

SERVICE MANUAL

HI-FI CASSETTE DECK

MDS 440

I. TECHNICAL SPECIFICATION

Tape speed: 4.76 cm/s

Tape speed deviation: ±1.5%

Wow and flutter: ±0.15%

Frequency response:

Fe₂O₃ tape 30÷15000 Hz

CrO₂ tape 30÷16000 Hz

METAL tape 30÷16000 Hz

Signal to noise ratio (Dolby C NR* on, with filter made in acc. with CCIR/ARM): 72 dB

Input sensitivity:

LINE 100 mV

MICRO 0.6 mV

Output voltage:

LINE 600 mV

HEADPHONES 580 mV/400 Ω

Power consumption: 25 VA

Power supply: 220 V — 50 Hz

Dimensions: 440×90×260 mm

Weight: 6 kg

* Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation. „Dolby” and the double D symbol are trade marks of Dolby Laboratories Licensing Corporation.

II. LIST OF ELECTRICAL PARTS

MAIN P.C. BOARD 4573-559-1 (2217-563-1)

Diodes

D109, 110, 113, 114,

208, 209, 210, 211,

212, 213, 214, 215,

217 BAYP-94

D201, 202, 203, 204,

205, 206, 207 BAYP-94A

D101, 102, 103, 104,

105, 106, 107, 108 BYP-401/100

D111 BZP-683 C12

D112L, 112P BAP-812

Transistors

T205, 214 BC-237

T201, 203, 209, 210,

211, 212, 215,

103L, 103P BC-238

T101, 206, 219 BC-307

T102, 104L, 104P,

204, 218 BD-135

T202, 208, 213, 217 BD-136 gr. 16

