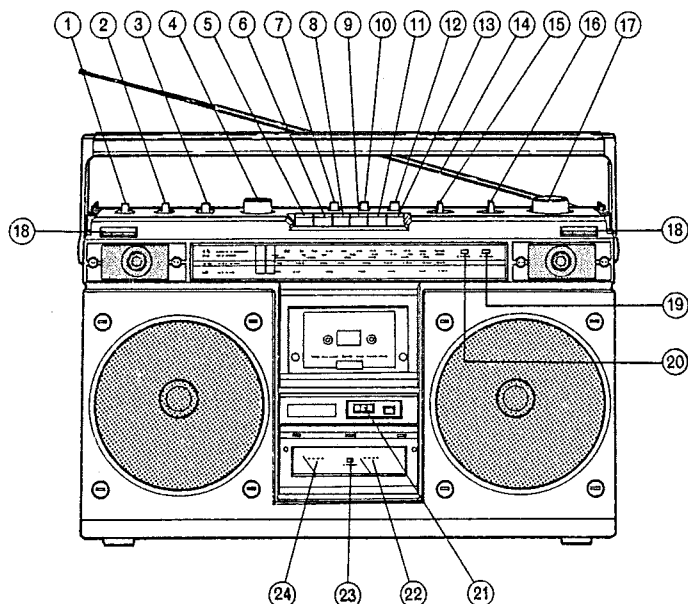




HITACHI

● SERVICE MANUAL

TK
No. 1643E
TRK-8200E, E(BS)


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KEY TO ILLUSTRATIONS

- | | |
|-----------------------|---------------------------------|
| ① BALANCE CONTROL | ⑭ TELESCOPIC ANTENNA (AERIAL) |
| ② BASS CONTROL | ⑮ FUNCTION SELECTOR |
| ③ TREBLE CONTROL | ⑯ BAND SELECTOR |
| ④ VOLUME CONTROL | ⑰ TUNING CONTROL |
| ⑤ PAUSE BUTTON | ⑱ BUILT-IN MICROPHONES (R, L) |
| ⑥ FAST FORWARD BUTTON | ⑲ OPERATION INDICATOR(E) |
| ⑦ TAPE SELECT SWITCH | AC POWER INDICATOR[E(BS)] |
| ⑧ REWIND BUTTON | ⑳ FM STEREO INDICATOR |
| ⑨ PLAYBACK BUTTON | ㉑ TAPE COUNTER |
| ⑩ METER / AFC SWITCH | ㉒ VU METER (RIGHT)/TUNING METER |
| ⑪ RECORD BUTTON | ㉓ DOLBY NR INDICATOR |
| ⑫ DOLBY NR SWITCH | ㉔ VU METER (LEFT) |
| ⑬ STOP/EJECT BUTTON | |

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 Δ 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.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

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

Nov. 1981

TOKAI WORKS

SPECIFICATIONS

GENERAL SECTION

Semi-conductors :	IC's : 7 Transistors : 16 Diodes : 24 LED's : 3 Varicap : 1 Zener diode : 1
Power (Mains) Supply :	AC : 220V, 50 Hz (E) 240V, 50 Hz (E(BS)) DC : 15V (IEC R20×10 or equivalent)
Power (Mains) Consumption :	30W
Dimensions :	526 (W)×318 (H)×165 (D) mm
Weight :	7.8 kg (with batteries)
Power output :	7.5W/ch (T.H.D. 10%), 22W M.P.O. (AC operation)
Speaker :	160mm, 2.8 ohms×2 30mm, 3,000 ohms×2

TUNER SECTION

Circuit System :	FM/SW/MW/LW 4-band superheterodyne
Tuning Range :	FM : 87.5 to 108 MHz SW : 6.0 to 18.0 MHz MW : 530 to 1605 kHz LW : 150 to 350 kHz
Sensitivity :	FM : 10 dB (pra.), 0 dB (max.) SW : 25 dB (pra.), 20 dB (max.) MW : 45 dB (pra.), 35 dB (max.) LW : 55 dB (pra.), 42 dB (max.)

Intermediate Frequency :	FM : 10.7 MHz SW/MW/LW : 468 kHz
Antennas (Aerials) :	FM/SW : Telescopic antenna MW/LW : Built-in ferrite-core antenna

TAPE RECORDER

Tape :	Cassette tape (C-30, 60, 90)
Tape Speed :	4.75 cm/s
Recording System :	AC bias, 57 kHz
Erasing System :	AC erase
Track System :	4 track 2 channel
Frequency Response :	Normal : 50 Hz to 12 kHz CrO ₂ : 50 Hz to 13 kHz METAL : 50 Hz to 14 kHz

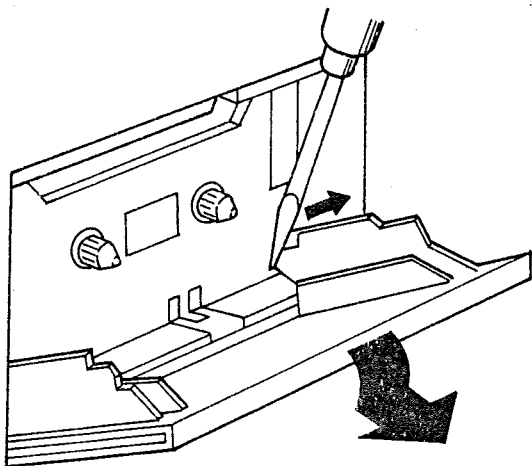
S/N (Signal to Noise Ratio) :	60 dB (Dolby ON), 50 dB (Dolby OFF)
Wow and Flutter :	0.1% (WRMS)
Cross Talk :	70 dB (Between tracks) 35 dB (Between channels)
Erase Ratio :	65 dB

Input Sensitivity and Impedance :	Microphone : 0.4mV, 500 ohms DIN : 10mV, 20k ohms
Output Level and Impedance :	DIN : 775mV, 4.7k ohms EXT. Speaker : 2.8~8 ohms Headphone : 8~2k ohms

Fast Forward or Rewinding Time :	110 sec. (Using C-60)
Distortion :	3%
Motor :	DC Micro motor

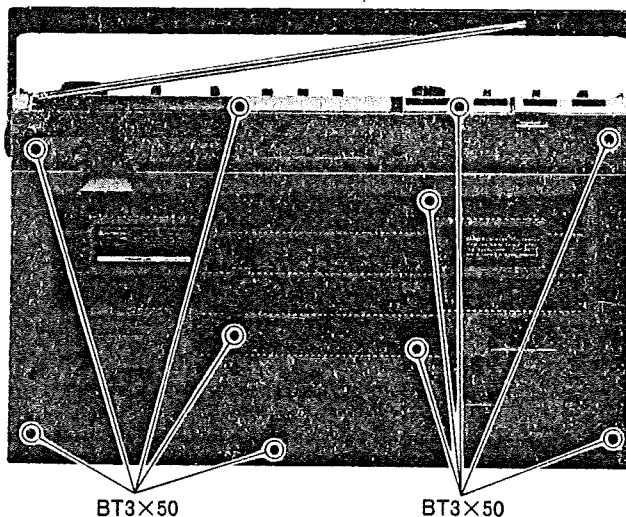
DISASSEMBLY

1. Cassette lid

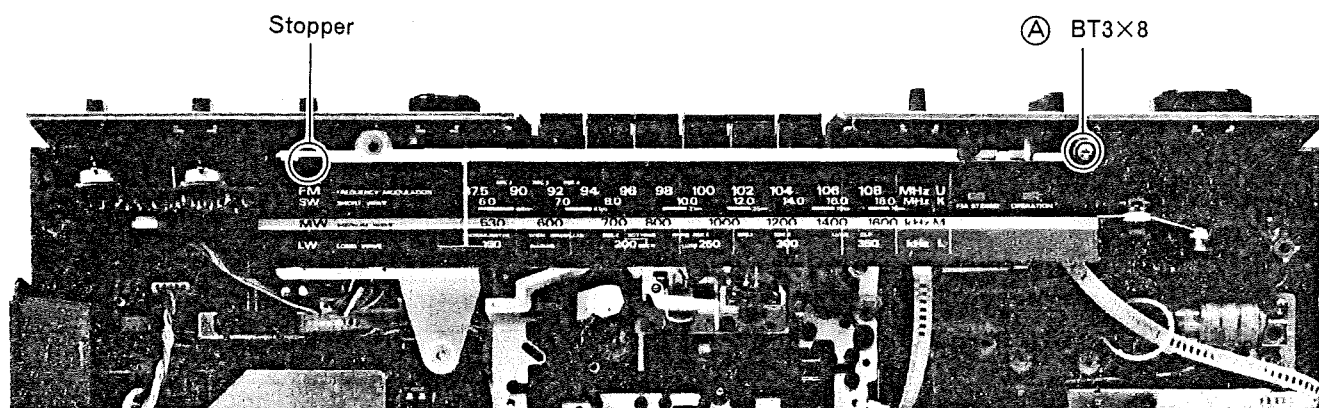


2. Rear case

Remove ten screws.



