Borne Positive	Borne négative			
1	Polarisation d'effacement	TP805	Masse	NORMAL	L803	• Agir sur L803 pour obtenir la sortie maximum.
2	Polarisation d'effacement	TP805	Masse	METAL	VR805	• Agir sur VR805 pour obtenir 150 ± 3 mV.
3	Prémagnétisation d'enregistrement	TP401 (gche) TP402 (drte)	TP405	METAL	VR801	• Agir sur VR801 pour obtenir la même indication pour les canaux droit et gauche.
4	Prémagnétisation d'enregistrement	TP401 (gche) TP402 (drte)	TP405	METAL	L803	• Agir sur L803 pour que la différence entre les positions A, B et C de WDS soit minimale (1 dB).
5	Prémagnétisation d'enregistrement	TP401 (gche) TP402 (drte)	TP405	NORMAL	VR803	• Agir sur VR803 pour obtenir 3,7 mV.

(5) ALIGNMENT DE PREMAGNETISATION ET POLARISATION DU MAGNETOCASSETTE B

PALIER	POINT A ALIGNER	CONNEXION DU VOLTMETRE ELECTRONIQUE		SELECTEUR DE BANDE	REGLER	REMARQUES
		Borne Positive	Borne négative			
1	Polarisation d'effacement	TP806	Masse	NORMAL	L804	• Agir sur L804 pour obtenir la sortie maximum.
2	Polarisation d'effacement	TP806	Masse	METAL	VR806	• Agir sur VR806 pour obtenir 150 ± 3 mV.
3	Prémagnétisation d'enregistrement	TP403 (gche) TP404 (drte)	TP406	METAL	VR802	• Agir sur VR802 pour obtenir la même indication pour les canaux droit et gauche.
4	Prémagnétisation d'enregistrement	TP403 (gche) TP404 (drte)	TP406	METAL	L804	• Agir sur L804 pour que la différence entre les positions A, B et C de WDS soit minimale (1 dB).
5	Prémagnétisation d'enregistrement	TP403 (gche) TP404 (drte)	TP406	NORMAL	VR804	• Agir sur VR804 pour obtenir 3,7 mV.

CARACTÉRISTIQUES

SECTION AMPLIFICATEUR

Puissance de sortie 30W x 2 (DHT 5%, 4 Ω) PSM.
21W x 2 (DHT 5%, 4 Ω) EFF.
un canal en fonction
17W x 2 (DHT 5%, 4 Ω) EFF.
Deux canaux en fonction

Impédance et sensibilité
d'entrée

Micro 1 mV, 3k Ω
Aux 250 mV, 47 kΩ

Réglages de tonalité

Grave ±10 dB à 50 Hz
Aigu ±10 dB à 10 kHz

SECTION TUNER FM

Echelle de fréquence 87,5 MHz ~ 108 MHz
Fréquence intermédiaire (FI) 10,7 MHz
Sensibilité 2,5 μV (S/B 26 dB mod. 40 kHz)
(DIN) à 300 Ω
Rapport d'image 38 dB (98 MHz)
Rapport signal/bruit 62 dB (à 1 kHz, 60 dB, 40 kHz)
Distorsion MONO; 0,5% (à 1 kHz, 60 dB, 40 kHz)
STÉRÉO; 0,6% (à 1 kHz, 60 dB, 40 kHz)

Séparation stéréo 45 dB (à 1 kHz, 60 dB, 40 kHz)

SECTION TUNER AM

Echelle de fréquence PO: 525 kHz ~ 1605 kHz
(571 m ~ 187 m)
GO: 150 kHz ~ 350 kHz
(2000 m ~ 857 m)

Fréquence intermédiaire (FI) 450 kHz
Sensibilité PO: 150 μV/m (1 MHz)
GO: 250 μV/m (240 kHz)
Rapport image PO: 45 dB (1 MHz)
GO: 37 dB (240 kHz)

SECTION MAGNÉTOPHONE (platines A et B)

Système de magnétophone Commandes par "effileurement" et
arrêt automatisme intégral.