T207 BD-135 gr. 16

T212 BC-238B

Integrated Circuits

IC101 MA-7824

IC102 UL-7505

IC201, 202, 203 UCY-7474

IC204 UCY-7400

Resistors

R101, 105 RWW-0309-0-10Ω±10%

R119L, 119P RWW-0207-0-68Ω±10%

R209, 244 RWW-0207-0-82Ω±10%

R115L, 115P RWW-0207-0-100Ω±10%

R215, 230, 231, 243,

245, 246, 247 RWW-0207-0-180Ω±10%

R118L, 118P RMB-0.5W-330Ω±10%

R214, 229 RWW-0207-0-560Ω±10%

R103, 106, 107,

113L, 113P,

202÷207, 211, 216,

217, 222, 233, 237,

241, 242 RWW-0207-0-1kΩ±10%

R109, 201 RWW-0207-0-2.2kΩ±10%

R212, 218, 219,

223, 225, 231,

232, 235, 240 RWW-0207-0-3,3kΩ±10%

R102, 104, 121P,

121L, 123L, 123P,

213, 221, 224, 228 RWW-0207-0-4.7kΩ±10%

R108 RWW-0207-0-5.1kΩ±10%

R114L, 114P, 220,

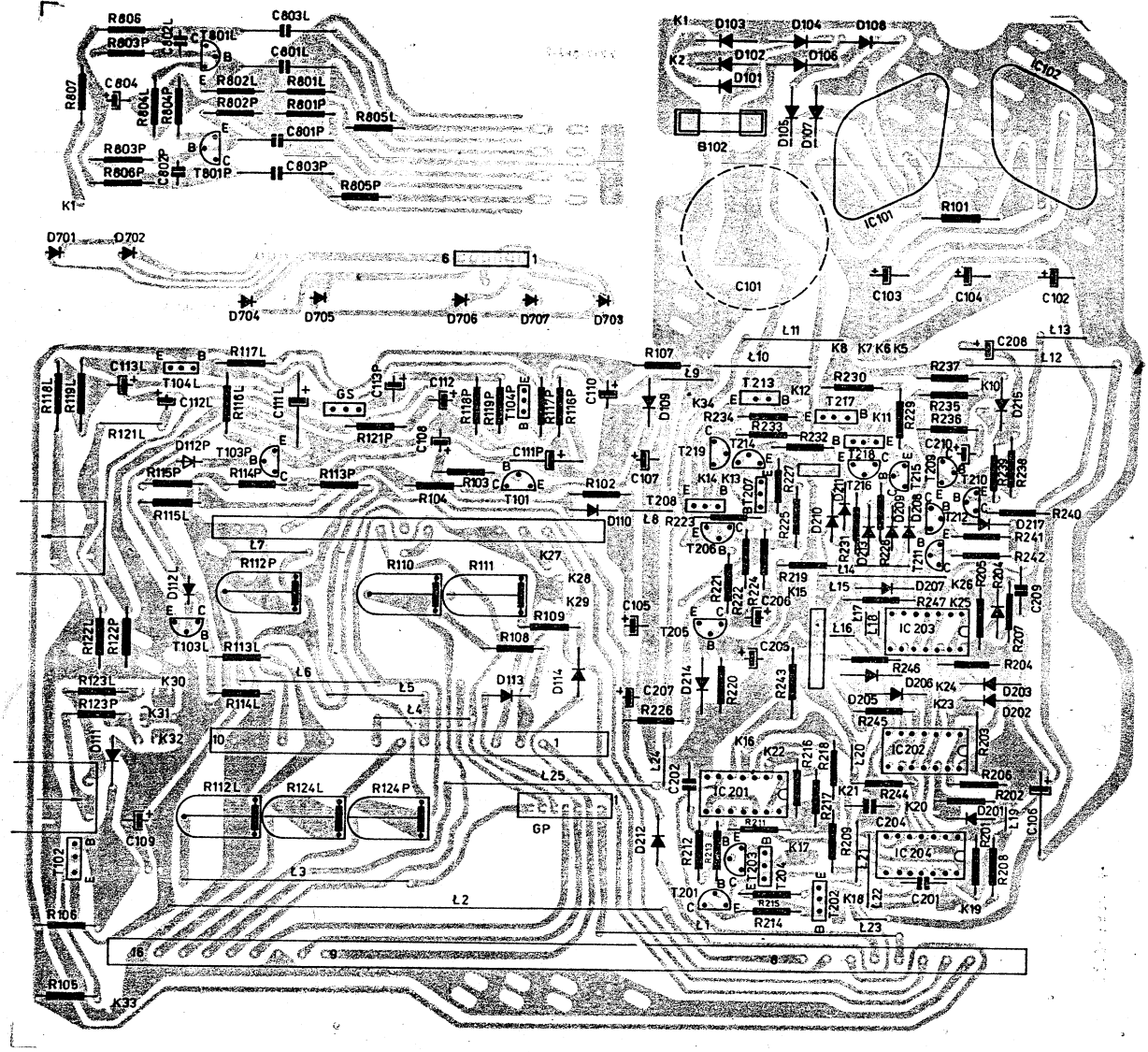
227 RWW-0207-0-10kΩ±10%

R117L, 117P, 236 RWW-0207-0-22kΩ±10%

R226, 238 RWW-0207-0-33kΩ±10%

R239 RWW-0207-0-39kΩ±10%

R122L, 122P RWW-0207-0-47kΩ±10%

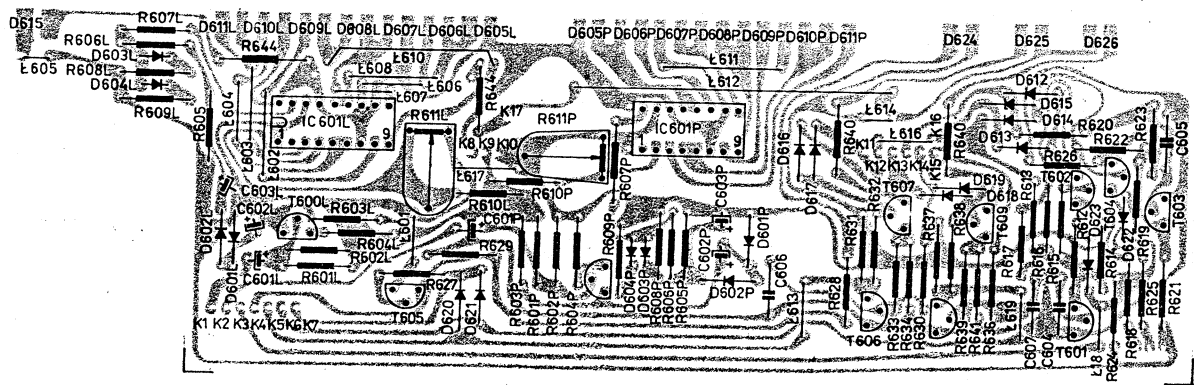


MAIN P.C.B. 4573-559-1 (2217-563-1).

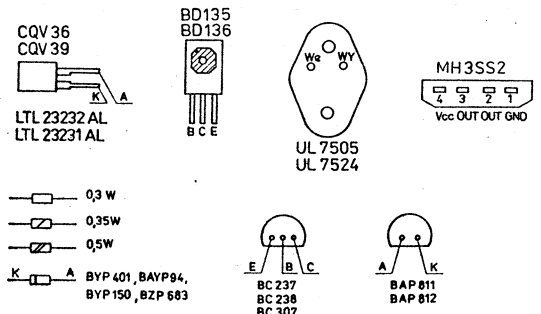
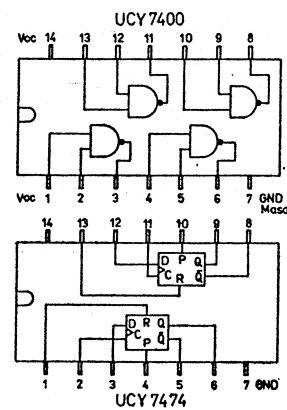
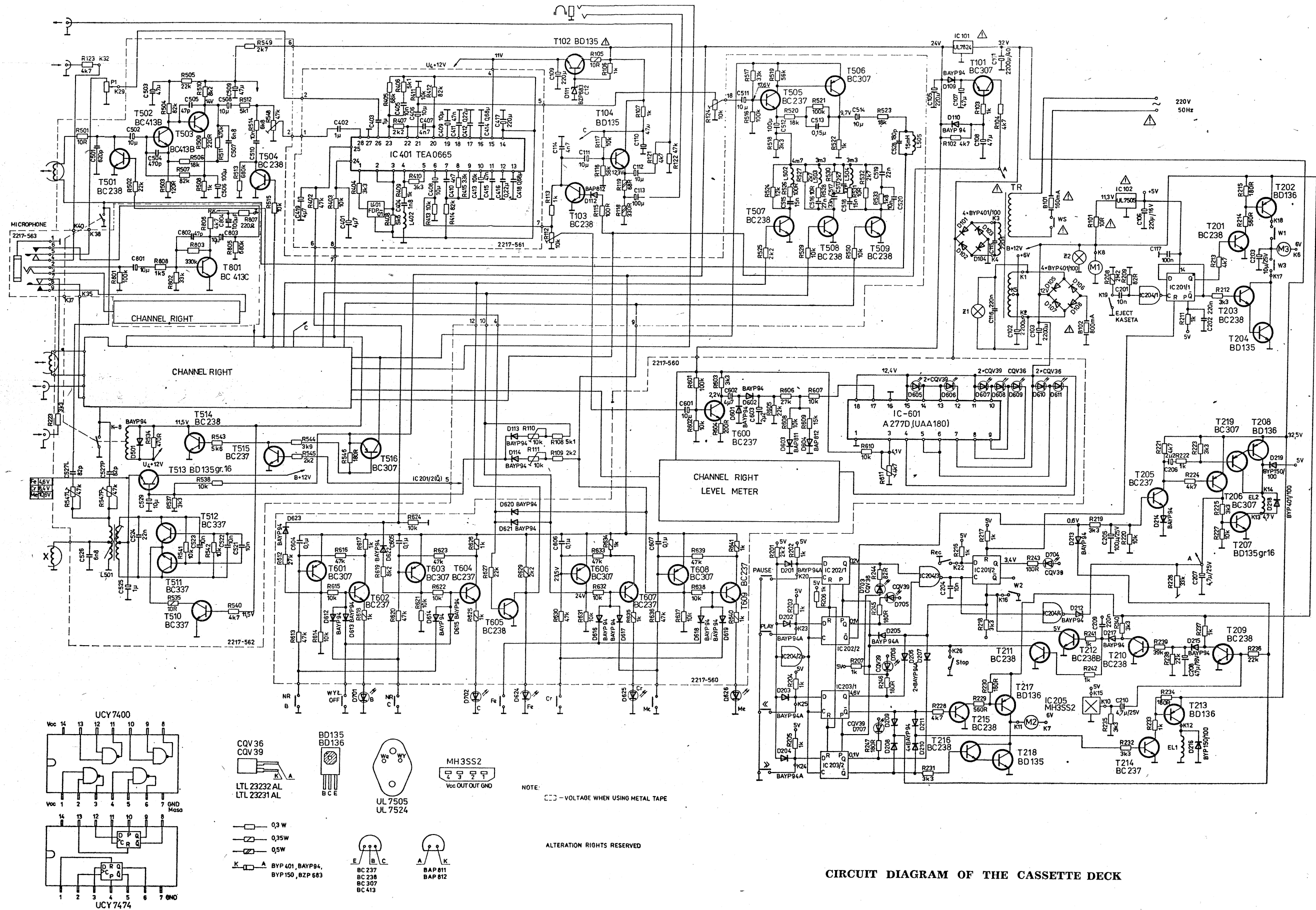
MICROPHONE AMPLIFIER P.C.B. 4573-577-1 (2217-563-2).