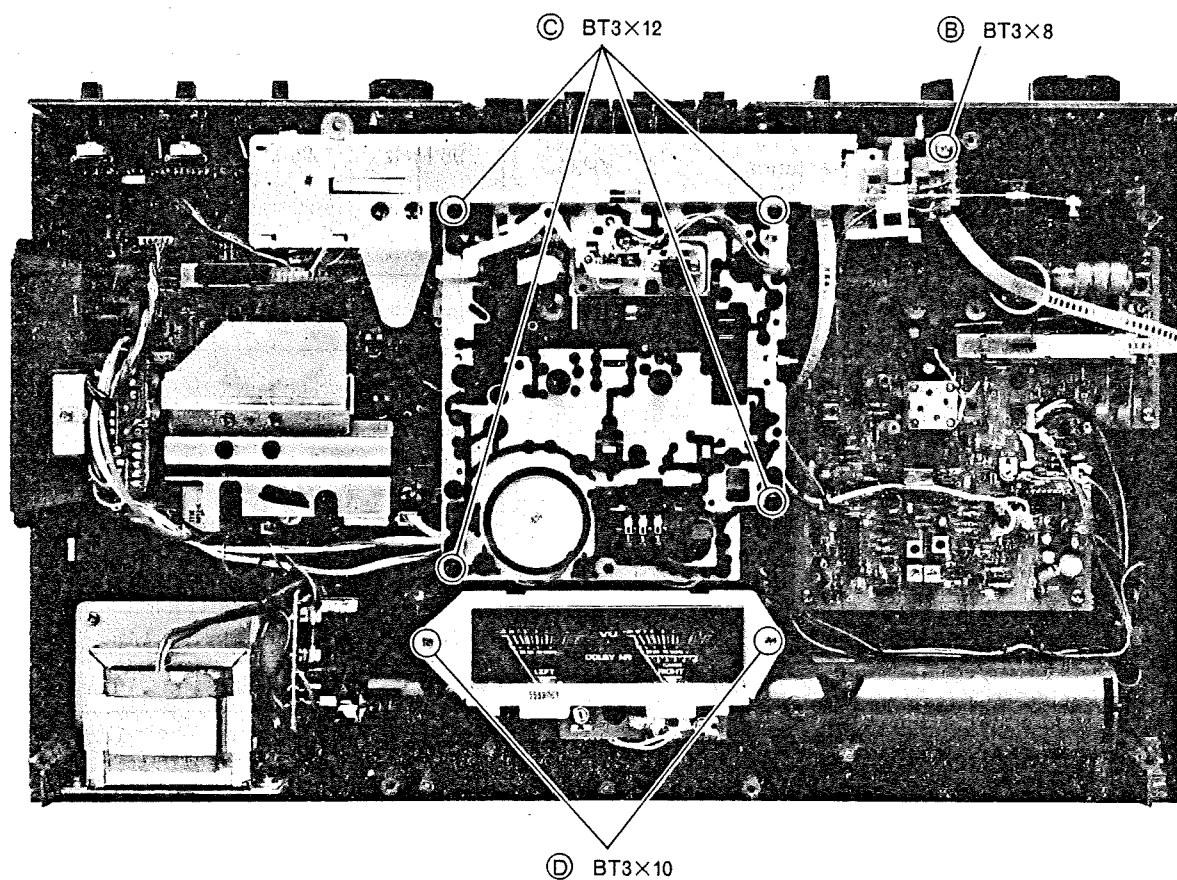
3. Scale plate : Fixing screw (A) (1) and stopper



4. Indicator P.C.Board : Fixing screw (B) (1)

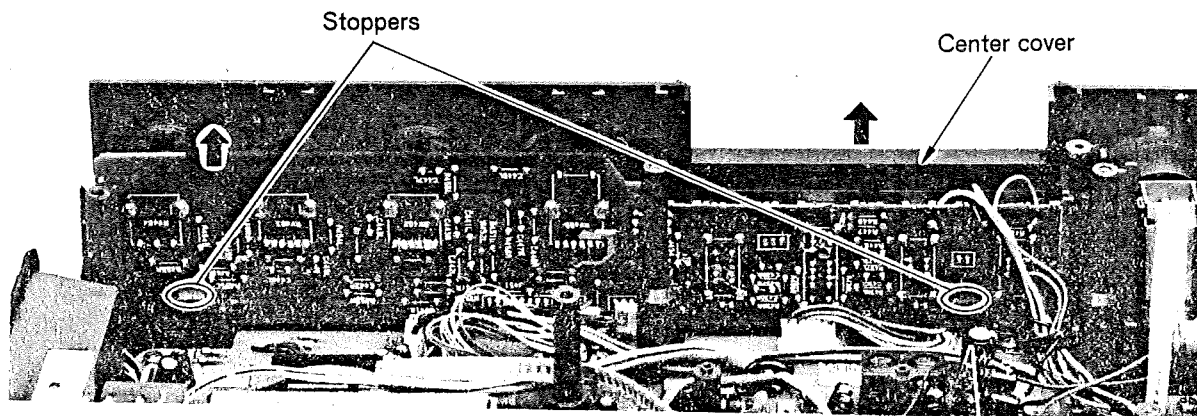
Cassette chassis : Fixing screws (C) (4), and take out the indicator P.C.Board and then lift up the scale holder

VU meters/Meter P.C.Board : Fixing screws (D) (2)

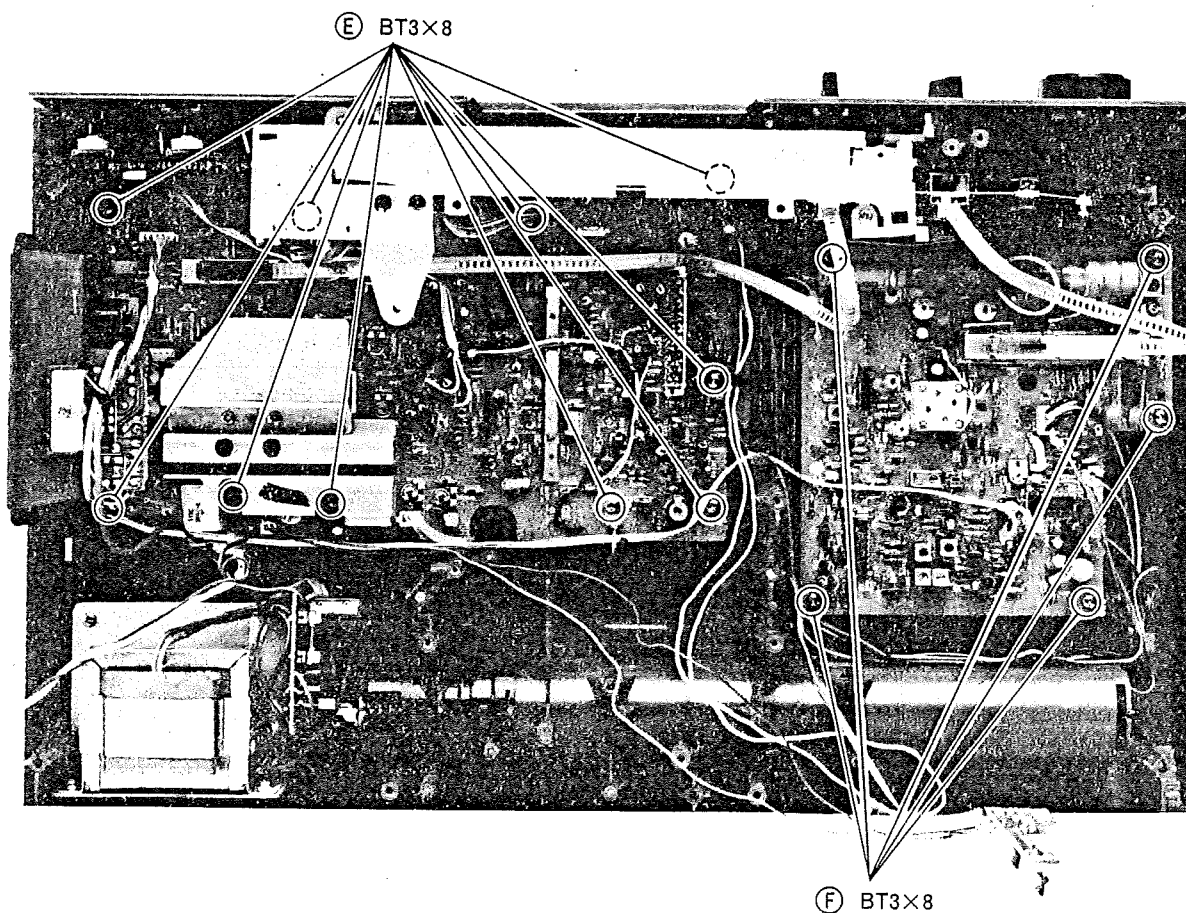


5. Volume P.C. Board

- 1) Remove the seven knobs (Balance, Bass, Treble, Volume, Tape selector, Meter (R)/AFC, Dolby NR).
- 2) Push the two stoppers and lift up the volume P.C. Board and center cover in the direction of arrow.

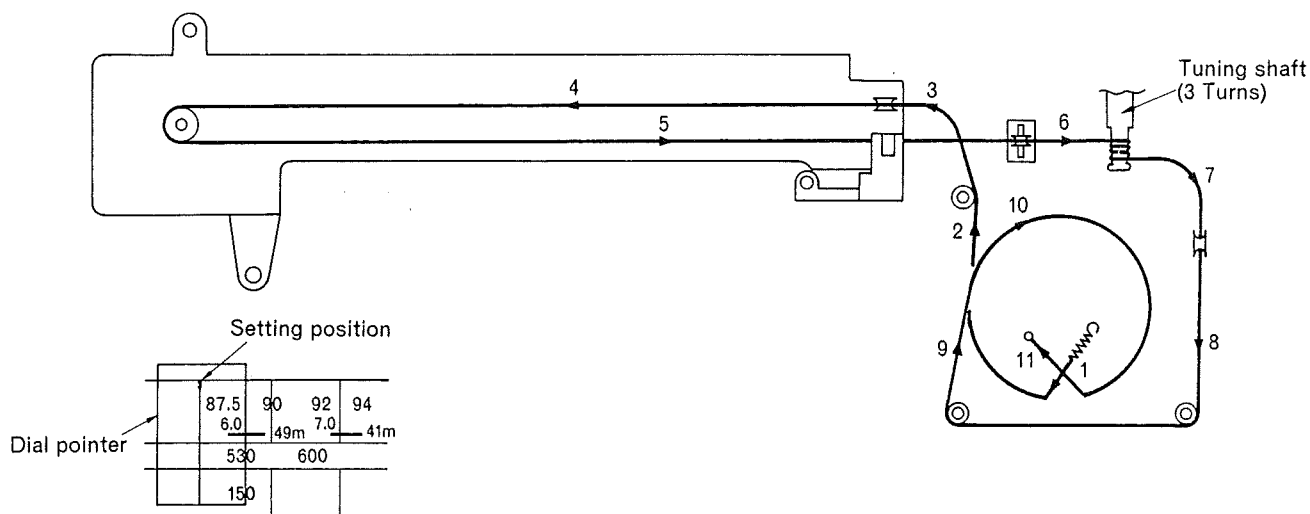


6. Main P.C. Board : Fixing screws (E) (10)
 Tuner P.C. Board : Fixing screws (F) (5)



DIAL CORD STRINGING

After removing the scale plate, indicator P.C. Board and tuner P.C. Board, string the dial cord as follows.



