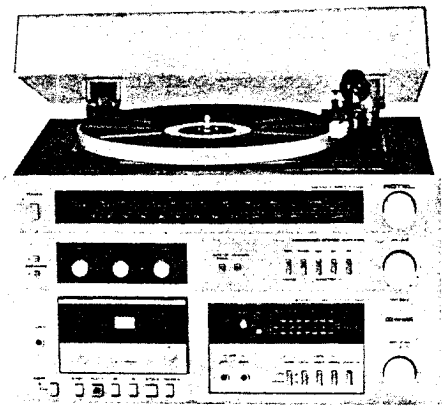
Quality. Uncompromised.

ROTEL®

Technical Manual



AM/FM STEREO MUSIC CENTER RM-820

RM-820

MW/LW/FM STEREO MUSIC CENTER RM-820L

RM-820L

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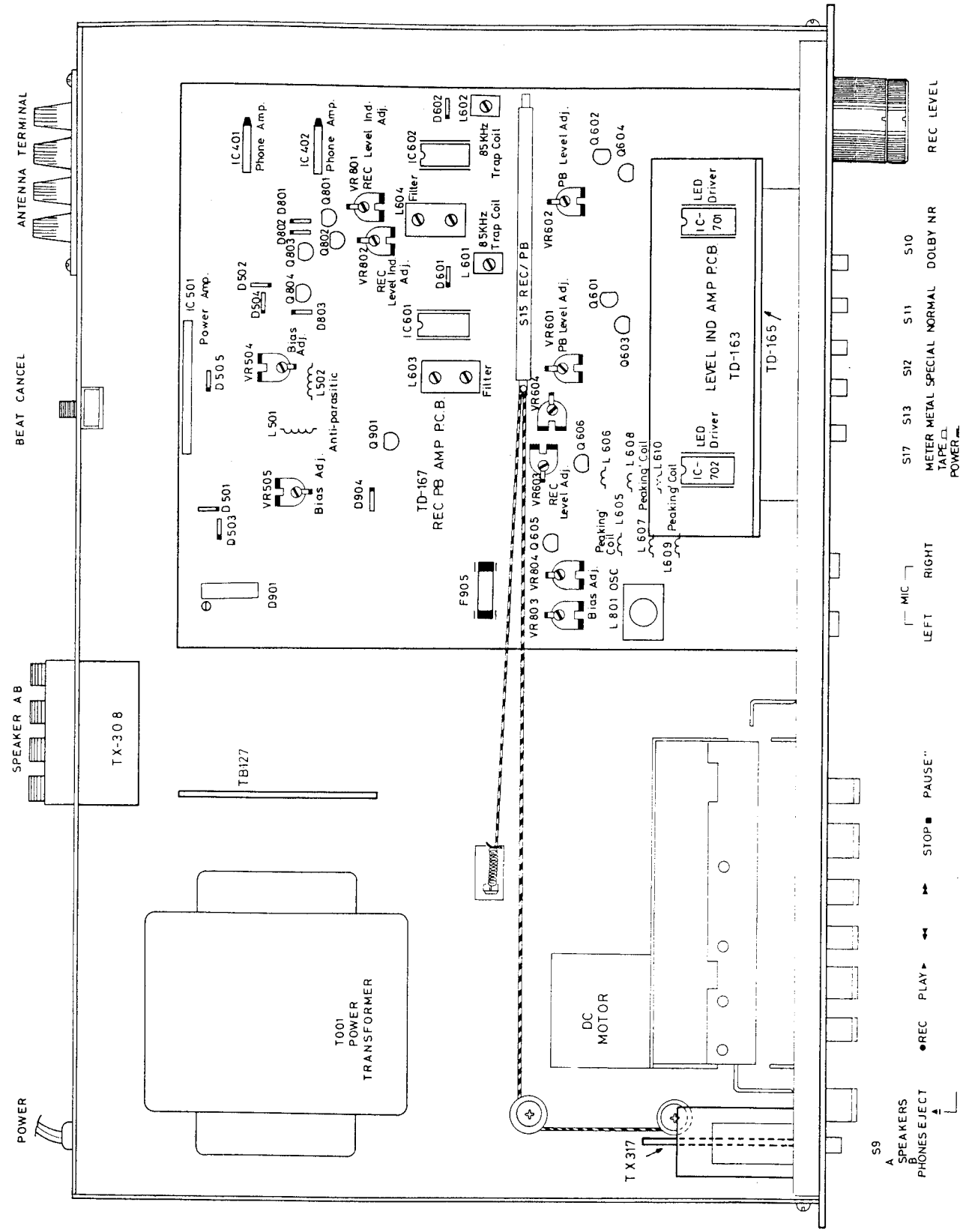
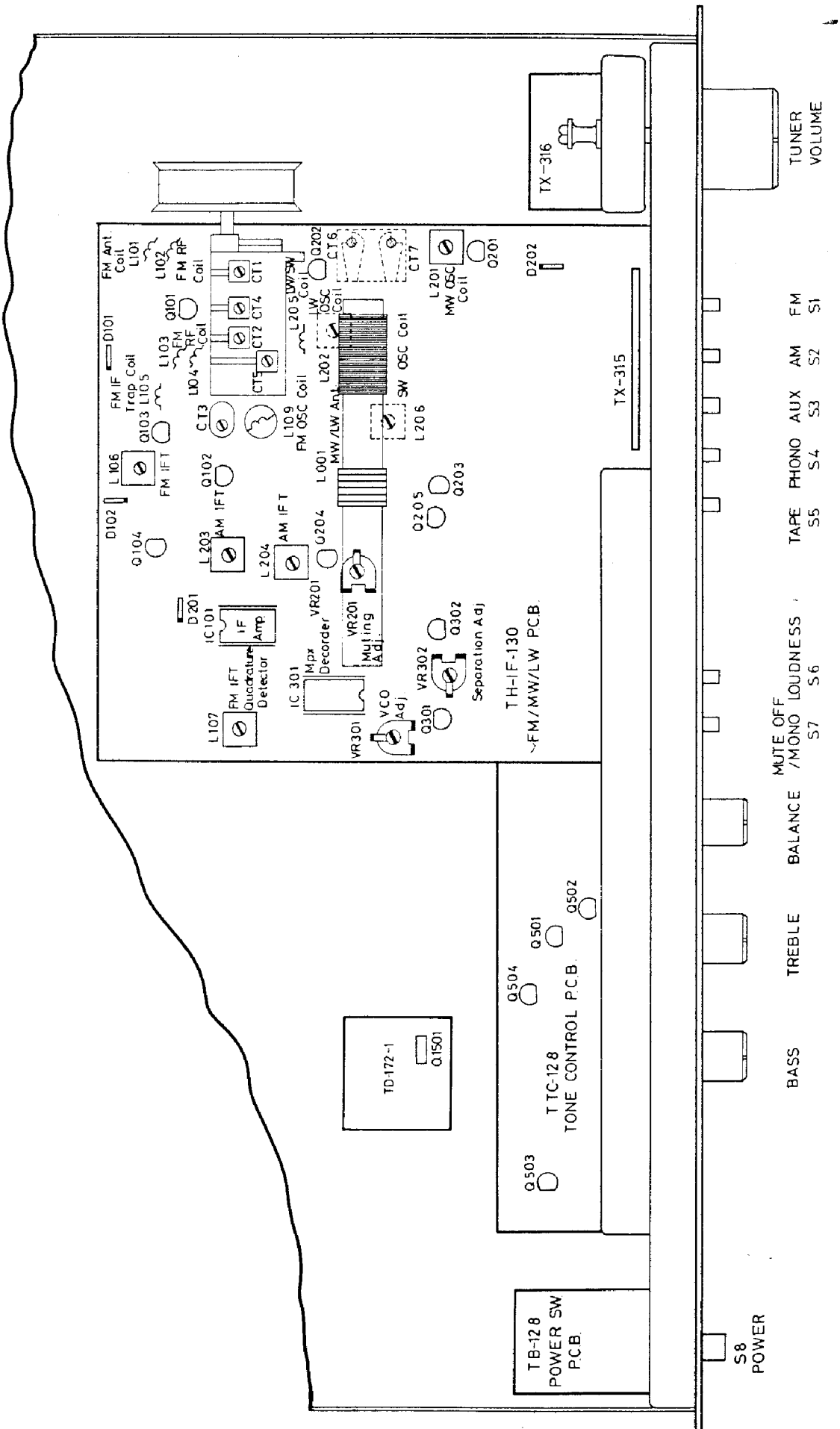
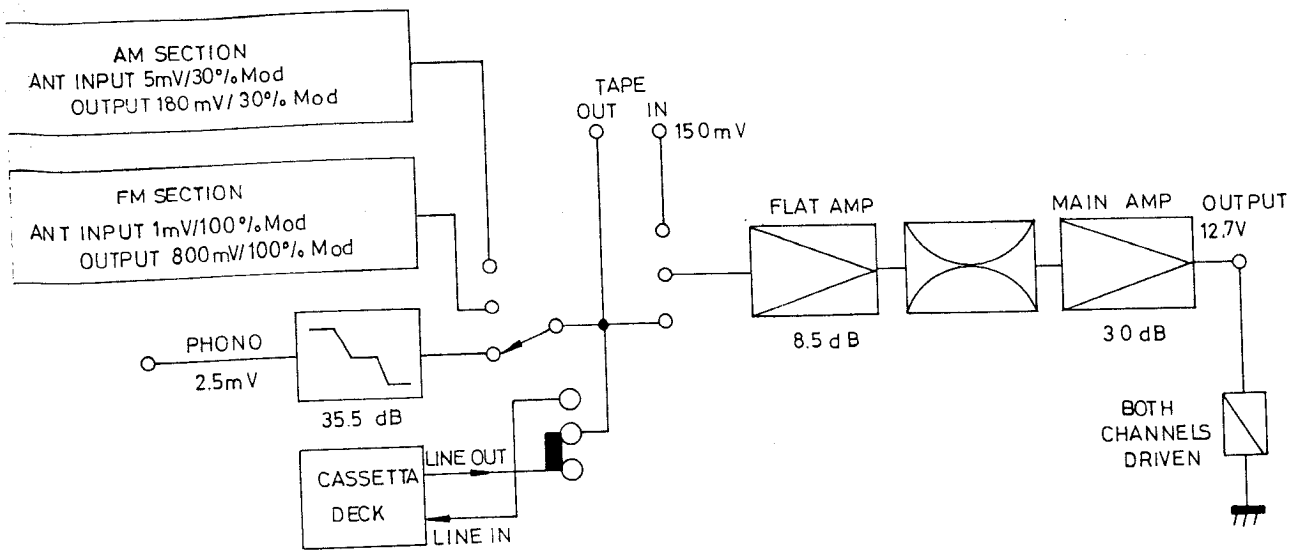
Chassis Layout/Chassis-Anordnung/ Installation de Châssis (1/2)

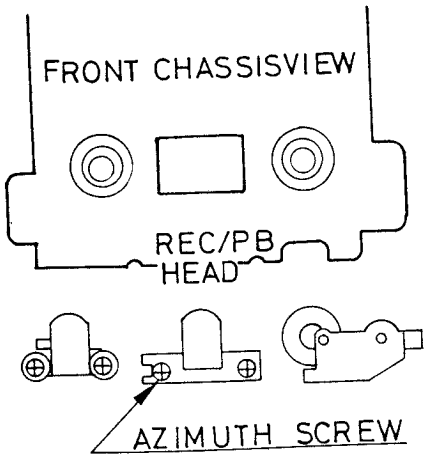


Chassis Layout/Chassis-Anordnung/ Installation de Châssis (2/2)



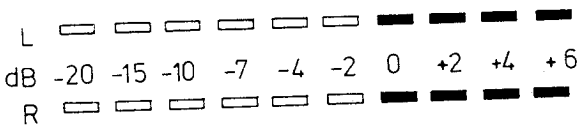
Block Diagram/Blockschaltbild/ Schéma synoptique





ADJUST AZIMUTH SCREW TO OBTAIN MAXIMUM DEFLCTION ON SCOPE

Fig. 1 Azimuth Adjustment
Abb. 1 Azimuteinstellung
Fig. 1 Réglage de l'azimut



ADJUST POTENTIONMETER VR 801 (VR 802 FOR R-CH) SO THAT 10 LEDs SHOWS LEVEL FROM -20 TO 0 dB

Fig.2 Dolby Level Adjustment
Abb. 2 Einstellung der Dolby-Regel.
Fig. 2 Réglage du niveau Dolby

