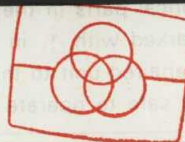




HITACHI

TRK-8100E, E(BS)

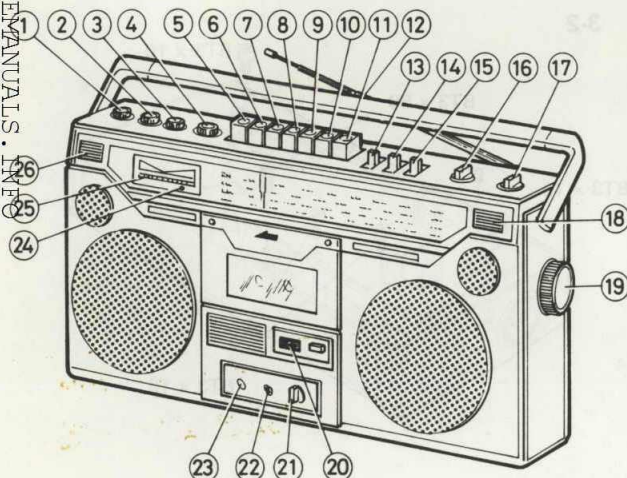
SERVICE MANUAL



Free service manuals
No. 1319
Circuit schema's

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KEY TO ILLUSTRATIONS

- | | |
|-------------------------------|-------------------------------|
| ① BALANCE CONTROL | ⑭ MODE SWITCH |
| ② BASS CONTROL | ⑮ RIF/AFC SWITCH |
| ③ TREBLE CONTROL | ⑯ FUNCTION SELECTOR |
| ④ VOLUME CONTROL | ⑰ BAND SELECTOR |
| ⑤ PAUSE BUTTON | ⑱ BUILT-IN MICROPHONE (RIGHT) |
| ⑥ STOP BUTTON | ⑲ TUNING CONTROL |
| ⑦ FAST-FORWARD/CUE BUTTON | ⑳ TAPE COUNTER |
| ⑧ PLAYBACK BUTTON | ㉑ MIXING VOLUME CONTROL |
| ⑨ REWIND/REVIEW BUTTON | ㉒ MIXING SOCKET |
| ⑩ RECORD BUTTON | ㉓ HEADPHONE SOCKET |
| ⑪ EJECT BUTTON | ㉔ FM STEREO INDICATOR |
| ⑫ TELESCOPIC ANTENNA (AERIAL) | ㉕ LEVEL INDICATOR (LED) |
| ⑬ TAPE SELECTOR SWITCH | ㉖ BUILT-IN MICROPHONE (LEFT) |

SPECIFICATIONS

GENERAL SECTION

Semi-conductors: IC's: 7
Transistors: 12
Diodes: 18
LED's: 10

Power (Mains) Supply: AC: 220V, 50 Hz [For E]
240V, 50 Hz [For E(BS)]
DC 9V (IEC R20 x 6 or equivalent)

Power (Mains) Consumption: 15W

Dimensions: 440(W) x 250(H) x 148(D) mm

Weight: 4.9 kg (with batteries)

Power output: 2.6 w/ch (T.H.D. 10%)

Speaker: 120 mm, 3.2 ohms x 2
50 mm, 8 ohms x 2

TUNER SECTION

Circuit System: FM/SW/MW/LW 4-band superheterodyne

Tuning Range: FM: 87.5 to 108 MHz
SW: 6.0 to 18 MHz
MW: 530 to 1605 kHz
LW: 150 to 350 kHz

Sensitivity: FM: 10 dB (pra.) 0 dB (max.)
SW: 30 dB (pra.) 20 dB (max.)
MW: 45 dB (pra.) 35 dB (max.)
LW: 55 dB (pra.) 40 dB (max.)

Intermediate Frequency: FM: 10.7 MHz
SW/MW/LW: 465 kHz

Antennas (Aerials):

FM/SW: Telescopic antenna
MW/LW: Built-in ferrite-core antenna

TAPE RECORDER

Tape:
Tape Speed:
Recording System:
Erasing System:
Track System:
Frequency Response:

Cassette tape (C-30, 60, 90)
4.75 cm/s
AC bias
Quasi-AC erase
4 track 2 channel
Normal: 50 Hz to 10 kHz
CrO₂: 50 Hz to 12 kHz

S/N (Signal to Noise Ratio):

45 dB

Wow and Flutter:

0.1% (WRMS)

Cross Talk:

60 dB (Between tracks)

Erase Ratio:

-60 dB

Input Sensitivity and Impedance:

Microphone: 5 mV, 10 kohms
Record/playback (DIN): 20 mV, 50 kohms

Output Level and Impedance:

Record/playback (DIN): 500 mV, 5 kohms

EXT. Speaker: 3.2 ohms

Fast Forward or Rewinding Time:

120 sec. (Using C-60)

Distortion:

5%

Motor:

DC Micro motor

CASSETTE TAPE RECORDER WITH FM/SW/MW/LW RADIO

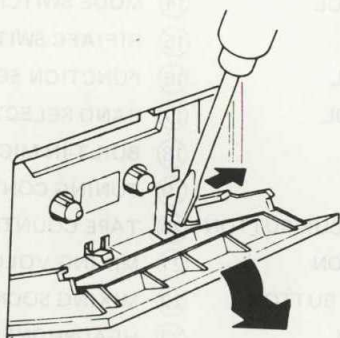
SAFETY PRECAUTION

The following precautions should be observed when servicing.

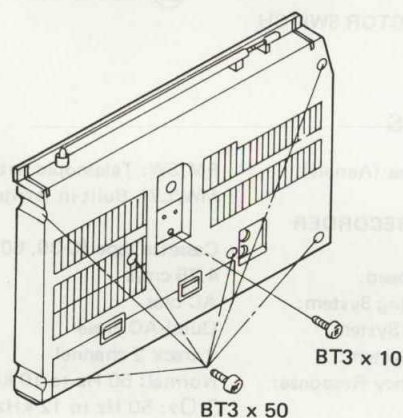
1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makes. Critical parts are marked with ⚠ in the schematic diagram, and circuit board diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