STRINGING METHOD

1. Turn the pulley fully clockwise.
2. String the dial cord in the direction of arrow(No. 1~11).
3. Turn the pulley fully counterclockwise and set the pointer to setting position.

LUBRICATION

Lubricate one or two drops of oil to rotating point or lubricate grease to sliding point.

Lubricate the respective parts listed 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 point		Oil or Grease
Rotary section	Metal and metal	Pan motor oil (10W-40)
	Mold and metal	Sonic slider oil (#1600)
Sliding section	Metal and metal	Hitasol (MO-138)
	Mold and mold Mold and metal	White grease (FL-LUBE-A)
Spring resonance prevention		Froil (GB-TS-1)

INSPECTION

Mode	Item	Pressure or Torque
Playback	Pressure of pressure roller	340g-500g
	Take-up torque	35g-cm-60g-cm
	Supply reel back tension	4g-cm-6g-cm (with counter)
Rewind	Rewind torque	90g-cm-120g-cm
Fast Forward	Fast Forward torque	90g-cm-120g-cm

1. Tuner Section

ADJUSTMENT

* For West Germany

Step		Adjustment Item	Measuring Instrument and Connection			Genescope or Signal Generator Frequency	Dial Pointer Position	Adjust	Reading									
			Measuring Instrument	Input Terminal	Output Terminal													
1	(1)	FM IF	Turn T202 fully counterclockwise.															
	(2)	S-Curve	• Genescope (10.7 MHz)	TP102	TP201	10.7 MHz	Highest	T101 T201	Note 1									
2	(1)	FM OSC. (Covering)	• FM signal generator (400 Hz 30% mod.) • Oscilloscope • VTVM	TP101 (thru FM dummy antenna) (Note 3)	TP201	87 MHz (87.5 MHz*)	Lowest	L102	Max.									
	(2)					109 MHz (108 MHz*)	Highest	CT102										
	(3)					Repeat steps (1) and (2)												
3	(1)	FM ANT. (Tracking)				• FM signal generator (400 Hz 30% mod.) • Oscilloscope • VTVM	TP101 (thru FM dummy antenna) (Note 3)	TP201	90 MHz	90 MHz	L101	Max.						
	(2)								106 MHz	106 MHz	CT101							
	(3)								Repeat steps (1) and (2)									
4	(1)	FM MPX (Multiplex)	• Frequency counter	Connect a 10 μ F 25V electrolytic capacitor between the No. 2 pin of IC301 and ground.	TP301				—	—	RT302	19 kHz \pm 200 Hz (Note 4)						
5	(1)	FM Separation	• FM Stereo signal generator (Pilot : 19kHz, 20mV, L+R : 1 kHz, 180mV, 60dB) • Oscilloscope • VTVM	TP101 (thru FM dummy antenna) (Note 3)	TP302 TP303				98 MHz	98 MHz	RT301	Note 5						
6	(1)	FM-tuning meter	• Genescope (10.7 MHz) • VTVM	TP101	TP203				10.7 MHz	Highest	T203	Max.						
7	(1)	AM IF	• Genescope (468 kHz)	Ferrite-core antenna (Note 6)	TP202	468 kHz	Highest	T151 T204	Note 7									
	(2)					Repeat step (1)												
8	(1)	LW OSC. (Covering)	• AM signal generator (400 Hz, 30% mod.) • VTVM	Ferrite-core antenna (Note 6)	TP202	145 kHz	Lowest	L156	Max.									
	(2)					360 kHz	Highest	CT156										
	(3)					Repeat steps (1) and (2)												
9	(1)	LW ANT. (Tracking)				• AM signal generator (400 Hz, 30% mod.) • VTVM	Ferrite-core antenna (Note 6)	TP202	160 kHz	160 kHz	L153	Max.						
	(2)								330 kHz	330 kHz	CT153							
	(3)								Repeat steps (1) and (2)									
10	(1)	MW OSC. (Covering)							• AM signal generator (400 Hz, 30% mod.) • VTVM	Ferrite-core antenna (Note 6)	TP202	515 kHz	Lowest	L155	Max.			
	(2)											1650 kHz	Highest	CT155				
	(3)											Repeat steps (1) and (2)						
11	(1)	MW ANT. (Tracking)										• AM signal generator (400 Hz, 30% mod.) • VTVM	Ferrite-core antenna (Note 6)	TP202	600 kHz	600 kHz	L152	Max.
	(2)														1400 kHz	1400 kHz	CT152	
	(3)														Repeat steps (1) and (2)			

Step		Adjustment Item	Measuring Instrument and Connection			Genescope or Signal Generator Frequency	Dial Pointer Position	Adjust	Reading			
			Measuring Instrument	Input Terminal	Output Terminal							
12	(1)	SW OSC. (Covering)	• AM signal generator (400 Hz, 30% mod.) • VTVM	TP101 (thru SW dummy antenna) (Note 8)	TP202	5.8 MHz	Lowest	L154	Max.			
	(2)					18.5 MHz	Highest	CT154				
	(3)					Repeat steps (1) and (2)						
13	(1)	SW ANT. (Tracking)				• VTVM	TP101 (thru SW dummy antenna) (Note 8)	TP202	6.5 MHz	6.5 MHz	L151	Max.
	(2)								16.0 MHz	16.0 MHz	CT151	
	(3)								Repeat steps (1) and (2)			

Note :

1. Feed in a weak signal to TP102 from the genescope. Adjust T101, T201 for maximum gain and the wave form indicated in Figure 1. If the center of the wave form cannot be lined up on the marker, adjust the right/left balance.

Adjust the genescope output so that there is a little noise riding on the leading edge.

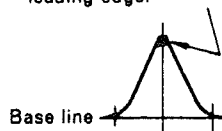


Fig. 1

2. Use the T202 core to form the S-curve shown in Figure 2. Adjust the symmetry of A and B about point C for linearity.

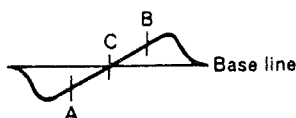


Fig. 2

3. FM dummy antenna shows Figure 3.

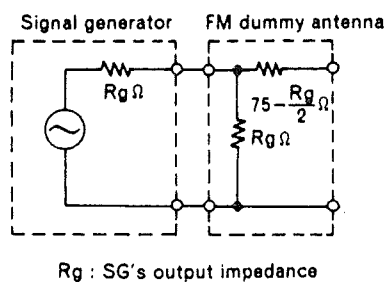
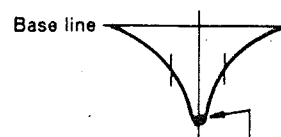


Fig. 3

4. Connect the frequency counter to TP301, via a resistor of 100kΩ.

5. Feed the signal for each channel and adjust RT301 so that an optimum separation can be obtained.
6. Connect AM signal generator to loop antenna, bring near to ferrite antenna.
7. Feed in a weak signal from the genescope. Adjust T151 and T204 for maximum gain and the waveform of Figure 4.



Adjust the genescope output so that there is a little noise riding on the leading edge.