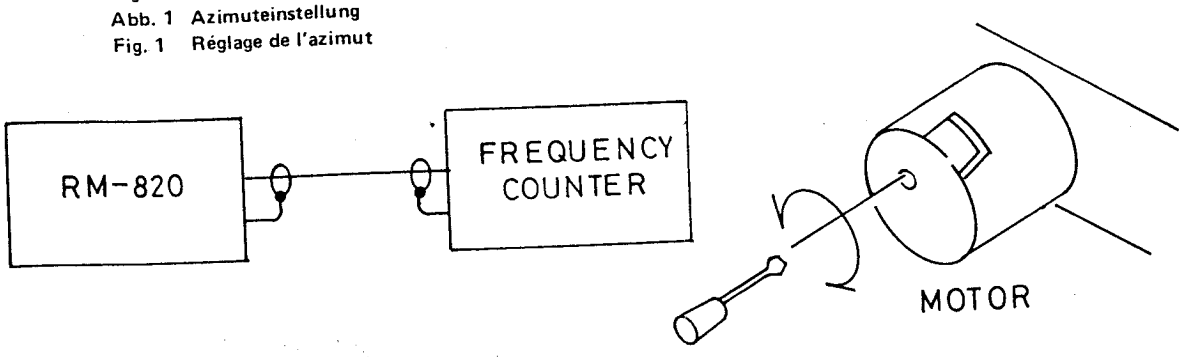


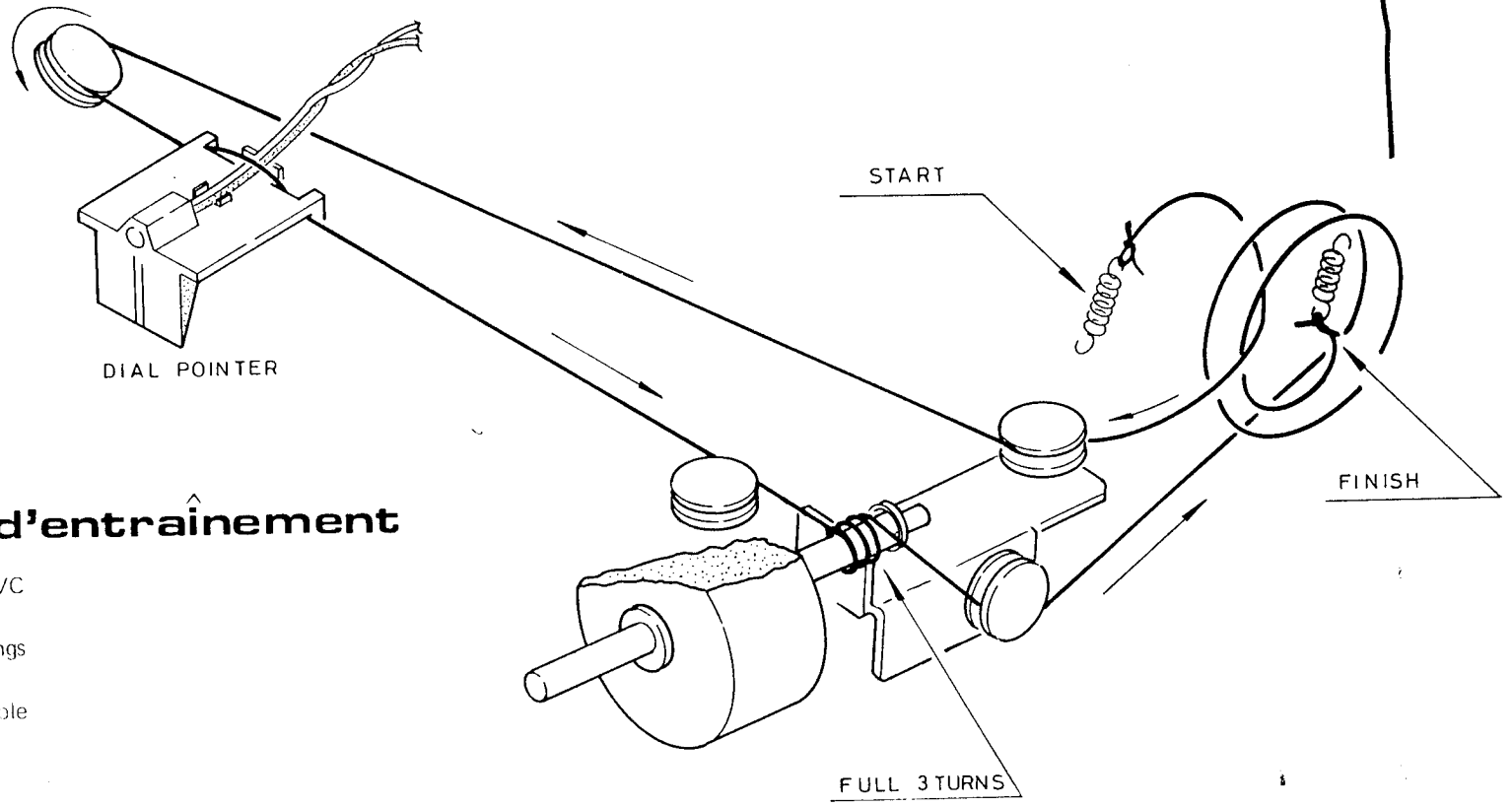
Fig. 3 Tape speed Adjustment
Abb. 3 Einstellung der Bandgeschovindigkeitabweichung
Fig. 3 Réglage de la vitesse de défilement de la bandle

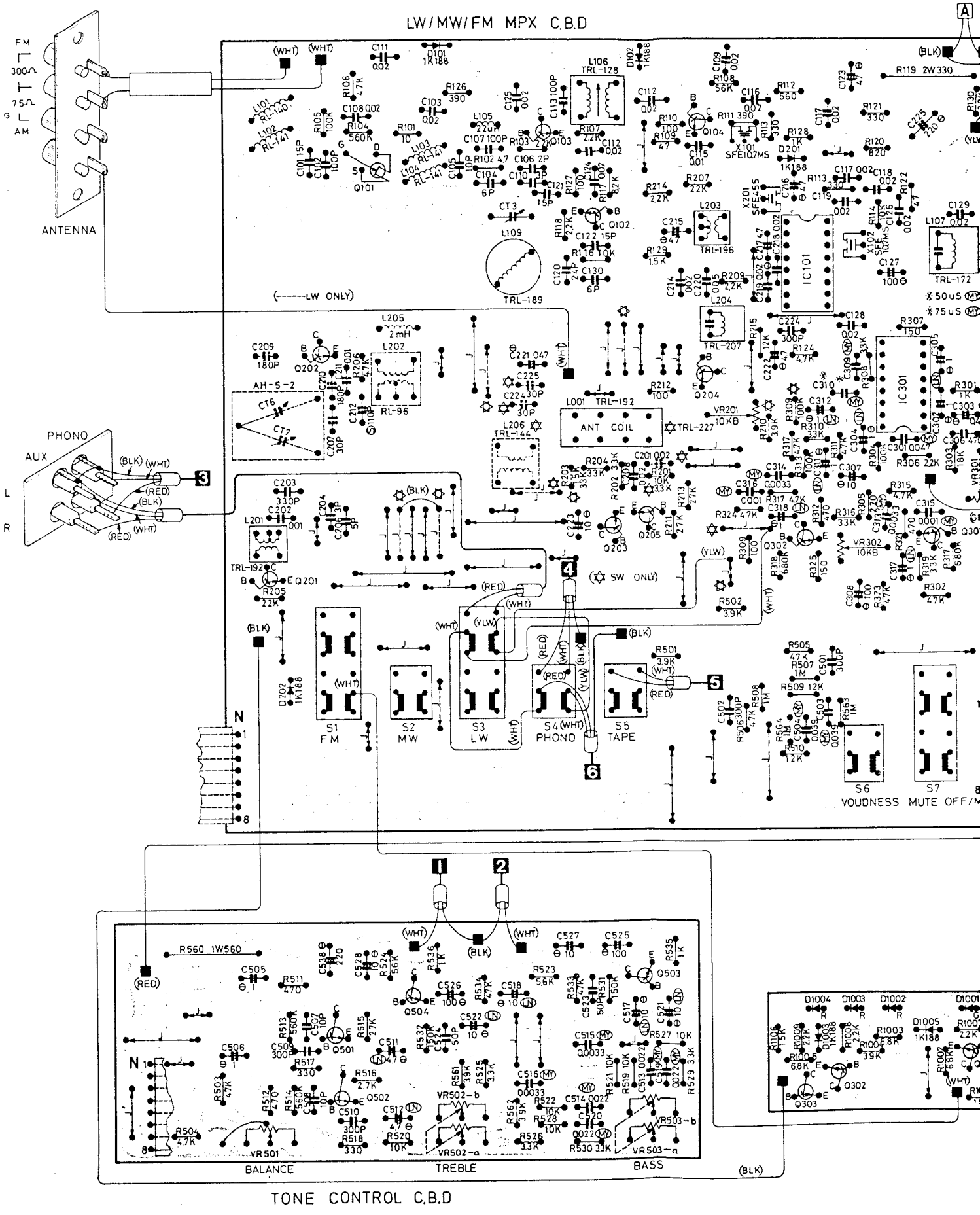
Dial Stringing Diagram
Skalenantriebsschema
Diagramme des câble d'entraînement

Note: Carry out stringing with the front end set at VC maximum.

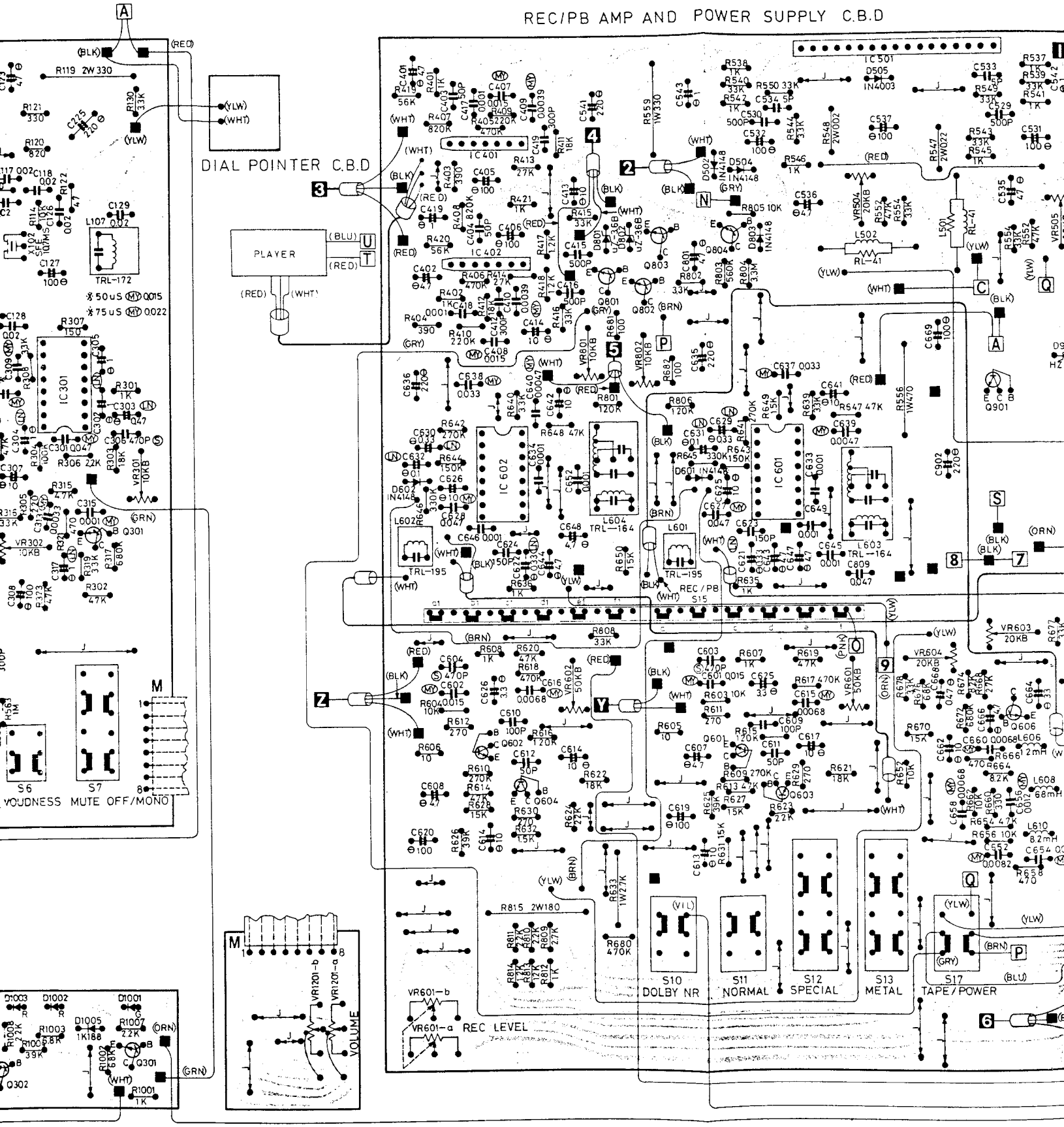
Zur Beachtung: Antriebsseil mit dem Drehko der Eingangs Stufe in Maximumstellung verlegen.