DISASSEMBLY

1. Cassette lid



2. Rear case

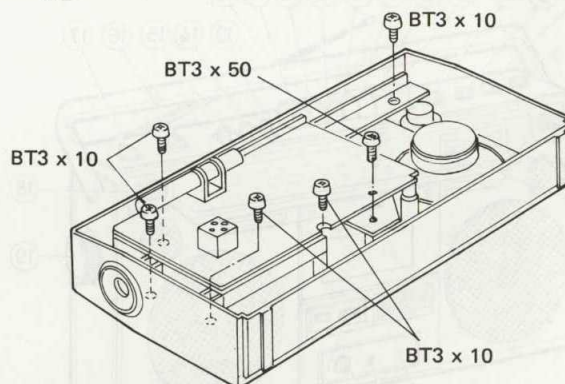


3. Main chassis

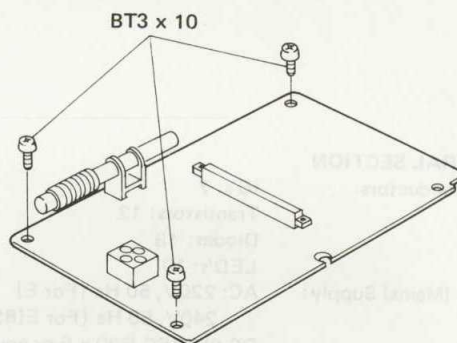
3-1



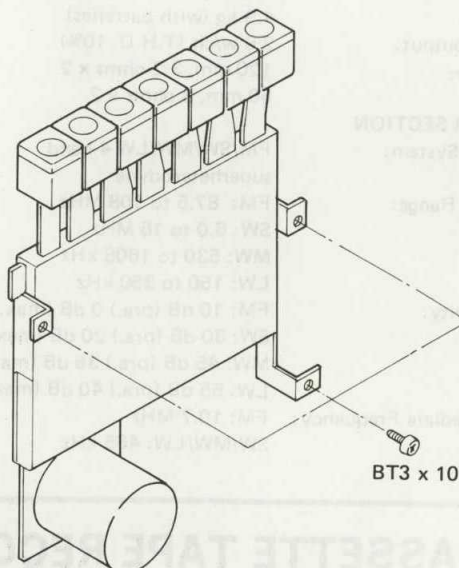
3-2



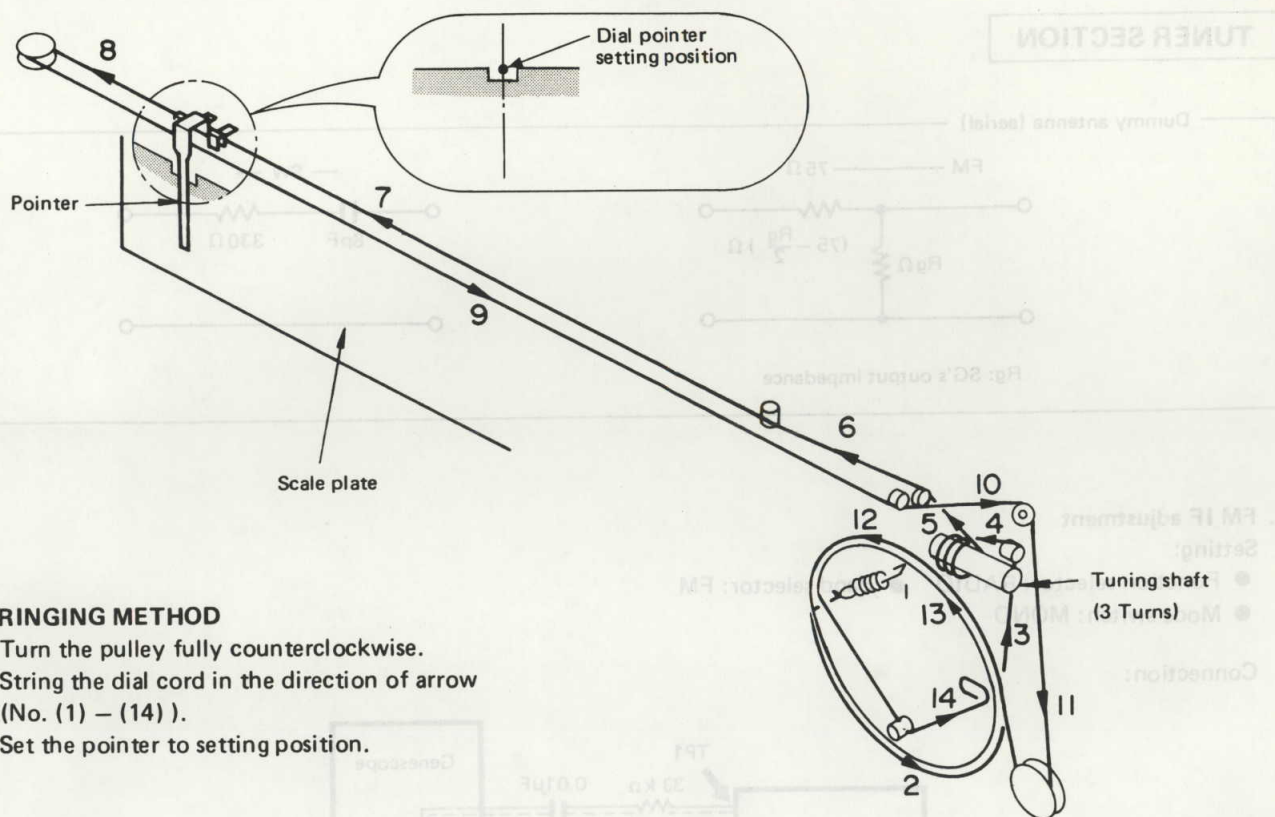
4. Main P.C. board



5. Cassette chassis



DIAL CORD STRINGING



STRINGING METHOD

1. Turn the pulley fully counterclockwise.
2. String the dial cord in the direction of arrow (No. (1) – (14)).
3. Set the pointer to setting position.

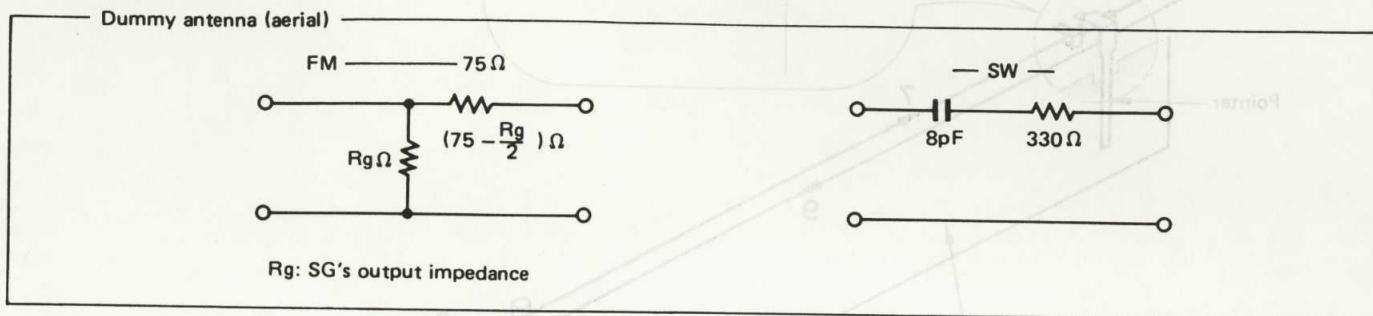
LUBRICATION

Lubricate one or two drops of machine oil to rotating point or lubricate grease to sliding point. Lubricate the respective parts listed below once every 1000 hours or once a year under normal conditions of use. Avoid oiling them excessively, or rotation may become irregular because of oil splashes.

Lubrication	Oil or grease
Motor shaft bearing	Oil
Capstan shaft bearing	
Pressure roller bearing	

ADJUSTMENT

TUNER SECTION

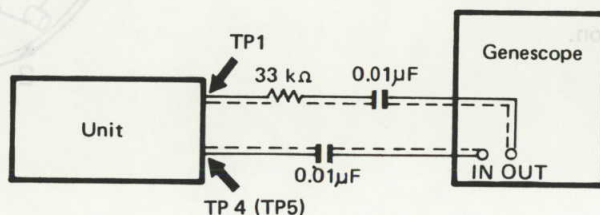


1. FM IF adjustment

Setting:

- Function selector: RADIO ● Band selector: FM
- Mode switch: MONO

Connection:



Adjustment:

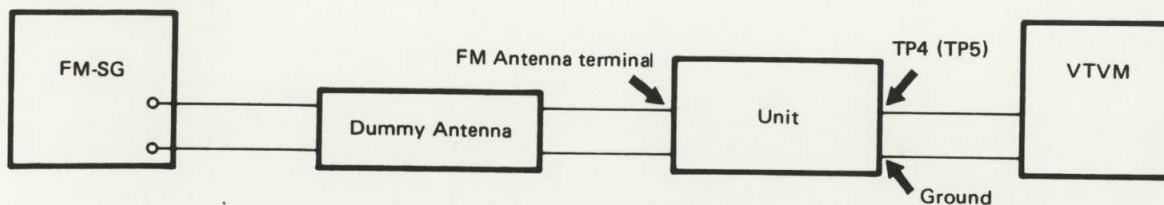
Genescope	Dial pointer Position	Adjust	Reading	Remarks
10.7 MHz	Highest	T202	—	Turn T202 fully counterclockwise.
		T101 T201		1) f_c : Specified center frequency of the ceramic filter. 2) Reduce the level of the genescope to make one waveform.
		T202		Adjust T202 for a symmetrical sine wave (S curve) output.

