

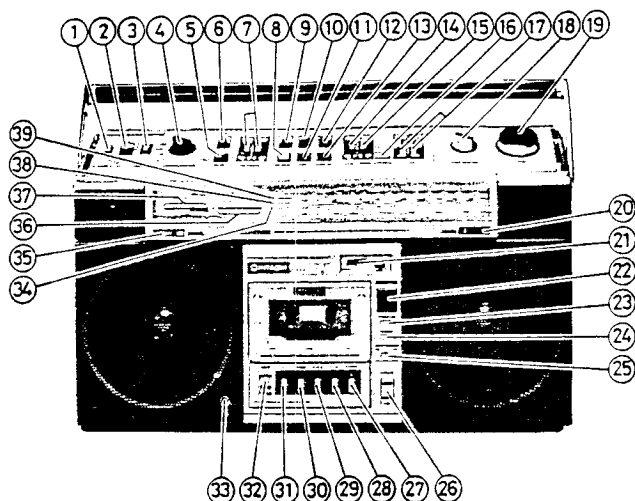
SERVICE MANUAL

For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
8 Cherry Tree Rd, Chinnor

No. 1389

Over OXO 4QV
Tel: 01844-351694 Fax: 01844-352554
Email: enquiries@mauriton.co.uk

KEY TO ILLUSTRATIONS



- | | |
|--------------------------------------|--------------------------------|
| 1 Dial light button | 21 Tape counter |
| 2 Power switch | 22 Program indicator |
| 3 Timer stand-by mode switch | 23 Program switch |
| 4 Function selector | 24 Repeat switch |
| 5 Meter switch (Tune/Batt./Level) | 25 Auto rewind switch |
| 6 AFC switch | 26 Pause button |
| 7 Record level controls | 27 Stop button |
| 8 REC mute switch | 28 Fast forward button |
| 9 Record mode selector (Auto/Manual) | 29 Playback button |
| 10 Tape selector (Bias) switch | 30 Rewind button |
| 11 Mode switch | 31 Record button |
| 12 Tape selector (Equalizer) switch | 32 Eject button |
| 13 Dolby NR switch | 33 Headphone socket |
| 14 Bass control | 34 Dolby NR indicator |
| 15 Treble control | 35 Built-in microphone (Left) |
| 16 Loudness switch | 36 Level/tuning indicator |
| 17 Volume control | 37 Level/battery indicator |
| 18 Band selector | 38 FM stereo indicator |
| 19 Tuning control | 39 Operation indicator (For E) |
| 20 Built-in microphone (Right) | AC power indicator [For E(BS)] |

SPECIFICATIONS

GENERAL SECTION

Semi-conductors: IC's: 13
Transistors: 48
Diodes: 43
LED: 23
Varistors: 2

Power (Mains) Supply: AC: 220V, 50 Hz [For E]
240V, 50 Hz [For E (BS)]
DC: 13.5V (IEC R20 x 9)
Car: Use car battery adaptor
5 cm, 4 ohms x 2

Power (Mains) Consumption: 24W
Power output: 8W/CH (Max.), 5W/CH (THD 10%)
Speaker: 16 cm, 3.2 ohms x 2

Dimensions: 556(W) x 318(H) x 173(D) mm
Weight: 8.0 kg (with batteries)

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.), 2 dB (max.)
SW: 25 dB (pra.), 20 dB (max.)
MW: 42 dB (pra.), 30 dB (max.)
LW: 52 dB (pra.), 40 dB (max.)

Intermediate Frequency: FM: 10.7 MHz
SW/MW/LW: 468 kHz

Antennas (Aerials): FM/SW: Telescopic antenna or External antenna
MW/LW: 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 erasing
Frequency Response: Normal: 50~12,000 Hz
CrO₂: 50~14,000 Hz
Metal: 50~15,000 Hz

S/N (Signal to Noise Ratio): 50 dB (Dolby NR OFF)
60 dB (Dolby NR ON)
0.06% (WRMS)

Wow & Flutter: Between tracks: 50 dB
Cross Talk: Between channels: 25 dB
65 dB

Erase Ratio: Microphone: 0.4 mV, 500 ohms
Input sensitivity and Impedance: Phono: 3 mV, 50 kohms
Record/Playback(DIN): 6 mV, 12 kohms

Output Level and Impedance: Record/Playback(DIN): 775 mV, 5 kohms
Ext. speaker: 3.2 ohms

Fast Forward or Rewinding Time: 110 sec (Using C-60)
Distortion: 1.5%
Motor: DC micromotor x 2

* Specifications and schematic diagram are subject to change for performance improvement without notice.

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

July 1980

SAFETY PRECAUTION

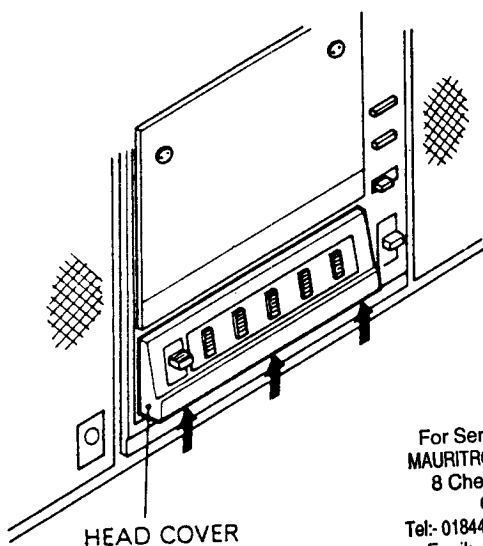
The following precautions should be observed when servicing.

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.

DISASSEMBLY

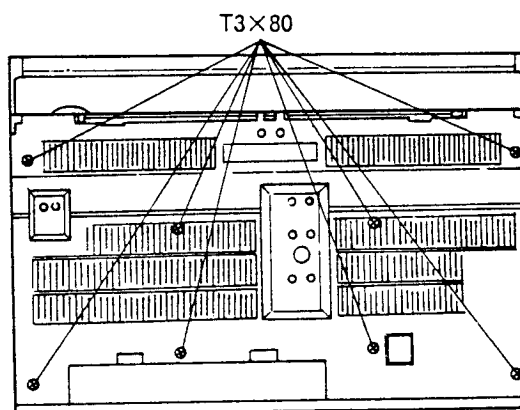
1. Head Cover

Push up the head cover in the direction of arrow.



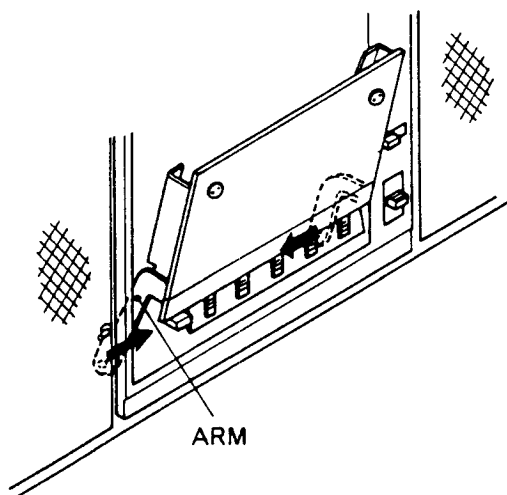
For Service Manuals Contact
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8 Cherry Tree Rd, Chinnor
Oxon OX9 4QY
Tel:- 01844-351694 Fax:- 01844-352554
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3. Rear Case



2. Cassette Lid

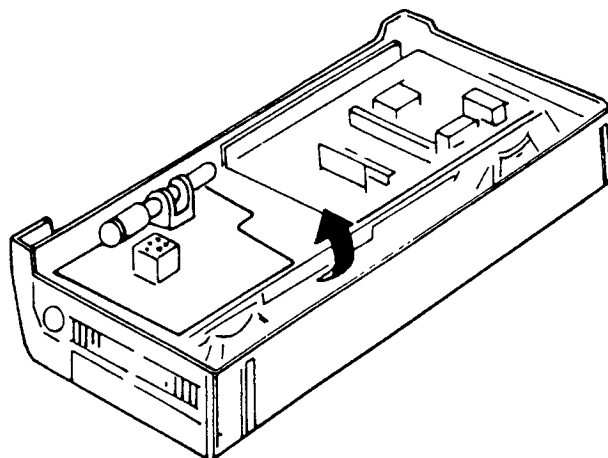
Press the eject button to release the engagement of the mechanism and cassette lid. Then push the both arms of cassette lid in the direction of arrow.



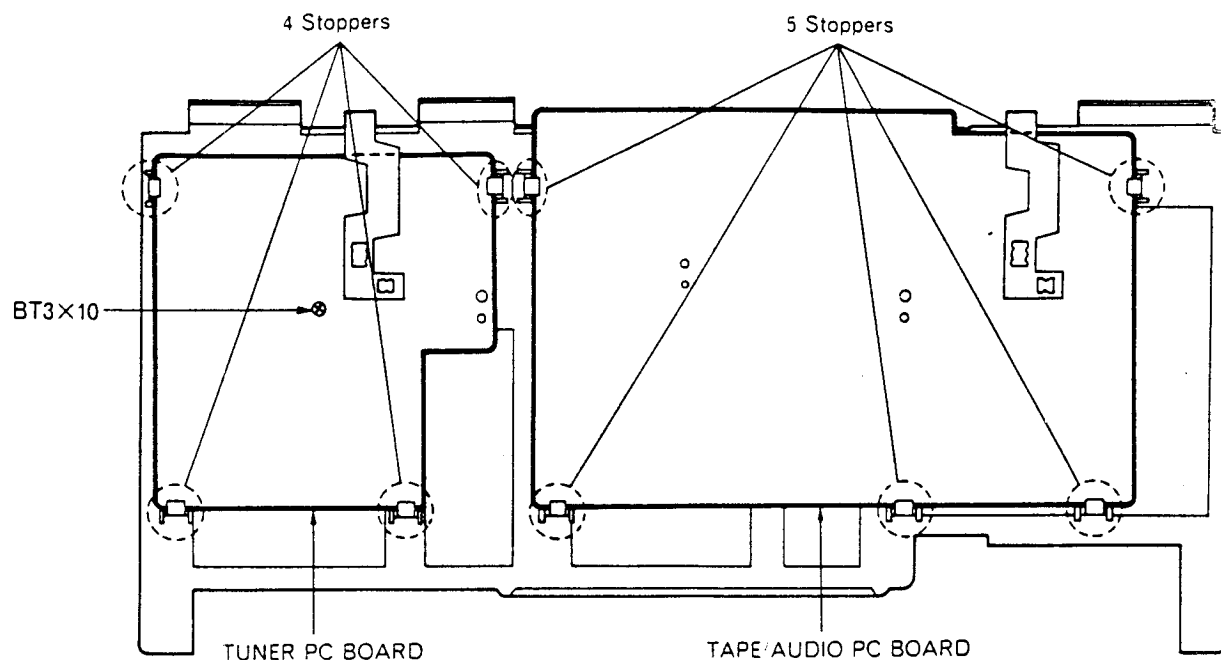
4. Main Chassis

Remove nine knobs (Function, REC Volume, Bass, Treble, Volume, Band, Tuning).

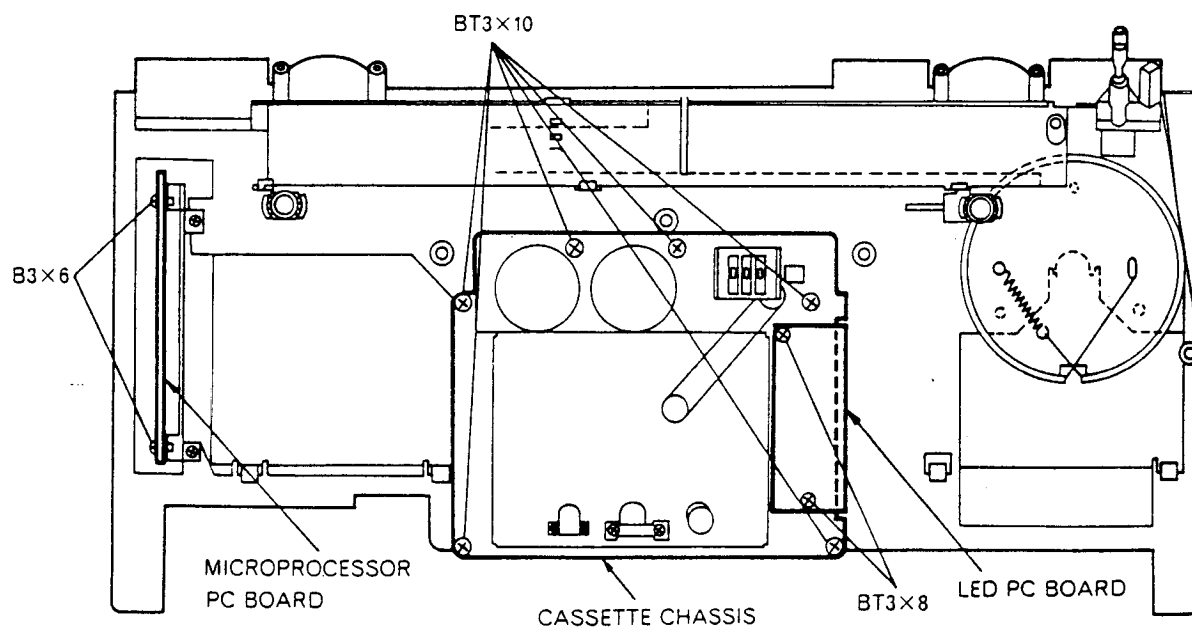
Press the eject button to release the engagement of the mechanism and cassette lid. Then lift up the battery side of the main chassis.



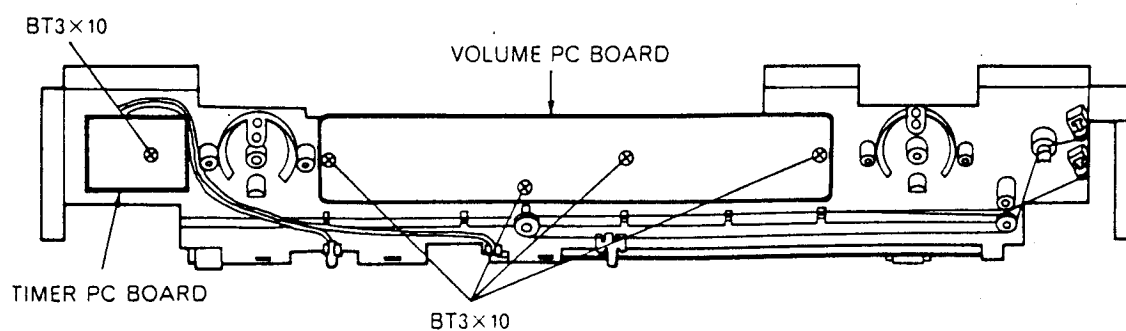
5. Tuner PC Board, Tape/Audio PC Board



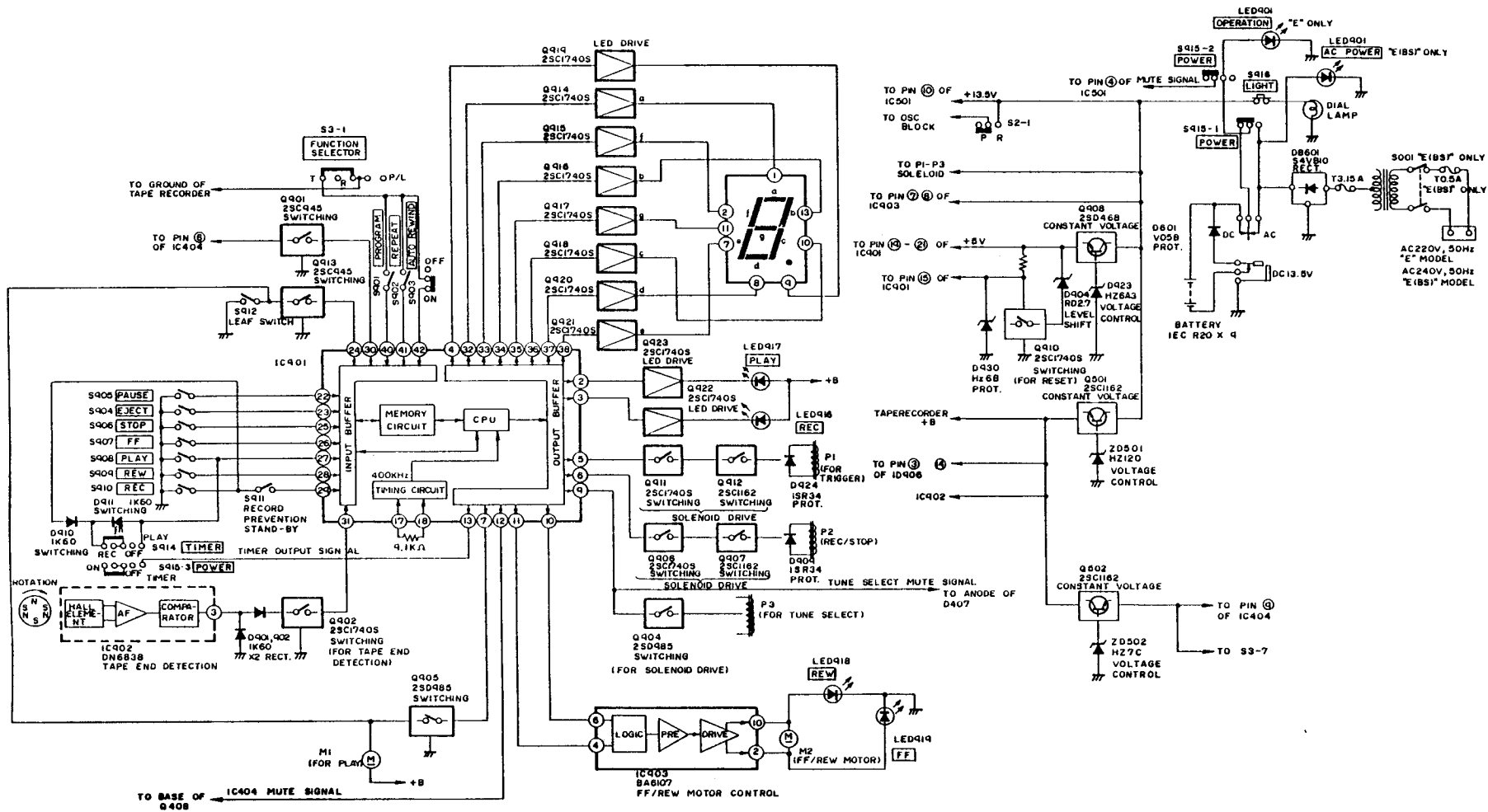
6. Cassette Chassis, Microprocessor PC Board, LED PC Board