Fig. 4

8. SW dummy antenna shows Figure 5.

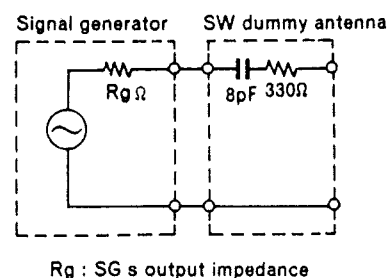




Fig. 5

2. Tape Recorder Section

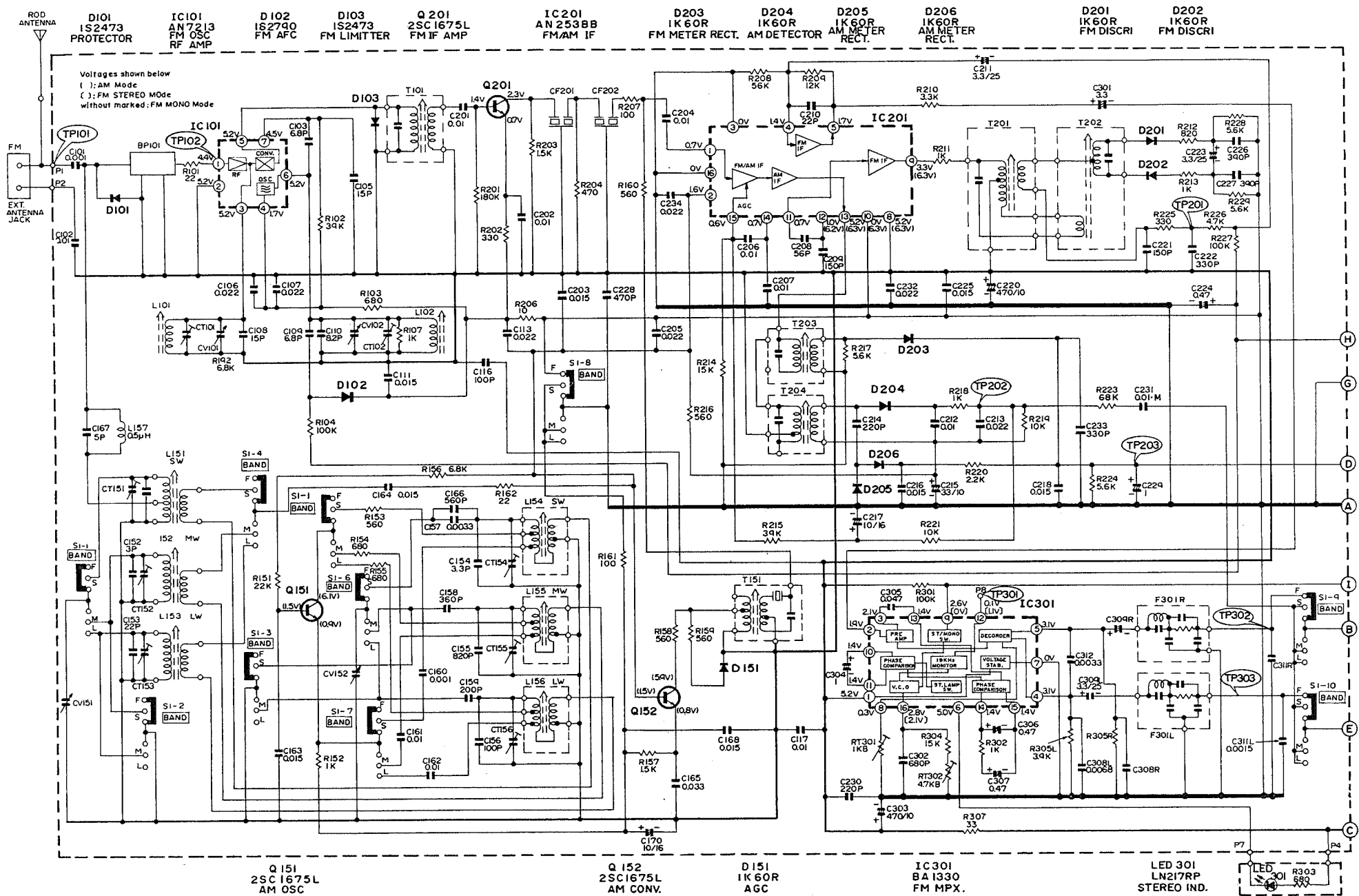
Perform the following adjustments in the sequence stated after cleaning the head, pressure roller, and capstan with a head cleaning stick moistened in alcohol.

Step	Adjustment Item	Measuring Instrument and Connection			Check Tape	Mode	Adjusted Position	Adjusted Value	Remarks
		Measuring Instrument	Input Terminal	Output Terminal					
1	Head azimuth	• VTVM	—	DIN socket (output)	MTT-316 or 216, 12.5 kHz	Playback	Azimuth adjusting screw	Output Max.	Note 1
2	Playback gain	• VTVM	—	TP401L, R	MTT-150, 400 Hz 200nwb/m	Playback	RT401L, R	0.775V (0 dBm)	Note 2
3	Level meter						RT404L, R	 (+3dBm)	Note 3
4	Record/playback output	• Audio oscillator (400 Hz) • VTVM	DIN socket (input)	TP401L, R	NORMAL tape	Record/playback	RT402L, R	0.775V ± 1 dB	Note 4
5	Record/playback frequency characteristics	• Audio oscillator (1.25 kHz/12.5 kHz) • Attenuator • VTVM	DIN socket (input)	TP401L, R	NORMAL tape	Record/playback	RT403L, R	Output difference within ± 2 dB	Note 5

Note :

- When the maximum values of both channels are different, adjust to the maximum value of the L channel. In this case, the difference between the maximum values of both channels should be within 2 dB.
- Playback a test tape (MTT-150, 400 Hz 200nwb/m) and adjust RT401L, R so that the level of TP401L, R becomes 0.775V (0 dBm).
- With the condition shown in step 2, adjust RT404L, R so that the level meter indicates +3 dB (indicated with mark ).
- 1) Feed a 400 Hz signal to the DIN socket (input) in the recording mode and adjust the audio oscillator output so that the level of TP401L, R becomes 0.775V.
 - 2) Record the signal on NORMAL tape with the conditions of item 1).
 - 3) Playback the recorded signal and adjust RT402L, R so that the level of TP401L, R becomes 0.775V ± 1 dB.
- 1) Feed a 1.25 kHz signal to the DIN socket (input) in the recording mode and adjust the audio oscillator output so that the level of TP401L, R becomes 0.775V. Then, adjust the attenuator to lower the output level by 20 dB.
 - 2) Record the signal on NORMAL tape with the conditions of item 1), then continue to record with the audio oscillator frequency set to 12.5 kHz.
 - 3) Playback the recorded signal and adjust RT403L, R so that the output level difference between two frequencies is within ± 2 dB.

SCHEMATIC DIAGRAM (Tuner Section)



CIRCUIT BOARD DIAGRAM (Tuner 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 $\frac{1}{4}W$
Sort	No Indicated Carbon film RC: Composition RW: Wire wound RS: Oxide metal film RN: Fixed metal film

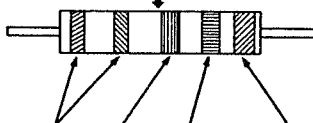
Circuit No.	
Value	No Indicated μF P: PF
Tolerance	No Indicated $\pm 10\%$ J: $\pm 5\%$ M: $\pm 20\%$ Z: $\pm 80\%$ -20% D: $\pm 0.5pF$ C: $\pm 0.25pF$
Sort	Ceramic Electrolytic Mylar Polyester Styrol
Voltage	No Indicated 50WV

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.