Note: Effectuer le câblage avec le condensateur réglable de l'éntrge réglé au maximum.



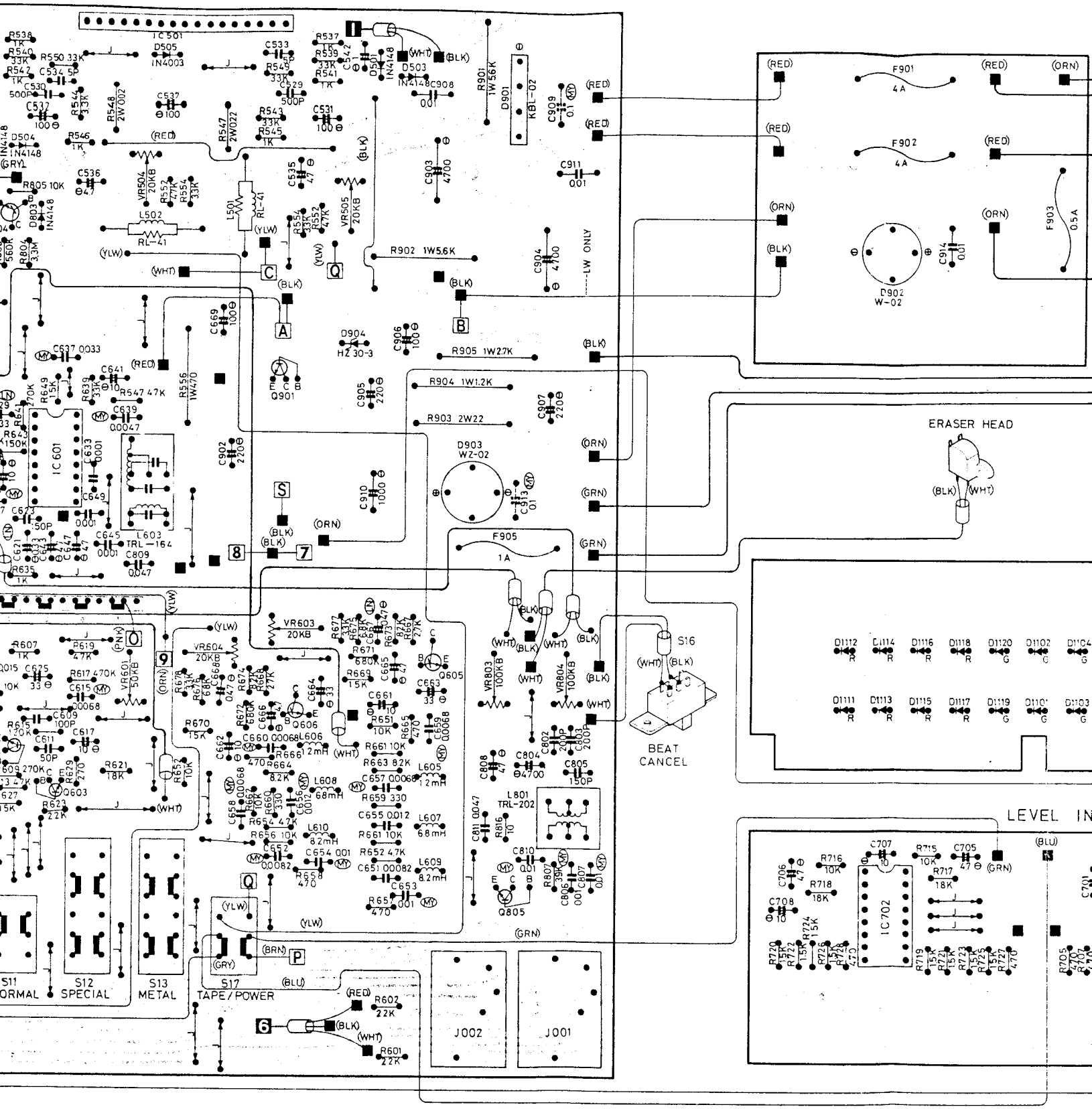

LW/MW/FM MPX C.B.D
ANTENNA
FM
300Ω
75Ω
AM
PHONO
AUX
L
R
(BLK)
(WHT)
(RED)
(YLW)
(------LW ONLY)
SW ONLY
IC101
IC301
ANT COIL
TRL-189
TRL-128
TRL-192
TRL-144
TRL-96
TRL-196
TRL-207
TRL-227
TRL-172
AH-5-2
50uS
75uS
S1 FM
S2 MW
S3 LW
S4 PHONO
S5 TAPE
S6 VOUDNESS
S7 MUTE OFF/M
TONE CONTROL C.B.D
BALANCE
TREBLE
BASS
VR501
VR502-a
VR502-b
VR503-a
VR503-b

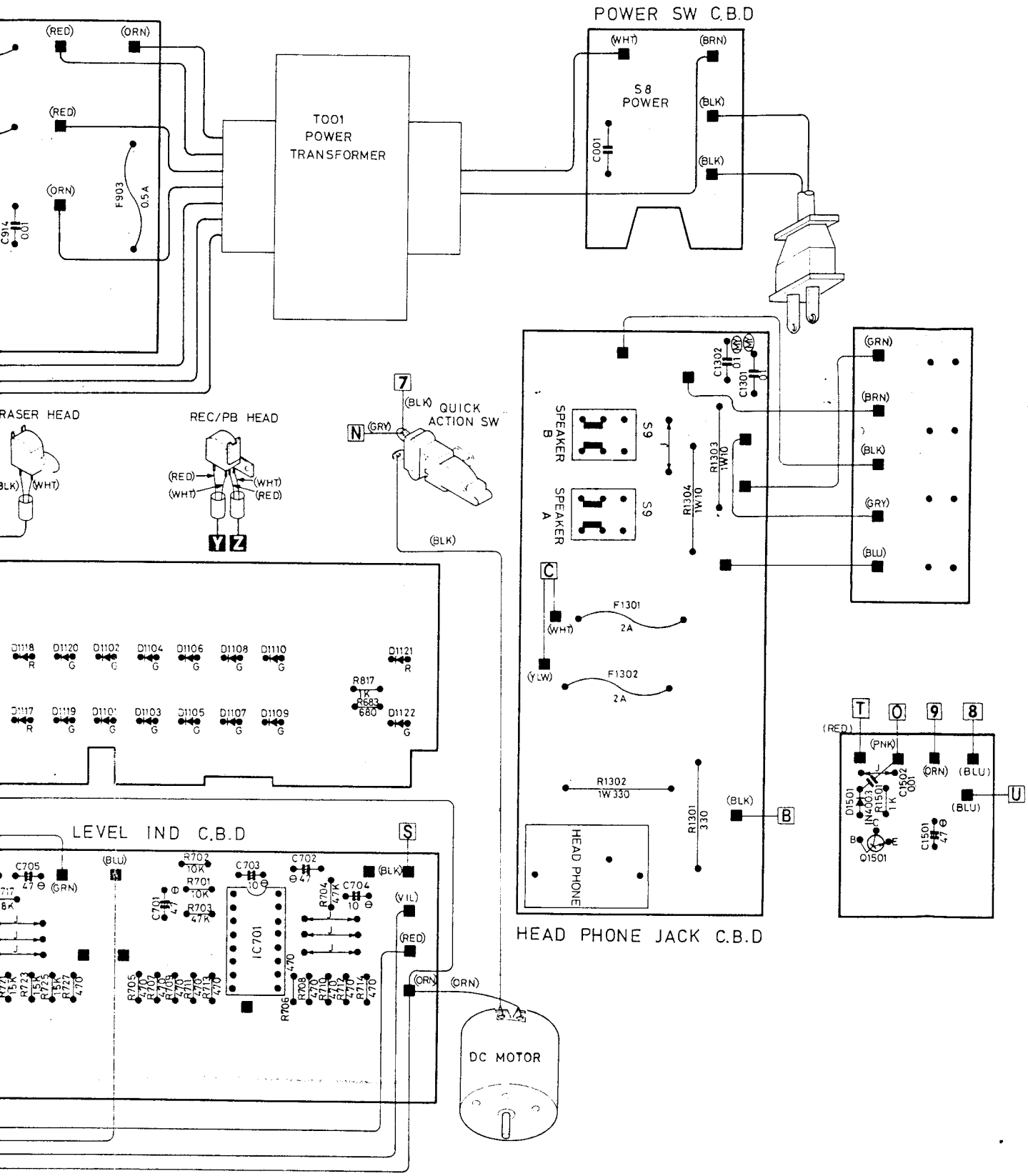
Diagram/Drahtleitung Diagramm/Diagramme de connexion