2. FM RF (Covering and Tracking) adjustment

Setting:

- Function selector: RADIO ● Band selector: FM
- Mode switch: MONO

Connection:



Adjustment:

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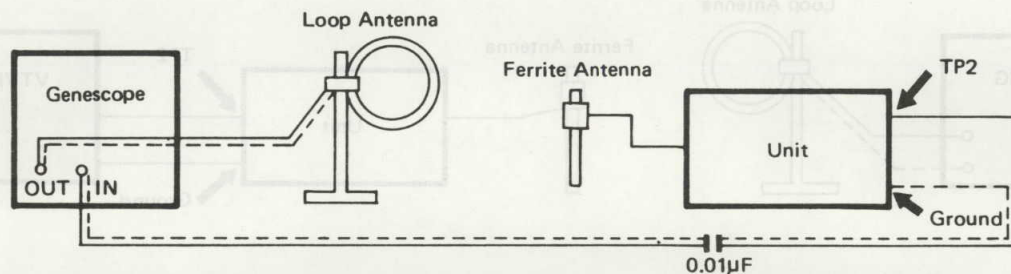
Item	Signal generator		Dial pointer Position	Adjust	Reading	Remarks
	Frequency	Modulation				
Covering	87.5 MHz	400 Hz 30%	Lowest	L103	Max.	—
	108 MHz		Highest	CT102		
Repeat 1 and 2.						
Tracking	90 MHz	400 Hz 30%	90 MHz	L101	Max.	—
	106 MHz		106 MHz	CT101		
Repeat 4 and 5.						

AM IF adjustment

Setting:

- Function selector: RADIO
- Band selector: MW

Connection:



Adjustment:

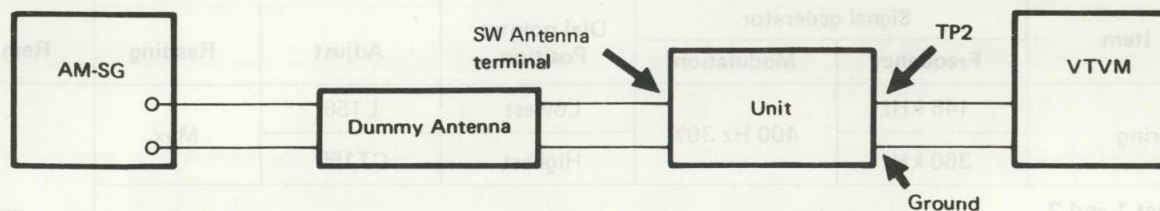
Genescope		Dial pointer Position	Adjust	Reading	Remarks
Frequency	Modulation				
465 kHz	—	Highest	T151 T152 T203	Max.	—

4. SW RF (Covering and Tracking) adjustment

Setting:

- Function selector: RADIO
- Band selector: SW

Connection:



Adjustment:

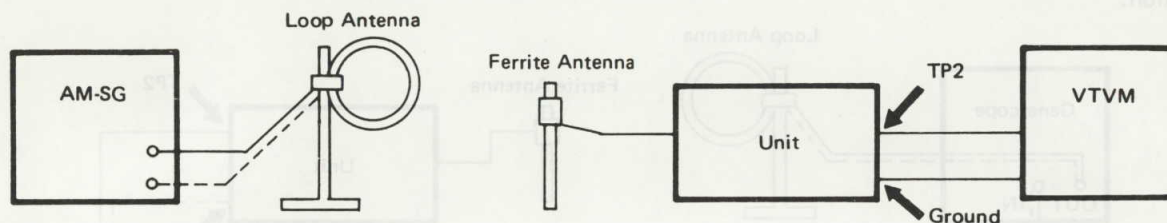
Item		Signal generator		Dial pointer position	Adjust	Reading	Remarks
		Frequency	Modulation				
1	Covering	5.8 MHz	400 Hz 30%	Lowest	L154	Max.	
2		18.5 MHz		Highest	CT154		
3	Repeat 1 and 2.						
4	Tracking	6.5 MHz	400 Hz 30%	6.5 MHz	L151	Max.	
5		16 MHz		16 MHz	CT151		
6	Repeat 4 and 5.						

5. MW/LW RF (Covering and Tracking) adjustment

Setting:

- Function selector: RADIO
- Band selector: MW or LW

Connection:



Adjustment:

1) MW

Item		Signal generator		Dial pointer Position	Adjust	Reading	Remarks
		Frequency	Modulation				
1	Covering	515 kHz	400 Hz 30%	Lowest	L155	Max.	—
2		1650 kHz		Highest	CT155		
3	Repeat 1 and 2.						
4	Tracking	600 kHz	400 Hz 30%	600 kHz	L152	Max.	
5		1400 kHz		1400 kHz	CT152		
6	Repeat 4 and 5.						

2) LW

Item		Signal generator		Dial pointer Position	Adjust	Reading	Remarks
		Frequency	Modulation				
1	Covering	145 kHz	400 Hz 30%	Lowest	L156	Max.	
2		360 kHz		Highest	CT156		
3	Repeat 1 and 2.						
4	Tracking	160 kHz	400 Hz 30%	160 kHz	L153	Max.	
5		330 kHz		330 kHz	CT153		
6	Repeat 4 and 5.						

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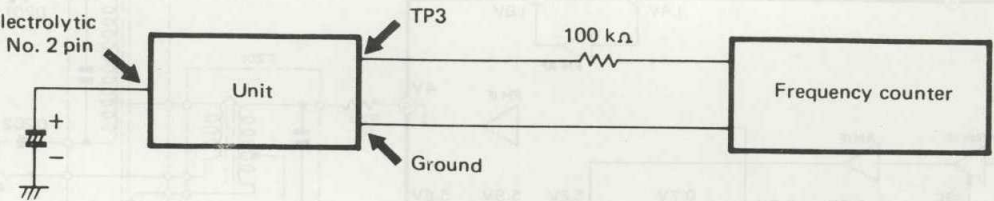
6. FM MPX (Multiplex) adjustment

Setting:

- Function selector: RADIO
- Mode switch: STEREO
- Band selector: FM

Connection:

Connect a 10 μ F 25V electrolytic capacitor between the No. 2 pin of IC301 and Ground.



Adjustment:

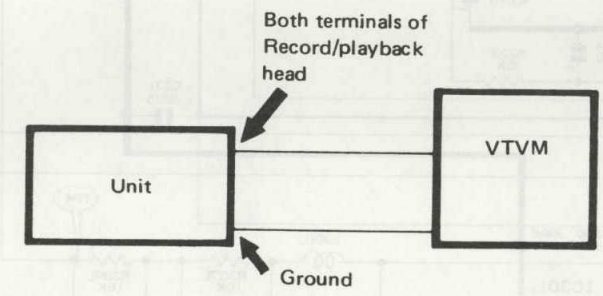
Adjust	Reading	Remarks
RT301	19 kHz $\pm$ 100 Hz	

TAPE DECK SECTION

1. Bias current adjustment

Setting: Recording mode

Connection:

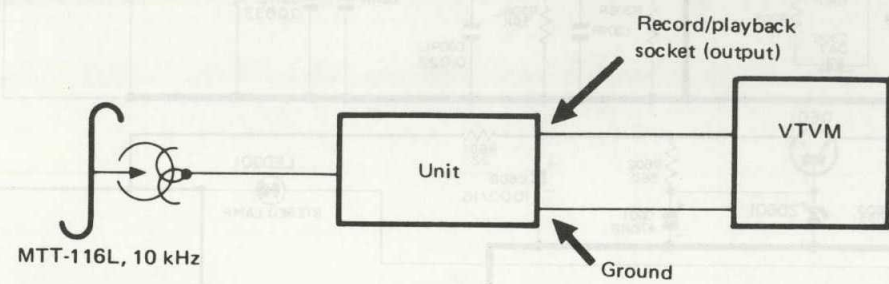


Adjustment: Set the record mode. Adjust RT401 so that the bias voltage of 7V is applied to the both terminals of Record/Playback head.