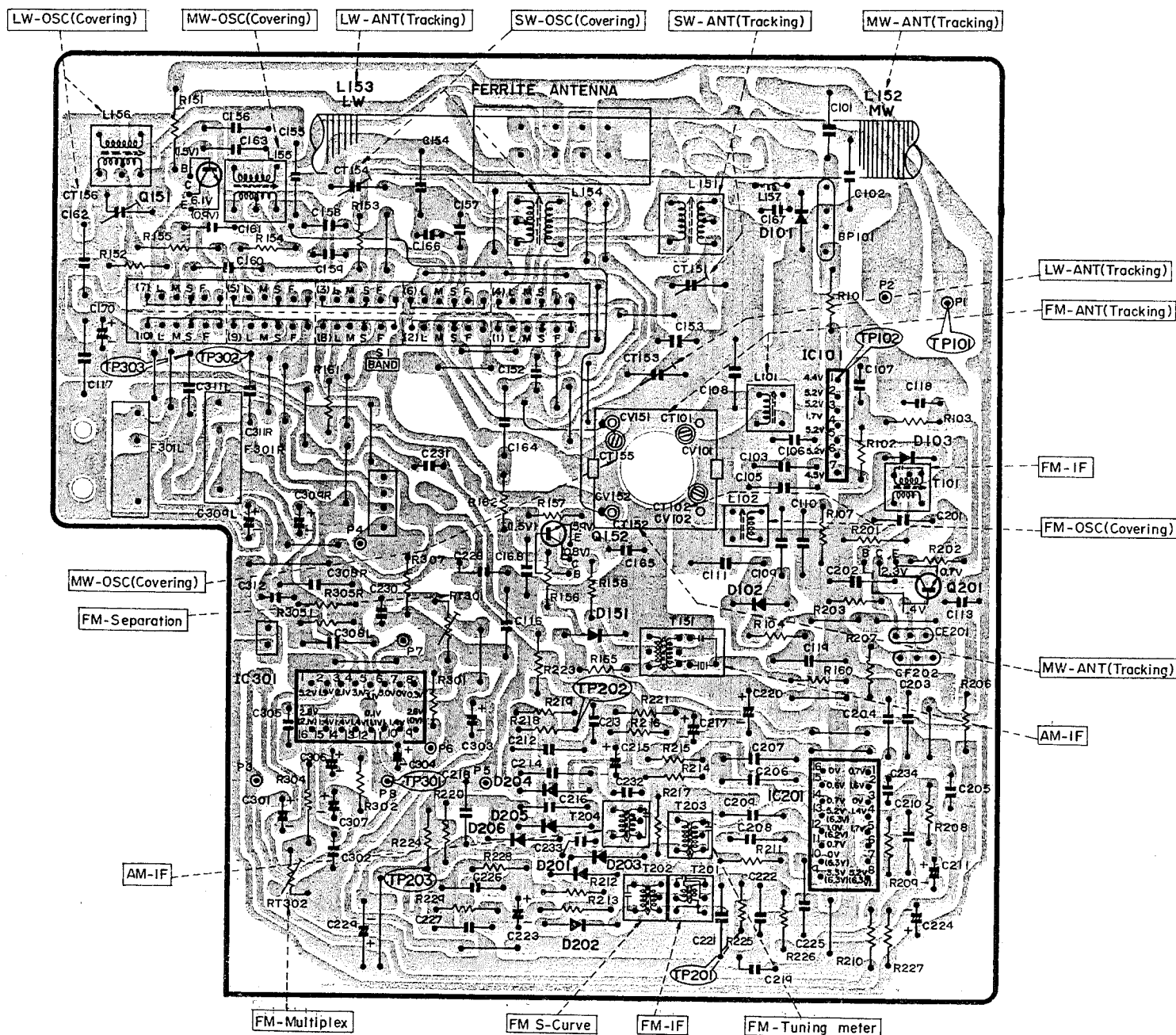
HOW TO READ CAPACITY OF RESISTOR SHAPE CAPACITORS

COLOR	RATED VOLTAGE
Pink	25V
Light green	50V

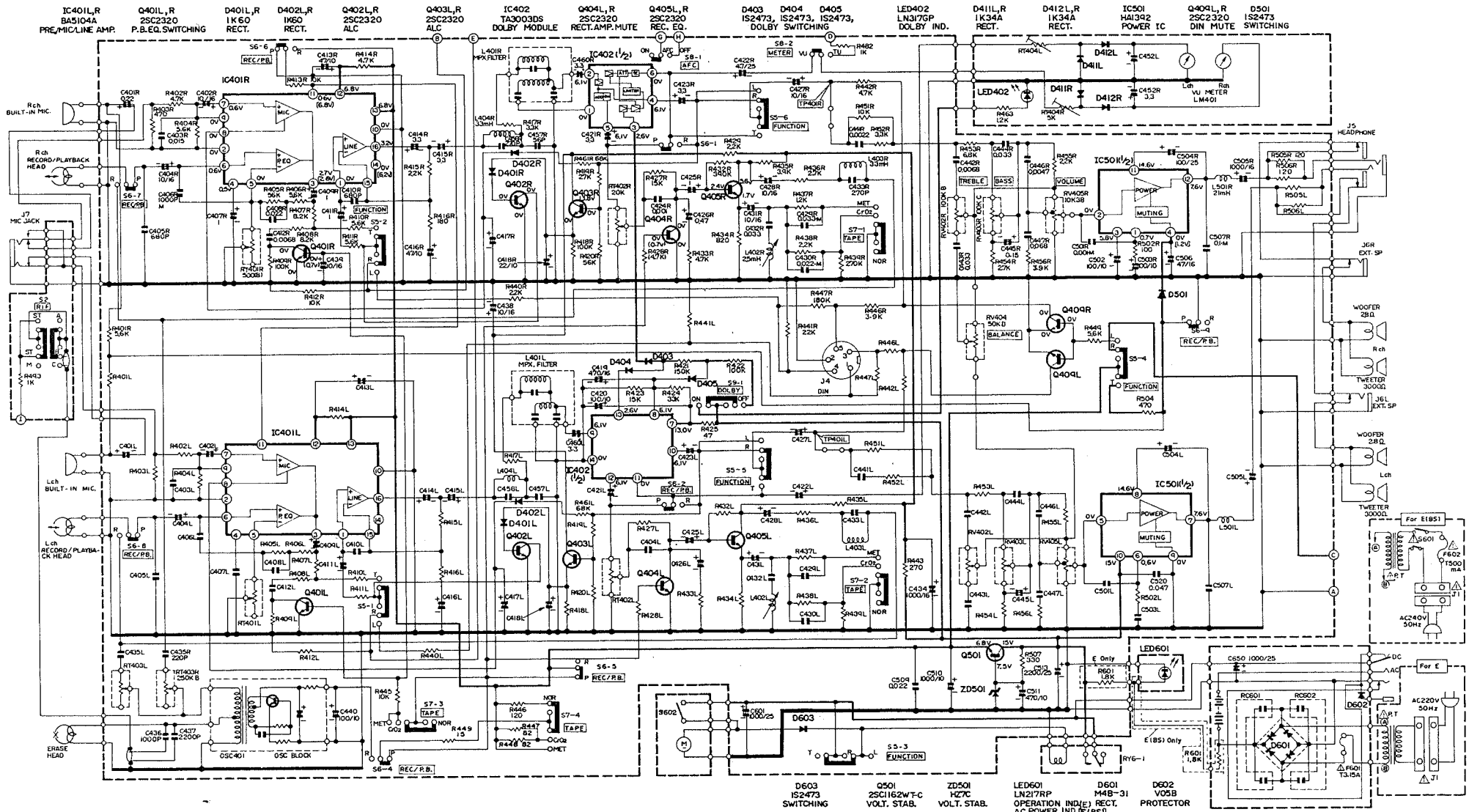
BASIC COLOR



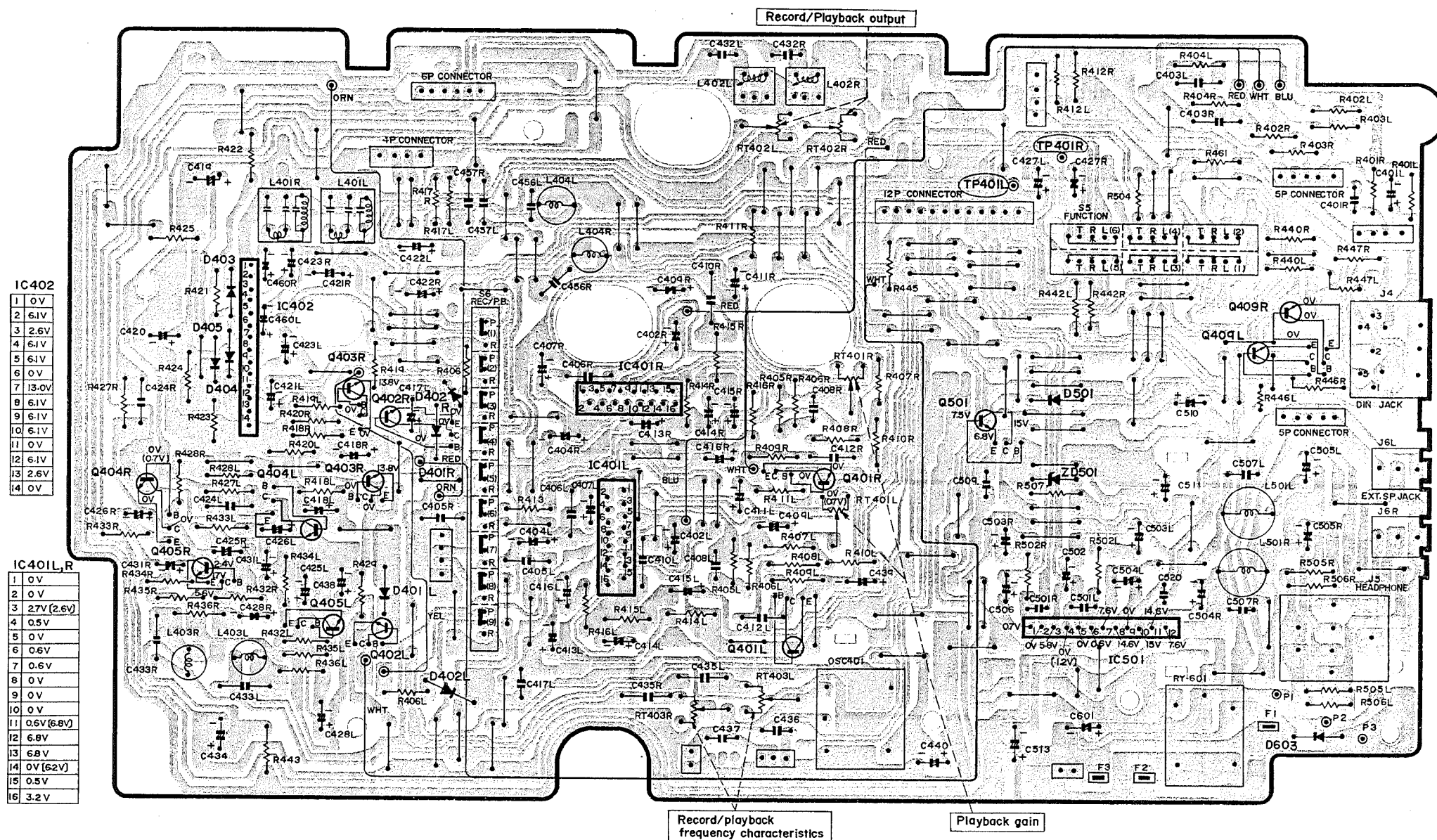
COLOR	CAPACITY	MULTIPLE	TOLERANCE	CHARACTERISTICS
Black	0	10^0	$\pm 20\%$	For temperature compensation
Brown	1	10^1		
Red	2	10^2		
Orange	3	10^3		
Yellow	4	10^4		
Green	5	10^5		
Blue	6			
Violet	7			
Grey	8		$\pm 30\%$	High dielectric constant type
White	9			For temperature compensation
Gold		10^{-1}	$\pm 5\%$	
Silver			$\pm 10\%$	High dielectric constant type



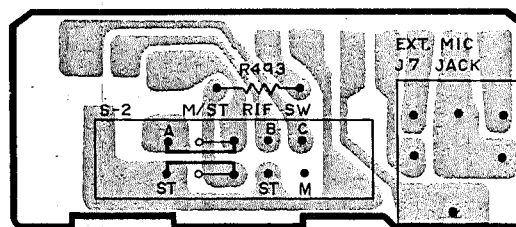
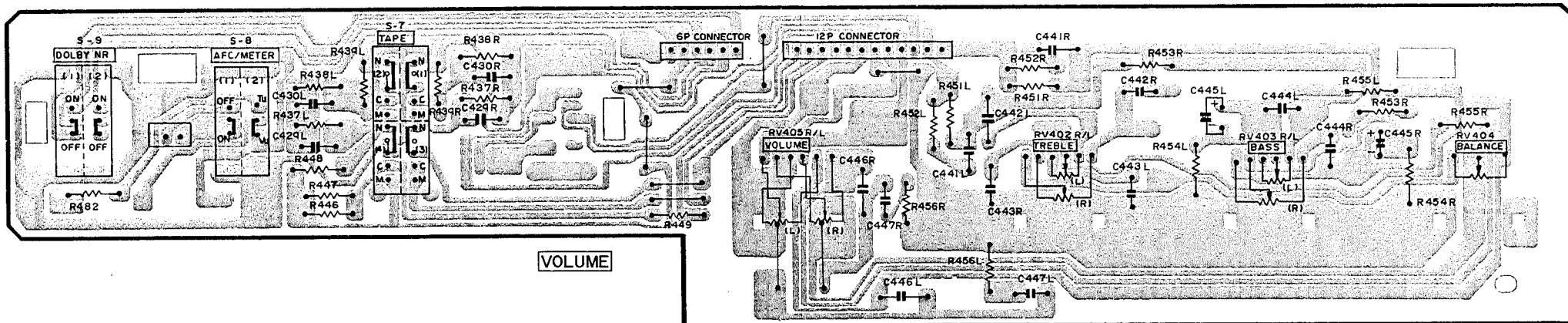
SCHEMATIC DIAGRAM (Tape Recorder Section)