INDICATORS P.C.B. 4573-560-1 (2217-563-3).

Top view (elements side).



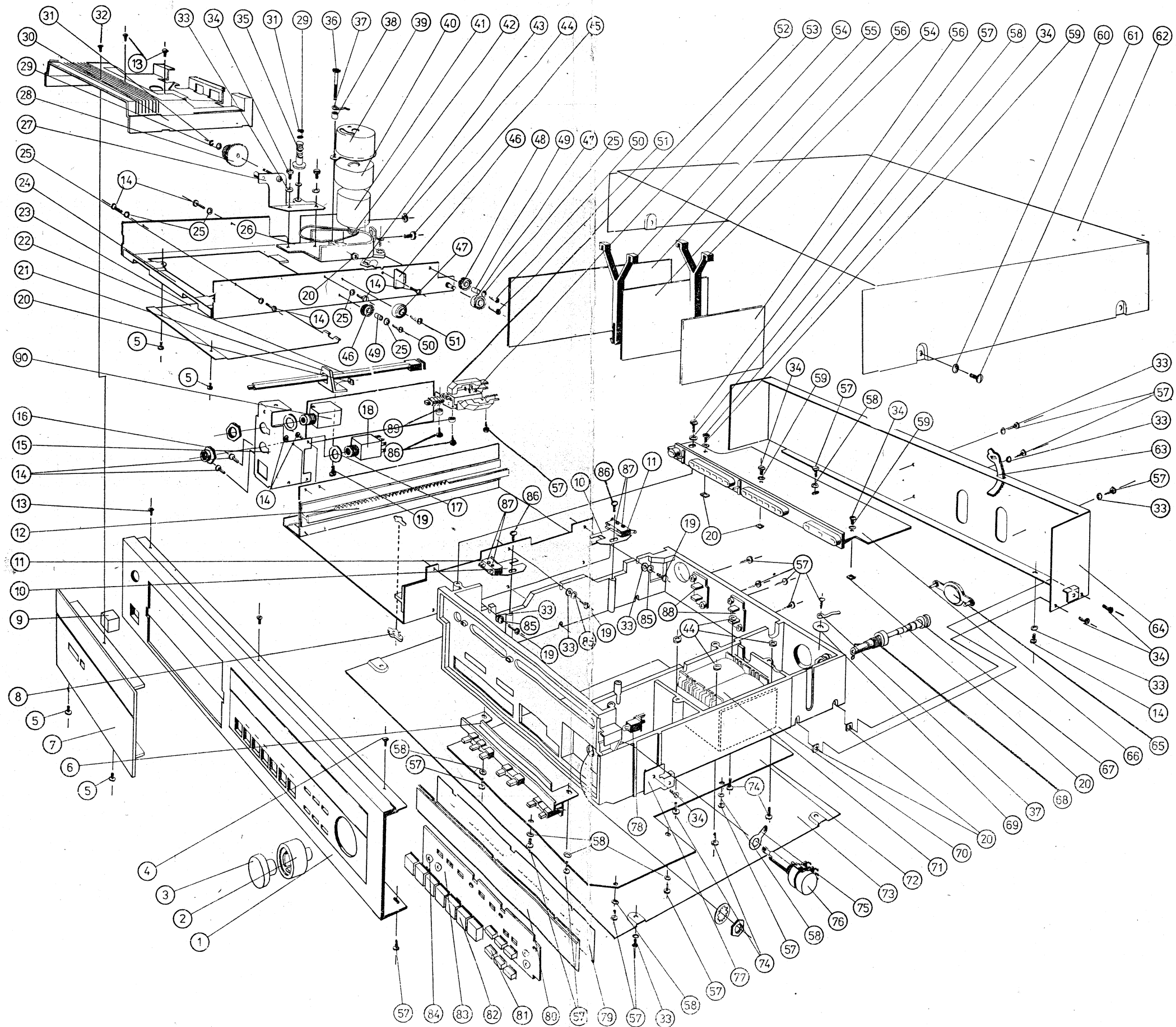
TUNING AND ELECTRONIC SWITCHES P.C.B. 4573-556-1
(2217-560-1). Top view (elements side).