mme de connexion

WER SUPPLY C.B.D




POWER SW C.B.D
(RED)
(ORN)
(RED)
(ORN)
F903
0.5A
C914
0.01
T001
POWER
TRANSFORMER
(WHT)
(BRN)
S8
POWER
(BLK)
(BLK)
C001
RASER HEAD
(BLK)
(WHT)
REC/PB HEAD
(RED)
(WHT)
(WHT)
(RED)
Y
Z
7
(BLK)
QUICK
ACTION SW
N
(GRY)
(BLK)
C1302
.01
C1301
.01
SPEAKER
B
S9
SPEAKER
A
S9
R1303
1W10
R1304
1W10
(GRN)
(BRN)
(BLK)
(GRY)
(BLU)
C
(WHT)
F1301
2A
(YLW)
F1302
2A
D1118
D1120
D1102
D1104
D1106
D1108
D1110
D1121
D1117
D1119
D1101
D1103
D1105
D1107
D1109
D1122
R817
1K
R683
680
R1302
1W330
R1301
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(BLK)
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HEAD PHONE
HEAD PHONE JACK C.B.D
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(RED)
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LEVEL IND C.B.D
S
C705
47
(GRN)
(BLU)
R702
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R710
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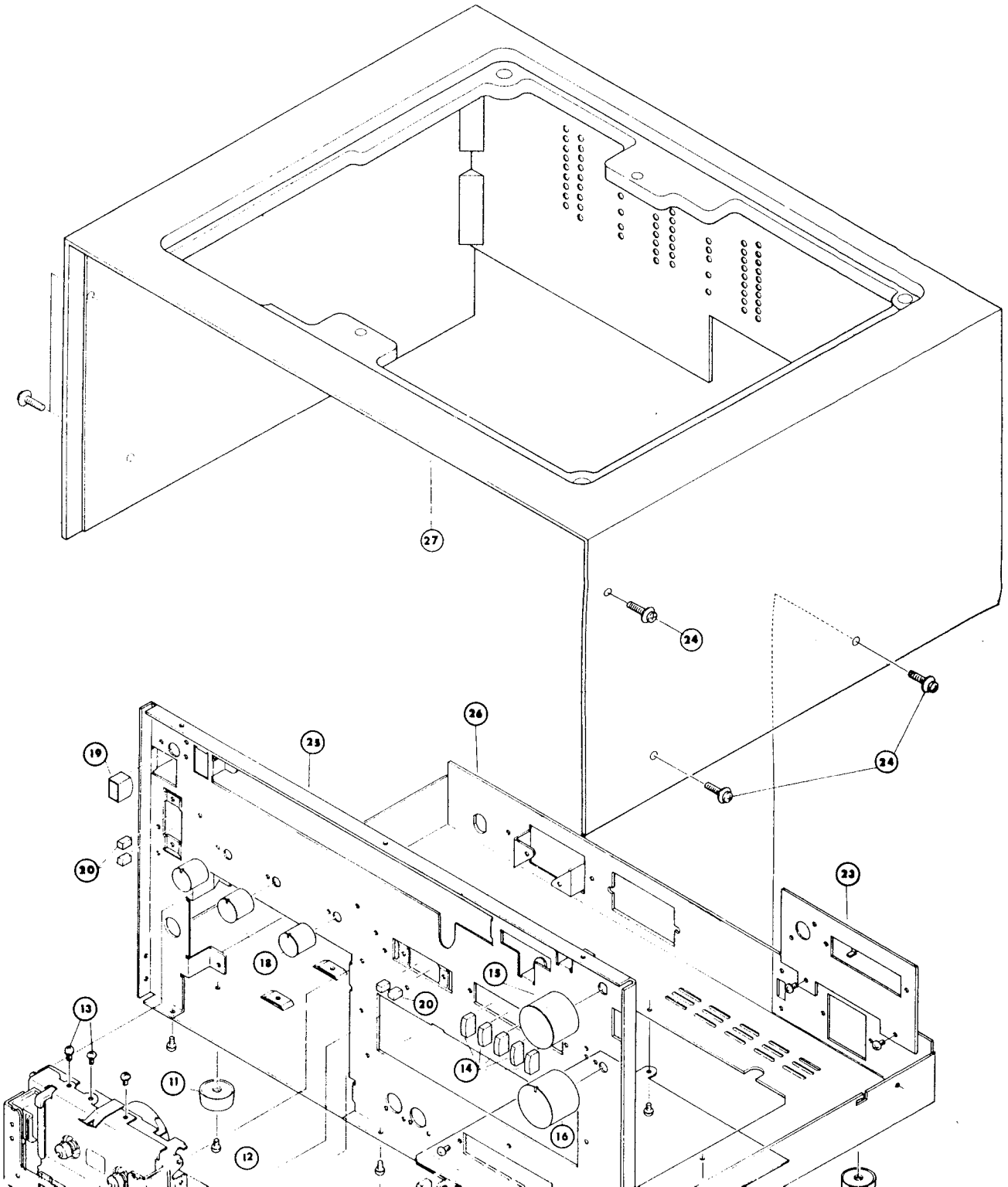
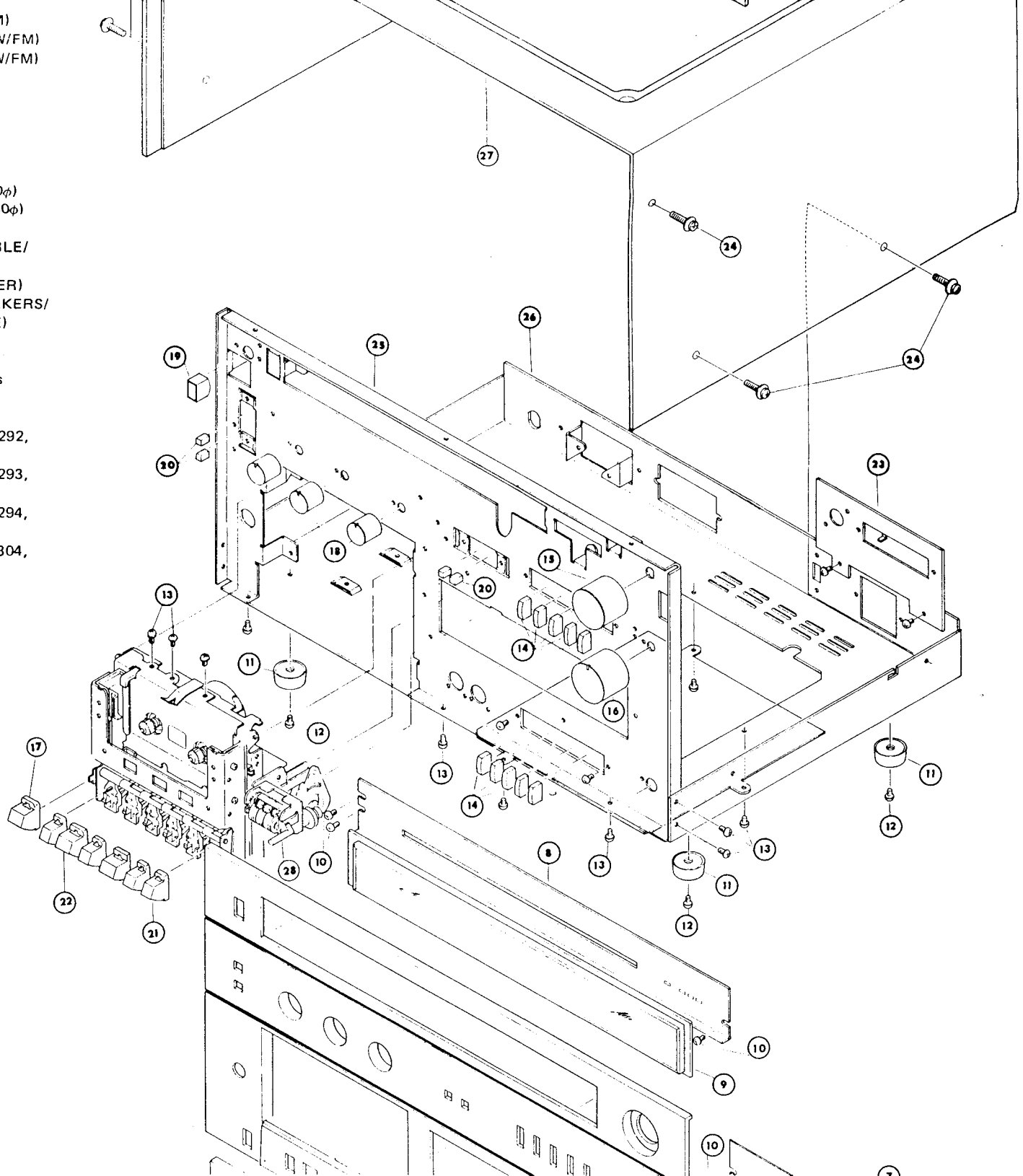
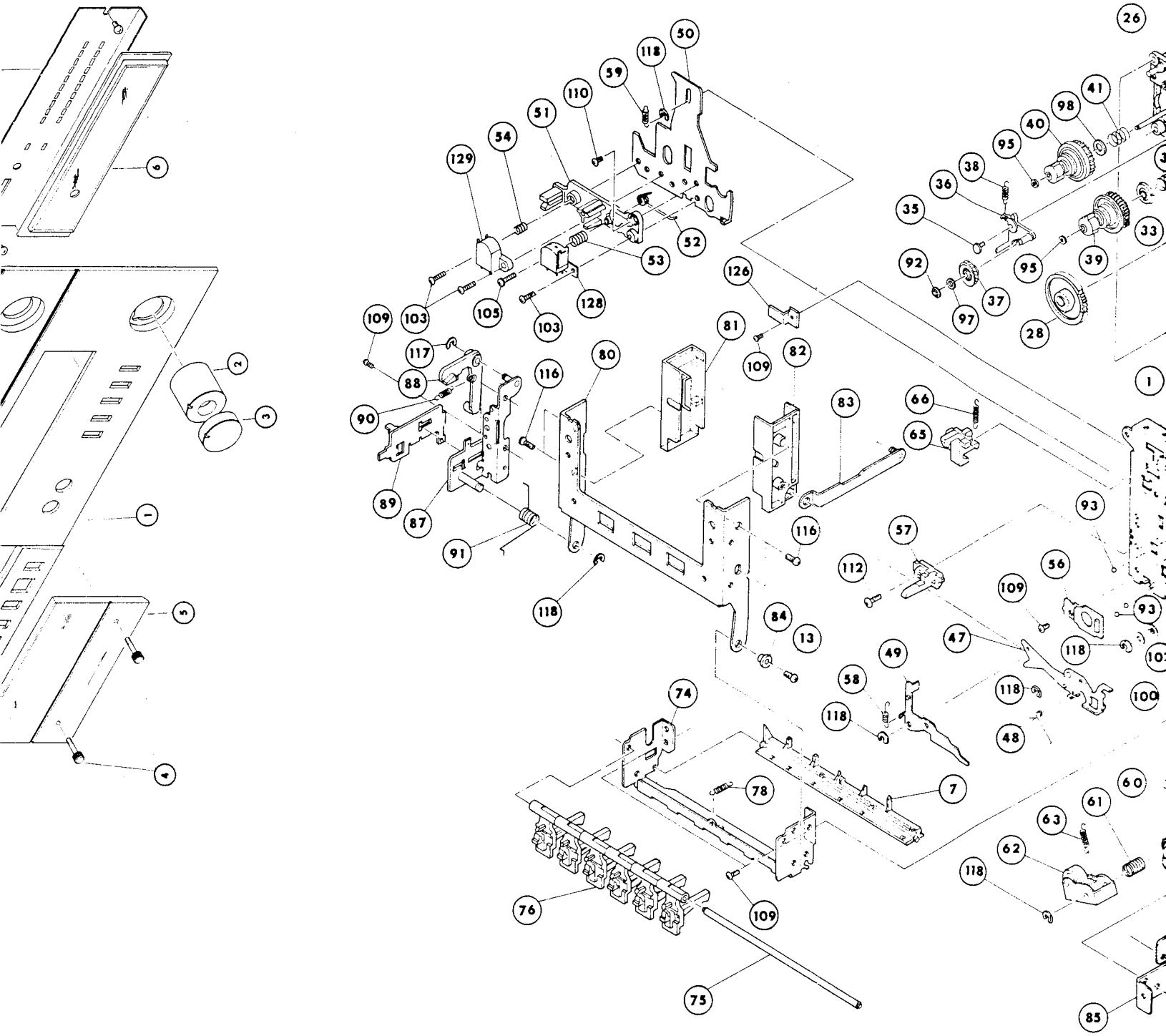
R723
15K
R725
5K
R727
470
DC MOTOR

Key No.	Parts No.	Description
1	0102TWI-1#1	Plastic Front Panel (TFP-191)
	0102TWI-1#2	Plastic Front Panel (TFP-192)
	0102TWI-1#3	Plastic Front Panel (TFP-193)
2	012C-3873-T	Knob, 30ϕ for REC Level (WR)
3	012C-3872-T	Knob, 30ϕ for REC Level (WL)
4	0714TXV-30	Ornamental Screw
5	0143TWI-16	Cassette Door Plate
6	0144TR-1620#3	Dial Window
7	015TDB-171	LED Ornamental Plate (TDB-171)
8	015TDB-176	Dial Board (AM/FM)
	015TDB-177	Dial Board (MW/LW/FM)
	015TDB-178	Dial Board (MW/SW/FM)
9	0143TWD-6#2	Dial Window
10	071NB3x6B	Screw, MV3x6BK
11	0194TR-1257A	Plastic Foot
12	071BZTP3x8Z	Screw, TPV3x8Ni
13	071BZTP3x6Z	Screw, TPV3x6Ni
14	012C-3372# 1	Push Button
15	0124TR-1536	Knob, TUNING (30ϕ)
16	012C-3871-T	Knob, VOLUME (30ϕ)
17	0124TR-1545	Deck Push Button
18	0124TR-1540	Knob, BASS/TREBLE/ BALANCE (15ϕ)
19	012C-3982	Push Button (POWER)
20	012C-3049A#4	Push Button (SPEAKERS/ LOUDNESS/MUTE)
21	0214TXV-16	Deck Push Button
22	0124TXV-17	Deck Push Button
23	015TRP-298#1	Printed Rear Chassis
24	071NBW4x10N	Screw, MPW4x10Ni
25	0132TWI-2	Front Chassis
26	0132TWI-3A#1	Chassis Body (TRP-292, UL.U)
	0132TWI-3A#2	Chassis Body (TRP-293, CSA)
	0132TWI-3A#3	Chassis Body (TRP-294, H.E.K.G)
	0132TWI-3A#4	Chassis Body (TRP-304, H.E.K.G)
27	0142TWO-4A#1	Cabinet (UL only)
	0142TWO-4A#2	Cabinet
28	0634TR-1151	Tape Counter