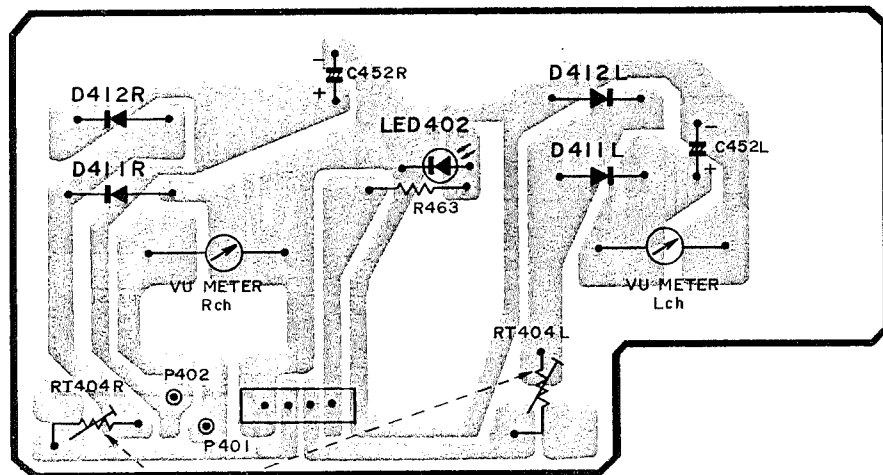
CIRCUIT BOARD DIAGRAM (Tape Recorder Section)