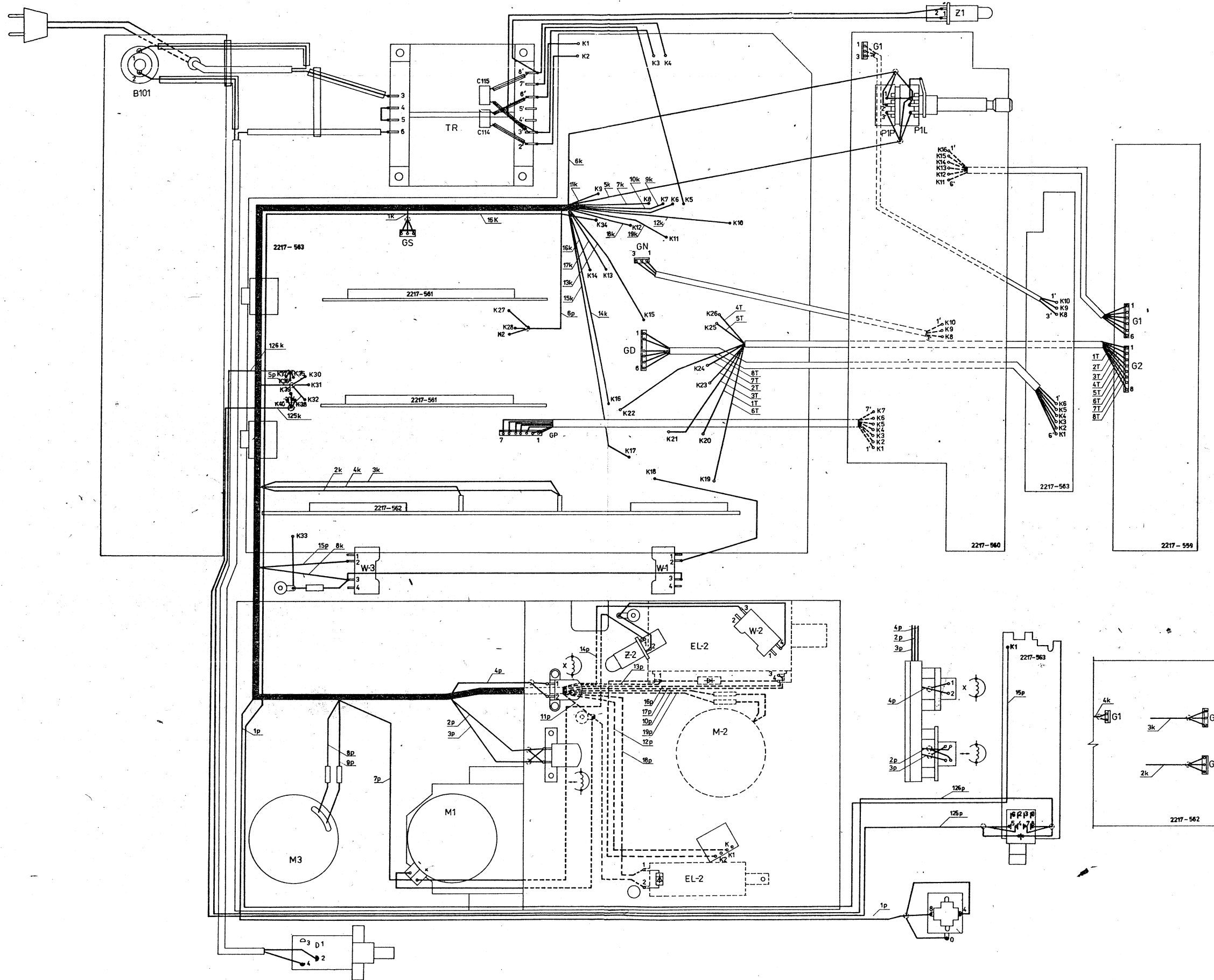
NOTE: □ - VOLTAGE WHEN USING METAL TAPE

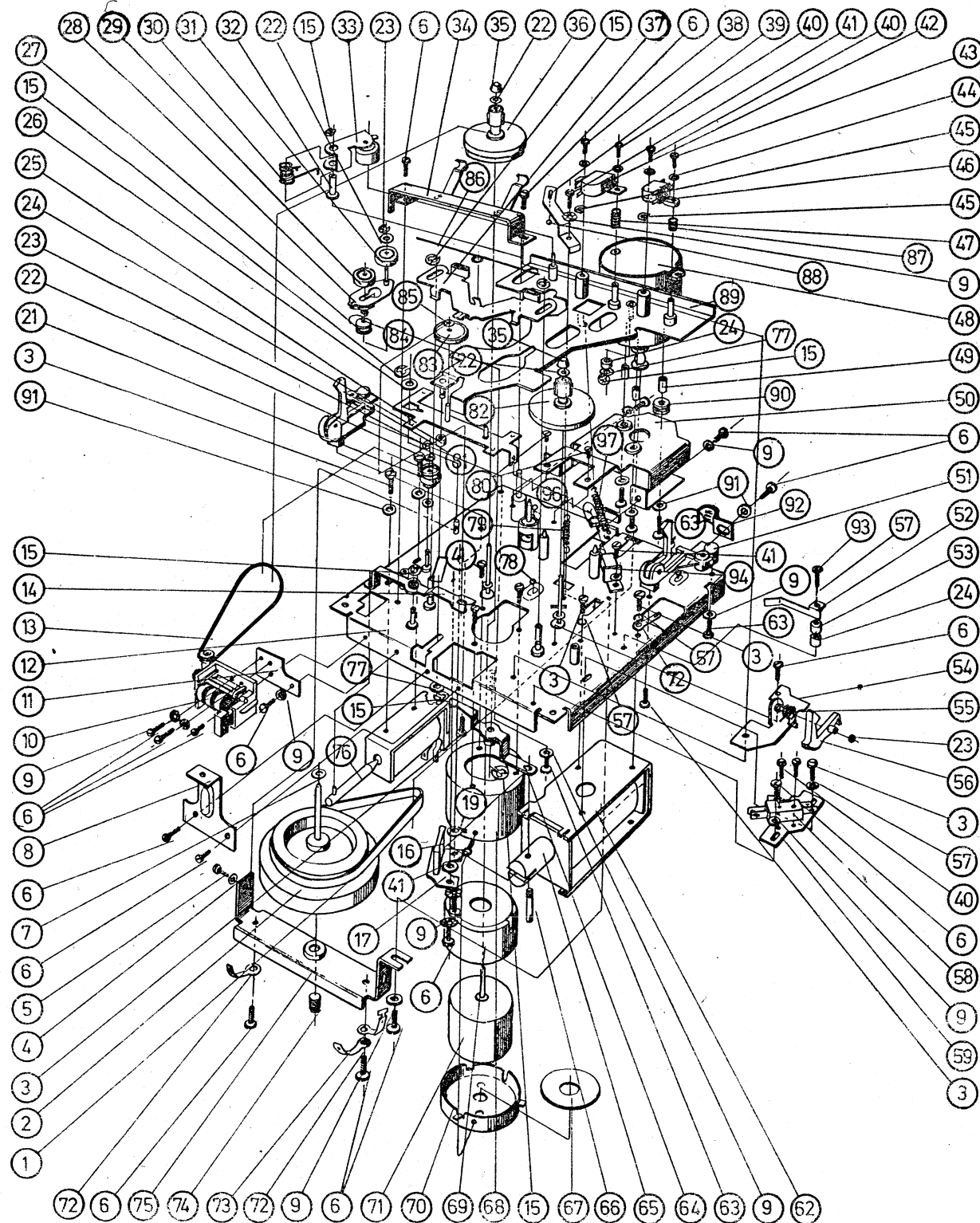
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CIRCUIT DIAGRAM OF THE CASSETTE DECK



EXPLODED VIEW OF THE CASSETTE DECK





EXPLODED VIEW OF THE TAPE DRIVING MECHANISM MMS-105a

III. MECHANICAL PART OF THE TAPE DRIVING MECHANISM MMS-105a

NO	Description of Parts or Component	Part NO. or Standard NO.	NO	Description of Parts or Component	Part NO. or Standard NO.
1	Belt	2855-067-1	49	Sleeve	1867-324-1
2	Flywheel	4739-069-1	50	Support	2633-205-1
3	Screw M3×5-4.8-B	PN-85/M-82215	51	Support	3771-172-1
4	Washer	1631-129-2	52	Break	3771-115-1
5	Screw M2.5×5-4.8-A-R1	PN-85/M-82215	53	Spacer	2632-202-2
6	Screw M2.5×5-4.8-A-Z2	PN-85/M-82215	54	Support	3771-170-1
7	Washer	1660-272-2	55	Spring	2559-137-2
8	Support	2633-208-1	56	Lever	2621-753-1
9	Washer	1631-129-1	57	Spring washer 3.1	PN-77/M-82008
10	Counter LMK 951.005.100	ZN-80/MERA-004/042	58	Microswitch 831 32-54 AR14.75	WTO-73/A18-509
11	Plate	2711-476-1	59	Support	2633-145-1
12	Plate	4776-022-1	62	Electromagnet	4342-343-2
13	Belt	2855-071-1	63	Screw M2.5×8-4.8-I	PN-74/M-82227
14	Break lever	3771-107-1	64	Main Lever	3771-1
15	Clamp	1810-019-1	65	Core	2369-025-1
16	Hall unit MH3SS2	--	66	Screw	1189-023-1
17	Plate	2217-576-1	67	Washer	1660-211-6
18	—	—	68	Screen	2256-300-1
19	Washer A/PcFK/3.2/8	ZN-62/T6-4007	69	Shock absorber	2855-059-1