2. Head azimuth adjustment

Setting: Playback mode

Connection:

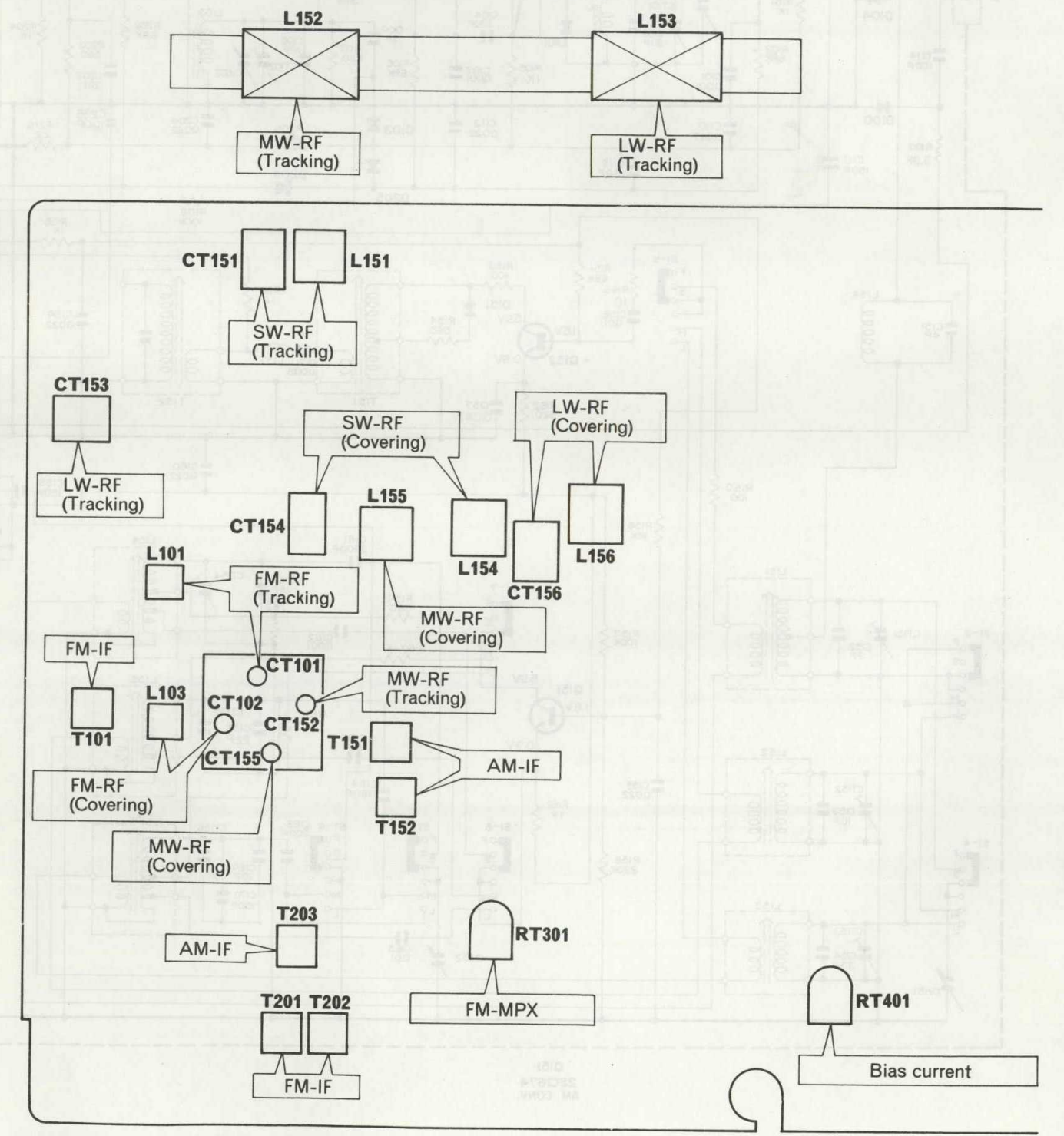


Adjustment: Playback a test tape (MTT116L, 10 kHz) and adjust the azimuth adjustment screw for maximum output.