Système de piste 4 pistes, 2 canaux

Système d'enregistrement Polarisation Cour. Alt. (50 kHz)
avec système Dolby NR

Système d'effacement Effacement Cour. Alt. (50 kHz)

Vitesse de band 4,75 cm/s

Réponse de fréquence 30 Hz ~ 15 kHz (Normale)
30 Hz ~ 15 kHz (CrO₂)
30 Hz ~ 16 kHz (Métal)

Rapport signal/bruit

SANS DOLBY NR;
50 dB (Normale)
52 dB (CrO₂)
52 dB (Métal)

(DIN)

AVEC DOLBY NR;
58 dB (Normale)
60 dB (CrO₂)
60 dB (Métal)

(10 dB ou plus amélioré à plus de
5 kHz)
(DIN)

Pleurage et scintillement 0,05% (Valeur eff pondérée),
±0,015% (DIN WTD)

SECTION TOURNE-DISQUE

Système Tourne-disque automatique à en-
trainement par le courroie Marche
automatique/amorce automatique,
Retour automatique 29 cm diamètre

Plateau 29 cm diamètre

Vitesse de rotation 33-1/3 et 45 t/min.

Moteur phono Moteur Cour. Cont. à régulateur
électronique

Pleurage et schintillement 0,15% (WRMS), ±0,25% (DIN WTD)

Cellule phonoélectrice Aimant mobile (EPC-36SMAD)

Pointe de lecture Diamant (EPS-43STD)

Plage de force d'appui 2 ~ 3 g

Réponse de fréquence 20 Hz ~ 20 kHz (DIN)

Séparation des canaux 15 dB

Rapport signal/bruit 60 dB (DIN-B)

CONSUMMATION DE

PUISSANCE 130W

ALIMENTATION COUR. ALT. 220V ou 110V/120V/
220V/240V, 50/60 Hz

DIMENSIONS

(L x H x P) 375 x 285 x 383 mm

POIDS 11,5 kg

* Les caractéristiques techniques sont sujettes à modification sans préavis et pour des raisons d'amélioration.

INSTRUCTIONS D'ALIGNMENT(RADIO)-1

■ Radio

Positions des commandes:

1. Commande de volume Médiane (FI-AM et RF, RF-FM). Minimum (FI-FM)
2. Commande des graves Médiane
3. Commande des aiguës Médiane
4. Commande d'équilibrage Médiane
5. Sélecteur de fonction MW, LW, FM et mode FM
6. Interrupteur d'alimentation ON
7. La sortie du générateur de signaux ne doit pas dépasser la valeur nécessaire à sa visualisation.
8. Lors de l'alignement, vérifier si les enceintes sont bien branchées sur l'ampli-tuner ou utiliser des résistances de charge fictives de 4 Ω.

PALIER	GENERATEUR DE SIGNAUX OU DE BALAYAGE		INDICATION DU CARDAN D'ACCORD	VISUALISATION	REGLER	REMARQUES
	CONNEXION	FREQUENCE				
ALIGNMENT DE F.I. ET H.F. EN AM						
1 (MW)	Former une boucle de quelques tours de câble et la faire rayonner par la boucle de l'ampli-tuner.	468 kHz (Roy. Uni) ou 450 kHz à 30% de modulation sous 400 Hz	Point de non interférence	Appareil de mesure de sortie branché sur la prise de haut- parleur gche.	T201 (FI AM) T202 (FI AM)	Régler pour une sortie maximum.
2 (MW)		513 kHz à 30% de modulation sous 400 Hz	513 kHz		L201 (OSC de PO)	Régler pour une sortie maximum.
		600 kHz à 30% de modulation sous 400 Hz	600 kHz		L204 (ant. de PO)	
3 (MW)		1645 kHz à 30% de modulation sous 400 Hz	1645 kHz		CT203 (trimmer d'oscillateur de PO) CT201 (trimmer d'antenne AM)	Régler pour une sortie maximum. Recommencer les paliers (2) et (3).
4 (LW)		142 kHz à 30% de modulation sous 400 Hz	142 kHz		L202 (OSC de GO) L205 (ant. de GO)	Régler pour une sortie maximum.
5 (LW)		363 kHz à 30% de modulation sous 400 Hz	363 kHz		CT204 (trimmer d'OSC de GO) CT202 (trimmer d'ant de GO)	Régler pour une sortie maximum. Recommencer les paliers (2) et (3).