TOSHIBA

STEREO CASSETTE DECK

PC-G90AD

SPECIFICATIONS

Heads:	Record: Super AP Playback: 12-place laminated Super AP Erase: AF (2 gap ferrite) head	**S/N Ratio:**	60 dB (peak level, WTD, chrome position tape)
		Total Distortion:	0.5% (400 Hz, 0 dB chrome position tape)
		Bias Frequency:	85 kHz
Drive System:	2-motor IC logic control	**Input Terminals:**	MIC: 0.25mV (300 ohm – 10k ohm) LINE: 70mV (50k ohm)
Motors:	DC servo motor for capstan drive DC motor for reel drive DC motor for control	**Output Terminals:**	LINE: 0.4V (50k ohm) Headphones: 1mW (8 ohm)
Tape Speed:	4.8 cm/sec.	**Power Supply:**	AC 220V ~, 50 Hz (for Europe) AC 240V ~, 50 Hz (for the U.K. and Australia)
Wow & Flutter:	0.022% WRMS, ±0.06% DIN		
Fast Forward and Rewind Time:	Approx. 75 sec. (C-60 tape)	**Power Consumption:**	33W
Frequency Response:	20 – 21,000 Hz with metal tape and –20 dB input 20 – 20,000 Hz with chrome position tape and –20 dB input 20 – 18,000 Hz with normal tape and –20 dB input	**Major Dimensions:**	420(W) x 120(H) x 321(D) mm (including front panel knobs, etc. and rubber supports)
		Weight:	6.7 kg

Specifications are subject to change without notice.

TE, TU
PRINTED IN JAPAN 22905193 March, 1983 (S)

CONTENTS

1. BLOCK DIAGRAM

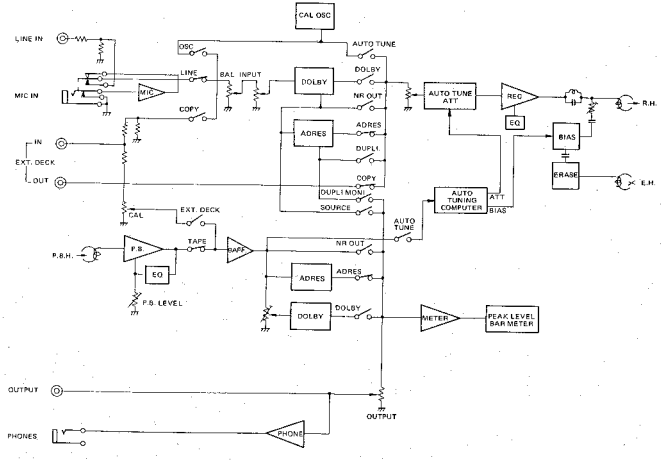


Figure 1

2. OPERATING CONTROLS

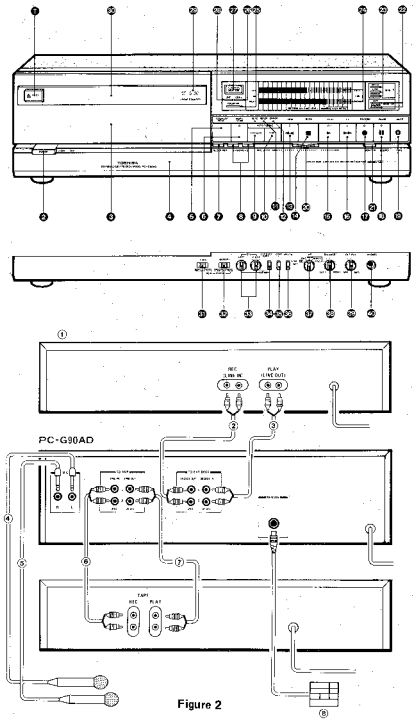


Figure 2

FEATURES

■ **DD Motor Driven Closed Loop Dual Capstan System**
Both capstans are driven by separate low-speed DD motors to greatly improve the drive system for high performance in tape travel. The wow & flutter rating in this "simply & silent" mechanism is only 0.022% WRMS.

■ **New Super-AP Three Head Configuration**

■ **New "Double adres" IC**
With further improvements to the dynamic characteristics gained by incorporating a "variable attack" type level sensor, the adres NR system developed by Toshiba has now been adapted to comply with digital requirements while maintaining full compatibility with conventional adres NR systems.

■ **Computerized Auto Tape Tuning System**
Optimum bias and sensitivity are adjusted automatically by built-in computer.