7. Volume PC Board, Timer PC Board



2. Microprocessor and peripheral circuit



ADJUSTMENT

1. Tuner Section

* 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 (400Hz 30% mod.) • Oscilloscope • VTVM	TP101 (thru dummy antenna)	Speaker terminal	87 MHz (87.5 MHz*)	Lowest	L103	Max.					
	(2)				109 MHz (108 MHz*)	Highest	CT102						
	(3)				Repeat steps (1) and (2)								
3	(1) FM ANT. (Tracking)				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 10μF 25V electrolytic capacitor between the No.2 pin of IC301 and ground.	TP301	—	—	RT302	19 kHz ± 200 Hz (Note 3)					
5	(1) FM Stereo Separation	• FM signal generator [98MHz, L+R(1kHz): 30% mod. Pilot (19kHz) : 10% mod.] • Oscilloscope • VTVM	TP101 (thru dummy antenna)	Speaker terminal	98 MHz 60 dB	98 MHz	RT301	Note 4					
6	(1) AM IF	• Genescope (468 kHz)	Ferrite antenna	TP251	468 kHz	Highest	T151 T204	Note 5					
	(2)				Repeat step (1)								
7	(1) MW OSC. (Covering)	• AM signal generator (400Hz, 30% mod.) • VTVM		Speaker terminal	515 kHz	Lowest	L155	Max.					
	(2)				1650 kHz	Highest	CT155						
	(3)				Repeat steps (1) and (2)								
8	(1) MW ANT. (Tracking)						600 kHz	600 kHz	L152	Max.			
	(2)						1400 kHz	1400 kHz	CT152				
	(3)						Repeat steps (1) and (2)						
9	(1) LW OSC. (Covering)								145 kHz	Lowest	L156	Max.	
	(2)								360 kHz	Highest	CT156		
	(3)								Repeat steps (1) and (2)				
10	(1) LW ANT. (Tracking)										160 kHz	160 kHz	L153
	(2)		330 kHz								330 kHz	CT153	
	(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				
11	(1) SW OSC. (Covering)	• AM signal generator (400Hz, 30% mod.)	TP101 (thru dummy antenna)	Speaker terminal	5.8 MHz	Lowest	L154	Max.
	(2)				18.5 MHz	Highest	CT154	
	(3)				Repeat steps (1) and (2)			
12	(1) SW ANT. (Tracking)	• VTVM	TP101 (thru dummy antenna)	Speaker terminal	6.5 MHz	6.5 MHz	L151	Max.
	(2)				16.0 MHz	16.0 MHz	CT151	
	(3)				Repeat steps (1) and (2)			
13	(1) FM Tuning level	• Genescope (10.7 MHz)	TP102	TP252	10.7 MHz	Highest	T203	Max.

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.
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.
3. Connect the frequency counter to TP301 via a resistor of 100 k Ω .
4. Feed the signal for each channel and adjust RT301 so that an optimum separation can be obtained.
5. Feed in a weak signal from the genescope. Adjust T151 and T204 for maximum gain and the waveform of Figure 3.

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

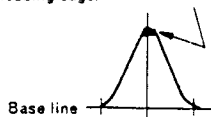


Fig. 1

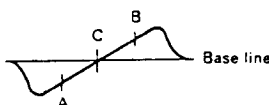
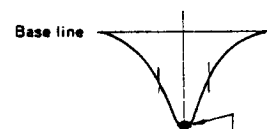


Fig. 2



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

Fig. 3

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	Tape speed	•Frequency counter	—	Record/ Playback socket (output)	MTT-111, 3,000 Hz	Playback	Semivariable resistor in the motor	3000 Hz + 90 -10 Hz	Note 1
2	Head azimuth	• VTVM	—		MTT-316 or 216 12.5 kHz		Azimuth adjusting screw	Output Max.	Note 2
3	Playback gain	Set the tape selector (EQ) switch to Normal position.							
		• VTVM	—	TP401L,R	MTT-150, 400 Hz 20 m Maxwell	Playback	RT402L,R	0.775V (0 dBm)	—
4	Level indicator						RT404L,R	0 dB	Note 3

Step	Adjustment Item	Measuring Instrument and Connection			Check Tape	Mode	Adjusted Position	Adjusted Value	Remarks
		Measuring Instrument	Input Terminal	Output Terminal					
5	Bias leakage	Set the tape selector (Bias) switch to Metal position.							
		•VTVM	—	TP403L,R	—	Record	L401L,R	Output Min.	—
6	Bias current	① Set the tape selector (Bias, EQ) switch to Normal position. ② Adjust RT403L,R to middle position. ③ Next, turn L402L,R fully clockwise.							
		•Audio oscillator (1.25kHz/12.5kHz, 0 dB -20 dB) •Frequency counter •VTVM	Record/playback socket (input)	Record/playback socket (output)	Hitachi ER/UD tape	Record/playback	RT401L,R	Output difference : within ± 2 dB	Note 4
7	Record/playback output	Set the tape selector (Bias, EQ) switch to Normal position.							
		•Audio oscillator (400 Hz, 0 dB) •Frequency counter •VTVM	Record/playback socket (input)	Record/playback socket (output)	Hitachi ER/UD tape	Record/playback	RT403L,R	0 dB $\pm$ 1 dB	Note 5
8	Dolby NR check	•Audio oscillator (5 kHz, level of -30.4 dBm $\pm$ 0.1 dB at TP401L,R) •Frequency counter •VTVM	Record/playback socket (input)	TP401L,R	—	Record	Set the Dolby NR switch to ON.	8dB $\pm$ 0.2dB boost	Note 6
9	DRPS level	Connect a VTVM between pin ⑥ of IC404 and the ground. Load test tape TMT-6261 (500 Hz, -40 dB/ -35 dB) and set the unit to the DRPS mode (FF) from the playback mode. Play the recorded signal section (500 Hz, -40 dB) of the test tape in the DRPS mode (FF), and adjust RT405 so that output voltage becomes Hi (8.5V) to Lo (0V). Check that the output voltage of IC404 pin ⑥ is Hi potential at the -35 dB section, and Lo potential at the -40 dB section.							
10	Checking STOP	Load test tape TMT-6262 (for checking Stop/Non-stop) and set the unit to the DRPS mode (FF) after the tape fully rewind. Check that the tape does not stop at non-signal sections (0.8 sec), but stops at the next 3.0 sec non-signal section. Since the 0.8 sec and 3.0 sec non-signal sections are present at 9 positions with equal intervals, it can be checked continuously 9 times. Set the DRPS program to "9" and check that the playback mode at indication "0".							

Note:

- Adjust within 30 sec. after heat-running for more than 20 minutes.
- When the maximum values of both channels are different, tune 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.
- With the condition shown in step 3, adjust RT404L,R so that the level indicator lamp ( mark) lights up.
- Record a 1.25kHz and 12.5kHz signals at a level of 0 dB -20 dB on Hitachi ER/UD tape. Then, playback this

tape and adjust RT401L,R so that the output difference is within ± 2 dB.

- Record a signal of 400 Hz, 0 dB on a Hitachi ER/UD tape. Playback the tape and adjust RT403L,R for a playback output of 0 dB $\pm$ 1 dB.
- Supply a 5 kHz signal to the Record/Playback socket (input) to obtain the level of -30.4 dBm $\pm$ 0.1 dB at test points TP401L,R. Confirm that the level is boosted by 8 dBm $\pm$ 0.2 dB when the Dolby NR switch is set to ON.

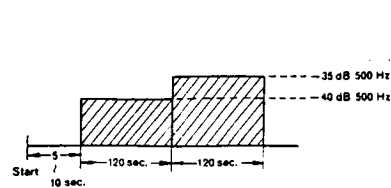


Fig. 4 TMT-6261

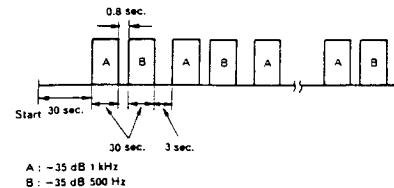


Fig. 5 TMT-6262

INSPECTION OF MECHANISM

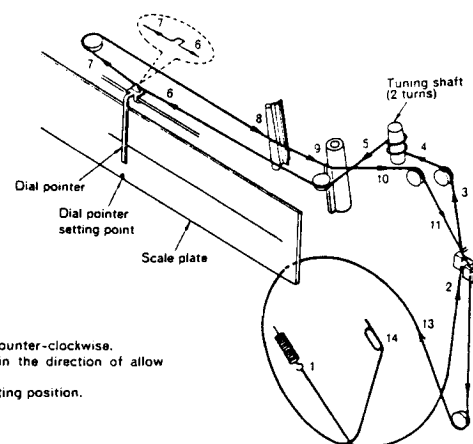
Check Item	Reference Value	Remarks
1 Pressure of pressure roller	330±50 gr	Measure in playback mode
2 Torque	Take-up	30 to 55 gr-cm
	FF	80 to 110 gr-cm
	Rewind	80 to 110 gr-cm
3 Back-tension	Take-up side	1 to 4 gr-cm
	Supply side	1.5 to 4 gr-cm
4 Pressure of take-up roller	100±30 gr	Measure in playback mode
5 Brake force	More than 10 gr-cm	—
6 Pressing force of buttons	Pause button	Less than 1.2 kg
	Eject button	Less than 1.2 kg

LUBRICATIONS

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	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)		

DIAL CORD STRINGING



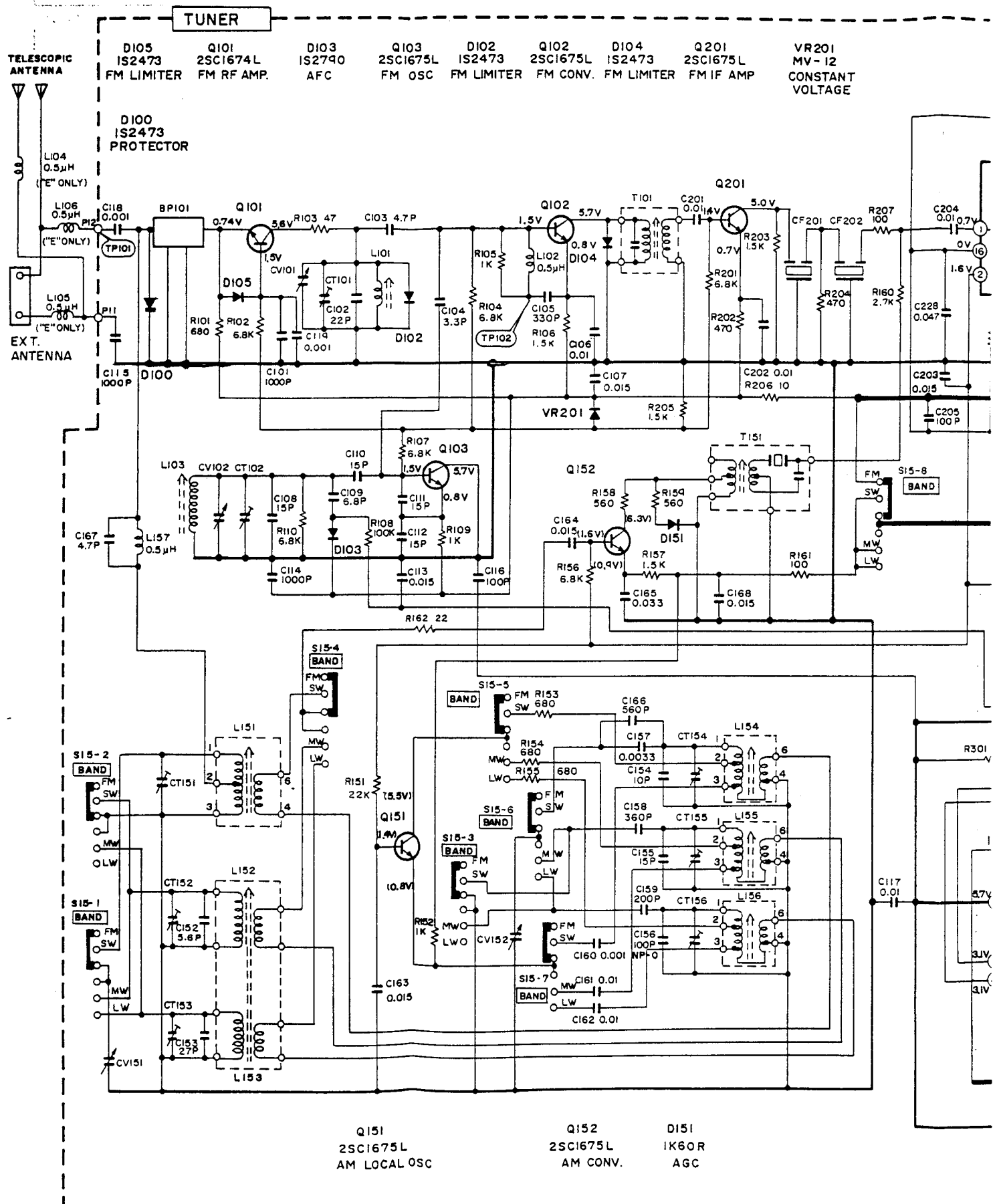
STRINGING METHOD

1. Turn the pulley fully counter-clockwise.
2. String the dial cord in the direction of allow (No. 1~14).
3. Set the pointer to setting position.

REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
CAPACITORS					
CT101-102	5052391	PLASTIC FILM VARIABLE	C108	0209027	CERAMIC DISC (RESISTOR SHAPE) 0.015 MF±3
CT151	5058191	TRIMMER 10PF	C201	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F±30
CT153	5058191	TRIMMER 10PF	C202	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F±30
CT154	5058191	TRIMMER 10PF	C203	0209027	CERAMIC DISC (RESISTOR SHAPE) 0.015 MF±3
CT156	5058102	VARIABLE	C204	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F±30
CV101-102	5052391	PLASTIC FILM VARIABLE	C205	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F±30
CV151-152	5052391	PLASTIC FILM VARIABLE	C206	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F±30
C101	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000P F±10	C207	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F±30
C102	0209013	CERAMIC DISC (RESISTOR SHAPE) 22PF±5%	C208	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F±30
C103	02090125	CERAMIC DISC (RESISTOR SHAPE) 4.7PF±5%	C209	0209011	CERAMIC DISC (RESISTOR SHAPE) 150PF±10%
C104	02090124	CERAMIC DISC (RESISTOR SHAPE) 3.3PF±5%	C210	0209013	CERAMIC DISC (RESISTOR SHAPE) 22PF±5%
C105	0209004	CERAMIC DISC (RESISTOR SHAPE) 330PF±10%	C212	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F±30
C106	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F±30	C214	02090138	CERAMIC DISC (RESISTOR SHAPE) 680PF±10%
C107	0209027	CERAMIC DISC (RESISTOR SHAPE) 0.015 MF±3	C216	0209027	CERAMIC DISC (RESISTOR SHAPE) 0.015 MF±3
C108	02090174	CERAMIC DISC 15PF±5%	C218	0209027	CERAMIC DISC (RESISTOR SHAPE) 0.015 MF±3
C109	02090157	CERAMIC DISC (RESISTOR SHAPE) 6.8PF±10% (NP-0)	C219	0209027	CERAMIC DISC (RESISTOR SHAPE) 0.015 MF±3
C110	02090161	CERAMIC DISC (RESISTOR SHAPE) 15PF±10% (NP-0)	C221	0209011	CERAMIC DISC (RESISTOR SHAPE) 150PF±10%
C111	02090161	CERAMIC DISC (RESISTOR SHAPE) 15PF±10% (NP-0)	C222	0209004	CERAMIC DISC (RESISTOR SHAPE) 330PF±10%
C112	02090161	CERAMIC DISC (RESISTOR SHAPE) 15PF±10% (NP-0)	C225	0209027	CERAMIC DISC (RESISTOR SHAPE) 0.015 MF±3
C113	0209027	CERAMIC DISC (RESISTOR SHAPE) 0.015 MF±3	C226	0209005	CERAMIC DISC (RESISTOR SHAPE) 390PF±10%
C114	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000P F±10	C227	0209005	CERAMIC DISC (RESISTOR SHAPE) 390PF±10%
C115	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000P F±10	C308LR	0209025	CERAMIC DISC (RESISTOR SHAPE) 6800P F±30
C116	02090141	CERAMIC DISC (RESISTOR SHAPE) 100PF±5%	C412LR	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000P F±10
C117	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F±30	C413LR	0209021	CERAMIC DISC (RESISTOR SHAPE) 1500PF±10%
C118	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000P F±10	C415LR	0209001	CERAMIC DISC (RESISTOR SHAPE) 180PF±10%
C152	02090127	CERAMIC DISC (RESISTOR SHAPE) 6.8PF±5%	C419R	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F±30
C153	02090134	CERAMIC DISC (RESISTOR SHAPE) 27PF±5%	C436LR	0209003	CERAMIC DISC (RESISTOR SHAPE) 270PF±10%
C154	02090129	CERAMIC DISC (RESISTOR SHAPE) 10PF±5%	C438LR	0209022	CERAMIC DISC (RESISTOR SHAPE) 0.002 2MF±5
C155	02090131	CERAMIC DISC (RESISTOR SHAPE) 15PF±5%	C442LR	0209003	CERAMIC DISC (RESISTOR SHAPE) 270PF±10%
C156	02090141	CERAMIC DISC (RESISTOR SHAPE) 100PF±5%	C444LR	0209022	CERAMIC DISC (RESISTOR SHAPE) 0.002 2MF±5
C160	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000P F±10	C447LR	0209025	CERAMIC DISC (RESISTOR SHAPE) 6800P F±30
C161	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F±30	C451LR	0209002	CERAMIC DISC (RESISTOR SHAPE) 220PF±10%
C162	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01M F±30	C469	0256367	TANTALUM ELECTROLYTIC 1.5MF 25V
C163	0209027	CERAMIC DISC (RESISTOR SHAPE) 0.015 MF±3			
C164	0209027	CERAMIC DISC (RESISTOR SHAPE) 0.015 MF±3			
C167	02090125	CERAMIC DISC (RESISTOR SHAPE) 4.7PF±5%			

SCHEMATIC DIAGRAM (Tuner Section)



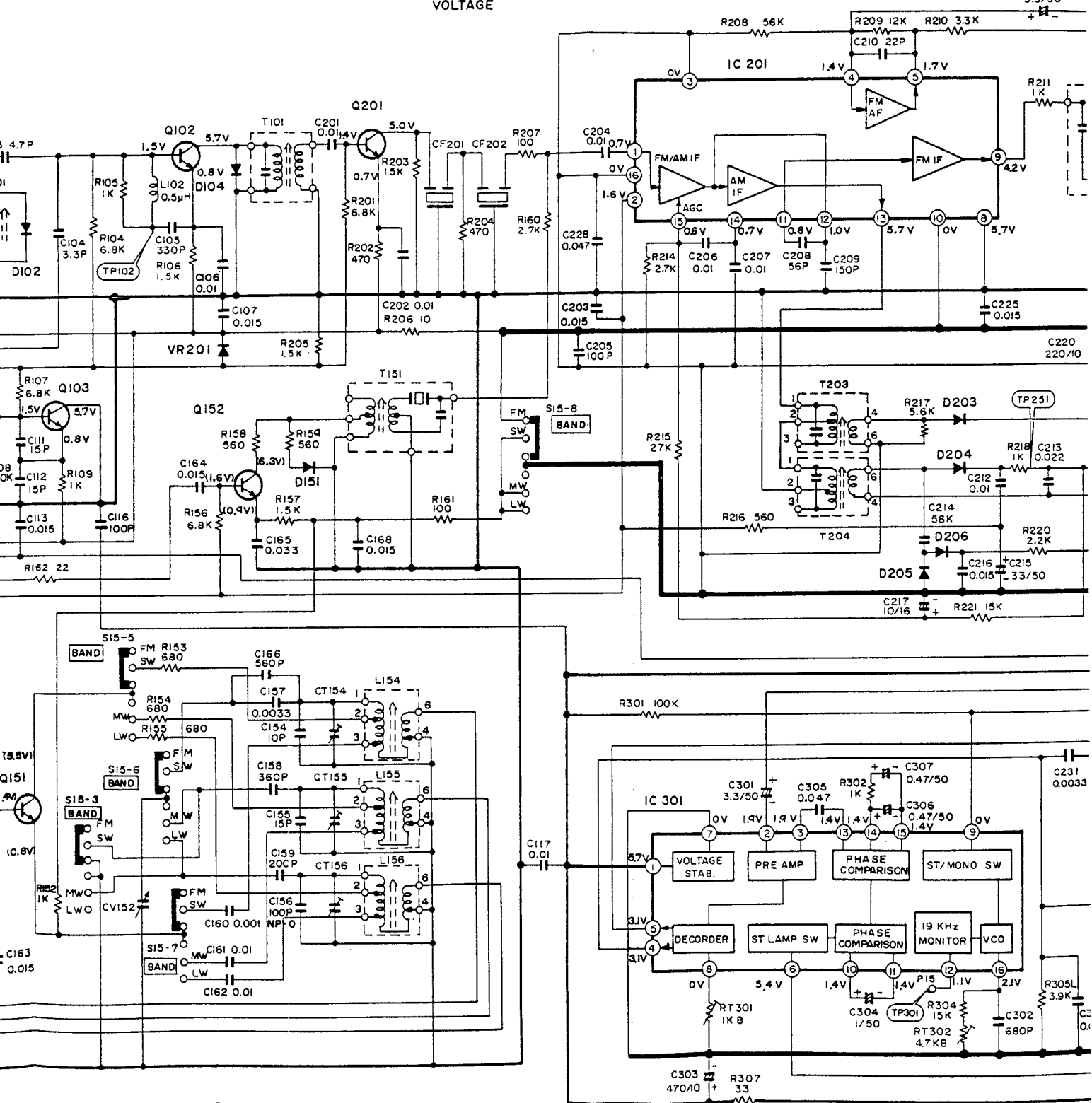
Q103	D102	Q102	D104	Q201
SC1675L	IS2473	2SC1675L	IS2473	2SC1675L
FM OSC	FM LIMITER	FM CONV.	FM LIMITER	FM IF AMP

VR 201
MV - 12
CONSTANT
VOLTAGE

IC 201
AN253 BB
FM/AM IF AMP.

0203
1K60R
FM METER RECT.

C211
3.3/50



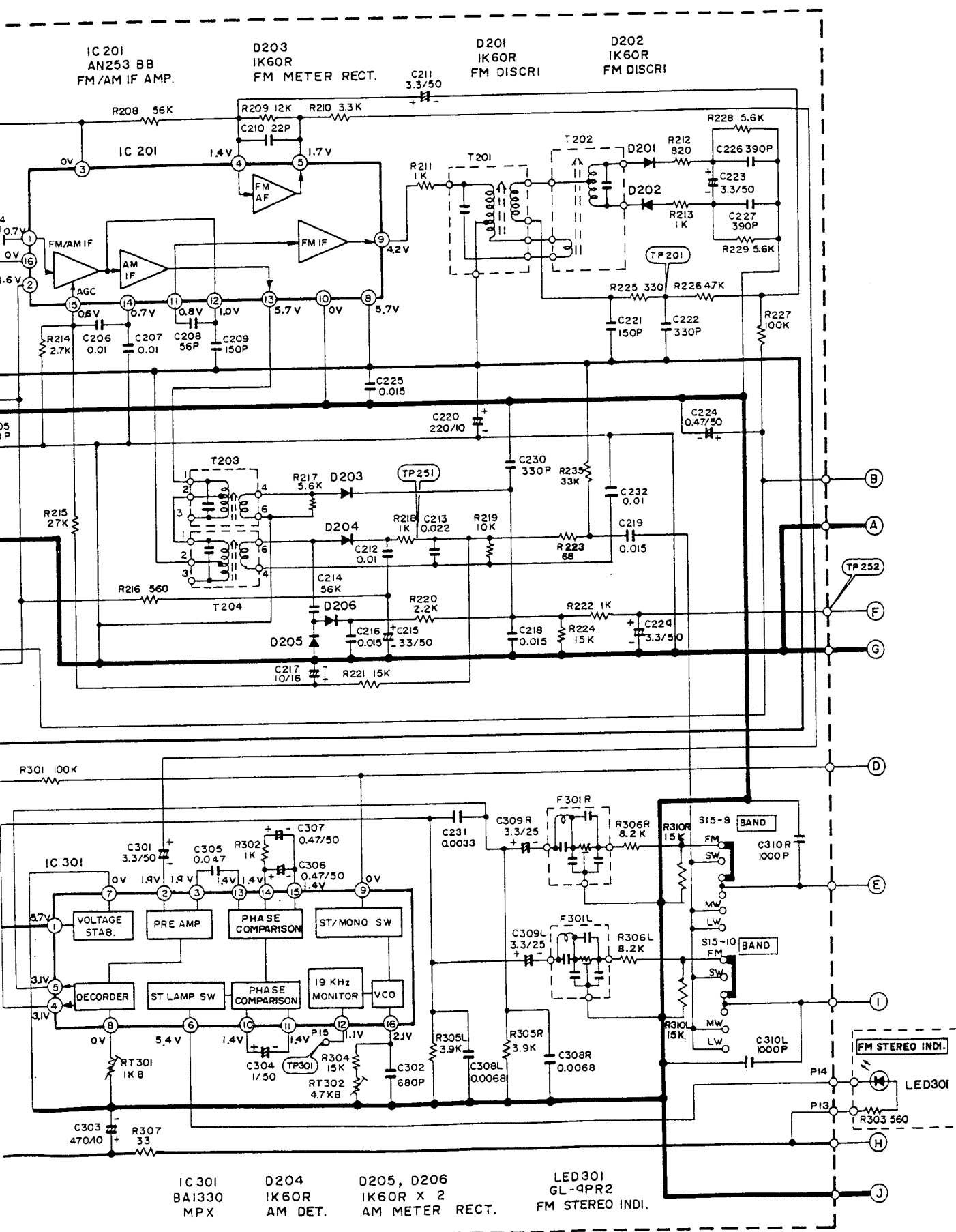
1
75L
CAL OSC

Q152	D151
2SC1675L	1K60R
AM CONV.	AGC

IC 301
BA1330
MPX

D204
IK6OR
AM DET.

D205, D206
1K60R X 2
AM METER REC



CIRCUIT BOARD DIAGRAM

Note

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

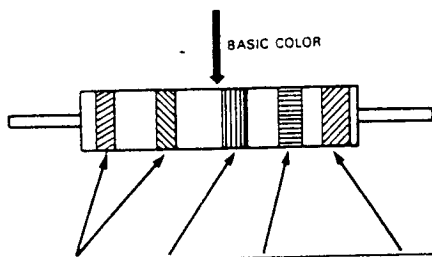
Circuit No.	
Value	No indicated Ω (Ohm) M: 1000k Ω
Tolerance	No indicated $\pm 5\%$ K: $\pm 10\%$ M: $\pm 20\%$
Wattage	No indicated $\frac{1}{4}$ W
Sort	No indicated Carbon film RC: Composition RW: Wire wound RS: Oxide metal film RN: Fixed metal film

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

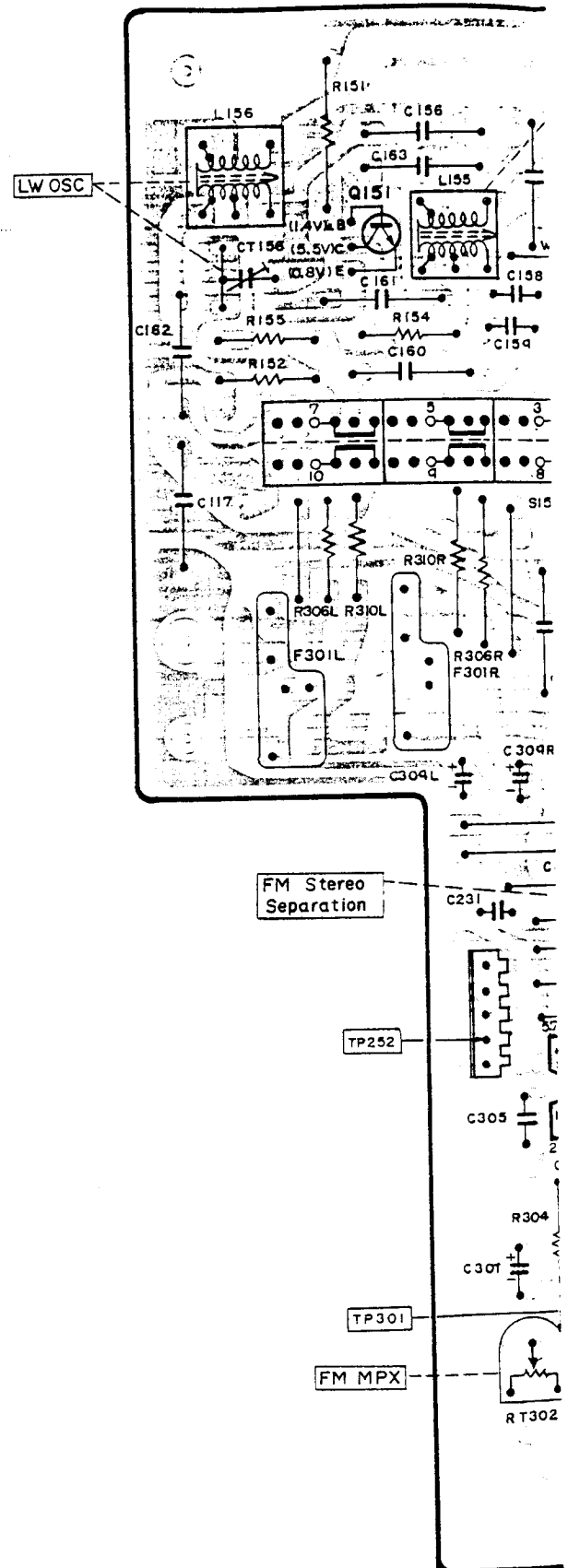
3. Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort.
4. When replacing capacitors marked with +, use specified ones stated on parts list since required temperature characteristics.

HOW TO READ CAPACITY OF RESISTOR SHAPE CAPACITORS

COLOR	RATED VOLTAGE
Pink	25V
Light green	50V



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



CIRCUIT BOARD DIAGRAM

hassis with minimum

Capacitors.