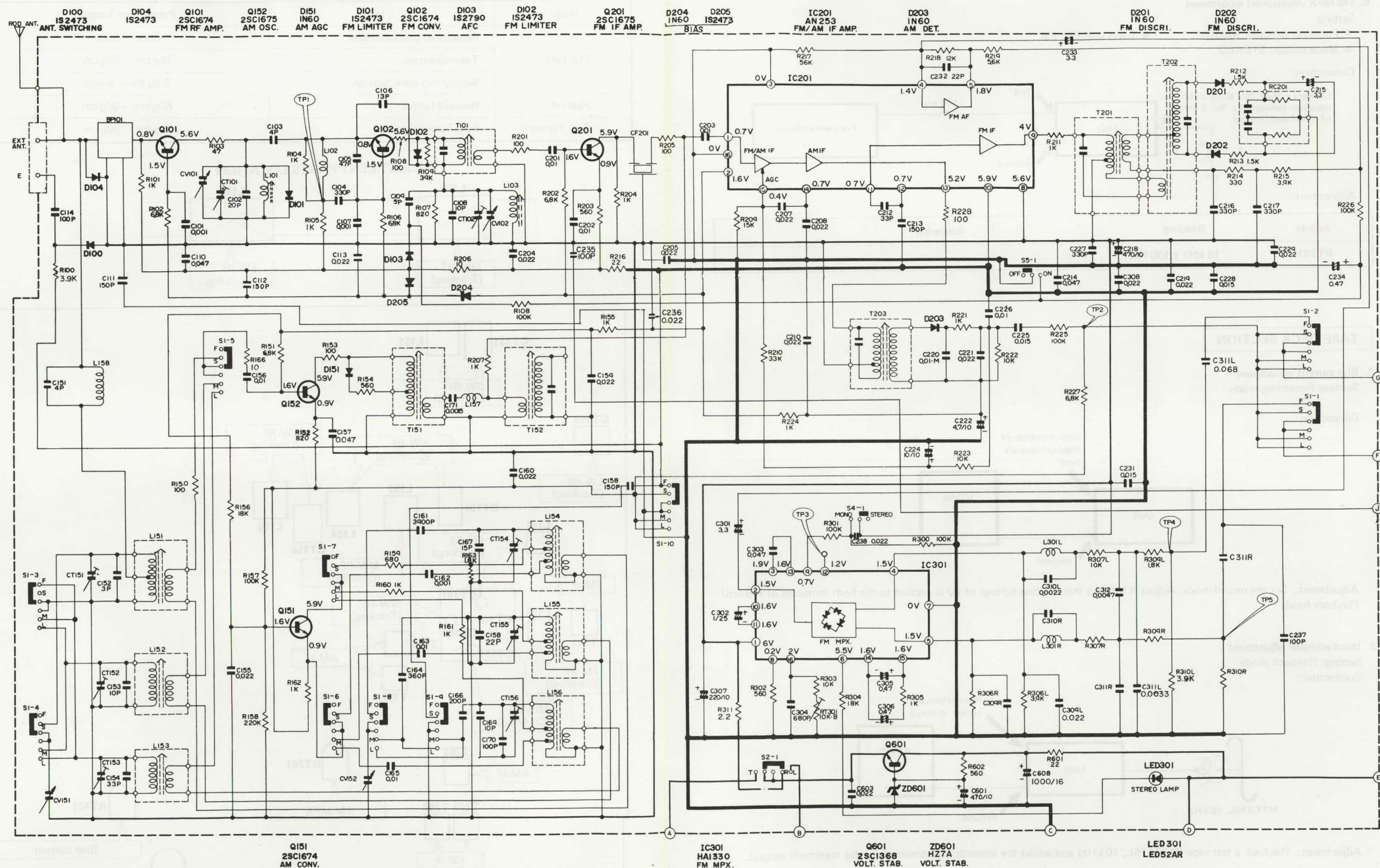
INSPECTION

Mode	Item	Pressure or Torque
Playback	Pressure of pressure roller	350g - 500g
	Take-up torque	35g-cm - 50g-cm
	Supply reel back tension	3.0g-cm - 5g-cm
Rewind	Rewind torque	60g-cm - 90g-cm
Fast Forward	Fast Forward torque	60g-cm - 90g-cm

ADJUSTMENT PARTS LOCATION

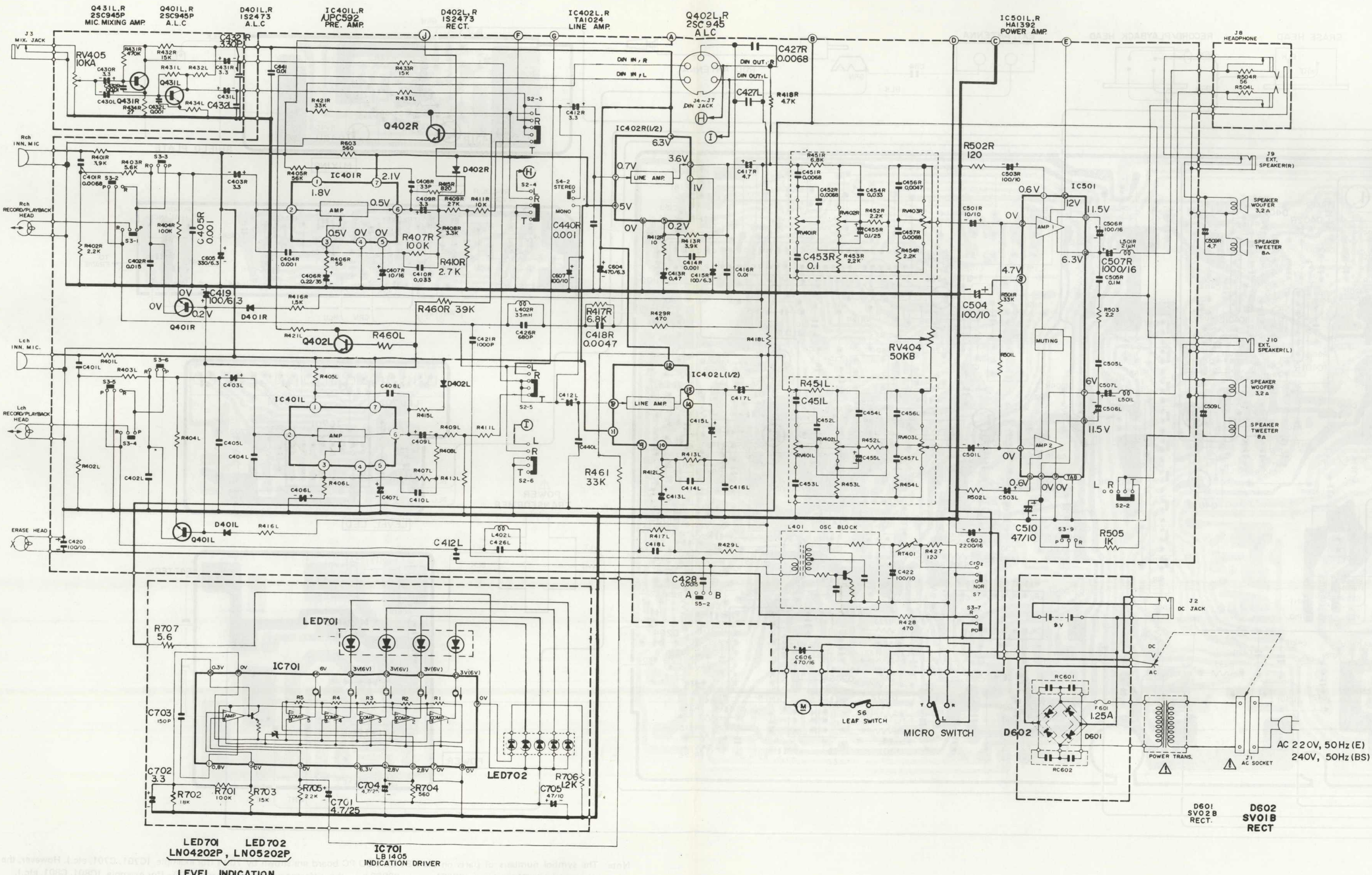


SCHEMATIC DIAGRAM (Tuner Section)



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SCHEMATIC DIAGRAM (Tape Recorder/AF/Power Section)



Note

- 1. Voltage measured at base of chassis with minimum volume control and no signal.
- 2. Nomenclature of Resistors and Capacitors.

Circuit No.	
Value	No indicated Ω (Ohm) M : 1000 k Ω
Tolerance	No indicated $\pm 5\%$ K : $\pm 10\%$ M : $\pm 20\%$
Wattage	No indicated $\frac{1}{2}$ W
Sort	No indicated Carbon film RC : Composition RW : Wire wound RS : Oxide metal film RN : Fixed metal film

Circuit No.	
Value	No indicated μ F P : PF
Tolerance	No indicated $\pm 10\%$ J : $\pm 5\%$ M : $\pm 20\%$ Z : $\pm 80\%$ D : ± 0.5 pF C : ± 0.25 pF
Sort	Ceramic Electrolytic Mylar Polyester Styrol
Voltage	No indicated 50WV