21	Wheel with magnet	3771-174-1	70	Screen	2256-299-1
22	Washer	1660-272-1	71	Motor PRM 33-1.8LD	WTO-78/M12-059A
23	Cotter pin	1441-022-1	72	Solder terminal	2263-011-2
24	Sleeve	1867-321-1	73	Plate	1656-069-1
25	Lever	3771-172-1	74	Screw	1189-020-1
26	Washer	1660-018-2	75	Support	3771-204-1
27	Bearing	2581-005-1	76	Core	3771-098-2
28	Lever	3771-101-1	77	Washer	1660-215-1
29	FAST-FORWARD/REWIND wheel	3771-093-2	78	Ball 3.175 II	PN-75/M-86452
30	Spring	2561-171-1	79	Spring	2561-120-1
31	FAST-FORWARD/REWIND wheel	3771-093-1	80	Screw M2.5×6-4.8-A	PN-85/M-82207
32	Sleeve	1867-346-1	81	Support	3771-172-2
33	Lever	4776-020-1	82	Plate	3741-054-1
34	Support	3771-171-1	83	Idle gear	3771-092-1
35	Cap	2621-665-1	84	Spring	2569-071-1
36	Plate with clutch	4734-005-3	85	Washer	1660-287-1
37	Break	3771-105-1	86	Spring	2561-144-1
38	Screw M2×5-4.8-A	PN-85/M-82215	87	Spring	2561-175-1
39	Spring	2559-121-1	88	Ball 2.5-II	PN-75/M-86452
40	Screw M2×8-4.8-A	PN-85/M-82215	89	Slide	3771-161-1
41	Screw M2.5×4-4.8-A	PN-85/M-82215	90	Seal wire	2855-014-3
42	RECORD/PLAYBACK head 775-10-01	1153-410-197	91	Washer 3.2/8A	ZN-62/T6-4006
43	Screw M2×10-4.3-A	PN-85/M-82215	92	Grip	2681-013-1
44	Washer 2.2	PN-78/M-82007	93	Screw M3×12-4.8-B	PN-85/M-82215
45	Washer	1656-064-4/3/2/1	94	Bulb holder	4567-027-1
46	Erase head 86-10	5533-574-2	96	Bulb type R5÷12V/30mA	WT-77/144/P3/01
47	Spring	2561-145-1	97	Spring	2561-112-3
48	Motor with wheel	4612-006-3			