8	015TDB-176	Dial Board (AM/FM)
	015TDB-177	Dial Board (MW/LW/FM)
	015TDB-178	Dial Board (MW/SW/FM)
9	0143TWD-6#2	Dial Window
10	071NB3x6B	Screw, MV3x6BK
11	0194TR-1257A	Plastic Foot
12	071BZTP3x8Z	Screw, TPV3x8Ni
13	071BZTP3x6Z	Screw, TPV3x6Ni
14	012C-3372# 1	Push Button
15	0124TR-1536	Knob, TUNING (30ϕ)
16	012C-3871-T	Knob, VOLUME (30ϕ)
17	0124TR-1545	Deck Push Button
18	0124TR-1540	Knob, BASS/TREBLE/ BALANCE (15ϕ)
19	012C-3982	Push Button (POWER)
20	012C-3049A#4	Push Button (SPEAKERS/ LOUDNESS/MUTE)
21	0214TXV-16	Deck Push Button
22	0124TXV-17	Deck Push Button
23	015TRP-298#1	Printed Rear Chassis
24	071NBW4x10N	Screw, MPW4x10Ni
25	0132TWI-2	Front Chassis
26	0132TWI-3A#1	Chassis Body (TRP-292, UL.U)
	0132TWI-3A#2	Chassis Body (TRP-293, CSA)
	0132TWI-3A#3	Chassis Body (TRP-294, H.E.K.G)
	0132TWI-3A#4	Chassis Body (TRP-304, H.E.K.G)
27	0142TWO-4A#1	Cabinet (UL only)
	0142TWO-4A#2	Cabinet
28	0634TR-1151	Tape Counter

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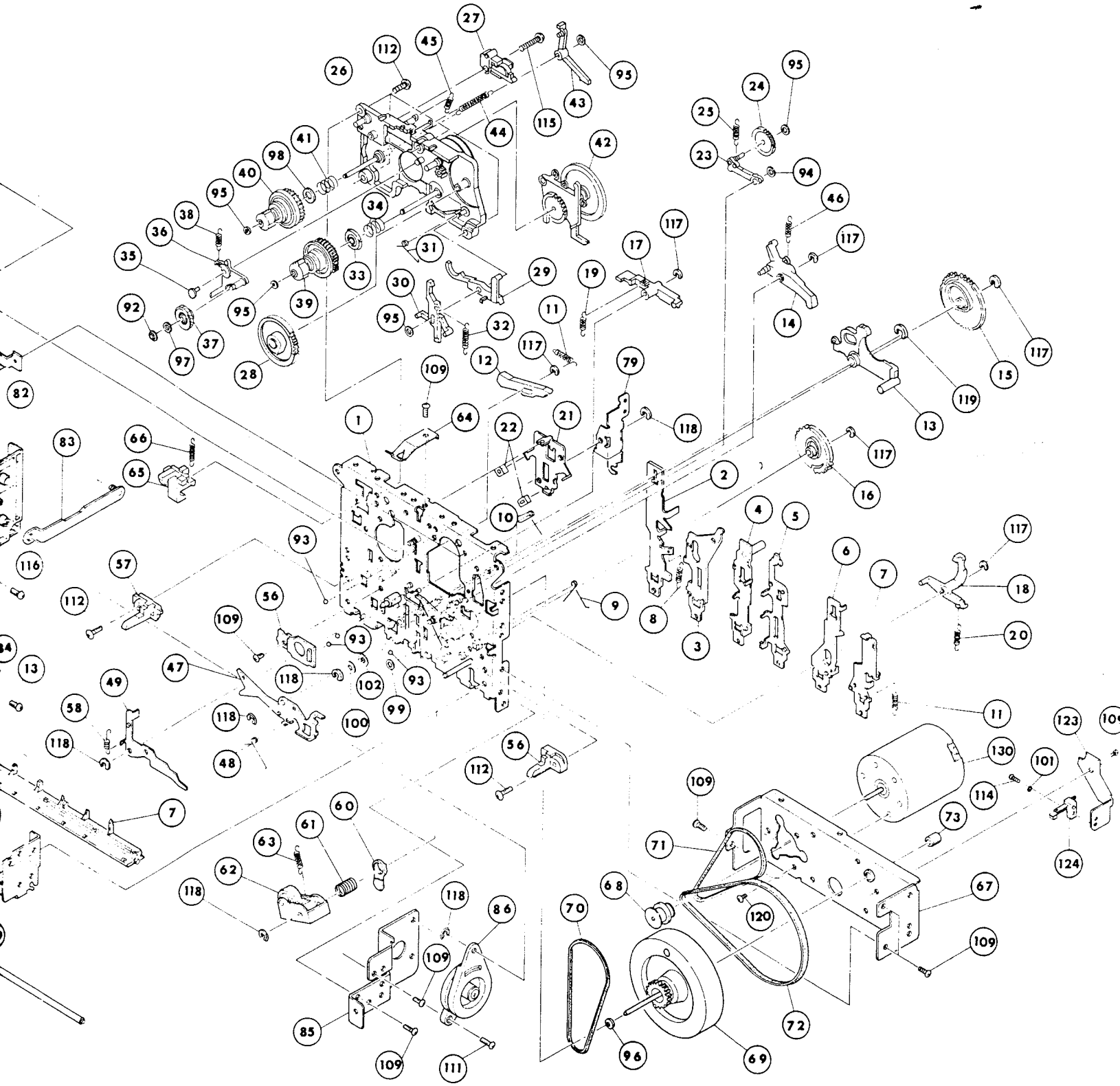
Disassembly Diagram /Illustration des Auseina



derbaus/ Schéma de démontage (2/2)

Key No.	Parts No.	Description
1	090221191	Chassis Assy
2	090221192	Rec Lever
3	090221193	Play Lever
4	090221194	Rew Lever Assy
5	090221195	FF Lever
6	090221196	Stop Lever
7	090221197	Pause Lever Assy
8	090226241	Rec Lever Spring
9	090226242	Lever Spring (B)
10	090226243	Lever Spring (C)
11	090226244	Pause Lever Spring
12	090221198	Rec Lever (B)
13	090221199	Shift Arm (A)
14	090221200	Shift Arm (B)
15	090226244	Gear (A)
16	090226245	Gear (B)
17	090221201	Gear Lock Arm (A)
18	090221202	Gear Lock Arm (B)
19	090221203	Shift Arm (A) Spring
20	090221204	Lock Arm (B) Spring
21	090221203	Brake Lever
22	090226249	Brake Shoe
23	090221204	FF Idler Arm Assy
24	090226250	FF Gear
25	090226251	FF Gear Spring
26	090221205	Reel Base Assy
27	090226252	Quick Action Switch
28	090226253	Auto Gear
29	090221206	Sensor Arm
30	090221207	Auto Arm
31	090226254	Sensor Arm Spring
32	090226255	Auto Arm Spring
33	090221208	Auto Clutch Assy
34	090226256	Tension Spring
35	090226257	Bush
36	090221209	Play Arm
37	090226258	Play Idler
38	090226259	Play Arm Spring
39	090221210	T Reel Assy
40	090221211	S Reel Assy
41	090226260	Back Tension Spring
42	090221212	FR Pulley Arm Assy
43	090221213	Rew Arm
44	090226261	FR Pulley Arm SP. (A)
45	090226262	FR Pulley Arm SP. (B)
46	090226263	Shift Arm (B) Spring
47	090221214	Auto Lock Arm
48	090226264	Auto Lock Arm Spring
49	090221215	FR Lock Arm (N)
50	090221216	Head Chassis
51	090221217	Head Base
52	090226265	Head Base Spring
53	090226266	Head Spring
54	090226267	Head Spring
55	090226268	Head Chassis Spring
56	090221218	Cassette Guide (R)
57	090221219	Cassette Guide (L)
58	090226269	FR Lock Arm Spring
59	090226270	Brake Spring
60	090221220	Pause Cam
61	090226271	Pause Cam Spring
62	090221221	P. Roller Arm Assy
63	090226272	P. Roller Spring
64	090226273	Pack Spring
65	090221222	Rec Sensor
66	090226274	Rec Sensor Spring
67	090221223	Motor Bracker (D)
68	090226275	Motor Pulley (C)
69	090226276	Flywheel
70	090226277	Belt
71	090226278	Belt
72	090226279	Belt
73	090227202	Capstan Screw
74	090221225	Button Holder
75	090226280	Button Shaft
76	090221225	Button Lever
77	090221226	Lock Cam (F)
78	090226281	Lock Cam Spring
79	090221227	Rec Arm
80	090221228	Cassette Case
81	090221229	Cassette Pocket (L)
82	090221230	Cassette Pocket (R)
83	090221231	Damper Link Assy
84	090227236	Case Collar
85	090221232	Damper Bracket
86	090221233	Damper Assy
87	090221234	Case Bracket Assy
88	090221235	Case Lock Arm
89	090221236	Eject Lever
90	090226158	Pause Lever Spring
91	090226282	Case Spring
92	770911197	Push Nut 1.9¢ x 6¢ x 0.25t
93	651010113	Steel Ball 2¢
94	770500109	Polyslider Washer 1.2¢ x 5¢ x 0.25t
95	770500110	Polyslider Washer 1.7¢ x 3.5¢ x 0.25t
96	770500087	Polyslider Washer 2.6¢ x 4.7¢ x 0.25t
97	770500111	Polyslider Washer 3.2¢ x 6¢ x 0.25t
98	770500112	Polyslider Washer 4.7¢ x 9¢ x 0.5t
99	770500056	Nylon Washer 24¢ x 5¢ x 0.5t
100	090227237	Nylon Washer
101	090227207	Plain Washer (S) 2¢
102	770500003	Plain Washer (L) 32¢ x 8¢ x 0.5t
103	090227238	Binding Screw
104		
105	090227239	Washer Head Screw
106		
107		
108		
109	763202604	Tap Tite Screw 2.6 x 4
110	763222604	Tap Tite Screw (BL) 2.6 x 4
111	763202606	Tap Tite Screw 2.6 x 6
112	763222608	Tap Tite Screw (BL) 2.6 x 8
113	763202608	Tap Tite Screw 2.6 x 8
114	723202006	Tapping Screw 2 x 6
115	723202012	Tapping Screw 2 x 12
116	723202606	Tapping Screw 2.6 x 6
117	770500005	E Ring 2¢
118	770500027	E Ring 2.5¢
119	770500040	E Ring 4¢
120	703202603	Pan Pan Screw 2.6 x 3
121		
122		
123	090221237	Pause Switch Bracket
124	615212288	Leaf Switch LSA-1123-29
125		
126	090221238	Sub Bracket (C)
127		
128	241001125	RP Head
129	241001126	E Head
130	260101130	Motor

AM IF and RF Alignment / Signal Indicator Calibration

Instruments: AM Signal Generator (400Hz 30% Modulated), AC VTVM and Oscilloscope.

AM IF Alignment (AM/FM, SW/MW/LW/FM)

Step	Generator		Tuning Dial setting	Adjust	Adjust for
	Coupling	Frequency			
1	Pin No. 5 (on IF board through a 0.01 mfd Capacitor	455KHz	No interfering at low end of scale	L203, L204 (on IF board)	Maximum reading on AC VTVM.

MW RF Alignment (AM/FM, SW/MW/LW/FM)

Step	Generator		Tuning Dial setting	Adjust	Adjust for
	Coupling	Frequency			
1	Test Loop Radiate signal into ferrite loop-stick antenna.	600KHz	600KHz	L201 (OSC) and L001 (ANT) lead line side	Maximum reading on AC VTVM.
2		1400KHz	1400KHz	CT5 (OSC) and CT4 (ANT)	

LW RF Alignment (SW/MW/LW/FM only)

Step	Generator		Tunging Dial setting	Adjust	Adjust for
	Coupling	Frequency			
1	Test Loop Radiate Signal into ferrite loop-stick antenna.	160KHz	160KHz	L202 (OSC) and L001 (ANT) against the lead line side	Maximum reading on AC VTVM.
2		330KHz	330KHz	CT7 (OSC) and CT6 (ANT)	

SW RF Alignment (SW/MW/LW/FM only)

Step	Generator		Tuning Dial setting	Adjust	Adjust for
	Coupling	Frequency			
1	Antenna terminal	4MHz	4MHz	L202 (OSC) and CT7 (ANT)	Maximum reading on AC VTVM.
2		12MHz	12MHz	L206 (ANT) and CT6 (ANT)	

FM IF and RF Alignment / Tuning and Signal Indicator Calibration

Instruments: FM Signal Generator (400Hz, 100% Modulated), H.D. Analyzer Oscilloscope. AC VTUM and Tuning Meter.