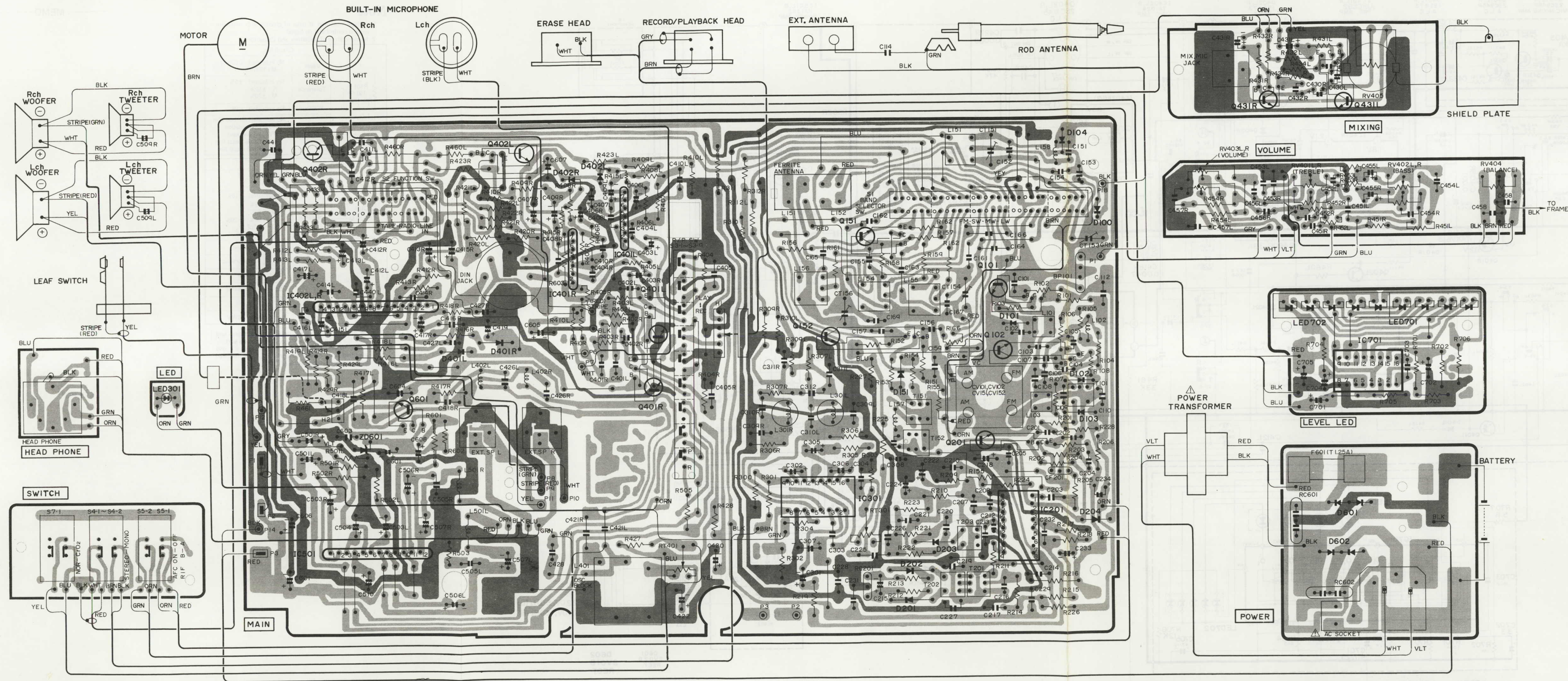
- 3. Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort.
- 4. When replacing capacitors marked with *, use specified ones stated on parts list since required temperature characteristics.

MEMO

CIRCUIT BOARD DIAGRAM

: Ground

: Signal, +B



Note: The symbol numbers of parts on the LEVEL LED PC board are shown by 700 s (for example, IC701, C701, etc.). However, the sets whose serial numbers are xxx00001 ~ xxx02000 have the different symbol numbers by 800 s (for example, IC801, C801, etc.).

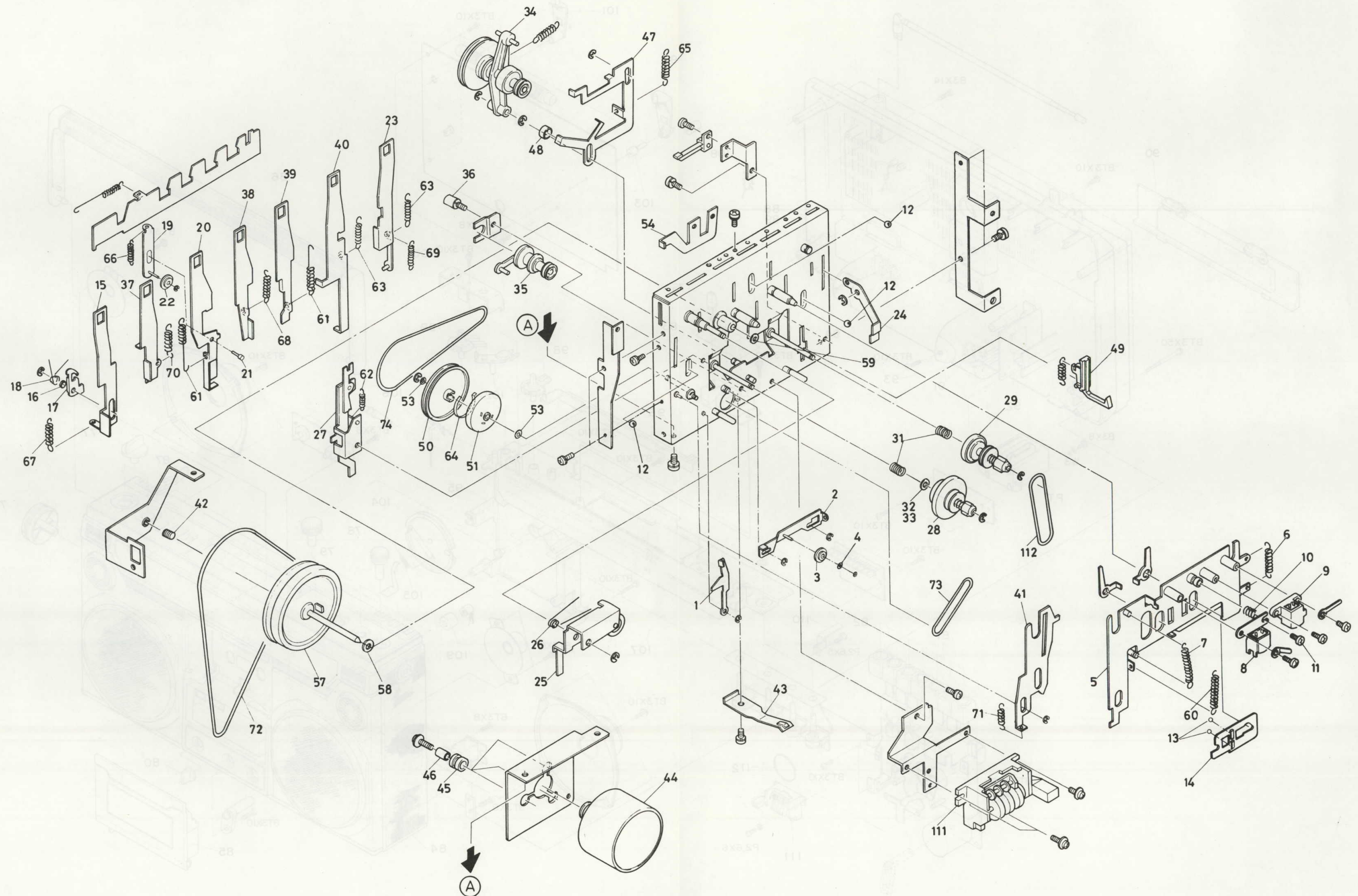
REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
CAPACITORS			D103	5330661	DIODE SILICON 1S2790 200MHZ 80MW
CT101	5052471	PLASTIC FILM VARIABLE	D104	5330571	DIODE 1S2473VE
CT102	5052471	PLASTIC FILM VARIABLE	D151	0575005	DIODE GERMANIUM 1N60 80M
CT151	5058191	TRIMMER 10PF	D201-203	0575005	DIODE GERMANIUM 1N60 80M
CT152	5052471	PLASTIC FILM VARIABLE	D204	0575005	DIODE GERMANIUM 1N60 80M
CT153	5058191	TRIMMER 10PF	D205	5330573	DIODE SILICON 1S2473 300MHZ 300MW
CT154	5058191	TRIMMER 10PF	D401L	5330574	DIODE 1S2473
CT155	5052471	PLASTIC FILM VARIABLE	D401R	5330571	DIODE 1S2473VE
CT156	5058102	VARIABLE CAPACITOR	D402L,R	5330571	DIODE 1S2473VE
CV101	5052471	PLASTIC FILM VARIABLE	D601	5330374	DIODE SV-02B
CV102	5052471	PLASTIC FILM VARIABLE	D602	5330373	DIODE SV-01B
CV151	5052471	PLASTIC FILM VARIABLE	IC201	5351064	IC AN2538B
CV152	5052471	PLASTIC FILM VARIABLE	IC301	5350684	IC HA1330
C162	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000P F+-10	IC401L,R	5352421	IC UPC592
C163	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30	IC402L,R	5357001	IC TA1024
C226	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30	IC501	5352141	IC HA1392
C311L,R	0209024	CERAMIC DISC (RESISTOR SHAPE) 4700P F+-30	IC701	5359581	IC LB1405
C312	0209024	CERAMIC DISC (RESISTOR SHAPE) 4700P F+-30	LED301	5380184	LED 52AR
C405L,R	0209009	CERAMIC DISC (RESISTOR SHAPE) 820PF +-10%	LED601	5380241	LED GL 3PR1
C414L,R	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000P F+-10	LED701	5380461	LED LN04202P
C416R	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30	LED702	5380462	LED LN05202P
C418L,R	0209023	CERAMIC DISC (RESISTOR SHAPE) 3300P F+-30	Q101	5321271	TRANSISTOR SILICON 2SC1674L 600MHZ
C421L,R	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000P F+-10	Q102	5321271	TRANSISTOR SILICON 2SC1674L 600MHZ
C425	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30	Q151	5321271	TRANSISTOR SILICON 2SC1674L 600MHZ
RESISTORS			Q152	5321281	TRANSISTOR SILICON 2SC1675-L 230MHZ 200M
RC201	0186357	CR PACK	Q201	5321281	TRANSISTOR SILICON 2SC1675-L 230MHZ 200M
RC601	0186451	CR PACK	Q401L,R	5320813	TRANSISTOR 2SC945P
RC602	0186451	CR PACK	Q402L,R	5320813	TRANSISTOR 2SC945P
RT301	0151808	SEMI VARIABLE RESISTOR 10K OHM RS88	Q431L,R	5320813	TRANSISTOR 2SC945P
RT401	0151806	SEMI VARIABLE RESISTOR 1KOHM B	Q601	5320922	TRANSISTOR 2SC1368C
RT402	0151808	SEMI VARIABLE RESISTOR 10K OHM RS88	ZD601	5330311	DIODE SILICON HZ7A 1.0M
RT403	0151808	SEMI VARIABLE RESISTOR 10K OHM RS88	TRANSFORMERS		
RV401	5000043	VARIABLE 10KOHM(B)	△ PT	5211921	POWER TRANS 4VA,400G (For E)
RV402	5000042	VARIABLE 10KOHM(A)	△ PT	5212125	POWER TRANSFORMER [For E(BS)]
RV403	5000731	VARIABLE 20KOHM(B)	T101	5140071	FM IFT
RV404	5000801	VARIABLE 50KOHM(B)	T151	5130153	AM IF TRANSFORMER
RV405	5000401	VARIABLE 10KOHM(A)	T152	5130121	AM IFT
SEMI-CONDUCTORS			T201	5148111	FM DISCRIMINATOR
D100	5330571	DIODE 1S2473VE	T202	5148112	FM DISCRIMINATOR
D101	5330574	DIODE 1S2473	T203	5130122	AM IFT
D102	5330574	DIODE 1S2473	COILS		
			L101	5126006	FM RF COIL 0.5 MICROH
			L102	5126391	FM