IV. LIST OF MECHANICAL PARTS OF THE CASSETTE DECK

NO	or Component Description of Parts	Part NO. or Standard NO.
1	Front panel	4771-247-31
2	Knob	4791-177-3
3	Knob	4791-178-3
4	Screw 2.5×10-R-K	PN-72/M-82503
5	Screw M2.5×5-4.8-A	PN-85/M-82215
6	Indicators P.C. Board	4573-560-1
7	Front panel of the cassette tray	4771-246-31
8	Spacer	2621-926-1
9	Push-button	2621-724-9
10	Plate	2711-480-1
11	Microswitch 83133-54A R14.75	WTO-73/A13-509
12	Guiding frame	4771-230-1
13	Screw M2.5×6-4.8-A	PN-85/M-82207
14	Screw M3×5-4.8-B	PN-85/M-82215
15	Support	3771-214-1
17	Washer	1660-330-1
18	Headphone socket GSMJ-5A.1	ZN/MHiPM-14/ T-153-001 ark. 08
19	Screw M3×8-4.8-B	PN-85/M-82215
20	Screw nut N-M3-04	PN-75/M-82151
21	Cord holder	2621-858-1
22	Slide	2621-849-1
23	Shield	2775-084-1
24	Shield	3771-209-1
25	Spring washer 3.1	PN-77/M-82008
26	Support	2621-846-1
27	Support	3771-203-1
28	Clutch	4734-006-1
29	Washer	1660-272-1
30	Insert	3771-217-3
31	Split pin	1441-022-1
32	Screw M2.5×10-4.8-A	PN-85/M-82207
33	Washer 3.2/8A	ZN-62/T6-4006
34	Screw M3×8-4.8-B	PN-85/M-82215
35	Driving worm	3771-212-1
38	Spacer washer	1867-335-1
37	Washer	1660-309-1
38	Spacer washer	1867-335-1
39	Shield	2633-108-1
40	Shock absorber	2855-059-1
41	Motor with wheel	4611-002-1
42	Belt	2855-072-1
43	Grip	2681-013-1
44	Screw nut M4-5-II	PN-75/M-82144
45	Screw M4×16-4.8-B	PN-85/M-82207

NO	Description of Parts or Component	Part NO. or Standard NO.
46	Tray movement limiter	2621-900-1
47	Bearing 625	PN-79/M-86100
48	Spacer washer	1867-357-1
49	Spacer washer	1867-324-1
50	Screw M3×10-4.8-B	PN-85/M-82215
51	Screw M3×5-4.8-B	PN-85/M-82215
52	Shield	2775-065-1
53	Mains switch 1×FOKN.NE-16/2a EE	—
54	Cord holder	2621-983-1
55	Play and Record Amplifier P.C. Board	4573-558-1
56	Noise Reduction P.C. Board	4573-557-1
57	Screw AGb2.9×9.5	PN-79/M-83106
58	Washer A/PcFK/3.2/7	ZN-62/T6-4007
59	Washer A/PcFK/3.2/8	ZN-62/T6-4007
60	Washer	1660-305-1
61	Screw M3×6	PN-82/M-82280
62	Cabinet	2781-633-3
63	Strip fastener	2621-247-1
64	Rear panel	3771-282-1
65	Insert	2621-895-1
66	Tuning and Electronic Switches P.C.B.	4573-556-1
67	Fuse holder 19601	—
68	Fuse socket 19602	—
69	Washer 3.2/18A	ZN-62/T6-4006
70	Frame	2621-898-1
71	Power transformer TS 40/78	WT/D-4247-0443-01
72	Main P.C. Board	4573-559-1
73	Bottom cover	2787-355-2
74	Screw M4×12-4.8-B	PN-85/M-82207
75	Solder terminal 73-912-01	—
76	Potentiometer PR18D-2×47kΩ B-25 P6	WT-74/L-7/152
77	Support	2633-202-2
78	Bulb holder	4567-027-1
79	Screen	2633-262-1
80	Scale	2841-330-31
81	Push-button	2846-358-2
82	Push-button	2846-357-3
83	Membrane switches P.C. Board	4573-555-1
84	Membrane 2311-003-1	—
85	Washer 3.2	PN-82/M-82008
86	Screw AGb 2.9×13	PN-79/M-83106
87	Screw M2×8-4.8-A	PN-85/M-82215
88	Socket GW-2-1	ZN-81/MPM-14/ZES-088
90	Busche GSMJ-5A.1	ZN-85/MHiPM-14/ T-153-001 ark. 08

C525 04/U-1 μ F/63V
 C502L, 502P, 508L,
 508P, 511L, 511P,
 514L, 514P, 529 04/U-10 μ F/25V
 C503L, 503P, 509 04/U-47 μ F/25V
 C506L, 506P, 512L,
 512P 04/U-100 μ F/16V