Step	Generator		Tuning Dial setting	Adjust	Adjust for
	Coupling	Frequency			
1	Antenna terminal	90MHz	90MHz	L109 (OSC)	Maximum reading on AC VTUM.
2		106MHz	106MHz	CT3 (OSC)	
3	Repeat steps 1 and 2 unit no further improvement is noticed.				
4	Antenna terminal	90MHz	90MHz	L101, L102, L103 and L104 (RF)	Maximum reading on AC VTUM.
5		106MHz	106MHz	CT1 (ANT) and CT2 (RF)	
6		98MHz	98MHz	L101 L102	
7	Repeat steps 4 and 5 unit to further improvement is noticed.				
8	Antenna terminal (1mV Input)	98MHz	98MHz	L107 (upper core)	Minimum reading on H.D. Analyzer.
9			No interfering	L107 (low core)	

FM MPX Alignment

Instruments: FM Stereo Generator, AC VTVM and Oscilloscope.

Step	Generator		Tuning Dial setting	Adjust	Adjust for
	Coupling	Frequency			
1	Antenna terminal	98MHz Pilot.....10% 1KHz.....90% Mod.	98MHz	VR301	Stereo indicator light up.
2				VR302	best separation
3	Check the stereo indicator can be operated normally when pilot signal is reduce from 10% to 6%.				

Playback System Adjustments

Instruments: Oscilloscope, AC VTVM, Frequency Counter and Test Tape
Conditions: Oscilloscope, AC VTVM and Frequency Counter . . . LINE OUT Tape Selector . . . NORMAL Dolby NR . . . OFF

Adjustment Item	Test Tape	Adjust	Adjust for
Azimuth	LCT-3004-C	REC/PB head screw	Obtain largest wave form on Oscilloscope for both channels (Fig. 1)
Dolby Level	LCT-7001	**VR601** (L-ch) **VR602** (R ch)	AC VTVM reads 580mV at IC 701 Pin 7.
LED Calibration		**VR801** (L-ch) **VR802** (R-ch)	The LEDs indicator corresponds with the OdB LED. (Fig. 2)
Playback EQ Check	LCT-3009-C	Output Level difference between 40Hz, 1KHz and 10KHz signal is within ±3.0dB	
Tape Speed Deflection Check/Tape Speed Adjust	LCT-3001	Check that allowable margin of deflection at middle of or at the end of winding is in the range of +2%–1% (at 3000Hz allowable margin of deflection of speed is 3060-2970) If Tape Speed deflection surpasses the above range adjust speed of Motor (Fig. 3)	

Recording System Adjustments

Instruments: Oscilloscope, Signal Generator AC VTVM and Blank Tape
Conditions: Dolby NR . . . OFF REC Level . . . Maximum

Adjustment Item	Coupling	Tape Selector	Adjust	Adjust for
Bias Carrier	Oscilloscope . . . Point **TP3** (**TP4** R-ch)	METAL	**L601** (L ch) **L602** (R-ch)	Obtain Min. deflection on the Oscilloscope
19KHz Filter	S.G. (400Hz OdB) LINE IN . . . **TP13(14)** LINE OUT . . . **TP17(18)** Changed S.G. to 19KHz Dolby NR . . . ON	NORMAL	**L603** (L-ch) **L604** (R-ch)	AC VTVM reads -30dB (Minimum)
Bias Voltage	Oscilloscope . . . Point 11 (12R-ch)	METAL	**VR803** (L-ch) **VR804** (R-ch)	AC VTVM reads 6mV

REC/PB System Adjustments

Instruments: Signal Generator, H.D. Analyzer and Blank Tape
Conditions: Dolby NR . . . OFF REC Level . . . Maximum PLAY, REC, PAUSE. . . ON

Adjustment	Conditions	Adjust	Adjust for
REC/PB Output Level	S.G. (400Hz OdB) LINE IN . . . TP13(14) LINE OUT . . . TP17(18) Release Pause Button and playback it again.	VR603 (L-ch) VR604 (R ch)	Recording and Playback level difference must be within ± 1dB
Distortion Check	S.G. (400Hz OdB) LINE IN . . . TP13(14) LINE OUT . . . TP17(18) H.D. Analyzer . . LINE OUT Release Pause Button and playback it again.	Check that distrotion is within following range. a. METAL Tape..... under 2% b. SPECIAL Tape..... under 4% c. NORMAL Tape..... under 2%	
	If the distortion factor exceeds the above, recheck Bias Current Adjustment.		
Frequency Response Check	METAL Tape insert it	VR803 (L-ch) VR804 (R-ch)	40Hz–125Hz . . . 5dB 125Hz–10KHz. . .3dB 10KHz–15KHz . . . 5dB
	SPECIAL Tape insert it		
	NORMAL Tape insert it		40Hz–125Hz. . . 5dB 125Hz–10KHz . . . 3dB 10KHz–14KHz . . . 5dB

MW-ZF und HF-Einstellung/ MW-Signalstärkeanzeige-Eichung

Instrumente: Mw-Messender (400Hz 30% moduliert), Wechselstrom-Roehrenvoltmeter und Oszillograph.

MW-ZF Einstellung (MW/UKW, SW/MW/LW/UKW)

Schritt	Messender		Abstimmskalen Einstellung	Abgleich	Abgleich auf
	Anschluss	Frequenz			
1	Steckerstift 5 (auf ZF-leiterplatte ueber 0.01 MF Kondensator)	455KHz	Kine Interfenz am unteren skalenende	L203, L204 (auf ZF-Leiterplatte)	Maximalanzige am Roehrenvoltmeter

MW-HF Einstellung (MW/UKW, SW/MW/LW/UKW)

Schritt	Messender		Abstimmskalen Einstellung	Abgleich	Abgleich auf
	Anschluss	Frequenz			
1	Mess-Signal mit Schleife in Ferrit antenna einspeisen.	600KHz	600KHz	L201 (OSZ) und L001 (ANT) Lotleine-Seite	Maximalanzeige am Roehrenvoltmeter
2		1400KHz	1400KHz	CT5 (OSZ) und CT4 (ANT)	

LW-HF Einstellung (SW/MW/LW/UKW nur)

Schritt	Messender		Abstimmskalen Einstellung	Abgleich	Abgleich auf
	Anschluss	Frequenz			
1	Mess-Signal mit Schleife in Ferrit antenna einspeisen	160KHz	160KHz	L202 (OSZ) und L001 (ANT) gegen Lotleine-Seite	Maximalanzeige am Roehrenvoltmeter
2		330KHz	330KHz	CT7 (OSZ) und CT6 (ANT)	

SW-HF Einstellung (SW/MW/LW/UKW nur)

Schritt	Messender		Abstimmskalen Einstellung	Abgleich	Abgleich auf
	Anschluss	Frequenz			
1	Antennenklemmen anschliessen	4MHz	4MHz	L202 (OSZ) und CT7 (ANT)	Maximalanzeige am Roehrenvoltmeter
2		12MHz	12MHz	L206 (ANT) und CT6 (ANT)	

UKW-ZF und HF-Einstellung/ Signalstärkeanzeige-Eichung

Instrumente: UKW-Messender (400Hz 100% Moduliert), Klirrfaktormesser, Oszillograph, Wechselstrom-Roehrenvoltmeter

Schritt	Messender		Abstimmskalen Einstellung	Abgleich	Abgleich auf
	Anschluss	Frequenz			
1	Antennenkl-emmen anschliessen	90MHz	90MHz	**L109** (OSZ)	Maximalanzeige am Roehrenvoltmeter
2		106MHz	106MHz	CT3 (OSZ)	
3	Schritt 1 und 2 weiderholen, bis kein weitere Verbesserung eintritt.				
4	Antennekl-emmen anschliessen	90MHz	90MHz	L101, L102, L103 and L104 (HF)	Maximalanzeige am Roehrenvoltmeter
5		106MHz	106MHz	CT1 (ANT) and CT2 (HF)	
6		98MHz	98MHz	**L101** **L102**	
7	Schritt 4 und 5 weiderholen, bis kein weitere Verbesserung eintritt.				
8	Antennenkl-emmen enspannung 1mV	98MHz	98MHz	**L107** (upper core)	Minimalanzeige am Klirrfaktormesser
9			KEINE Interferenz	**L107** (low core)	

UKW MPX-Einstellung

Instrumente: UKW-stereo Messender, Roehrenvoltmeter und Oszillograph.

Schritt	Messender		Abstimmskalen Einstellung	Abgleich	Abgleich auf
	Anschluss	Frequenz			
1	Antennekl-emmen anschliessen	98MHZ Pilotton.....10% 1KHz.....90% Moduliert.	98MHz	VR301	Stereoanzeige leuchtet auf.
2				VR302	beste Trennung
3	Einwandfreier Stereoanzeigebetrieb muss auch noch gewahrleistet sein, wenn der Stereopilotton von 10% auf 6% reduziert wird.				

Wiedergabepegels-Einstellung

Instrumente: Oszillograph, Wechselspannungsvoltmeter, Frequenz-Zähler und Test-casette
Bedienung: Oszillograph, Wechselspannungsvoltmeter und Frequenez-Zähler . . . LINE OUT, Bank Wahler . . . NORMAL
Dolby NR Taste . . . OFF

Einstellungsteil	Test-Casette	Einstellung	Einstellungszweck
Azimut	LCT-3004-C	REC/PB Tonkopfschraube	Maximum-Wellenform auf Oszillograph für beiden Kanäle (Abb. 1) erhalten.
Dolby-Regel	LCT-7001	**VR601** (L-K) **VR602** (R-K)	Wechselspannungsvoltmeter auf 580mV einstellen bei IC 701 Punkt 7.
Zähler-LED		**VR801** (L-K) **VR802** (R-K)	Der LEDs-Anzeiger auf dem OdB LED steht. (Abb. 2)
Prüfung der Wiedergabe "EQ"	LCT-3009-C	Ausgangspegelunterschied zwischen 40Hz, 1KHz und 10KHz darf innerhalb + 3.0dB betragen.	
Überprüfung der Bandgeschwindigkeit /Einstellung der Bandgeschwindigkeitabweichung	LCT-3001	Prüfen, ob' Abweichung von der Sollgeschwindig -keit im Bereich + 2%-1% liegt (bei 3000 Hz zwischen 3060-2970 Hz). Bei grösser Abweicnung Motorgeschwindigkeit nachstellen (Abb. 3)	

Aufnahmesystems-Einstellung

Instrumente: Oszillograph, NF-Generator, Wechselspannungsvoltmeter und Leercasette.
Bedienungen: Dolby NR Taste . . . OFF Aufnahmepegelregler . . . Maximum

Einstellungsteil	Kupplung	Band-Wähler	Einstellung	Einstellungszweck
Bias-Trägerstrom	Oszillograph . . . Punkt **TP3** (**TP4** R-K)	METAL	**L601** (L-K) **L602** (R-K)	Min. Abweichung auf Oszillograph erhalten.
19 KHz Filter	NF-Generator (400Hz OdB) LINE IN . . . **TP13(14)** LINE OUT . . . **TP17(18)** NF-Generator auf 19 KHz. Dolby NR . . . ON	NORMAL	**L603** (L-Ch) **L604** (R-Ch)	Wechselspannungs-voltmeter auf -3OdB einstellen, (Minimum)
Vorspannung	Oszillograph . . . Punkt**11(12**R-K)	METAL	**VR803** (L-Ch) **VR804** (R-Ch)	Wechseispannungs-Voltmeter auf 6mV einstellen.

Aufnahmesystems-und Wiedergabepegels-Einstellung

Instrumente: NF-Generator, Klirrfaktormessbrücke und Leer-cassette
Bedienungen: Dolby NR . . . . OFF. Aufnahmespegel . . . Maximum
PLAY, REC, PAUSE Taste . . . . . ON

Einstellung	Bedienungen	Einstellen	Einstellungszweck
Aufnahme/ Wiedergabe Ausgangspegel	NF-Generator (400 Hz 0dB) LINE IN . . . **TP13(14)** LINE OUT . . . **TP17(18)** Pause-Taste freigeben und spielen es rück noch einmal.	**VR603** (L-Ch) **VR604** (R-Ch)	Die Differenz der Aufnahme und Wiedergabe-Ausgangspegel innerhalb einer Toleranz von ±1dB liegen müssen.
Prüfen des Klirrfaktors	NF-Generator (400 Hz 0dB) LINE IN . . . **TP13(14)** LINE OUT . . . **TP17(18)** Klirrfaktormessbrücke . . . LINE OUT Pause-Taste freigeben und spielen es rück noch einmal	Prüfen ob Klirrfaktor den folgenden Werten entspricht: a. METAL Band . . . unter 2% b. SPECIAL Band . . unter 4% c. NORMAL Band . . unter 2%	
	Wenn der Klirrfaktor die angegebenen Werte übersteigt, dann Vormagnetisierungstrom prüfen.		
Prüfen des Frequenzgangs	METAL Band einschieben	**VR803** (L-Ch) **VR804** (R-Ch)	40Hz–125Hz . . . 5dB 125Hz–10KHz . . 3dB 10KHz–15KHz . . . 5dB
	SPECIAL Band einschieben		
	Normal Band einschieben		40Hz 125Hz . . . 5dB 125Hz–10KHz . . .3dB 10KHz–14KHz . . . 5dB

Alignement AM IF et HF/ Indicateur de nivea de signal

Instruments: Générateur de signal AM (400Hz 30! modulé) AC VTVM et Oscilloscope.