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
COILS			6	5444761	RECROD PLAYBACK HEAD
L103	5126362	FM-OSC	9	5445101	ERASE HEAD
L151	5123493	SWITCH ANTENNA	10	7790251	HEAD SPRING
L152	5113481	FERRITE ANTENNA	11	7781002	HEAD FIXING SCREW-2MMDX6MM
L153	5113481	FERRITE ANTENNA	12	7548741	BALL-4MMD
L154	5123494	SW OSC	13	7548742	BALL-2MMD
L155	5120319	OSCILLATOR COIL	14	6533741	HEAD PLATE HOLDER
L156	5120465	LW OSC	15	7325611	PAUSE LEVER ASSEMBLY
L157	5152091	CHOKE 180MICRO H	16	7575951	COLLAR
L158	0333116	CHOKE COIL	17	6533861	PAUSE LOCK PIECE
L301L,R	5150571	CHOKE COIL 33MH	18	6546041	SPRING
L401	5260641	OSCILLATOR BLOCK	19	7327731	F.F ARM ASSEMBLY
L402L,R	5150571	CHOKE COIL 33MH	20	7326881	F.F LEVER
L501L,R	5150761	CHOKE COIL	21	7548732	F.F LEVER SHAFT
MISCELLANEOUS			22	6344311	F.F ROLLER
△	5653241	AC-DC SOCKET	23	7325601	EJECT LEVER ASSEMBLY
	5658071	LED SOCKET	24	7325751	EJECT ARM
	5659121	BACK COVER	25	7325681	PRESSURE ROLLER ARM ASSEMBLY
ANT	5752551	ROD ANTENNA	26	6546051	SPRING
BP101	5161551	FILTER	27	7325651	AUTO STOP LEVER ASSEMBLY
CF201	5160301	CERAMIC FILTER 10.7MHZ	28	6414002	TAKE UP REEL BASE ASSEMBLY
F601	5721063	FUSE 1.25AT	29	6414012	SUPPLY REEL BASE ASSEMBLY
J	5653211	DIN JACK	30	7786217	POLYSLIDER WASHER
	5671661	FM ANTENNA TERMINAL	31	6305751	SPRING
J3	5673081	JACK (MIX MIC)	32	7786119	POLYESTER WASHER
J8	5674131	HEADPHONE JACK	33	7786115	POLYESTER WASHER
J9,10	5673261	JACK-3.5MMD (EXT. S.P.)	34	6422142	CLUTCH ASSEMBLY
MIC	5421508	BUILT IN MICROPHONE	35	6422131	AUTO STOP PICK UP BLOCK ASSEMBLY
SP	5401121	SPEAKER-5CM	36	7566711	CLUTCH ARM SHAFT
SP	5406412	SPEAKER-12CM	37	7325711	STOP LEVER
S1	5625011	SLIDE SWITCH (BAND SELECTOR)	38	7325701	PLAY LEVER
S2	5624221	SLIDE SWITCH (FUNCTION SELECTOR)	39	7326871	REWIND LEVER
S3	5623431	SLIDE SWITCH (REC./P.B.)	40	7325691	RECORDING LEVER
	5621184	SLIDE SWITCH (RADIO/TAPE)	41	7326821	PAUSE ARM
S4,5,7	5604082	LEVER SWITCH (TAPE, MODE, RIF/AFC)	42	7790261	CAPSTAN SCREW
FOR ACCESSORIES			43	6533731	CASSETTE HOLDER SPRING
△	5747321	POWER CORD (For E)	44	5576653	MOTOR ASSEMBLY
△	5746341	POWER CORD [For E(BS)]	45	6585051	RUBBER CUSHION
	5896391	FM ANTENNA [For E(BS)]	46	7790281	SPACER
FOR CASSETTE DECK ASSEMBLY (A)			47	7326891	BRAKE PLATE
1	7325671	PAUSE ARM	48	6579231	RUBBER WASHER
2	7327741	PLAY ROLLER ARM ASSEMBLY	49	6759441	RECORD PREVENTION LEVER
3	6344301	PLAY ROLLER	50	6422121	AUTO STOP PULLEY
4	7786211	POLYESTER WASHER	51	6759451	AUTO STOP CAM
5	7041511	HEAD PLATE ASSEMBLY	52	6533871	SPRING
6	6541141	SPRING	53	7778856	POLYESTER WASHER
7	6541121	SPRING	54	7326811	TRANSFER PLATE