Coils

L501 Coil 10 \times 10/101
 L503L, 503P,
 504L, 504P Choke DEp 10.12-334
 L502L, 502P Choke DEp 10.12-474
 L505L, 505P Choke DEp 10.12-155

Miscellaneous

— Relay K-8/2 \times 1-8-4441-402-3
 — Socket MG-8
 — Connector 3578-094-2
 — Connector 3578-094-1

TUNING AND ELEKTRONIC SWITCHES 4573-556-1 (2217-560-1)

odes

D609L, 609P, 610L,
 610P, 611L, 611P LTL 23232 AL
 D605L, 605P, 606L,
 606P, 607L, 607P,
 608L, 608P,
 624, 625, 626 LTL 23231 AL
 D601L, 601P, 602L,
 602P, 612, 613,
 614, 615, 616,
 617, 618, 619, 620,
 621, 622, 623 BAYP-94
 D603L, 603P BAP-811
 D604L, 604P BAP-812

Transistors

T600L, 600P, 602,
 604, 605, 607, 609 BC-237
 T601, 603, 606, 608 BC-307

Integrated Circuits

301L, 601P A-277D

Resistors

R604L, 604P RWW-0207-0-200 Ω \pm 10%
 R617, 618, 625, 626,
 628, 629, 634, 635,
 640, 641 RWW-0309-0-1k Ω \pm 10%
 R603L, 603P RWW-0207-0-3.3k Ω \pm 10%
 R619 RWW-0207-0-8.2k Ω \pm 10%
 R602L, 602P, 610L,
 610P, 614, 615,
 621, 622, 624, 631,
 632, 637, 638 RWW-0207-0-10k Ω \pm 10%
 R608L, 608P,
 607L, 607P RWW-0207-0-10k Ω \pm 5%
 R609L, 609P RWW-0207-0-15k Ω \pm 5%
 R605L, 605P RWW-0207-0-22k Ω \pm 5%
 R627 RWW-0207-0-22k Ω \pm 10%
 R606L, 606P RWW-0207-0-27k Ω \pm 5%
 R612 RWW-0207-0-27k Ω \pm 10%
 R613, 616, 620, 623,
 630, 633, 636, 639 RWW-0207-0-47k Ω \pm 10%
 R601L, 601P RWW-0207-0-100k Ω \pm 10%
 R611L, 611P Potentiometer TVP-1212-4.7k Ω (Semi-fixed)

Capacitors

C604, 605, 606, 607 MKSE-018-02-0.1 μ F \pm 10%-100V
 C603L, 603P 04/U-2.2 μ F-25V
 C602L, 602P 04/U-4.7 μ F-25V
 C601L, 601P 04/U-10 μ F-25V

Miscellaneous

— Connector 4569-061-1
 — Connector 4569-059-1
 — Connector 4569-060-1
 — Connector 4569-094-2

NOISE REDUCTION P.C. BOARD 4573-557-1 (2217-561-1)

Integrated Circuits

IC401 TEA 0665

Resistors

R409 RWW-0207-0-1k Ω \pm 5%
 R407 MFR-0.125W-2.21k Ω \pm 1%-TWR-100
 R404, 410 RWW-0207-0-3.3k Ω \pm 5%
 R406 MFR-0.125W-5.11k Ω \pm 1%-TWR-100
 R408 RWW-0207-0-5.6k Ω \pm 5%
 R411, 403, 413 RWW-0207-0-10k Ω \pm 5%
 R415 MFR-0.125W-33.2k Ω \pm 1%-TWR-100
 R402 RWW-0207-0-47k Ω \pm 5%
 R405, 406 RWW-0207-0-68k Ω \pm 5%
 R412, 414 MFR-0.125W-82.5k Ω \pm 1%-TWR-100

Capacitors

C404 KSF-020-1800pF \pm 10%-100V
 C407, 410 KSF-022-4700pF \pm 2%-63V
 C405 KSF-020-100000pF \pm 2%-63V
 C411, 415 MKSE-018-02-0.047 μ F \pm 10%-100V
 C412, 416 MKSE-018-02-0.22 μ F \pm 10%-100V
 C414, 418 MKSE-018-02-0.68 μ F \pm 10%-100V
 C402, 403 MKSE-018-02-10 μ F \pm 10%-100V
 C401, 419 04/U-4.7 μ F-16V
 C406, 408, 409, 413 04/U-10 μ F/16V
 C417 04/U-220 μ F/16V

Coils

L401 Filter FDP-01
 L402 Coil 36 mH

Miscellaneous

— Socket MG-14

MISCELLANEOUS COMPONENTS AND PARTS

Z1 Bulb type R5 12 \div 15V 1W W2 \times 4.6d
 C203 Capacitor 02/E-10 μ F-25V
 — Fuse holder 19601
 — Fuse socket 19602
 — Mains switch 1 \times FOKN.NE-16/2a EE
 W1, 3 Microswitch 83133-54AR-14.75
 Tr Power transformer TS 40/78
 P1 Potentiometer PR 18D-2 \times 100kB-25-P-6
 Headphone socket GSMJ-4B
 B101 Fuse T0.16A type WTAT-250/160
 — Motor PRM 33-1.8LD
 C115, 116 MKSE-018-02-220nF \pm 10%-100V

R116L, 116P RWW-0207-0-56k Ω \pm 5%
 R208 RWW-0309-2.2M Ω \pm 10%
 R101, 105 RWW-0309-10 Ω \pm 10%
 R110, 111, 112L, 112P, 124L, 124P Potentiometer TVP-1212-10k Ω (Semi-fixed)