■ **adres Unit Function (with Copy Switch)**
The PC-G90AD also includes a four-channel adres unit function. This also enables the PC-G90AD to be used as an adres unit in connection with other tape decks. With the second deck connected to the unit terminals, pressing the COPY switch enables direct tape dubbing from the other deck.

■ **Direct-Coupled Dual FET Input Head Amplifier**

■ **Easy-to-read Fluorescent Tube Level Meter**

■ **Linear Electronic Counter (with Block Repeat Function)**
Based on the basis of the rotational speed of both reels, the tape travel time is computed and displayed by microcomputer.

■ **MOSS, Index Scan, and Memory Counter Functions**

FRONT PANEL CONTROLS

❶ **[▲EJECT] Button**

❷ **[POWER] Switch**
The peak level meter, the cassette compartment lamp, and the AUTO indicator come on when the [POWER] switch is pressed ON. Note that no tape operations are possible during the first five seconds after the power is switched on. Press the switch a second time to switch off.

❸ **Cassette Compartment Door**

❹ **Sub-control Panel**
Open by pushing downwards on both sides.

❺ **[COUNTER RESET] Switch**
For resetting the linear counter to 0:00.

❻ **[INDEX SCAN] Switch**
When this switch is pressed during playback mode, the tape is advanced to the start of the next tune in fast forward mode, and approximately 10 seconds of that tune is played. The tape then advances in fast forward mode to the start of the next tune after that, and again plays about 10 seconds of the tune, and so on to the end of the tape. If playback of the whole of a particular tune is desired, simply press the playback button.

❼ **[BLOCK REP] (Block Repeat) Switch**
When this switch is pressed ON for the block repeat function, B is displayed in the counter (see page 9 for further details).

❽ **[1-MEMO-2] Block Repeat**
When the block repeat function is used, 1-MEMO is the memory position for automatic playback, and 2-MEMO the memory position for automatic rewind.

❾ **and ❿ [AUTO TUNING]**

❾ **[FIX/AUTO]**
Press once for AUTO (whereupon the AUTO indicator comes on), and press again for FIX (normal status).

❿ **[START]**
Press this button for automatic tape bias and sens sensitivity adjustments (which take 10 to 15 seconds).

⓫ **[READY]**
Blinks on and off during tape tuning operation, and remains on to indicate previous presetting in memory.

⓬ **[ERROR] Indicator Lamp**
Comes on if an error occurs during auto tape tuning.

Tape Mode Control Buttons (⓭ thru ⓱)

⓭ **[◀◀ REW] (Rewind) Button**

⓮ **[■ STOP] Button**

⓯ **[▶ PLAY] Button**

⓰ **[▶▶ FF] (Fast Forward) Button**

⓱ **[● RECORD] Button**
Recording mode is set by pressing this button together with the [▶ PLAY] button. And if the [⏸ PAUSE] button is pressed while pressing this [● RECORD] button, the deck is put into recording standby mode.
Note that recording mode cannot be set when no cassette tape has been loaded, and when the erasure prevention tabs have been removed.

⓲ **[⏸ PAUSE] Button**
When this button is pressed during playback or recording mode, the tape is halted temporarily in that mode. This pause state is released by pressing the [▶ PLAY] button.

⓳ **[○ MUTE] (Recording Mute) Button**
Used to from five second intervals of blank tape. Recording mute mode is switched automatically to pause mode after five seconds.

⓴ **[INPUT LEVEL] Adjustment Control**
For adjusting the input level. Left/right balance is adjusted by the BALANCE control in the subcontrol panel.

㉑ **[MONITOR] Switch**
Switch for selecting the monitor (output) signal.
< SOURCE >
Position for monitoring the input (recording) signal applied to this tape deck.
< TAPE >
Position for monitoring recorded signals (playback program). Recording performance can be monitored simultaneously in this position.

㉒ **[SOURCE/TAPE] Monitor Indicator Lamps**

㉓ **[NORMAL/CrO_2 (Chrome)/METAL] Tape Indicator Lamps**

㉔ **Level Meter**
Peak level display of the input signal to be recorded, and the level of signals recorded on tape.

㉕ **[DOLBY* NR] Indicator Lamp**

㉖ **[COPY] Indicator Lamp**

㉗ **[adres] Indicator Lamp**

㉘ **[UNIT] Indicator Lamp**

㉙ **[LINEAR COUNTER]**
This time counter increases in one second steps. In rewind and fast forward modes, too, the time corresponding to the playback mode time is displayed. The display includes two digits for minutes, and two digits for seconds.
< B > Block repeat
< 1 > Memory 1
< 2 > Memory 2

㉚ **Cassette Compartment Lamp**
This lamp enables easy check of the remaining amount of tape.