Part No.	
Indicated Ω (Ohm)	
M : 1000k Ω	
Indicated $\pm 5\%$	
K : $\pm 10\%$	
M : $\pm 20\%$	
Indicated $\frac{1}{4}W$	
Indicated Carbon film	
RC : Composition	
RW : Wire wound	
RS : Oxide metal film	
RN : Fixed metal film	

Part No.	
Indicated μF	
P : PF	
Indicated $\pm 10\%$	
J : $\pm 5\%$	
M : $\pm 20\%$	
Z : $\sim 80\%$ -20%	
D : $\pm 0.5pF$	
C : $\pm 0.25pF$	

Material	
Ceramic	
Electrolytic	
Mylar	
Polyester	
Styrol	

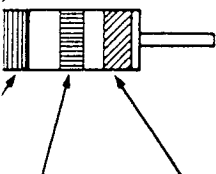
Indicated 50WV

s of resistors and
tolerance and sort.
marked with +, use
list since required

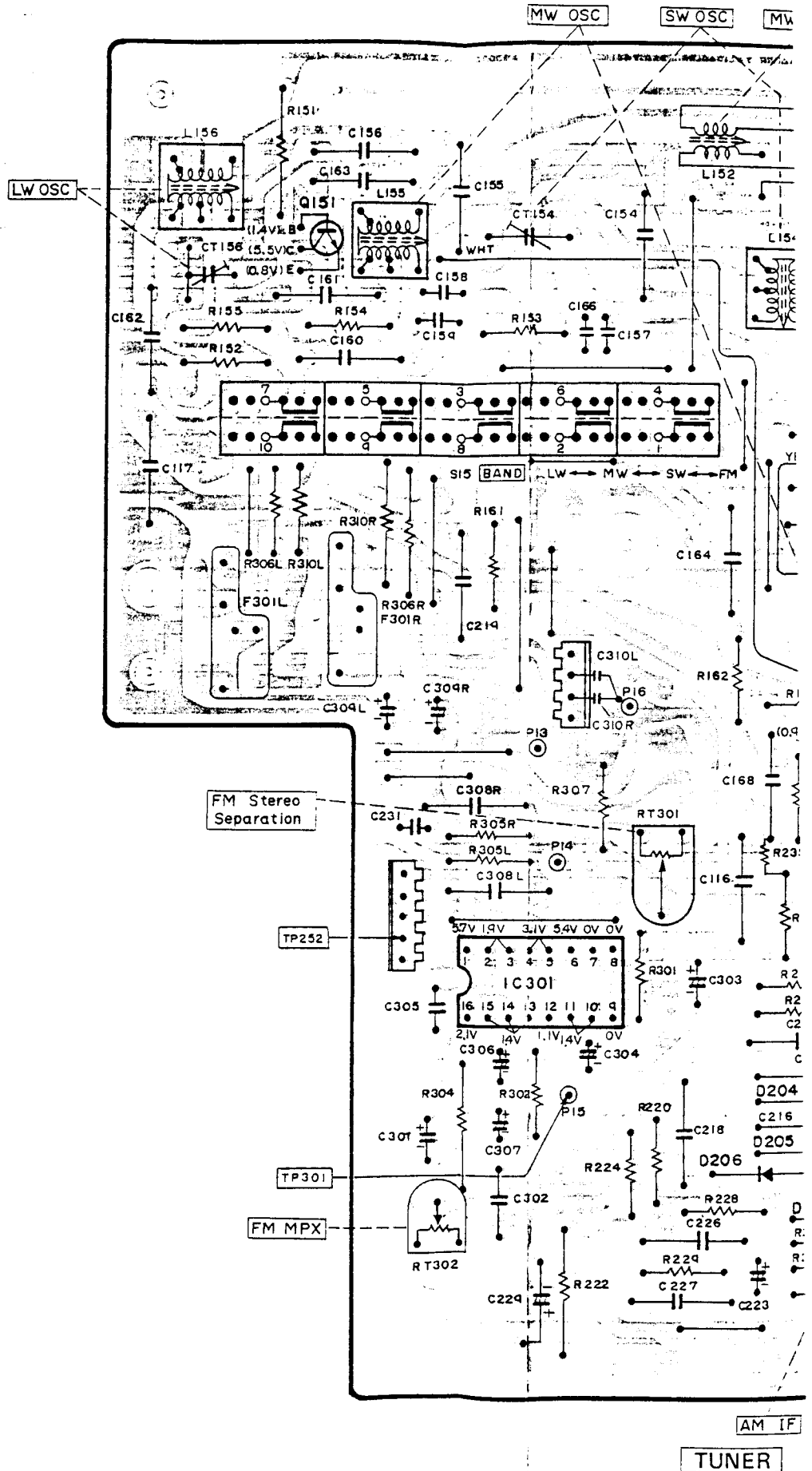
IDENTIFICATION OF RESISTOR SHAPE

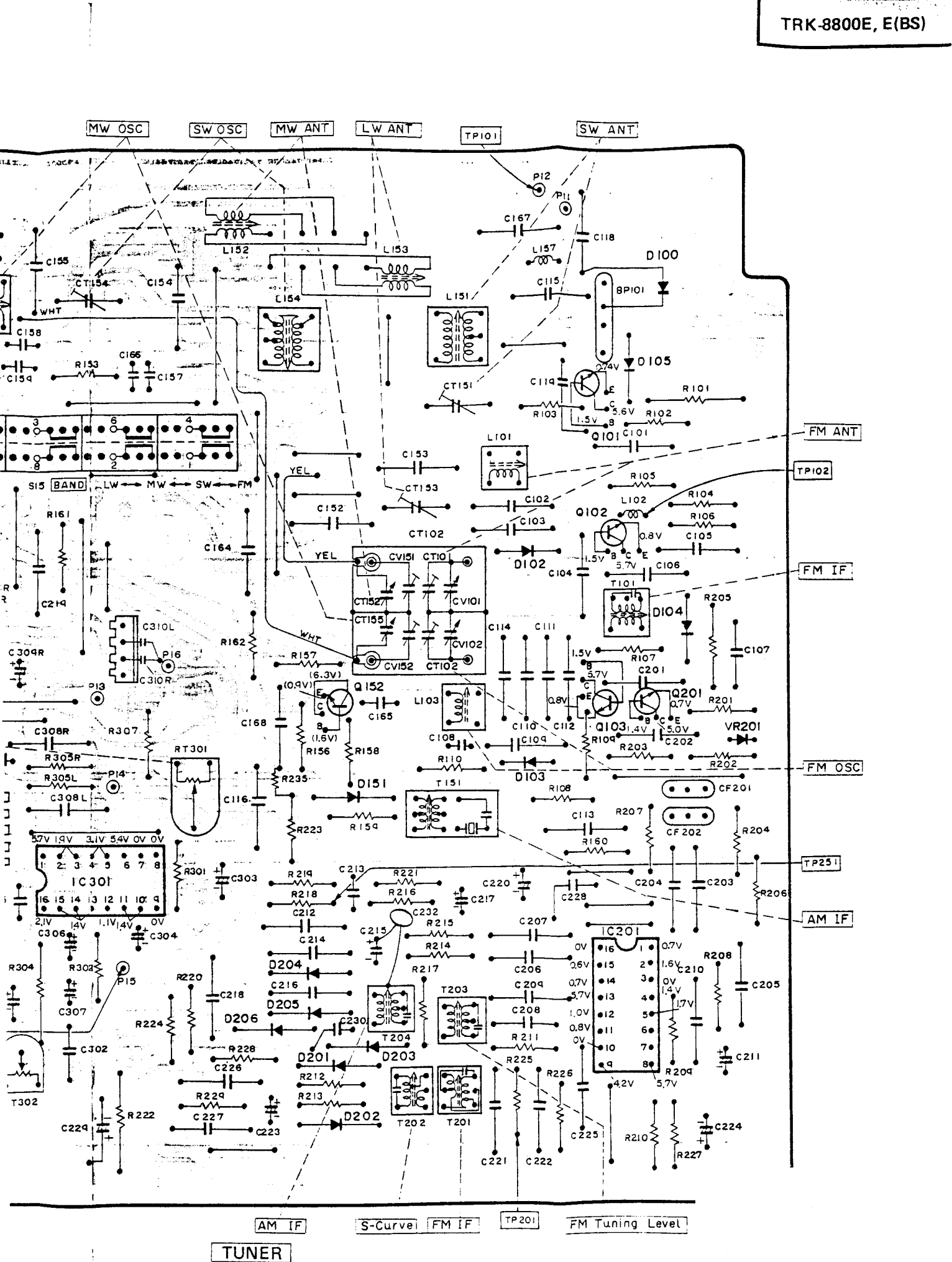
Rated Voltage
25V
50V

BASIC COLOR

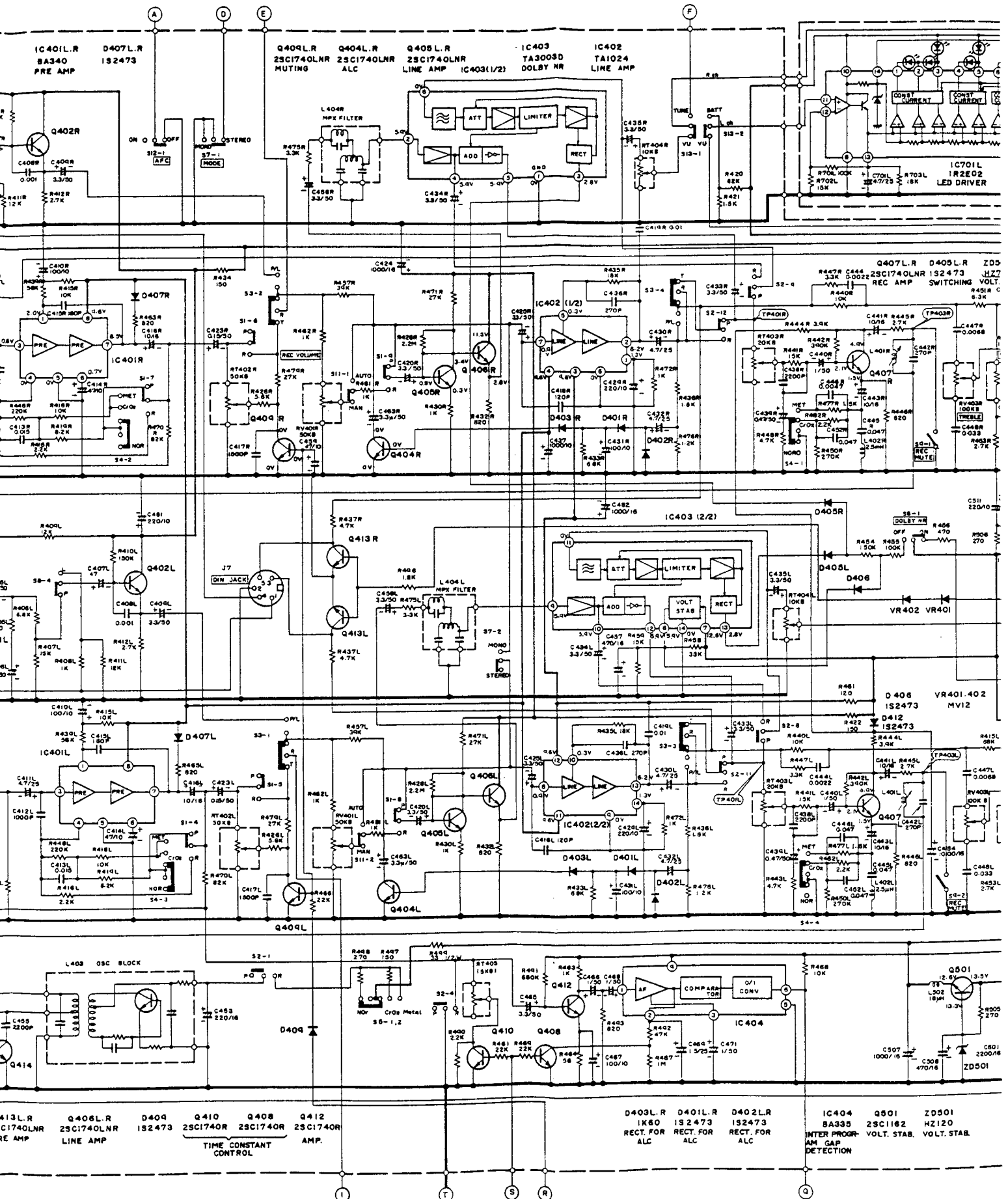


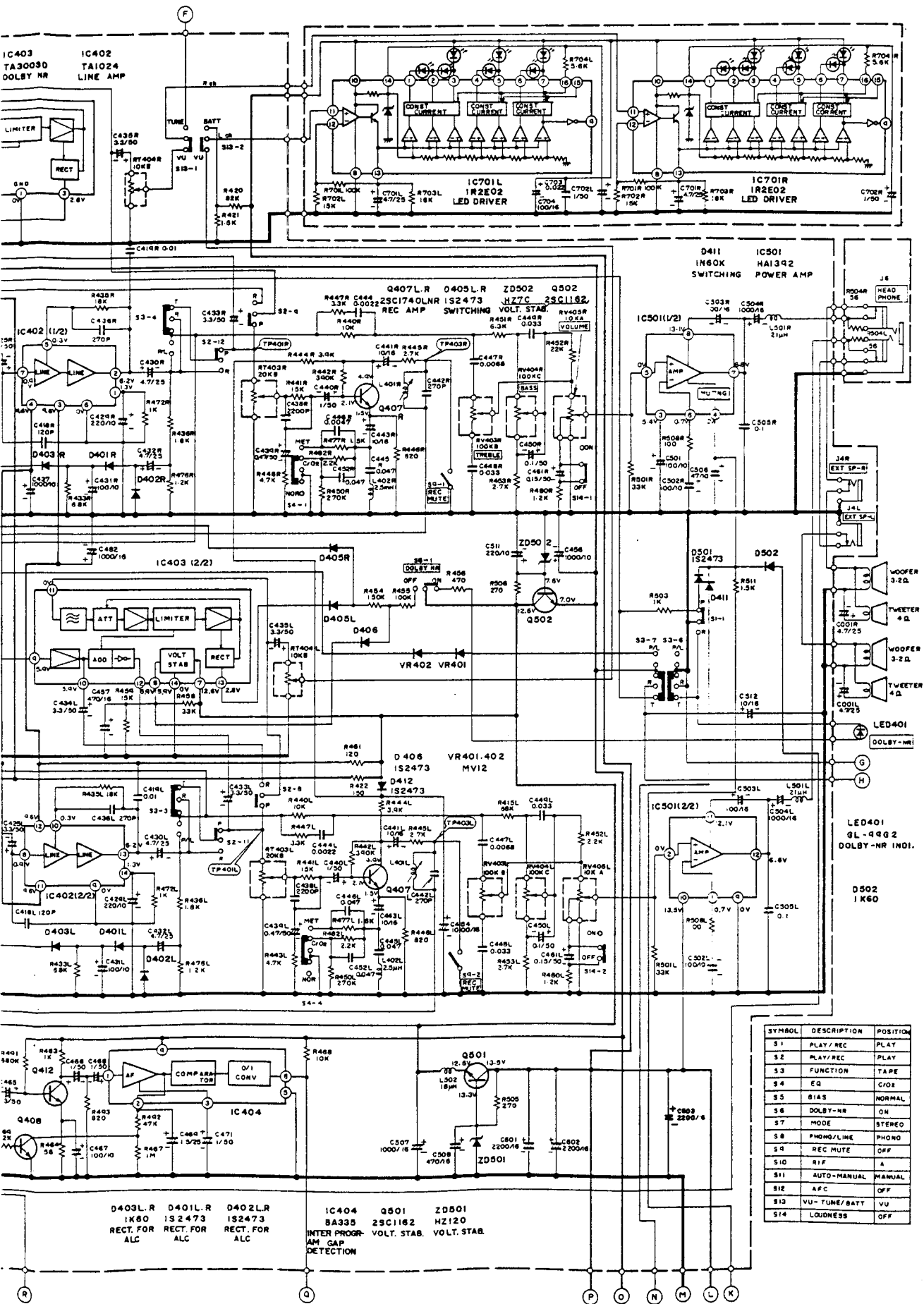
Tolerance	Characteristics
$\pm 20\%$	For temperature compensation
$\pm 30\%$	High dielectric constant type
$\pm 5\%$	For temperature compensation
$\pm 10\%$	High dielectric constant type



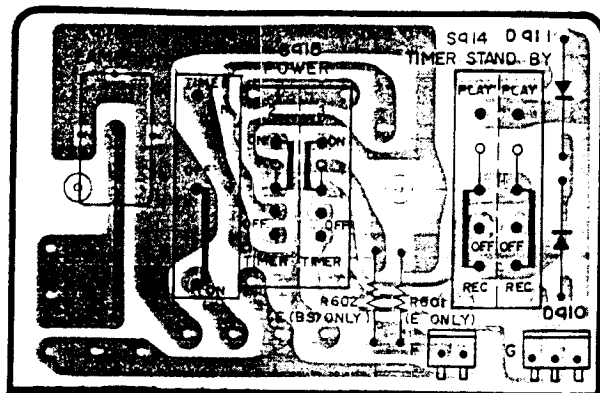


er/Audio Section)