Capacitors

C114L, 114P KSE-019-4.7nF \pm 10%-63V
 C201, 204 MKSE-018-02-10nF \pm 10%-400V
 C202, 209 MKSE-018-02-220nF \pm 10%-100V
 C206 04/U-1 μ F/63V
 C207, 210 04/U-4.7 μ F-25V
 C112L, 112P 04/U-10 μ F/25V
 C111L, 111P 02/E-10 μ F/25V
 C208 02/E-47 μ F/16V
 C107, 108, 110 04/U-47 μ F/25V
 C205, 113L, 113P 04/U-100 μ F/25V
 C106 02/E-220 μ F/16V
 C105 04/U-220 μ F/40V
 C109 04/U-220 μ F/25V
 C102, 103, 104 04/U-1000 μ F/25V
 C101 KEO-2200 μ F-40V

Miscellaneous

B102 Socket GW2-1 Fuse (temporise) T-0.8A type WTAT-250/300

INDICATORS P.C. BOARD 4573-560 (2217-563-3)

Diodes

D703 ITL 23232 AL
 D701, 702, 704, 705, 706, 707 ITL 23231 AL

Miscellaneous

— Connector 4569-062-1
 — Connector 4569-063-1

MICROPHONE AMPLIFIER P.C.B. 4573-577-1 (2217-563-2)

Transistors

T801L, 801P BC-413

Resistors

R807 RWW-0207-0-220 Ω \pm 10%
 R808L, 803P RWW-0207-0-1.5k Ω \pm 5%
 R806L, 806P RWW-0207-0-4.7k Ω \pm 5%
 R802L, 802P RWW-0207-0-33k Ω \pm 5%
 R801L, 801P RWW-0207-0-100k Ω \pm 10%
 R803L, 803P RWW-0207-0-330k Ω \pm 5%
 R805L, 805P RWW-0207-0-680k Ω \pm 10%

Capacitors

C802L, 802P KCPf-1B-N-5 \times 5-47pF-K-25V
 C801L, 801P, 803L, 803P 02/E-10 μ F-25V
 C804 04/U-100 μ F-40V

Miscellaneous

MICROPHONE Socket GSMJ-5A.1

PLAY AND RECORD AMPLIFIER P.C. BOARD 4573-558-1 (2217-562-1)

Diode

D501 BAYP-94

Transistors

T505L, 505P, 515 BC-237
 T501L, 501P, 504L, 504P, 507L, 507P, 508L, 508P, 509L, 509P, 514 BC-238
 T510, 511, 512 BC-337
 T506L, 506P, 516 BC-307
 T502L, 502P, 503L, 503P BC-413B
 T513 BD-135 gr. 16

Resistors

R501L, 501P, 528L, 528P, 531L, 531P RWW-0207-0-10 Ω \pm 10%
 R526L, 526P RWW-0207-0-100 Ω \pm 10%
 R503L, 503P RWW-0207-0-120 Ω \pm 10%
 R509L, 509P RWW-0207-0-220 Ω \pm 10%
 R546L, 546P RWW-0207-0-470 Ω \pm 10%
 R508L, 508P, 522L, 522P, 539 RWW-0207-0-1k Ω \pm 10%
 R545 RWW-0207-0-2.2k Ω \pm 10%
 R533L, 533P RWW-0207-0-1.8k Ω \pm 10%
 R527L, 527P, 530L, 530P, 532L, 532P, 549 RWW-0207-0-2.7k Ω \pm 10%
 R518L, 518P, 537 RWW-0207-0-3.3k Ω \pm 10%
 R540 RWW-0207-0-4.7k Ω \pm 10%
 R512L, 512P RWW-0207-0-5.1k Ω \pm 10%
 R514L, 514P RWW-0207-0-6.8k Ω \pm 10%
 R510L, 510P RWW-0207-0-8.2k Ω \pm 10%
 R515L, 515P, 525L, 525P, 529L, 529P, 538, 541, 542, 543, 544, 550L, 550P RWW-0207-0-10k Ω \pm 10%
 R524L, 524P RWW-0207-0-12k Ω \pm 10%
 R506L, 506P, 520L, 520P, 523L, 523P RWW-0207-0-18k Ω \pm 10%
 R505L, 505P, 502L, 502P RWW-0207-0-22k Ω \pm 10%
 R517L, 517P RWW-0207-0-33k Ω \pm 10%
 R519L, 519P RWW-0207-0-56k Ω \pm 10%
 R507L, 507P RWW-0207-0-82k Ω \pm 10%
 R516L, 516P, 521L, 521P RWW-0207-0-100k Ω \pm 10%
 R511L, 511P RWW-0207-0-470k Ω \pm 10%
 R513L, 513P RWW-0207-0-660k Ω \pm 10%
 R504L, 504P RMB-0.25W-82k Ω \pm 10%
 R535 RWW-0207-0-10 Ω \pm 10%
 R547L, 547P, 548L, 548P Potentiometer TVP-1232-47k Ω (Semi-fixed)

Capacitors

C505L, 505P KCP-IB-U-6-47pF-M-160V
 C528L, 528P KSF-020-180pF \pm 20%-160V
 C504L, 504P KSF-020-470pF \pm 10%-160V
 C501L, 501P KSF-020-620pF \pm 10%-100V
 C507L, 507P, 526 KSE-019-6.8nF \pm 10%-63V
 C515L, 515P, 518L, 518P, 519L, 519P KSE-019-15nF \pm 10%-63V
 C510L, 510P KSE-019-10nF \pm 20%-63V
 C520L, 520P, 521, 522, 523, 530L, 530P MKSE-018-02-0.01 μ F \pm 10%-400V
 C516L, 516P, 519L, 519P, 524 MKSE-018-02-0.022 μ F \pm 10%-400V
 C517L, 517P MKSE-018-02-0-0.33 μ F \pm 10%-250V
 C513L, 513P MKSE-018-02-0.15 μ F \pm 10%-100V