CIRCUIT BOARD DIAGRAM

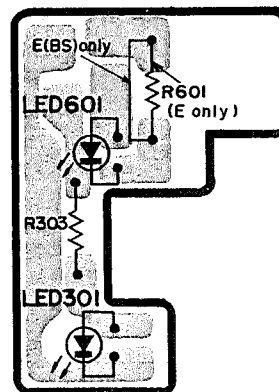


RIF

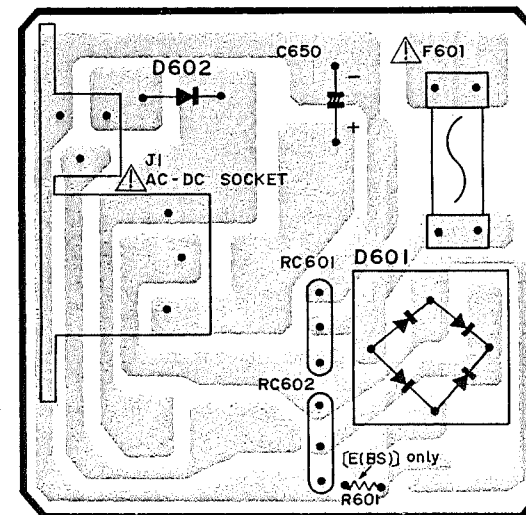


Level meter

METER

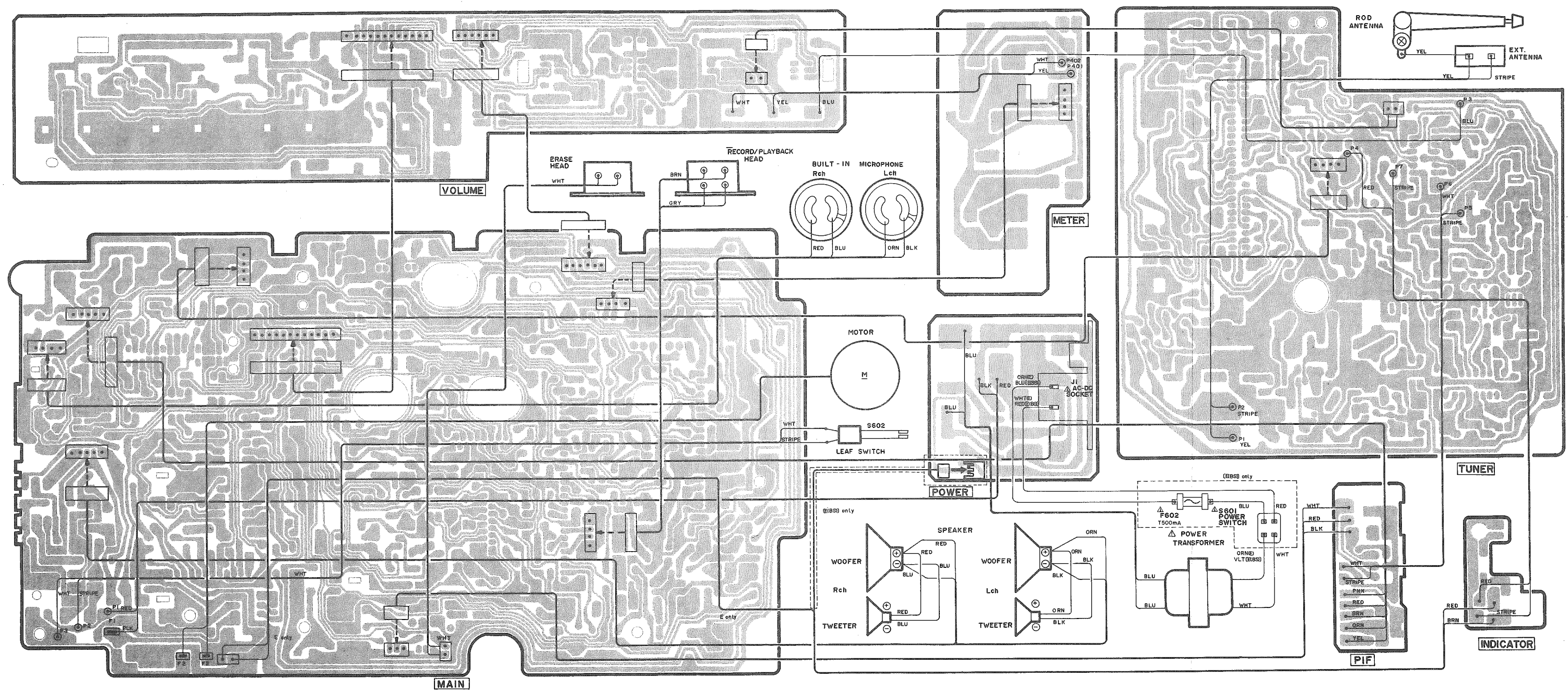


INDICATOR



POWER

WIRING DIAGRAM



REPLACEMENT PARTS LIST

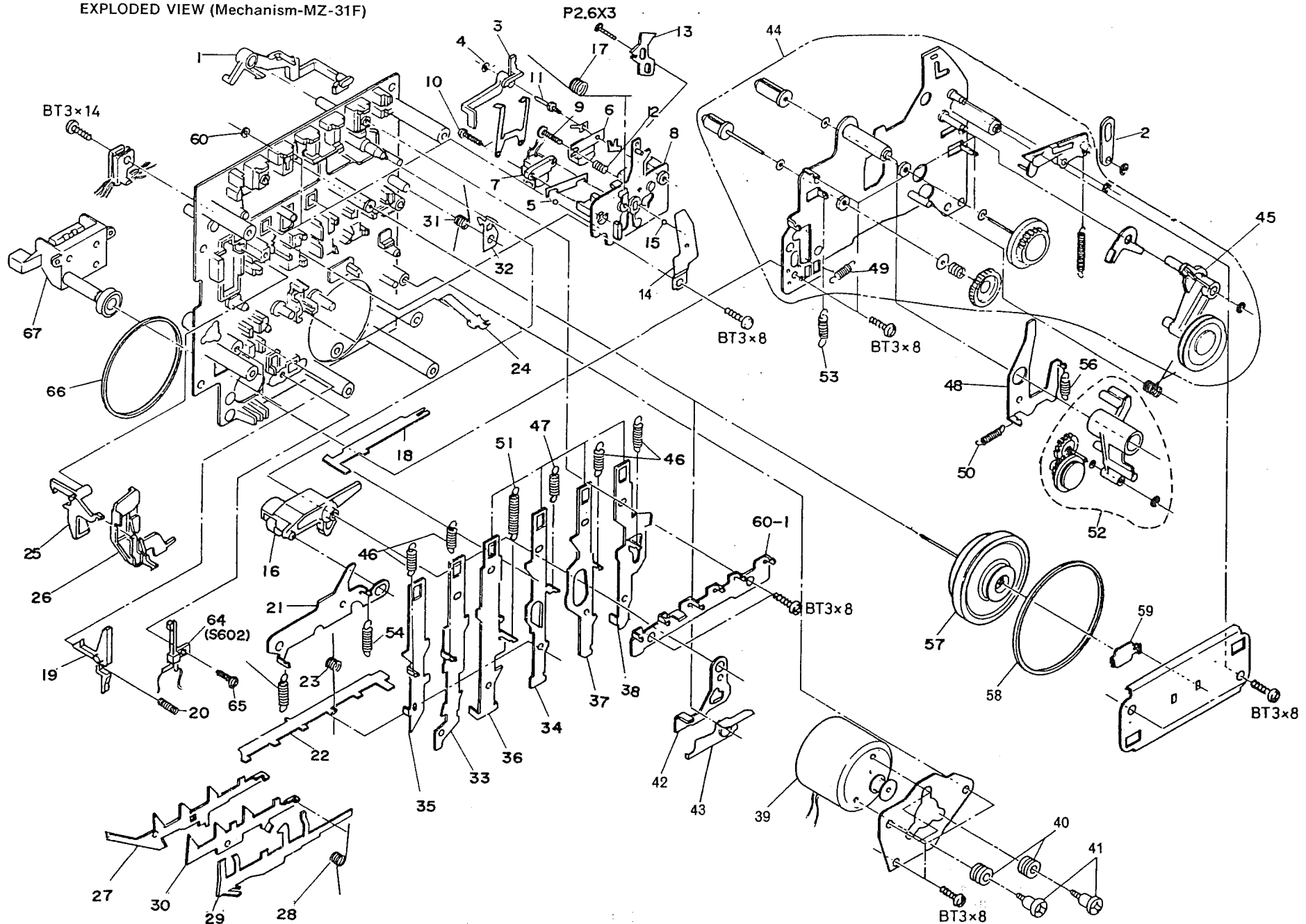
SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
CAPACITORS					
CT101	5052391	VARIABLE CAPACITOR	C208	0208138	CERAMIC DISC (RESISTOR SHAPE) 56PF +16%
CT102	5052391	VARIABLE CAPACITOR	C209	0209011	CERAMIC DISC (RESISTOR SHAPE) 150PF +10%
CT151	5058191	TRIMMER 7PF	C210	0208133	CERAMIC DISC (RESISTOR SHAPE) 22PF+ -5%
CT152	5052391	VARIABLE CAPACITOR	C212	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30
CT153	5058191	TRIMMER 7PF	C214	0209011	CERAMIC DISC (RESISTOR SHAPE) 150PF +10%
CT154	5058191	TRIMMER 7PF	C218	0209027	CERAMIC (RESISTOR SHAPE) 0.01MF+-30%
CT155	5052391	VARIABLE CAPACITOR	C222	0209004	CERAMIC DISC (RESISTOR SHAPE) 330PF +10%
CT156	5058102	TRIMMER 20PF	C225	0209027	CERAMIC (RESISTOR SHAPE) 0.01MF+-30%
CV101	5052391	VARIABLE CAPACITOR	C226	0209005	CERAMIC DISC (RESISTOR SHAPE) 390PF +10%
CV102	5052391	VARIABLE CAPACITOR	C227	0209005	CERAMIC DISC (RESISTOR SHAPE) 390PF +10%
CV151	5052391	VARIABLE CAPACITOR	C308LR	0209025	CERAMIC DISC (RESISTOR SHAPE) 6800P F+-30
CV152	5052391	VARIABLE CAPACITOR	C311LR	0209021	CERAMIC DISC (RESISTOR SHAPE) 1500PF+-1 0%
C101	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000P F+-10	C312	0249734	CERAMIC 3300PF+-10%
C102	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30	C403LR	0209027	CERAMIC (RESISTOR SHAPE) 0.015MF+-30%
C103	0208157	CERAMIC (RESISTOR SHAPE) 6.8PF+-10% (NP-0)	C405LR	0209008	CERAMIC DISC (RESISTOR SHAPE) 680PF +10%
C105	0208161	CERAMIC (RESISTOR SHAPE) 15PF+-10% (NP-0)	C406LR	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000P F+-10
C108	0208161	CERAMIC (RESISTOR SHAPE) 15PF+-10% (NP-0)	C410LR	0209008	CERAMIC DISC (RESISTOR SHAPE) 680PF +10%
C109	0208157	CERAMIC (RESISTOR SHAPE) 6.8PF+-10% (NP-0)	C412LR	0209025	CERAMIC DISC (RESISTOR SHAPE) 6800P F+-30
C110	0248332	CERAMIC (RESISTOR SHAPE) 12PF+-5%N-470	C424LR	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000PF+-10%
C111	0209027	CERAMIC (RESISTOR SHAPE) 0.01MF+-30%	C433LR	0209003	CERAMIC DISC (RESISTOR SHAPE) 270PF +10%
C116	0208141	CERAMIC DISC (RESISTOR SHAPE) 100PF +-5%	C435LR	0209002	CERAMIC DISC (RESISTOR SHAPE) 220PF +10%
C117	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30	C441LR	0209022	CERAMIC DISC (RESISTOR SHAPE) 0.002 2MF+-
C119	0209027	CERAMIC (RESISTOR SHAPE) 0.01MF+-30%	C442LR	0209025	CERAMIC DISC (RESISTOR SHAPE) 6800P F+-30
C154	0208153	CERAMIC (RESISTOR SHAPE) 3.3PF+-10%	C446LR	0209024	CERAMIC DISC (RESISTOR SHAPE) 4700P F+-30
C155	0208128	CERAMIC (RESISTOR SHAPE) 8.2PF+-5%	C457R	0209004	CERAMIC DISC (RESISTOR SHAPE) 330PF +10%
C156	0208141	CERAMIC DISC (RESISTOR SHAPE) 100PF +-5%	C458L	0209004	CERAMIC DISC (RESISTOR SHAPE) 330PF +10%
C160	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000P F+-10	RESISTORS		
C161	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30	RC601	0186451	CR PACK
C162	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30	RC602	0186451	CR PACK
C163	0209027	CERAMIC (RESISTOR SHAPE) 0.01MF+-30%	RT301	0151806	SEMI VARIABLE RESISTOR 1K OHM (B)
C164	0209027	CERAMIC (RESISTOR SHAPE) 0.01MF+-30%	RT302	5007185	SEMI VARIABLE RESISTOR 4.7K OHM
C168	0209027	CERAMIC (RESISTOR SHAPE) 0.01MF+-30%	RT401LR	5007473	SEMI VARIABLE 500 OHM (B)
C201	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30	RT402LR	5007478	SEMI VARIABLE 20K OHM
C202	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30	RT403LR	5007482	SEMI VARIABLE 250K OHM
C203	0209027	CERAMIC (RESISTOR SHAPE) 0.01MF+-30%	RT404LR	5007476	SEMI VARIABLE 5K OHM
C204	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30	RV402	5000908	VARIABLE RESISTOR 100K OHM (B)
C206	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30	RV403	5000909	VARIABLE RESISTOR 100K OHM (C)
C207	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F+-30	RV404	5000894	VARIABLE RESISTOR 50K OHM (5B)
			RV405	5000913	VARIABLE RESISTOR 10K OHM (3B)

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
SEMI-CONDUCTORS					
D101	5330573	DIODE 1S2473	L153	5113501	FERRITE CORE ANTENNA
D102	5330662	DIODE 1S2790	L154	5123494	SW OSC COIL
D103	5330573	DIODE 1S2473	L155	5120319	MW OSC COIL
D151	5331052	DIODE 1K60RLF-2	L156	5120465	LW OSC COIL
D201-206	5331052	DIODE 1K60RLF-2	L157	5123271	FM TRAP COIL 0.5MH
D401LR	5331622	DIODE 1N60LF-2	L401LR	5161661	DOLBY FILTER
D402L	5331622	DIODE 1N60LF-2	L402LR	5120274	CHOKE COIL
D402R	5331621	DIODE 1N60	L403LR	5150571	CHOKE COIL 33MH
D403-405	5330573	DIODE 1S2473	L404LR	5150571	CHOKE COIL 33MH
D411LR	5331502	DIODE 1K34ALF	L501LR	5150761	CHOKE COIL
D412LR	5331502	DIODE 1K34ALF	MISCELLANEOUS		
D501	5330573	DIODE 1S2473	△J1	5653242	AC-DC SOCKET
D601	5331102	DIODE M4B-31-22		5659121	BACK COVER
D602	5330501	DIODE SILICON UO-5B 60HZ 3MW	BP101	5161551	FILTER
D603	5330574	DIODE 1S2473	CF201	5160211	CERAMIC FILTER CF107A
IC101	5351901	IC AN7213	CF202	5160211	CERAMIC FILTER CF107A
IC201	5351064	IC AN253DB	F301LR	5161731	LCR FILTER
IC301	5350684	IC HA1330	△F601	5721065	FUSE 3.15A
IC401LR	5352762	IC BA5104	△F602	5720173	FUSE 500MA (E(BS))
IC402	5356835	MODULE TA3003DS	J 4	5653181	DIN SOCKET
IC501	5352141	IC HA1392	J 5	5674242	HEADPHONE SOCKET
LED301	5380593	LED LN417RP	J 6LR	5673381	JACK-3.5MMD (EXT. SP)
LED402	5380592	LED LN417GP	J 7	5673411	JACK-3.5MMD (EXT. MIC)
LED601	5380593	LED LN417RP	LM401	5553201	VU METER
Q151	5321281	TRANSISTOR SILICON 2SC1675-L 230MHZ 200M	OSC401	5260861	OSCILLATOR BLOCK
Q152	5321281	TRANSISTOR SILICON 2SC1675-L 230MHZ 200M	RY601	5641171	RELAY
Q201	5321281	TRANSISTOR SILICON 2SC1675-L 230MHZ 200M	S 1	5605231	SLIDE SWITCH (BAND)
Q401LR	5322621	TRANSISTOR 2SC2320E	S 2	5624241	SLIDE SWITCH (RIF)
Q402LR	5322621	TRANSISTOR 2SC2320E	S 5	5605174	SLIDE SWITCH (FUNCTION)
Q403LR	5322621	TRANSISTOR 2SC2320E	S 6	5623438	SLIDE SWITCH (REC/PLAYBACK)
Q404LR	5322621	TRANSISTOR 2SC2320E	S 7	5604281	LEVER SWITCH (TAPE)
Q405LR	5322621	TRANSISTOR 2SC2320E	S 8	5604082	LEVER SWITCH (AFC/METER)
Q409LR	5322621	TRANSISTOR 2SC2320E	S 9	5604082	LEVER SWITCH (DOLBY NR)
Q501	5320643	TRANSISTOR 2SC1162WT-C	△S601	5602022	SEESAW SWITCH (POWER) (E(BS))
Z0501	5330316	DIODE HZ7C1	FOR ACCESSORIES		
TRANSFORMERS			△	5747321	POWER CORD (E)
T101	5140071	FM IF	△	5746341	POWER CORD (E(BS))
T151	5160101	AM-IF		5896391	FM ANTENNA (E(BS))
T201	5148111	FM DISCRIMINATOR	FOR CASSETTE DECK ASSEMBLY (MZ-31F)		
T202	5148112	FM DISCRIMINATOR	1	6752801	PICK UP LEVER
T203	5140072	FM IF	2	6766003	JOINT PLATE
T204	5130122	AM IF	3	6763302	PICK UP PIECE
COILS			4	7786115	POLYESTER WASHER
L101	5126482	FM RF	5	0948492	BALL - 2HMD
L102	5126278	FM OSCILLATOR COIL	6	5449022	RECORD PLAYBACK HEAD
L151	5123493	SW RF	7	5445352	ERASE HEAD
L152	5113501	FERRITE CORE ANTENNA	8	6761473	HEAD PLATE
			9	7781004	SCREW
			10	7780913	TAPPING SCREW-2HMDX10MM