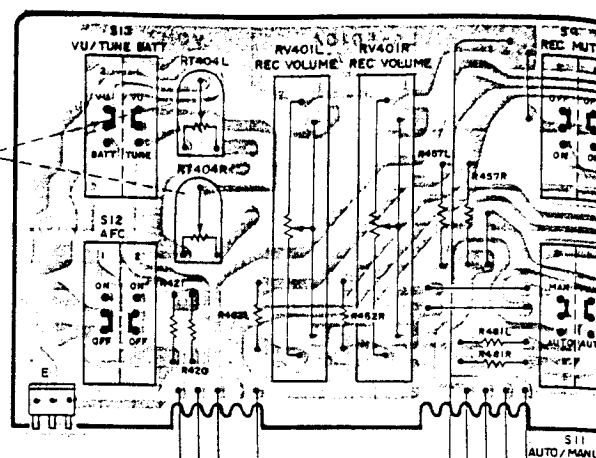




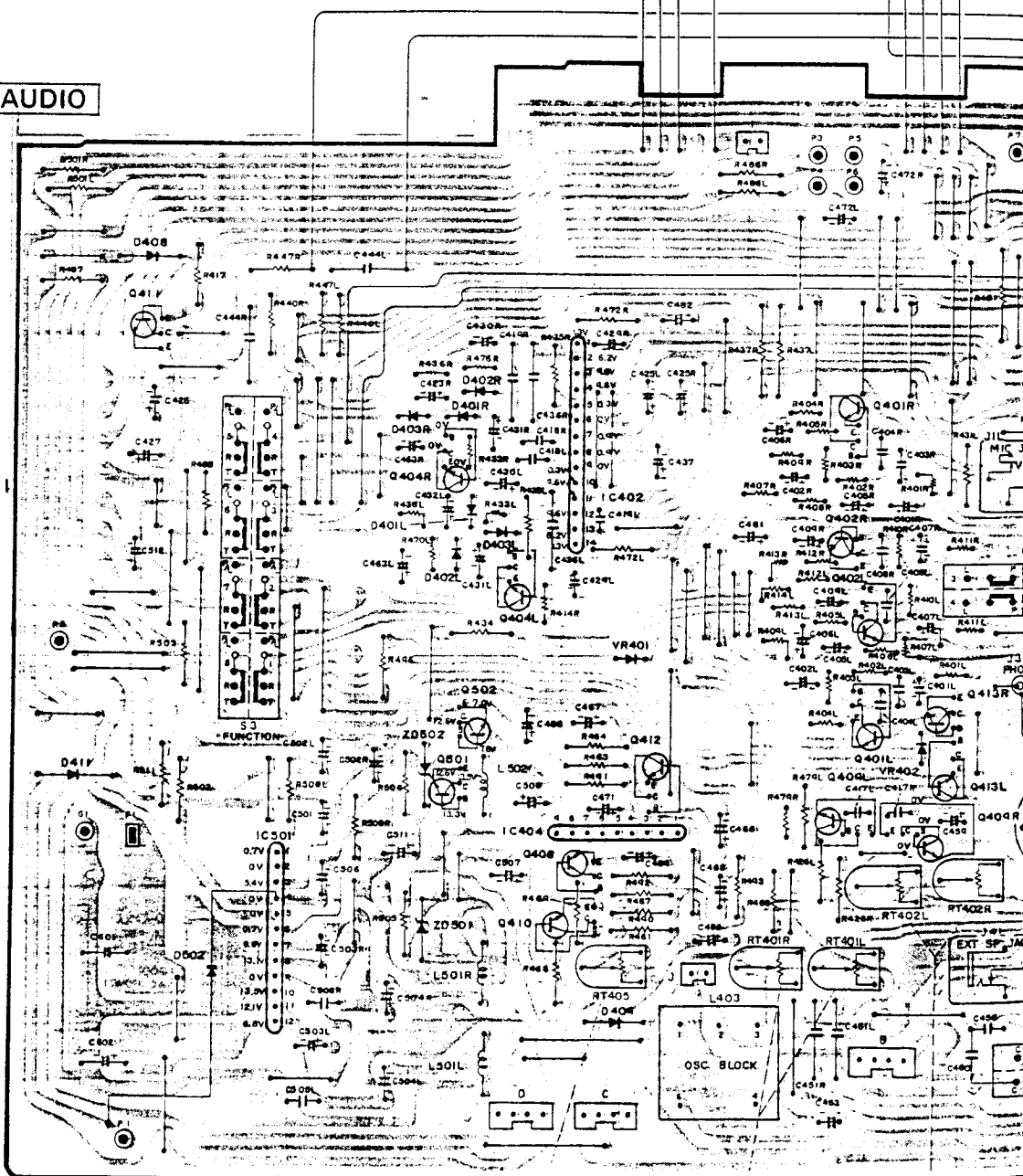
CIRCUIT BOARD DIAGRAM



TIMER



TAPE RECORDER/AUDIO

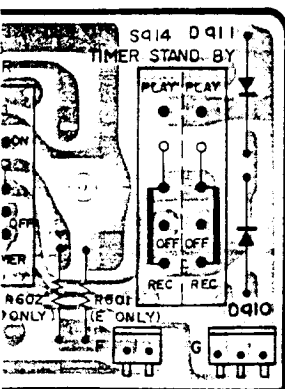


DRPS

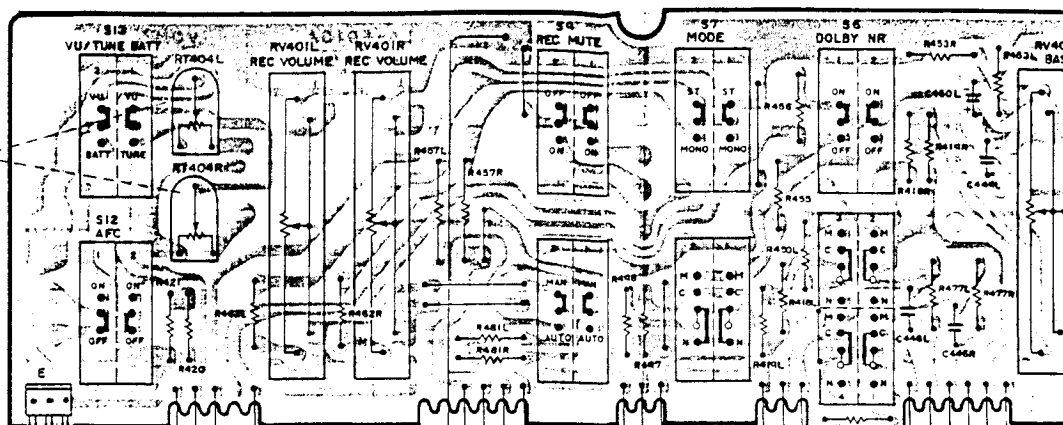
Bias Current

Playback Gain

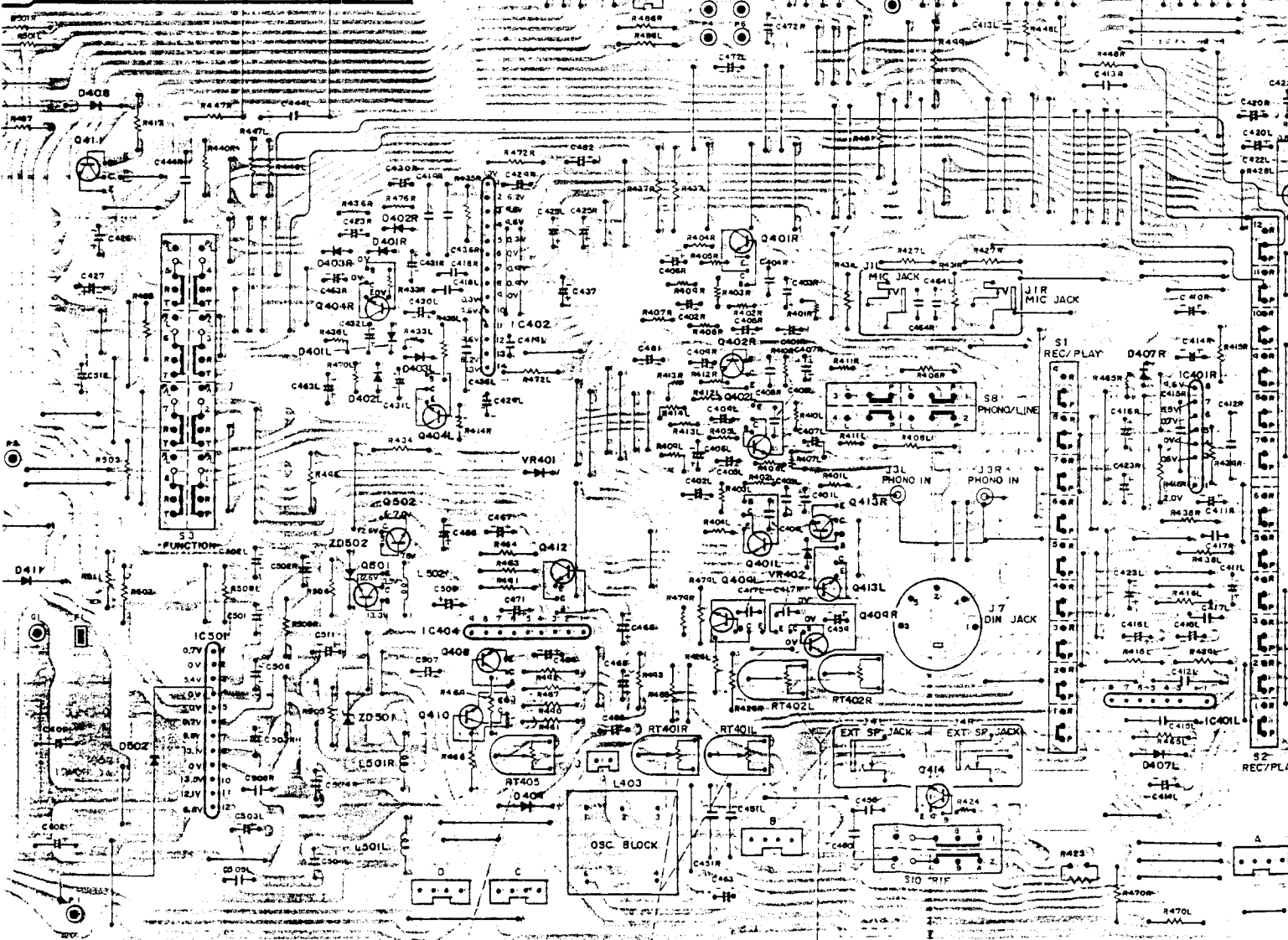
ARD DIAGRAM



TIMER



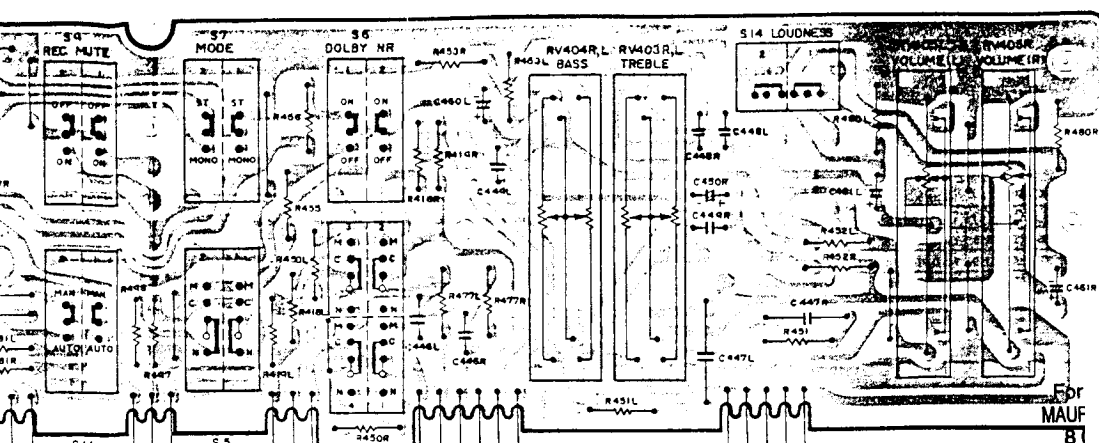
010



DRPS

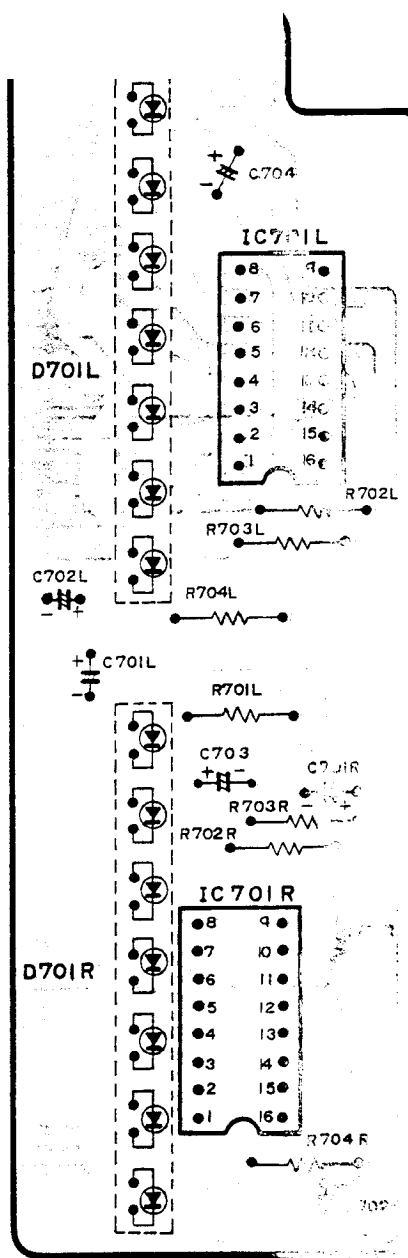
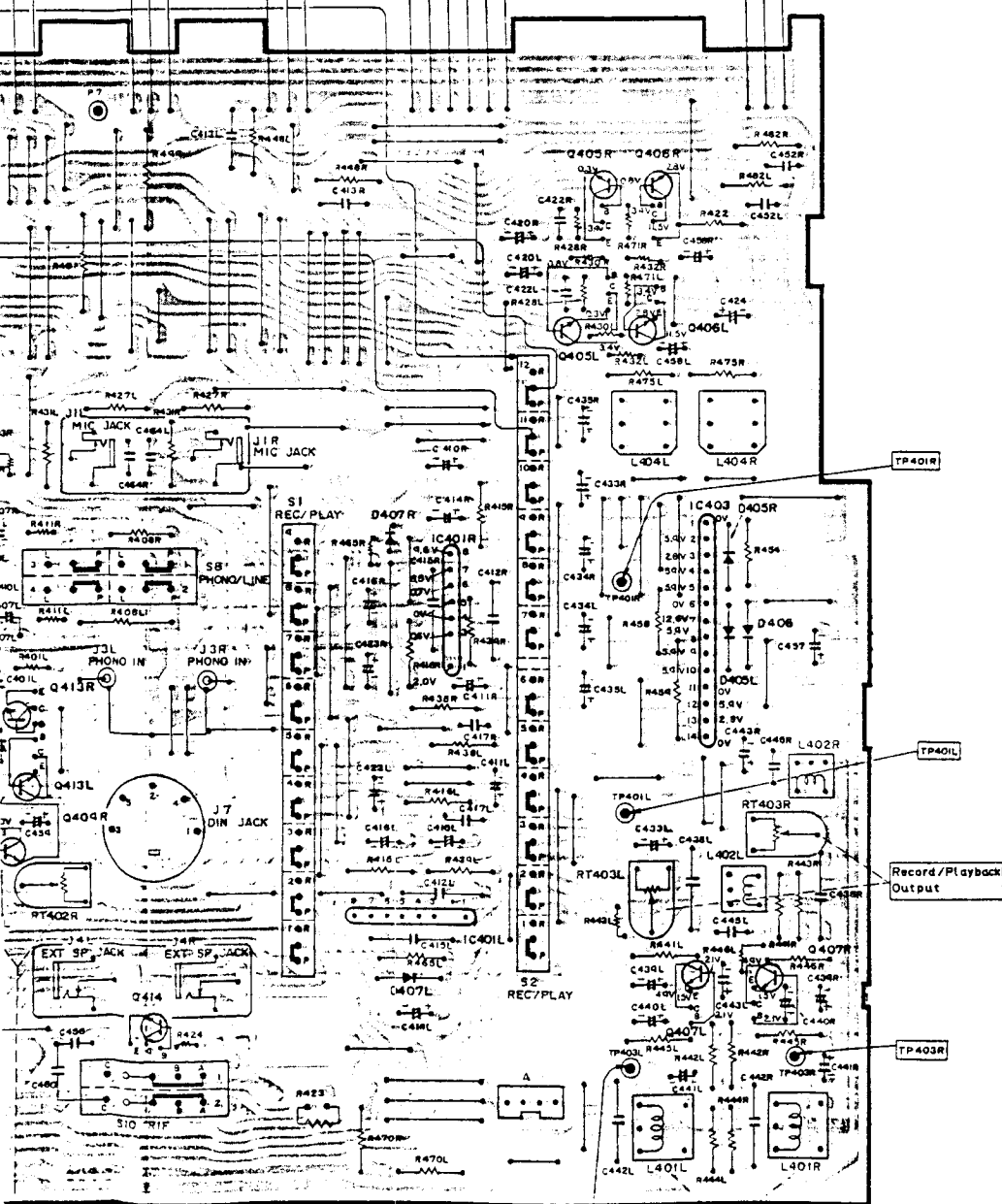
Bias Current

Playback Gain



OLUME

Tel: 0
Em



LEVEL INDICATOR

SCHEMATIC DIAGRAM (Microprocessor/Drive/Power Section)