ALIGNEMENT AM IF (AM/FM, SW/MW/LW/FM)

Point	Générateur		Ecran d'accord	Réglage	Réglage pour
	Couplage	Fréquence			
1	Brouche No. 5 (Sur IF plaquette par l'intermédiaire dún condensateur de 0.01 mfd.	455KHz	Non interférence a l'ex trémité de l'échelle	L203, **L204** (sur la plaquette IF)	Lecture maximum sur le voltmètre électronique AC VTVM.

Alignement MW RF (AM/FM, SW/MW/LW/FM)

Point	Générateur		Ecran d'accord	Réglage	Réglage pour
	Couplage	Fréquence			
1	Boucle de mesure Envoyée le signal sur ferrite à boucle	600KHz	600KHz	L201 (OSC) et L001 (ANT) Côté de ligne de connexion	Lecture maximum sur AC VTVM.
2		1400KHz	1400KHz	CT5 (OSC) et CT4 (ANT)	

Alignement LW RF (SW/MW/LW/FM senlement)

Point	Générateur		Ecran d'accord	Réglage	Réglage pour
	Couplage	Freqúence			
1	Boucle de mesure Envoyée le signal sur ferribe à boucle	160KHz	160KHz	**L202** (OSC) et L001 (ANT) contre le côté de ligne de connexion	Lecture maximum sur AC VTVM.
2		330KHz	330KHz	**CT7** (OSC) et **CT6** (ANT)	

Alignement SW RF (SW/MW/LW/FM senlement)

Point	Générateur		Ecran d'accord	Réglage	Réglage pour
	Couplage	Fréquence			
1	Borne d'antenne	4MHz	4MHz	**L202** (OSC) et **CT7** (ANT)	Lecture Maximum sur AC VTVM.
2		12MHz	12MHz	L206 (ANT) et **CT6** (ANT)	

Alignement FM IF et HF/ Indicateur de force du signal

Instruments: (400Hz, 100% modulé) Analyseur H.D., Oscilloscope, AC VTVM et Compteur de syntonisation.

Point	Générateur		Ecran d'accord	Réglage	Réglage pour
	Couplage	Fréquence			
1	Borne d'antenne	90MHz	90MHz	**L109** (OSC)	Lecture maximum
2		106MHz	106MHz	CT3 (OSC)	sur AC VTVA
3	Répéter les points 1 et 2 jusqu'ancun perfectionnement est marqué.				
4	Borne d'antenne	90MHz	90MHz	L101, L102, L103 et L104 (RF)	Lecture maximum sur AC VTVM.
5		106MHz	106MHz	CT1 (ANT) et CT2 (RF)	
6		98MHz	98MHz	**L101** **L102**	
7	Répéter les points 4 et 5 jusqu'avcun perfectionnement est marqui				
8	Borne d'antenne 1mV absorbée	98MHz	98MHz	**L107** (Nogan bas)	Lecture maximum sur AC VTVM.
9			non interférence	**L107** (Nogan bas)	

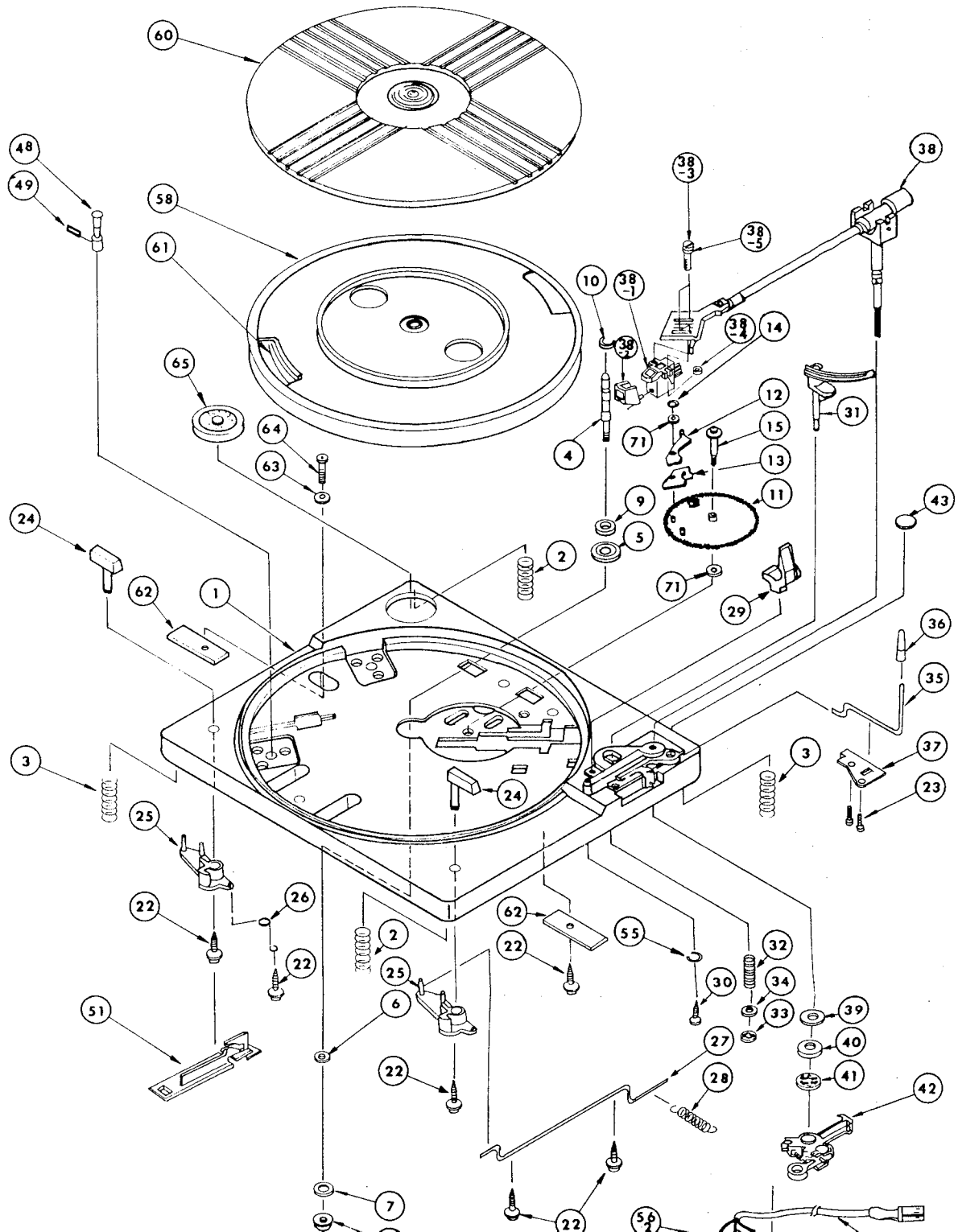
Alignement FM MPX

Instruments: FM stéréo Générateur, AC VTVM et Oscilloscope.

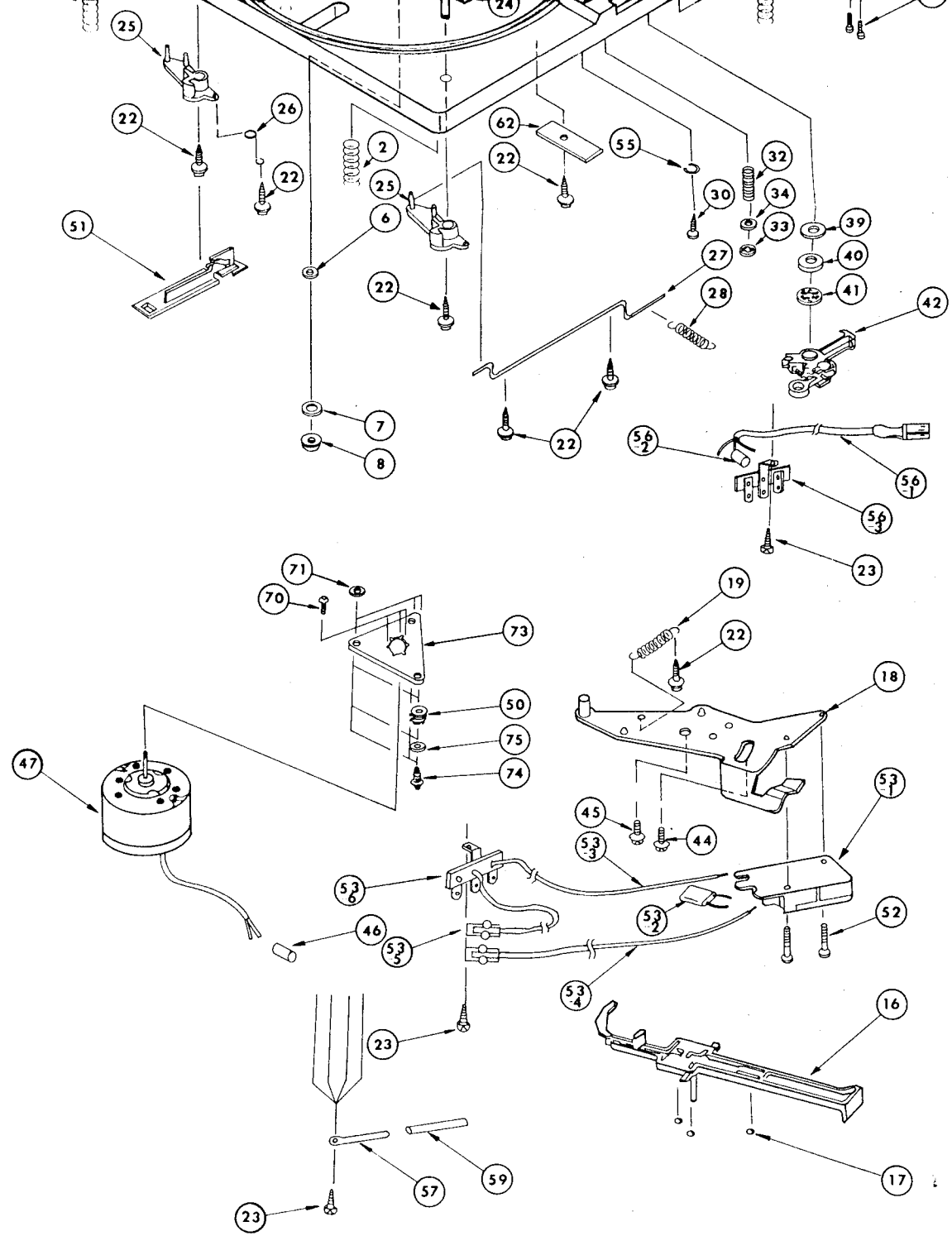
Point	Générateur		Esran d'accord	Réglage	Réglage pour
	Couplage	Fréquence			
1	Borne d'antenne	98MHz lampe témoin 10% 1 KHz 90! Mod.	98MHz	VR301	Indicateur stéréo allume
2				VR302	Séparation la plus meilleure
3	Eraminer l'indicateur stéréo peut être opéré normalement lorsque le signal de lampe témoin est véduite de 10% à 6%				

PLAYER Disassembly Diagram/Spieler Demonpage
Schaltschema/Joueur Démonpage Schéma