TRK-8200E, E (BS)












SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
FOR CASSETTE DECK ASSEMBLY (MZ-31F)			FOR CASSETTE DECK ASSEMBLY (B)		
11	7545533	SPECIAL SCREW	61	6055555	BUTTON ASSEMBLY
12	6321733	HEAD SPRING C	62	6055554	BUTTON ASSEMBLY (REC)
13	7329751	HEAD PLATE CAM	63	6535021	RECORD SPRING ASSEMBLY
14	6329637	HEAD PLATE HOLDER	64	5603451	LEAF SWITCH (S802)
15	0948492	BALL - 2HMD	65	7780185	PAN HEAD S TIGHTENING SCREW-2.6MMDX 8MM
16	6383143	PRESSURE ROLLER ARM ASSEMBLY	66	6355202	COUNTER BELT
17	6307741	SPRING	67	5559257	COUNTER
18	7286185	PLAY/RECORD LEVER	MISCELLANEOUS		
19	6741104	RECORD PREVENTION ARM	68	6284021	TUNING KNOB
20	6304161	SPRING	69	6283398	KNOB ASSEMBLY
21	7338666	PLAY/RECORD PLATE	70	6291882	LEVER KNOB
22	7308358	LOCK PLATE	71	6283911	KNOB (VOLUME)
23	6307733	SPRING	72	6283624	KNOB (BALANCE, BASS, TREBLE)
24	6530471	CASSETTE HOLDER	73	7781148	BT SCREW-3MMDX50MM
25	6740982	EJECT ARM	74	6107761	FRONT CASE ASSEMBLY
26	6761392	EJECT SLIDER	75	6763961	GEAR DAMPER ASSEMBLY
27	7329702	SWITCH PLATE	76	6093641	CASSETTE LID ASSEMBLY
28	6308102	SPRING	77	5421571	BUILT IN MICROPHONE
29	7338032	S LOCK PLATE	78	6570291	MIC COVER
30	7329721	PLATE FOR REVIEW, CUE	79	6531142	SPRING
31	6307711	SPRING	80	6334492	HANDLE ASSEMBLY
32	7336861	PAUSE LOCK PIECE	81	5407423	SPEAKER-16CM
33	7329335	RECORD SLIDER	82	5409111	SPEAKER-3CM
34	7329352	REWIND SLIDER	83	7781133	BT SCREW-3MMD
35	7329321	STOP SLIDER	84	6107801	REAR CASE ASSEMBLY (E)
36	7329343	PLAY SLIDER	85	6107802	REAR CASE ASSEMBLY (E)(BS)
37	7329311	FF SLIDER	86	7581941	TUNING SHAFT
38	7329561	PAUSE SLIDER	87	5605143	SLIDE ROTARY SWITCH
39	6428391	DC MOTOR ASSEMBLY	88	5605142	SLIDE ROTARY SWITCH
40	6576083	RUBBER PLATE	89	5605241	SWITCH WIRE
41	7539007	SPECIAL SCREW	90	5605153	SWITCH WIRE
42	7287819	RC LEVER	91	6768582	SCALE HOLDER ASSEMBLY
43	7311143	FF FUNCTION LEVER	92	6345181	PULLEY
44	7338573	TURN TABLE HOLDER ASSEMBLY	93	6398762	POINTER
45	6413982	TAKE UP ARM ASSEMBLY	94	6316231	SPRING M
46	6300375	SPRING FOR RECORDING PLATE	95	6768161	SCALE HOLDER
47	6324814	SPRING	96	8699414	BT BIND HEAD SCREW-3MMDX14MM
48	7286032	LEVER FOR FF/REWIND	97	6107382	CENTER COVER
49	6300597	SPRING	98	6468141	SCALE PLATE (E)
50	6300375	SPRING FOR RECORDING PLATE	99	6468142	SCALE PLATE (E)(BS)
51	6301233	SPRING	100	5671661	FM ANTENNA TERMINAL
52	7109603	FF, REWIND ARM ASSEMBLY	101	6769401	METER HOLDER
53	6300981	SPRING	102	6764802	TERMINAL HOLDER
54	6301361	SPRING	103	7331091	BATTERY TERMINAL
55	6323064	SPRING	104	6305961	BATTERY SPRING (+, -)
56	6300996	SPRING	105	6305973	BATTERY SPRING
57	6373281	FLYWHEEL ASSEMBLY	106	5687142	CAP TERMINAL
58	6354211	BELT	107	8744414	BIND SCREW-3MMDX14MM
59	6743884	THRUST SUPPORT	108	5752601	ROD ANTENNA
60	7786621	POLYSLIDER WASHER			
60-1	7329301	SLIDER SUPPORT			

EXPLODED VIEW (Mechanism-MZ-31F)



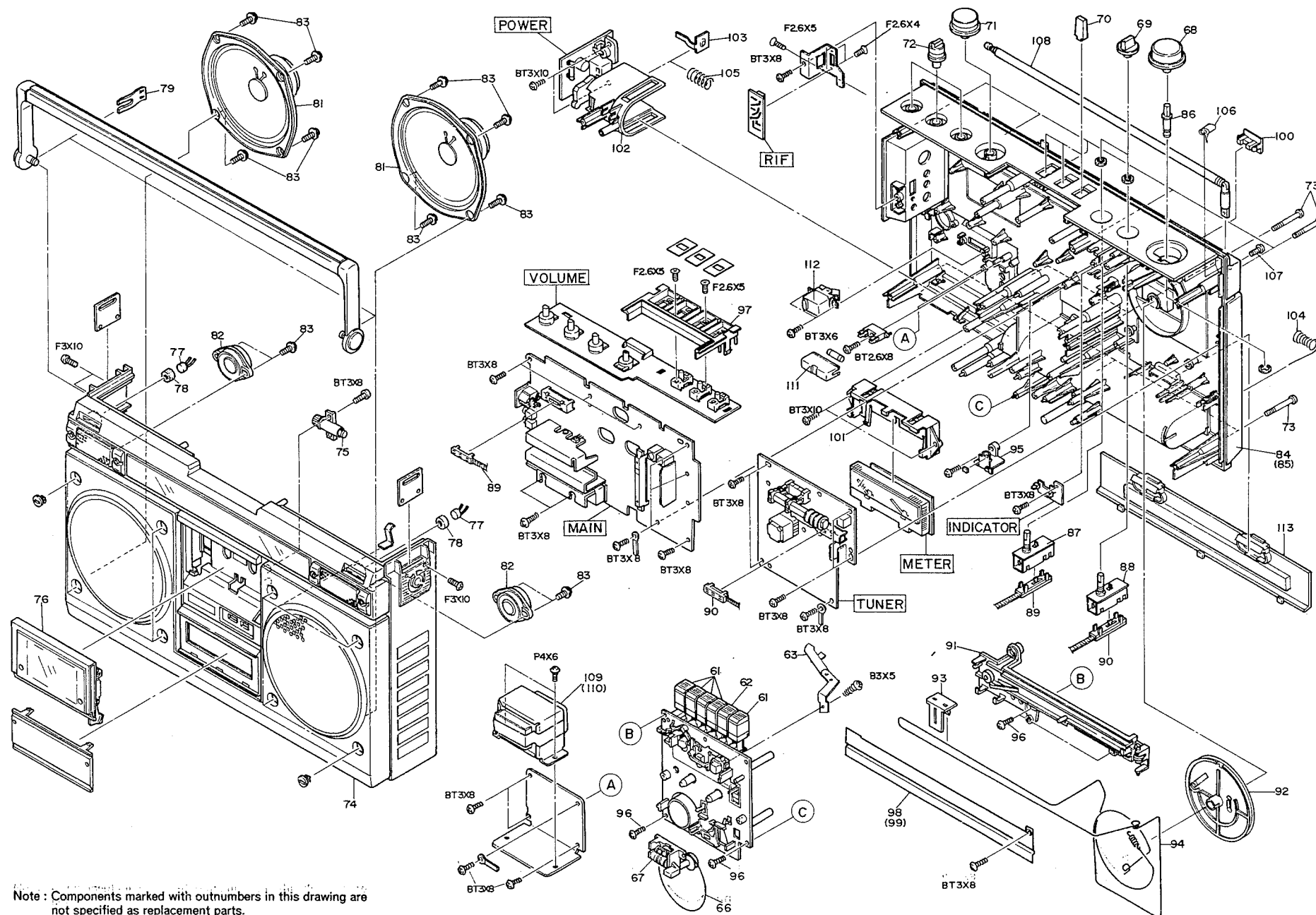
Note : Components marked without numbers in this drawing are not specified as replacement parts.

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
MISCELLANEOUS			111	6746881	FUSE COVER [E(BS)]
△	109	5212444 POWER TRANSFORMER (E)	112	6746902	SWITCH COVER [E(BS)]
△	110	5212445 POWER TRANSFORMER [E(BS)]	113	6173453	BATTERY LID ASSEMBLY

	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.

EXPLODED VIEW (Cabinet)





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