IC902
DN 6838
TAPE END
DETECTION

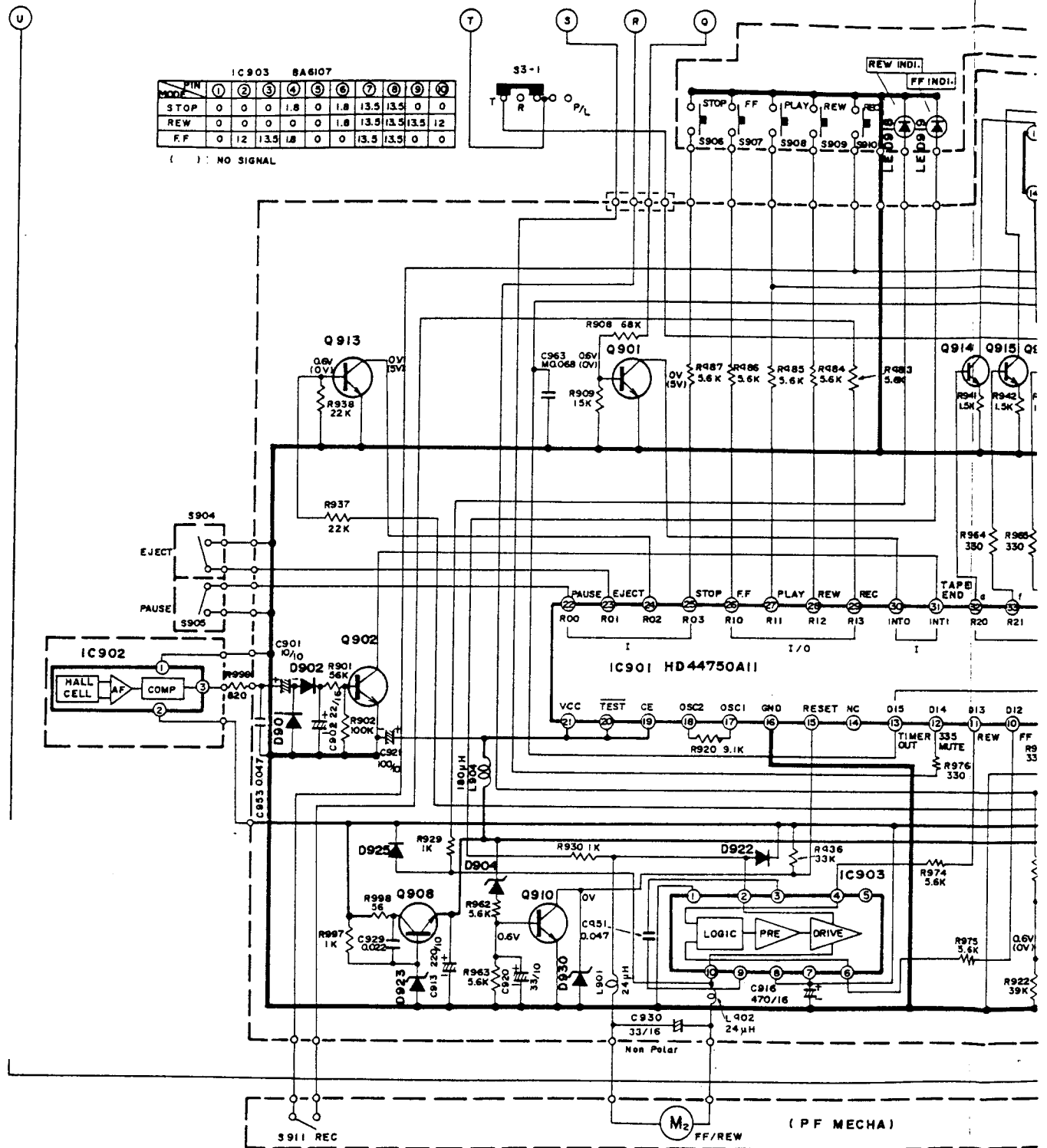
D901, 902
1K60
RECT.

Q913
2SC1740S
SWITCHING

Q902
2SC1740S
SWITCHING

Q901
2SC1740S
SWITCHING

Q914
2SC1
LED



D925
1S2473
PROTECTOR

Q908
2SD468
VOLT. STAB.

D923
HZ6A3
VOLT. STAB.

D904
RD2.7
VOLT. STAB.

Q910
2SC1740S
SWITCHING

D922
1S2473

Q904, 905
2SD985
SWITCHING

Q907, 911
2SC116
SWITCHING

IC901
HD44750A11
FUNCTION CONTROL

D930
HZ6B
VOLT. STAB.

IC903
BA6107
FF/REW MOTOR
DRIVE

D916
1K60
PROTECTOR

D909
1SR34
REVERSE
PROTECT

(Microprocessor/Drive/Power Section)

Q901
25C17403
SWITCHING

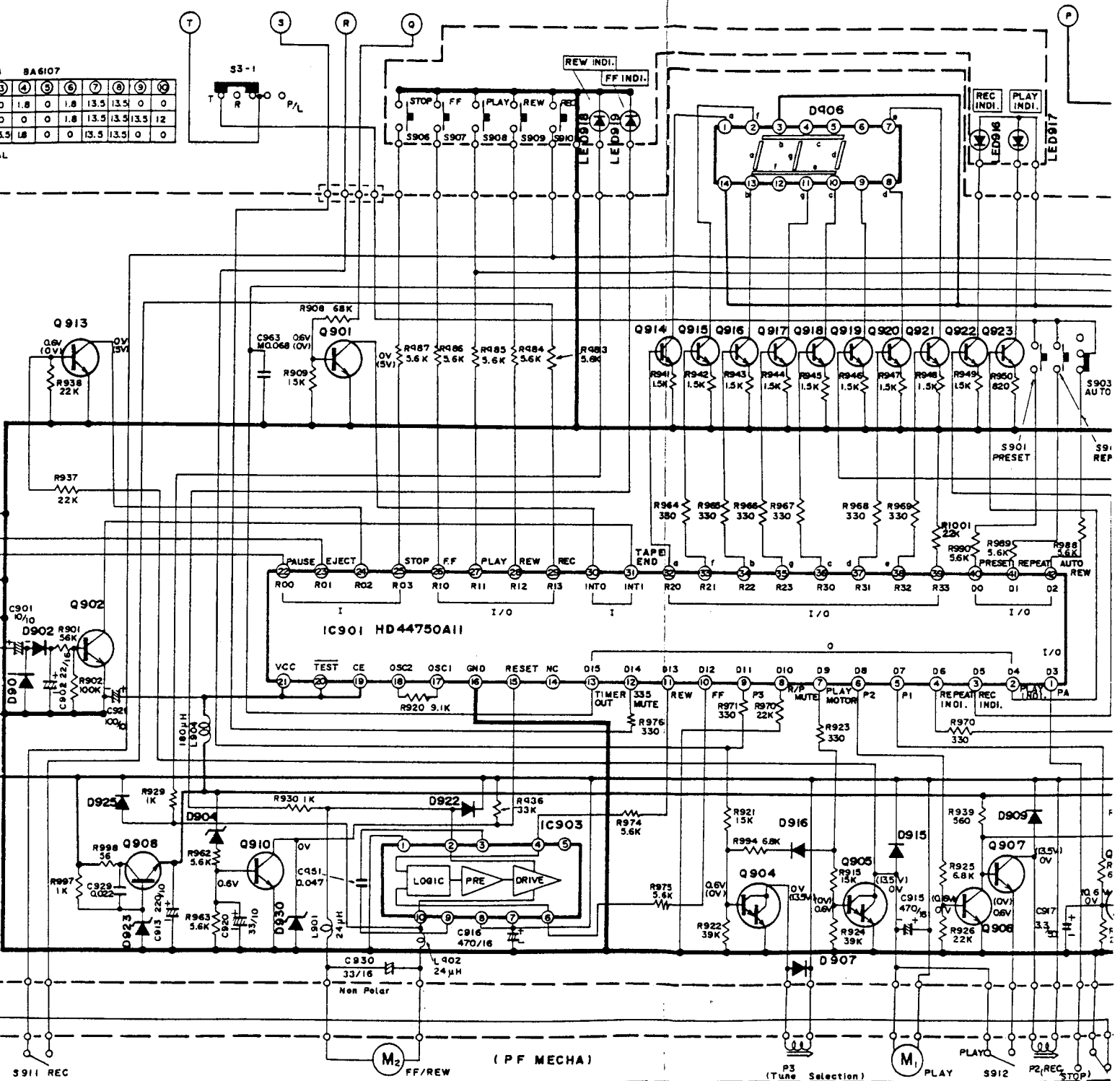
Q902
25C17403
SWITCHING

Q913
25C17403
SWITCHING

Q914~Q923
25C17403 X 10
LED DRIVE

D906
LA-4010A
DISPLAY

D950
V0.9C



Q908
25D468
VOLT. STAB.

D923
HZ6A3
VOLT. STAB.

D904
RD2.7
VOLT. STAB.

Q910
25C17403
SWITCHING

D922
IS2473

Q904, 905
25D985
SWITCHING

Q907, 912
25C1162
SWITCHING

Q906, 911
25C17403
SWITCHING

D907
IS2473VE
REVERSE VOLTAGE
PROTECTOR

IC901
HD44750A11
FUNCTION CONTROL

D930
HZ6B
VOLT. STAB.

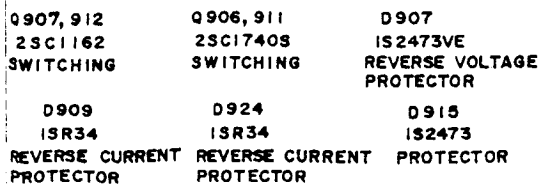
IC903
BA6107
FF/REW MOTOR
DRIVE

D916
IK60
PROTECTOR

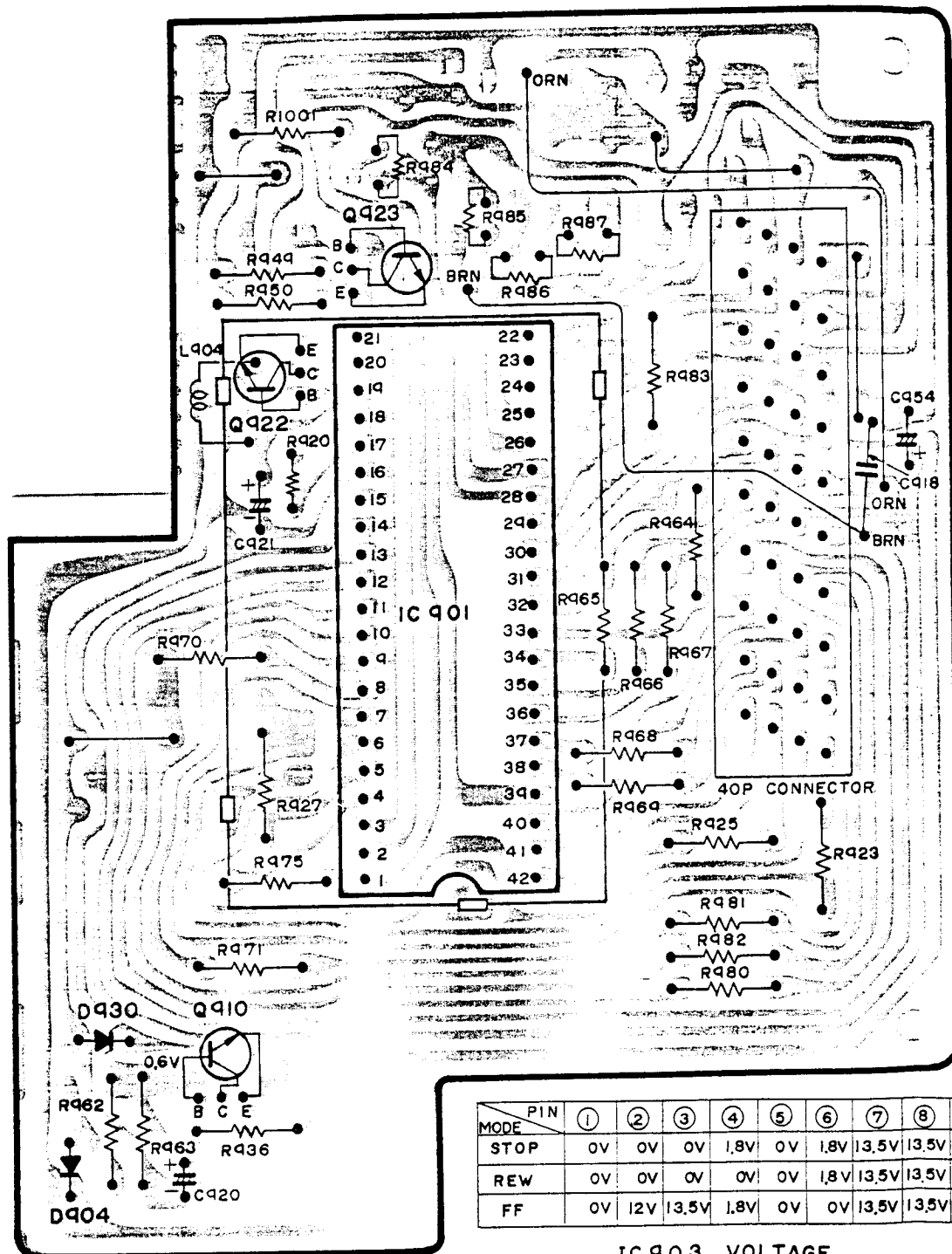
D909
ISR34
REVERSE CURRENT
PROTECTOR

D924
ISR34
REVERSE CURRENT
PROTECTOR

D915
IS2473
PROTECTOR



CIRCUIT BOARD DIAGRAM

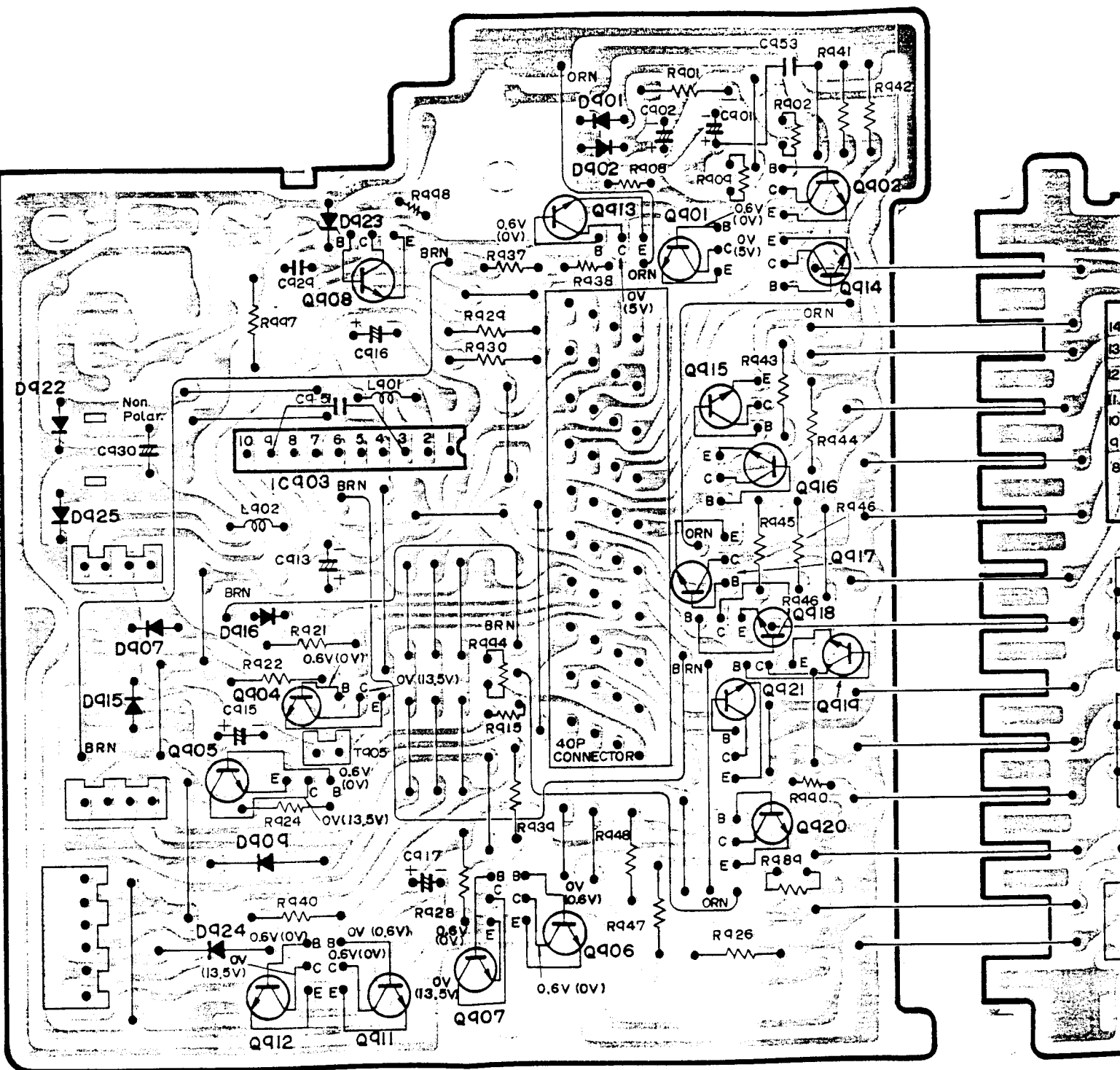


PIN	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
STOP	0V	0V	0V	1.8V	0V	1.8V	13.5V	13.5V	0V	0V
REW	0V	0V	0V	0V	0V	1.8V	13.5V	13.5V	13.5V	12V
FF	0V	12V	13.5V	1.8V	0V	0V	13.5V	13.5V	0V	0V