Key No.	Parts No.	Description
1	099848182-6	Mold Board
2	099897769-0	Fixing Spring
3	099897769-1	Fixing Spring
4	099896755-1	T.T. Axis
5	099896756	T.T. Retainer
6	071W4 x 10 x 1Z	Flat Washer 4¢ x 10¢ x 1t
7	072SW4	Spring Washer
8	071ELN4Z	Nut with Washer M4
9	099704671-1	Spacer 7.1¢ x 10¢ x 0.5t
10	0995103-25-7.9	E Type Ring
11	099895248	R Gear Ass'y
12	099894901	Clutch Board
13	099894902	Clutch Guide
14	071CS3	CS Ring 3¢
15	099899724	Fixing Screw
16	099872991	Return Control Arm
17	019STEELBALL4	Steel Ball 4¢
18	099895654-2	Operation Board Ass'y
19	099891438-2	Selector Arm Spring
20	071W3 x 13 x 0.8N	Flat Washer 3¢ x 13¢ x 0.8t
21	071W3 x 10 x 0.8N	Flat Washer 3¢ x 10¢ x 0.8t
22	071C-4029#2	TP Screw T+3 x 8
23	071NBBT3 x 8Z	Screw BT+3 x 8
24	099910716	Speed Selector Ass'y
25	099910664	Speed Selector Arm
26	099898807	Click Spring
27	099910666	Reject Spring
28	099893566	Cam Spring
29	099910551	Arm Rest Ass'y
30	071NBBT3 x 20Z	Screw BT+3 x 20
31	099910665	Elevation Plate
32	099892084	Button Spring
33	071CS4	CS Ring 4¢
34	071W4 x 10 x 1Z	Flat Washer 4¢ x 10¢ x 1t
35	099910552	Culing Lever
36	099896456	Lifter Lever Cap
37	099896767	PU Base Plate
38	099852850	Tone Arm Ass'y
39	071W10 x 22 x 0.6Z	Flat Washer 10¢ x 22¢ x 0.6t
40	099899399-2	Gum Washer
41	071CS10	CS Ring 10¢
42	099910950	Return Arm Ass'y
43	099896446	Cue Plate
44	099Y10300805	TP Screw B+3 x 8
45	099912290	TP Screw
46	099U06300141	Varnish Tube
47	099705456	Motor Ass'y
48	099705480-3	Pulley
49	0711M02.6 x 2N	Screw T-2.6 x 2
50	099E242020	Anti-Vibration Rubber
51	099910667	Belt Guide
52	071NB2.6 x 14Z	Screw FM+2.6 x 14
53-1	099870270	Micro Switch
53-2	042P50V473J	Condenser
53-3	099894019-5	Lead Wire Ass'y



36	099896456	Lifter Lever Cap
37	099896767	PU Base Plate
38	099852850	Tone Arm Ass'y
39	071W10 x 22 x 0.6Z	Flat Washer 10¢ x 22¢ x 0.6t
40	099899399-2	Gum Washer
41	071CS10	CS Ring 10¢
42	099910950	Return Arm Ass'y
43	099896446	Cue Plate
44	099Y10300805	TP Screw B+3 x 8
45	099912290	TP Screw
46	099U06300141	Varnish Tube
47	099705456	Motor Ass'y
48	099705480-3	Pulley
49	0711M02.6 x 2N	Screw T-2.6 x 2
50	099E242020	Anti-Vibration Rubber
51	099910667	Belt Guide
52	071NB2.6 x 14Z	Screw FM+2.6 x 14
53-1	099870270	Micro Switch
53-2	042P50V473J	Condenser
53-3	099894019-5	Lead Wire Ass'y
53-4	099897757-6	Power Terminal Ass'y
53-5	099897757-5	Power Terminal Ass'y
53-6	099D10002-31	3P Lug Terminal Ass'y
	099913055	Switch Ass'y
54	071NBBT3 x 8Z	Screw BT+3 x 8
55	071SW3	Spring Washer
56-1	099910598	Shield Connector Ass'y
56-2	099U06300141	Varnish Tube
56-3	099D10002-31	3P Lug Terminal Board
	099910620	Shield Wire Ass'y
57	099888750	Wire Spacer
58	099852346	Turntable
59	083ULTUBE2 x 35	UL Tube
60	099852347	T.T. Sheet
61	099700515B	Belt
62	099896777-2	Stopper
63	071W4 x 10 x 1Z	Flat Washer 4¢ x 10¢ x 1t
64	071NB4 x 14Z	Screw FM+4 x 16
65	099890876	EP Adaptor
70	071NB2.6 x 4Z	Screw FM+2.6 x 4
71	071W3 x 8 x 0.5Z	Flat Washer 3¢ x 8¢ x 0.5t
73	099910668	Motor Support
74	099893057-5	Fixing Screw
75	071W4.7 x 12 x 0.5Z	Flat Washer 4.7¢ x 12¢ x 0.5t
38-1	092MM81F3	Cartridge
38-2	092MM81F3S	Stylet Tip
38-3	071CART2.6 x 10	Cartridge Fixing Screw
38-4	071CARTN2.6	Cartridge Fixing Nut
38-5	071NW2.6 x 5 x 0.5	Cartridge Fixing Washer



Repair Parts List/Reparaturteilliste/ Liste des pièces de rechange

Schematic Location	Parts No.	Description
TRANSISTORS, DIODES AND IC'S		
Q101	0322SK195-EF	2SK195 (E,F), FM RF Amp.
Q102	032LC1674-KL	LC1674 (K,L), FM OSC
Q103	032LC1674-KL	LC1674 (K,L), FM MIX
Q104	032LC1675-KL	LC1675 (K,L), FM IF Amp.
Q201	032LC1675-KL	LC1675 (K,L), MW OSC
Q202	032LC1675-KL	LC1675 (K,L), LW/SW OSC
Q203	0332SC2274-EF	2SC2274 (E,F), for Mute
Q204, 205	032LC945-PK	LC945 (K,P), for Mute
Q031,302	032LC945-PK	LC945 (K,P), Audio Amp.
Q501-504	0332SC1570-EF	2SC1570 (E,F), Flat, Tone Amp.
Q601-605 602-606	0332SC1570-EG	2SC1570 (E,G), MIC/REC Amp.
Q801-804	032LC945-PK	LC945 (K,P), for Mute
Q805	0332SD600K-EF	2SD600K (E,F), OSC
Q901	0332SD313-ED	2SD313 (E,D), Stabilizer
Q1001-1003	032LC945-PK	LC945 (K,P), Signal Ind. Driver
D101,102	0341N60P	1N60P, FM AGC Detector
D201,202	0341N60P	1N60P, Switching Rectifier
D501-504	0341N4148	1N4148, Bias Compensator
D601,602	0341N4148	1N4148, Reversal Prevention
D801,802	034UZ-3.6B	UZ-3.6B, Reversal Prevention 3.6V ½W
D803	0341N4148	1N4148, Reversal Prevention
D901	034KBL-02	KBL-02, Rectifier
D902,903	034W-02	W-02, Rectifier
D904	034HZ30-3	HZ30-3, Zener Regulator, 30V ½W
D905	034LN25RP	LN25RP, Dial Pointer Ind.
D1001-1004	034C-3953	SEL9511M02, STEREO and Signal Level Ind. (G/RRR)
D1102-2208 1121	034C-3944	SEL9711M02, REC and REC Level Ind. (R//GGGG)
D1101-1107 1122	034C-3942	SEL9711G01, DOLBY NR and REC Level Ind. (G//GGGG)

Schematic Location	Parts No.	Description
D1110 1111-1119	034C-3943	SEL9711M01, REC Level Ind. (GGRRRR/)
D1109 1112-1120	034C-3943	SEL9711M01, REC Level Ind. (GGRRRR/)
IC101	031HA12413	HA-12413, IF Amp. (FM/MW/LW/SW)
IC301	031HA12026	HA-12026, MPX Decorder
IC401,402	031UPC1024H	UPC-1024H, Phone Amp.
IC501	031STK461	STK-461, Power Amp.
IC601,602	031LM1111B	LM-1111B, REC/PB Amp.
IC701	031TA7666P	TA-7666P, LED Driver
IC702	031TA7667P	TA-7667P, LED Driver
COILS AND VARIABLE RESISTORS		
L001	021TRL-192	MW/LW Ant.
	021TRL-227	MW/SW ANt.
L101	021RL-140	RL-140, FM Ant. Coil
L102-104	021RL-141	RL-141, FM RF Coil
L105	021TRL-239	2.2uH, FM IF Trap Coil
L106	021RL-128	RL-128, FM IFT
L107	021TRL-172A	TRL-172A, FM IFT Quadrature Detector
L109	021TRL-189	TRL-189, FM OSC Coil
L201	021TRL-193	TRL-193, MW OCS Coil
L202	021TRL-96T	RL-96T, LW OSC Coil
L203	021TRL-196	TRL-196, AM IFT
L204	021TRL-207	TRL-207, AM IFT
L205	021RL-97	2mH, LW/SW Filter
L206	021TRL-144	TRL-144, SW OSC Coil
L501,502	021RL-41	RL-41, Anti-Parasitic Coil
L601,602	021TRL-195	TRL-195, 85KHz, Trap Coil
L603,604	021TRL-164	TRL-164, Filter
L605,606	023TRL-161	12mH, Peaking Coil
L607,608	023TRL-153	6.8mH, Peaking Coil
L609,610	023TRL-147	8.2mH, Peaking Coil
L801	021TRL-202	TRL-202, OSC
VR201	0518-1-401-10K	10KB, Muting Adj.
VR301	0518-1-401-10K	10KB, VCO Adj.
VR302	0518-1-401-10K	10KB, Separation Adj.

Schematic Location	Parts No.	Description
VR501	0514TR-1387	250KW x 1, BALANCE Control
VR502,503	0514TR-685	50KB x 2, BASS/TREBLE Control
VR504,505	0518-1-401-20K	20KB, Bias Adj.
VR601,602	0518-1-401-50K	50KB, PB Level Adj.
VR603,604	0518-1-401-20K	20KB, REC Level Adj.
VR605	0514TR-1505	50KA x 2, REC Level Control
VR801,802	0518-1-401-10K	10KB, REC Level Ind. Adj.
VR803,804	0518-1-401-100K	100KB, Bias Adj.

SWITCHES AND OTHERS

S1,2,3,4,5	0614TR-1509A	Switch, Push-5Key, FM/AM (MW)/ AUX (LW) (SW)/PHONO/TAPE MONITOR
S6,7	0614TR-1469	Switch, Push-2Key, LOUDNESS/ MUTE OFF/MONO
S8	061C-3206	Power Switch (for UL, CSA)
	061C-3600A	Power Switch (for BEAB. . . .)
S9	0614TR-1575	Switch, Push-2Key, SPEAKERS A.B
S10-13 17	0614TR-1510A	Switch, Push-5Key, DOLBY NR/ NORMAL/SPECIAL/METAL/ METER
S15	0614TR-1205	Switch, Slide, REC/PB
S16	061SS-13-8	6P Slide Switch, BEAT CANCELER
T001	022TT-158-AF	Power Transformer (TT-158-AF)
	022TT-158-GF	Power Transformer (TT-158-GF)
	022TT-158-EF	Power Transformer (TT-158-EF)
F501,502	036ASG3-250V2A	Fuse, 2A, Speaker Protector (Long Size UL)
	036L250V2A	Fuse, 2A, Speaker Protector (Long Size)
	036M2A	Fuse, 2A, Speaker Protector (Mini Size)
	036(S)F2A	Fuse, F2A, Speaker Protector (Mini Size "S" "D" mark)
F901,902	036ASG3-250V4A	Fuse, 4A, AC Circuit Protector (Long Size UL)
	036L250V4A	Fuse, 4A, AC Circuit Protector (Long Size)
	036M4A	Fuse, 4A, AC Circuit Protector (Mini Size)
	036(S)F4A	Fuse, F4A, AC Circuit Protector (Mini Size "S" "D" mark)
F903	036ASG3-250V0.5A	Fuse, 0.5A, AC Circuit Protector (Long Size UL)
	036L250V0.5A	Fuse, 0.5A, AC Circuit Protector (Long Size)
	036M500mA	Fuse, 500mA, AC Circuit Protector (Mini Size)
	036(S)F500mA	Fuse, F500mA, AC Circuit Protector (Mini Size "S" "D" mark)
F905	036ASG3-250V1A	Fuse, 1A, AC Circuit Protector (Long Size UL)
	036L250V1A	Fuse, 1A, AC Circuit Protector (Long Size)
	036M1A	Fuse, 1A, AC Circuit Protector (Mini Size)
	036(S)F1A	Fuse, F1A, AC Circuit Protector (Mini Size "S" "D" mark)

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ROTEL ELECTRONICS CO., LTD.
ROTEL OF AMERICA, INC.
ROTEL HI FI LIMITED.

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