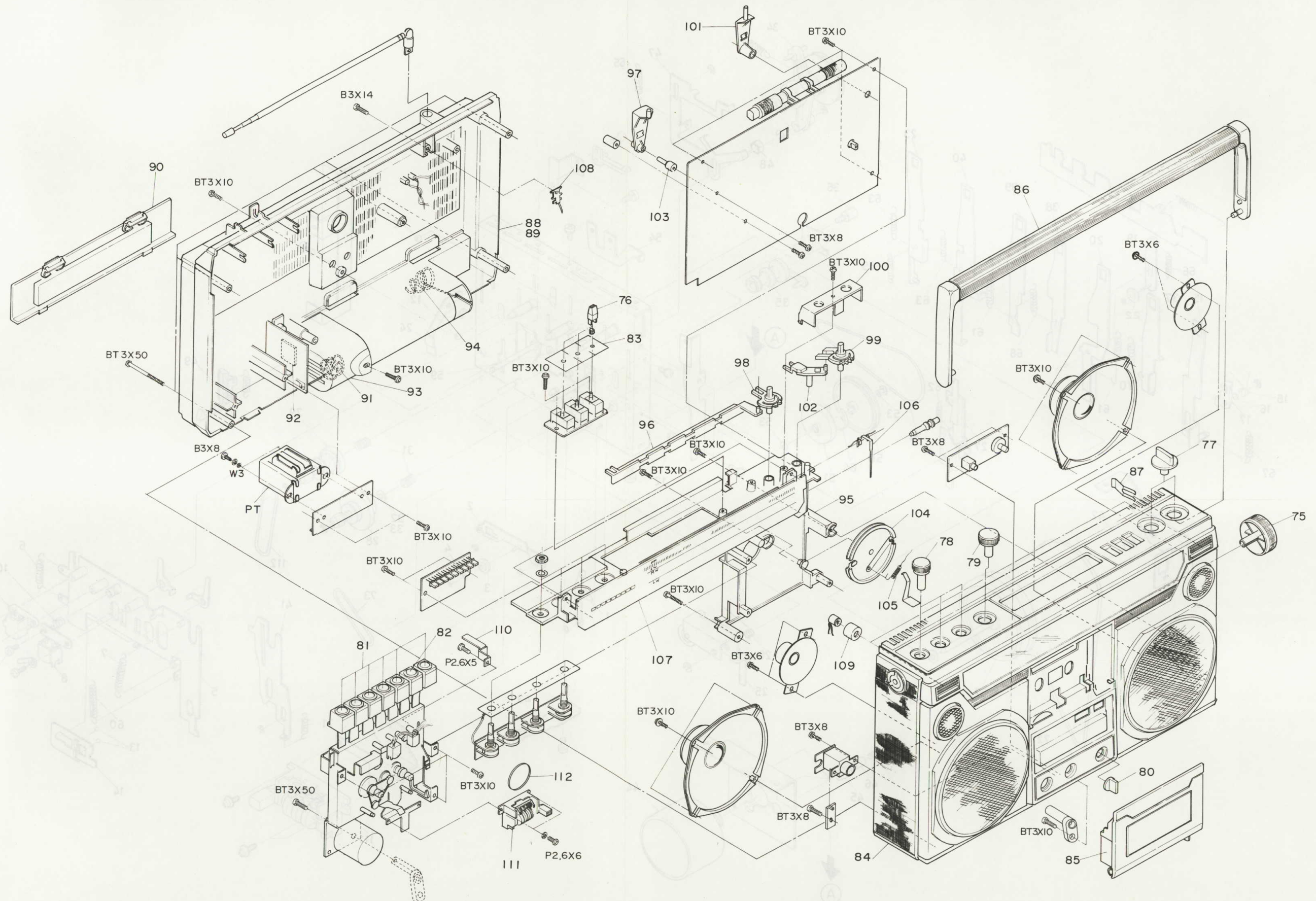
EXPLODED VIEW (Cassette Chassis)

EXPLODED VIEW (Cassinet)



Note: Components marked without numbers in this drawing are not specified as replacement parts.

EXPLODED VIEW (Cabinet)

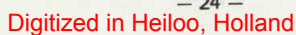


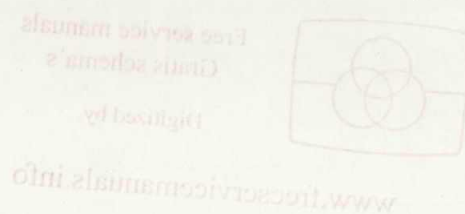
Note: Components marked without numbers in this drawing are not specified as replacement parts.

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
FOR CASSETTE DECK ASSEMBLY (A)			84	6034881	FRONT CASE ASSEMBLY
55	7786219	POLYESTER WASHER	85	6092791	CASSETTE LID ASSEMBLY
56	7786117	POLYSLIDER WASHER	86	6334221	HANDLE ASSEMBLY
57	6373621	FLYWHEEL ASSEMBLY	87	6533941	SPRING FOR HANDLE
58	7778856	POLYESTER WASHER	88	6034861	REAR CASE ASSEMBLY (For E)
59	7786623	POLYSLIDER WASHER	89	6034862	REAR CASE ASSEMBLY [For E(BS)]
60	6541151	SPRING	90	6173991	BATTERY LID ASSEMBLY
61	6541161	SPRING	91	6305791	BATTERY SPRING (-)
62	6541131	SPRING	92	7327351	BATTERY TERMINAL (+)
63	6541101	SPRING	93	6760091	TERMINAL HOLDER
64	6533721	LEAF SPRING	94	6305801	BATTERY SPRING (+,-)
65	6541111	SPRING	95	6760071	CHASSIS ASSEMBLY
66	6541291	SPRING	96	6760101	FUNCTION SLIDER
67	7790252	SPRING	97	6760011	FUNCTION LEVER
68	7790253	SPRING	98	6760022	EXCHANGE LEVER
69	7790254	SPRING	99	6760021	EXCHANGE LEVER
70	7790255	SPRING	100	6760041	LEVER HOLDER
71	6318882	SPRING	101	6760001	LEVER (BAND SELECT)
72	6355101	BELT	102	6759991	ARM (BAND SELECT)
73	6355111	BELT	103	6760031	GUIDE PIECE
74	6355131	BELT	104	6422191	PULLEY-100MMD
MISCELLANEOUS			105	6541031	SPRING
75	6282732	KNOB (TUNING)	106	6394491	POINTER
76	6296381	SWITCH KNOB (TAPE, MODE, RIF/AFC)	107	6467851	SCALE PLATE
77	6282626	SELECT KNOB (FUNCTION, BAND)	108	7451522	ANTENNA TERMINAL
78	6282176	KNOB-16MMD (BALANCE, BASS, TREBLE)	109	6589521	MICROPHONE HOLDER
79	6282695	KNOB-20MMD (VOLUME)	110	7327341	RECORD LEVER ASSEMBLY
80	6282992	KNOB-14MMD (MIXING)	111	5559391	COUNTER
81	6053261	BUTTON ASSEMBLY	112	6355071	COUNTER BELT
82	6053262	BUTTON ASSEMBLY (REC)			
83	7766381	SPACER			

Type of head					
P	Pan head screw		BT	Binding head tapping screw	
F	Flat countersunk head screw		BL	Bolt	
B	Binding head screw		W	Washer	
T	Round head tapping screw		E	"E" ring	
Length (L mm)					
Diameter (D mm)					

When ordering hardware excluding stated on these lists, be sure to make your orders with type and size.





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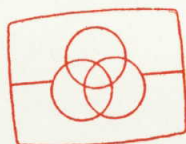
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