IC 903 VOLTAGE

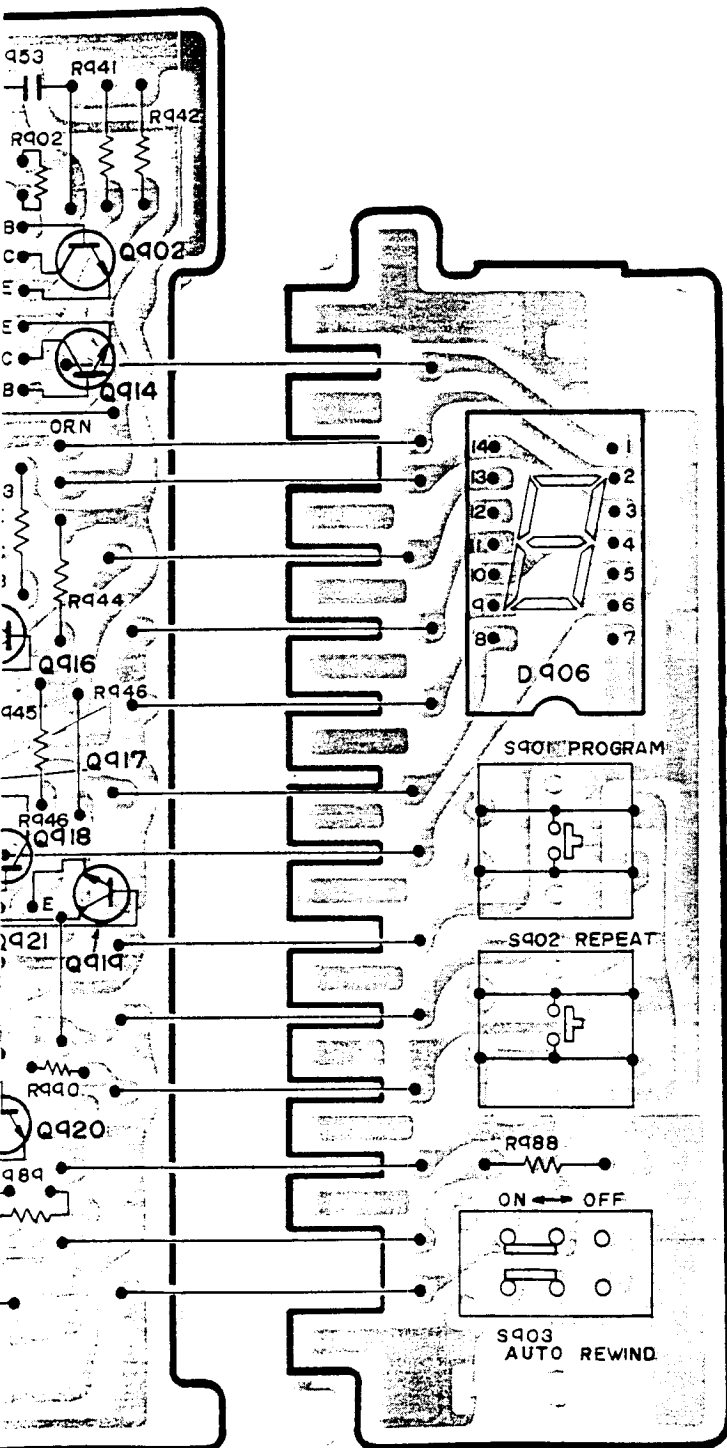
MICROPROCESSOR

IC 903 VOLTAGE

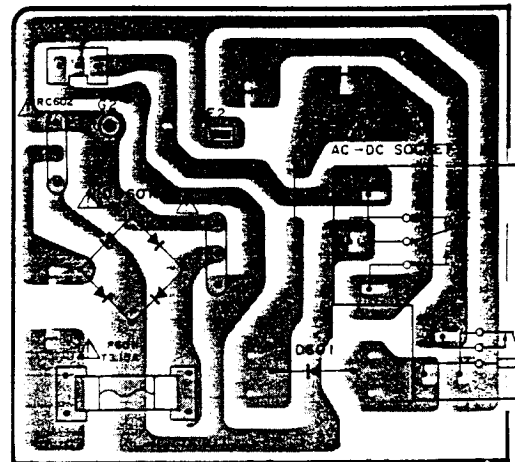


DRIVE

LED

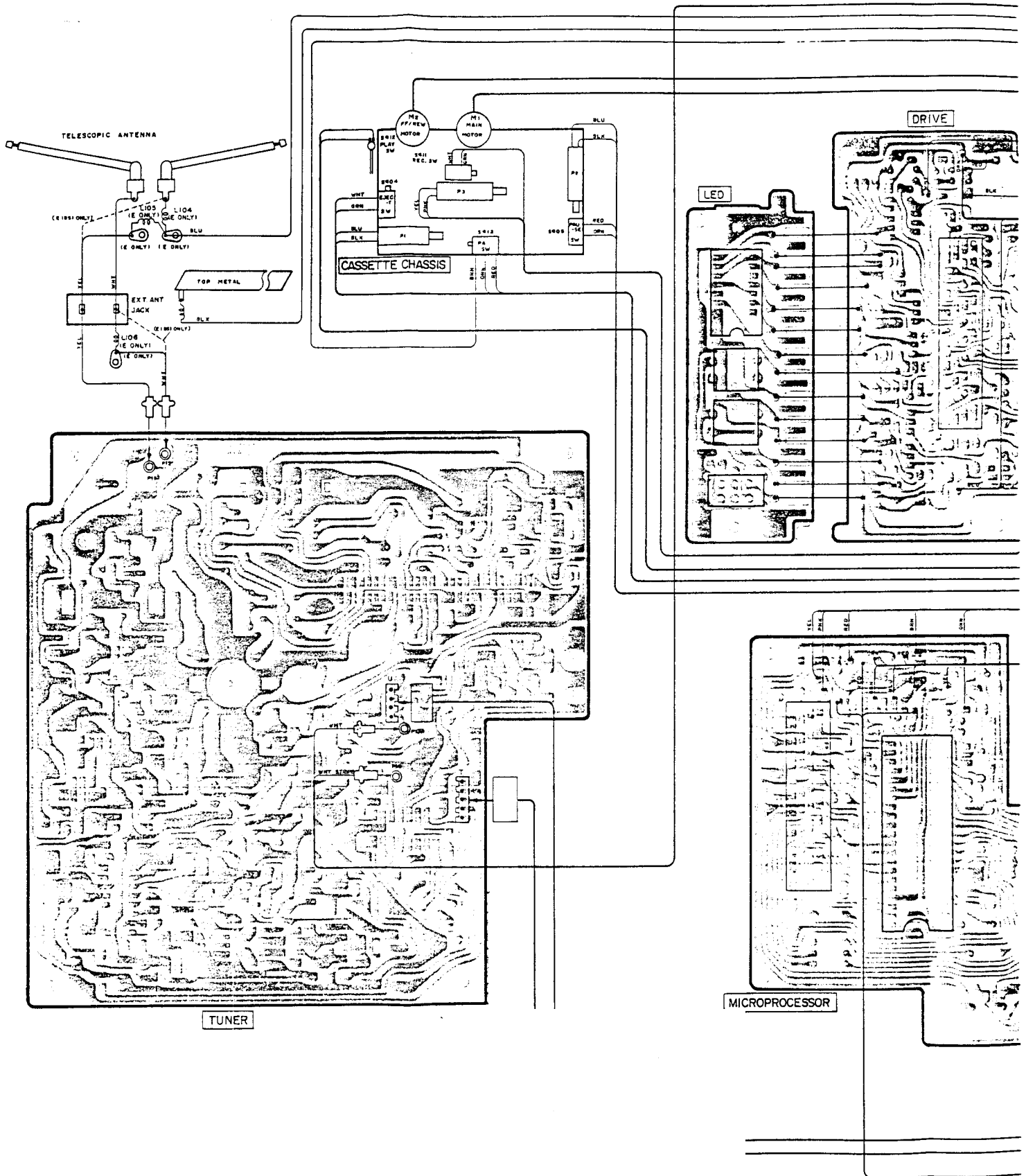


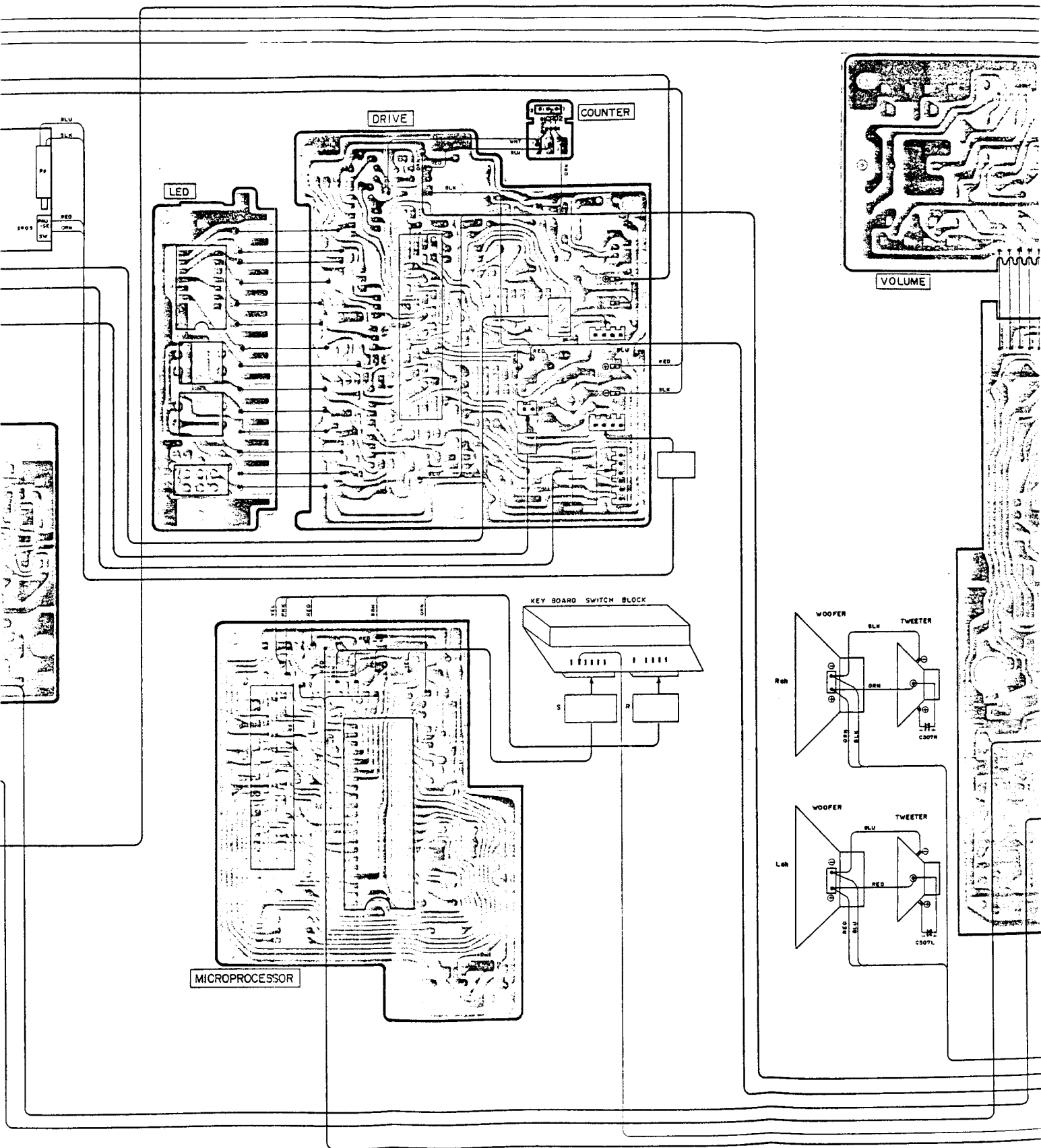
LED

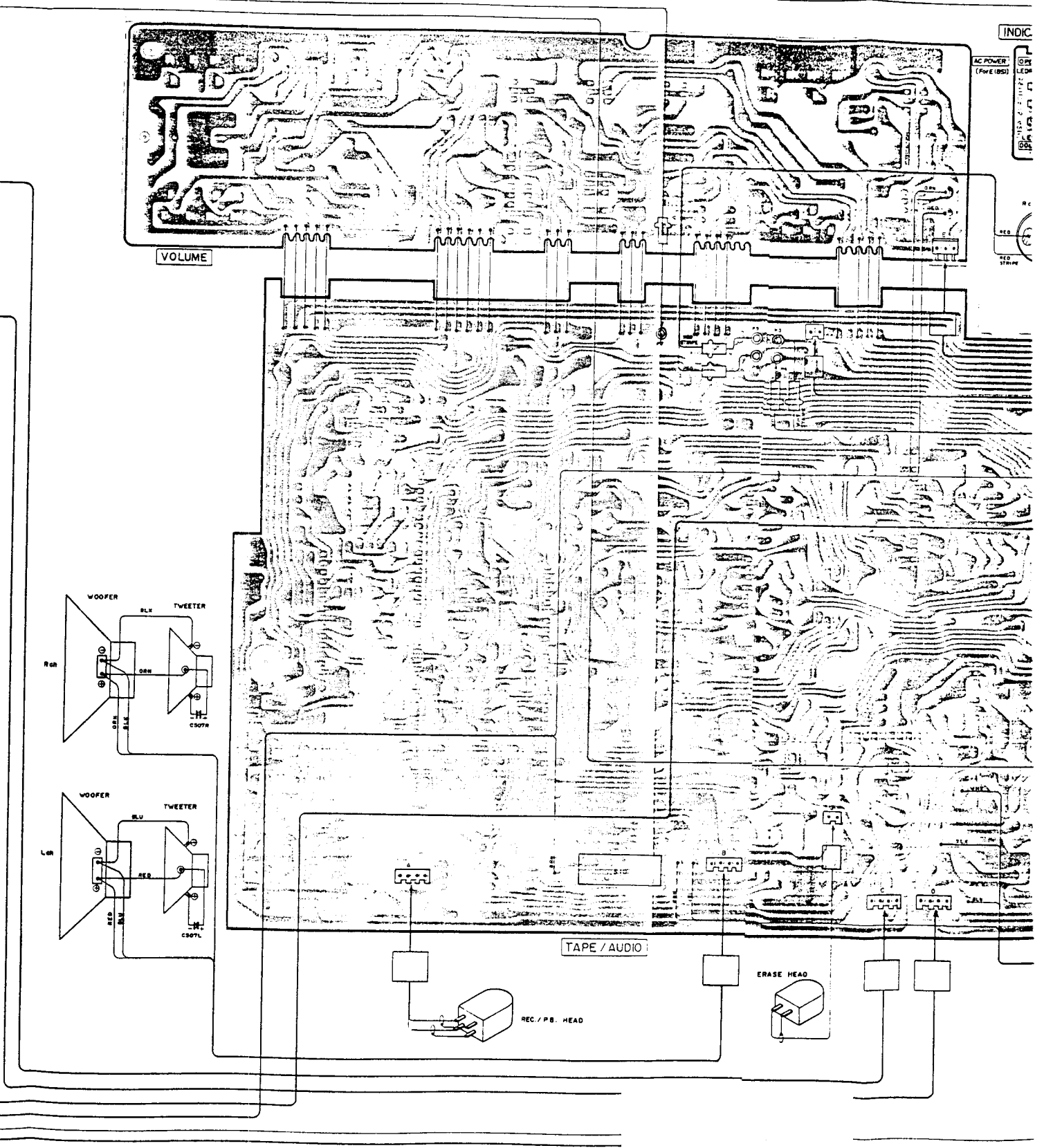


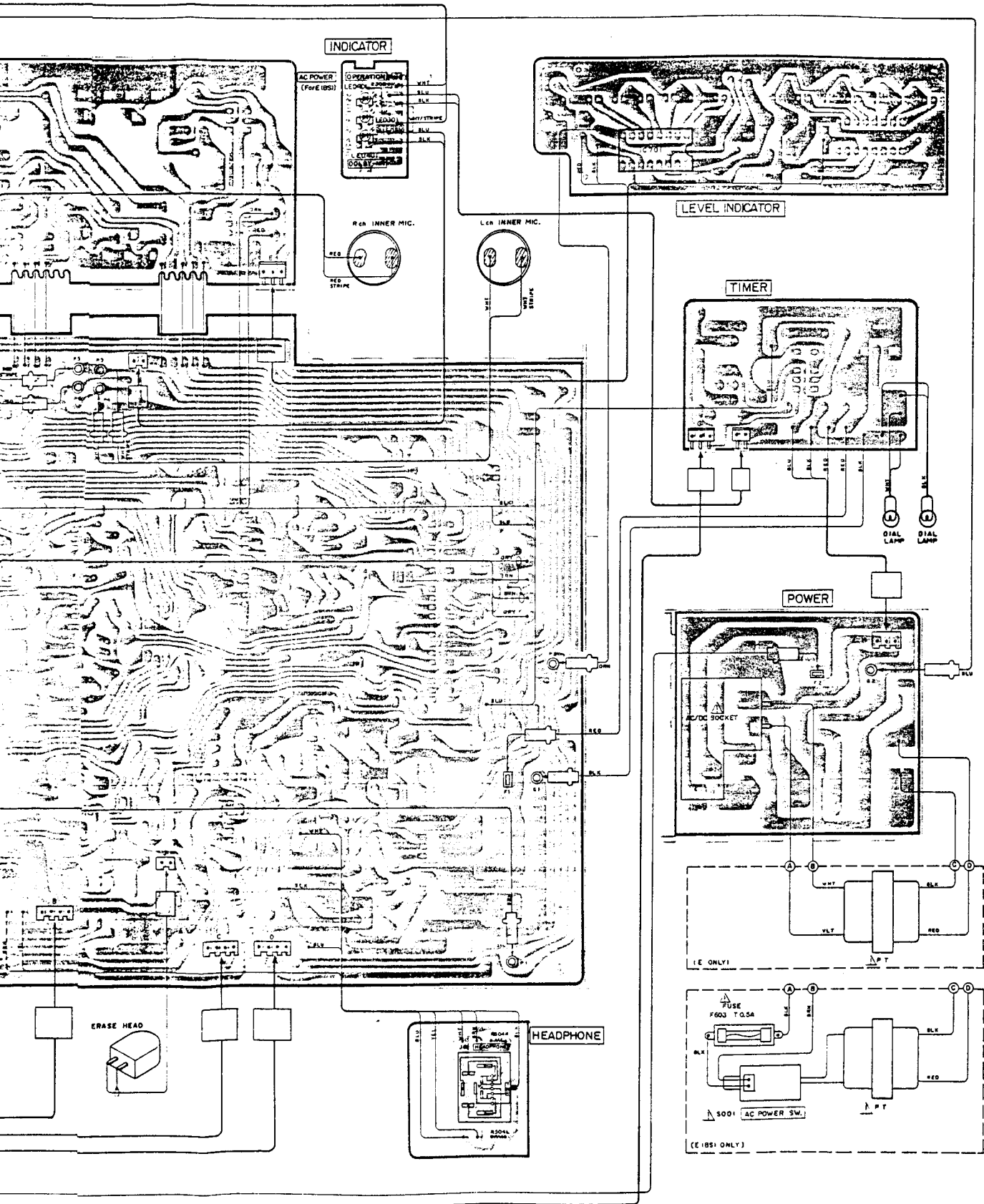
POWER

WIRING DIAGRAM

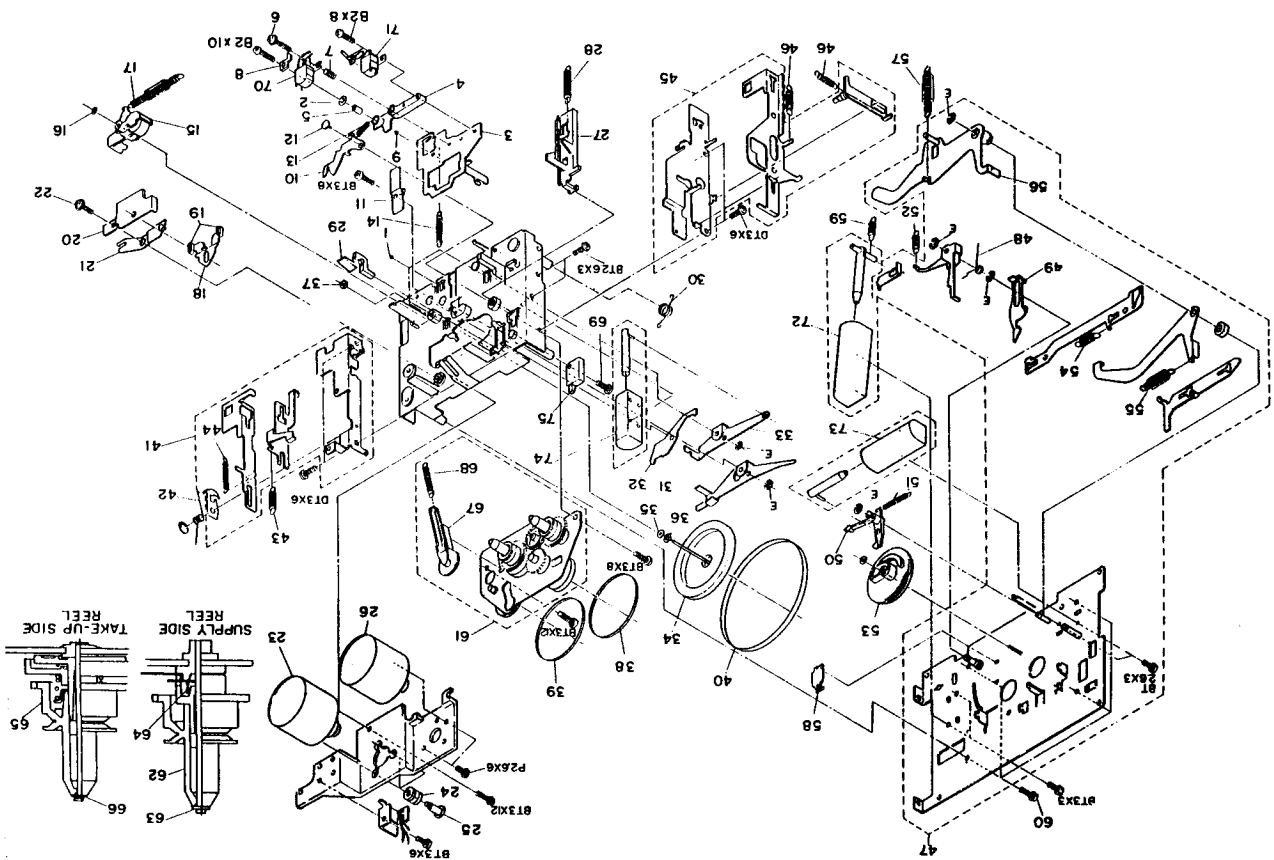








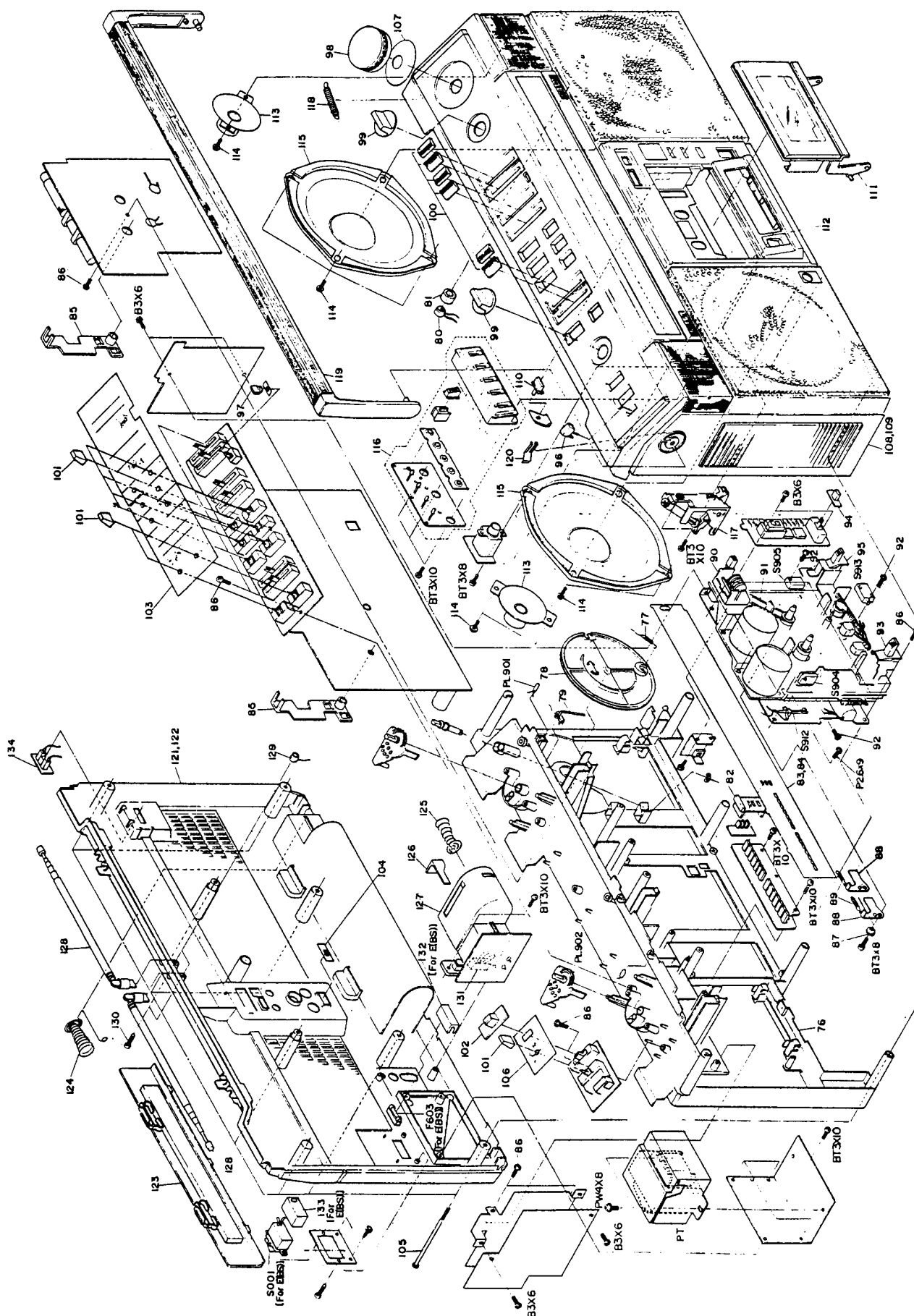
EXPLODED VIEW (Cassette Chassis)



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

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
1	094492	FOR CASSETTE DECK ASSEMBLY (A)	47	7041325	POWER ASSIST CHASSIS ASSEMBLY
2	7776921	WASHER	48	6546131	RECORD SPRING
3	7323103	HEAD PLATE	49	7327291	RECORD LEVER
4	6756352	HEAD BASE	50	6756363	LOCK LEVER (A)
5	7575902	COLLAR	51	6300595	SPRING
6	7781004	SCREW	52	5301102	SPRING FOR LOCK LEVER (B)
7	6321733	HEAD SPRING C	53	6430433	POWER ASSIST GEAR ASSEMBLY
8	73117371	EARTH PLATE	54	6323664	SPRING
9	0944492	BALL - 2MM	55	6301792	SPRING FOR RECORD SLIDER (B)
10	7325282	ADJUST PLATE	56	7323032	POWER ASSIST LEVER ASSEMBLY
11	6534671	HEAD PLATE HOLDER	57	6301237	SPRING FOR POWER ASSIST LEVER
12	6754322	ARM PIN	58	6743844	THROUST SUPPORT
13	6320576	SPRING	59	6540022	SPRING FOR SOLENOID (PLAY)
14	6322547	SPRING FOR HEAD PLATE	60	7741137	BT SCREW
15	6383615	PRESSURE KILLER ARM ASSEMBLY	61	7041214	REEL BASE ASSEMBLY
16	7786624	POLYSLIDER WASHER	62	6413632	SUPPLY REEL BASE ASSEMBLY
17	6300075	SPRING	63	7786115	POLYESTER WASHER
18	7323432	BRAKE PLATE	64	6303013	SPRING
19	6506004	RUBBER FOR BRAKE	65	6413043	TAKE UP REEL BASE ASSEMBLY
20	7327311	BRAKE HOLDER	66	7786115	POLYESTER WASHER
21	7323071	BRAKE LEVER	67	6362002	TOILER SLIDER ASSEMBLY
22	7781133	BT SCREW-3MM	68	6301025	SPRING
23	5576572	MOTOR ASSEMBLY (PLAY)	69	7780262	PAN HEAD SCREW
24	6576082	RUBBER PLATE	70	5444991	RECORD PLAYBACK HEAD
25	7536004	MOTOR FIXING SCREW	71	5444262	ERASE HEAD
26	5576581	MOTOR ASSEMBLY (FF-REWIND)	72	5642702	SOLENOID (STOP)
27	7323472	LOCK SLIDER	73	5642712	SOLENOID (PLAY)
28	6300981	SPRING	74	5642722	SOLENOID
29	6756344	RECORD PREVENTION ARM	75 (BHI)	5633361	PUSH SWITCH
30	6546171	SPRING FOR SOLENOID LEVER	FOR CASSETTE DECK ASSEMBLY		
31	7322991	DRIVING LEVER	76	6756562	CHASSIS ASSEMBLY
32	7325161	RELAY LEVER	77	6316231	SPRING M
33	7323012	SOLENOID LEVER	78	6345672	PULLEY-160PHD
34	6373571	FLYWHEEL	79	6394442	POINTER
35	7778848	POLYSLIDER WASHER	80	5421371	BUILT IN MICROPHONE
36	7772623	SPRING	81	6570291	MIC COVER
37	7786623	POLYSLIDER WASHER	82	6758551	INDICATOR HOLDER
38	6354684	BELT FOR FF-REWIND	83	6467763	SCALE PLATE (FOR E)
39	6355161	BELT FOR TAKE UP	84	6467764	SCALE PLATE (FOR E(BS))
40	6357431	FLYWHEEL BELT	85	6758541	EXCHANGE LEVER
41	7323524	PAUSE HOLDER ASSEMBLY	86	6659410	BT BIND HEAD SCREW-3MMX10MM (BLACK)
42	6316707	SPRING FOR PAUSE SLIDER	87	7549252	COLLAR
43	6544061	SPRING	88	7330171	RECORD LEVER
44	6300981	SPRING	89	6301101	SPRING
45	7323534	EJECT HOLDER ASSEMBLY	90	5554381	COUNTER
46	6301723	SPRING FOR EJECT SLIDER	91	6355021	COUNTER BELT
			92	0671310	DT SCREW-2.6MMX10MM

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)			114	7781133	BT SCREW-3MM
93	6257813	EJECT BUTTON ASSEMBLY	115	5407421	SPEAKER-16CM
94	6296863	SLIDE KNOB (AUTO REWIND)	116	5639284	FUNCTION SWITCH ASSEMBLY
95	6257803	PAUSE BUTTON ASSEMBLY	117	6758532	EJECT ASSEMBLY
96	6251101	LIGHT BUTTON	118	6301951	SPRING
97	6053492	PUSH BUTTON ASSEMBLY (LOUDNESS)	119	6333647	HANDLE ASSEMBLY
98	6283384	TUNING KNOB ASSEMBLY	120	6531142	SPRING
99	6283394	KNOB ASSEMBLY (BAND+FUNCTION)	121	6034233	REAR CASE ASSEMBLY (For E)
100	6295554	SLIDE KNOB	122	6034234	REAR CASE ASSEMBLY (For E(BS))
101	6296853	LEVER KNOB	123	6173454	BATTERY LID ASSEMBLY
102	6296843	SLIDE KNOB (TIMER STANDBY)	124	6305691	BATTERY TERMINAL (+)
103	7766431	SPACER	125	6305702	BATTERY SPRING (-)
104	7711801	SPACER	126	7451491	BATTERY TERMINAL
105	7781303	TAPPING SCREW-3MMX8MM	127	6758591	TERMINAL HOLDER
106	7766371	SPACER	128	5752511	ROD ANTENNA
107	7755411	SPACER	129	5687142	CAP TERMINAL
108	6034213	FRONT CASE ASSEMBLY (For E)	130	8744414	BIND SCREW-3MMX14MM
109	6034214	FRONT CASE ASSEMBLY (For E(BS))	131	5659121	BACK COVER
110	6053013	PUSH BUTTON	132	6746881	FUSE COVER (For E(BS))
111	6092632	CASSETTE LID ASSEMBLY	133	6746902	SWITCH COVER (For E(BS))
112	6223511	HEAD COVER	134	5671661	FM ANTENNA TERMINAL
113	5401122	SPEAKER-5CM			