㉛ **[TIMER] Standby Switch**
Switch for preset recording and morning alarm playback when an optional audio timer is used, and also automatic repeated playback. The switch is normally left in the OFF position.

㉜ **[MEMORY] Counter Switch**
Switch used for automatic stopping of the tape when counter is rewound to 0:00, followed by automatic start of playback mode from that position. Also used for automatic repeated playback. (The counter may not always stop exactly at 0:00.)

㉝ **[adres CAL (adres Calibration) Control**
Control for adjusitng to the adres reference level when the deck is used as an adres unit. The control is not used when the PC-G90AD is operated in recording or playback mode.

㉞ **[EXT DECK (UNIT)] adres Unit Switch**
Used in adres recording or playback mode with an another cassette tape deck.

㉟ **[COPY] Switch**
Used when recording from another tape deck.

㊱ **[MPX FIL] (MPX Filter) Switch**
Used when recording FM stereo broadcasts or TV multiplex programmes.

㊲ **NR Noise Rediction Switch**
< □□ > DOLBY* NR
Set to this position for Dolby NR recording and playback.
< OUT >
Set to this position when not using any noise reduction system.
< adres >
Set to this position for adres recording and playback.
In this position, the epoch-making automatic dynamic range expansion system capable of recording and playback of fresh, natural sounds with practically negligible tape hiss across the entire frequency spectrum is switched on.
The adres indicator lamp comes on in this position.
< DUPLI > (adres Duplicator) Switch
Switch used to enable monitoring of normal sounds during tape dubbing of adres encoded tapes from another tape deck.
< OSC > Built-in Oscillator (Signal Generator)
Set to this position for level adjustment when recording with adres NR in another tape deck.

㊳ **[BALANCE] Adjustment Control**
Left/right adjustment of input level.

㊴ **[OUTPUT] Level Adjustment Control**
Adjustment of the output (monitor) level of the playback signal from this tape deck. The headphones level is also adjusted at the same time.

㊵ **[PHONES] (Headphones) Jack**

* Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

CONNECTIONS

Make sure that each cable is connected to the correct terminal, and that all connections are made securely.

- Make sure that the power switches of all components are off before making any connections.
- Make doubly sure that there are no loose connections anywhere since these can easily give rise to unwanted noise.
- Use the red plug for the right channel.
- When connecting to the other tape deck, use the connecting cables supplied with that deck.

① Another tape deck (external deck).
② Connecting cable for recording (supplied with other tape deck, or purchased separately).
③ Connecting cable for playback (also supplied with other tape deck, or purchased separately).
④ Left channel microphone (optional).
⑤ Right channel microphone (optional).
⑥ Connecting cable for recording.
⑦ Connecting cable for playback.
⑧ RM-20S (optional).

AUTO TAPE SELECTION AND AUTO TAPE TUNING (ATTS)

The PC-G90AD is designed to detect tape type (normal, chrome, or metal), and set bias and equalization levels automatically when the cassette tape is loaded.
(The results are displayed immediately by the respective indicator lamps. Note, however, that detection may not be possible if an old-type tape is used.)
The deck also features an auto tuning mechanism which automatically sets the optimum bias and sensitivity for each type of tape. This mechanism is incorporated in a special microcomputer.

Operation

Note: Set to FIX when not recording.

■ Input of New Data

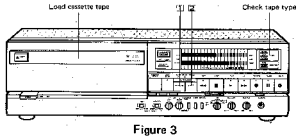


Figure 3

- **Load the tape and check the type of tape.**

[1] Press FIX/AUTO — The [AUTO] indicator lamp comes on. (This lamp comes on when the [POWER] switch is switched ON, and if the [READY] indicator lamp also comes on at that time, it shows that data has already been stored in memory.)

[2] ATTS start: Press START — The [READY] indicator lamp lights up (indicating that the ATTS signal is being recorded).

[3] ATTS end: STOP → REW → STOP (Auto)
- If the [READY] indicator comes on,
  - tape characteristics data obtained by ATTS operation is stored in memory by microcomputer.
  - since separate memories are available for each type of tape (NORM, CrO_2, and METAL), characteristics data for each type can be stored in memory.
- If the [ERROR] indicator lamp comes on, either repeat the ATTS operation, or exchange with another cassette tape.

■ Use of Data already Stored in Memory

After checking that both the [AUTO] and [READY] indicator lamps are on, proceed with normal recording mode operation.

■ When [FIX/AUTO] switch is set to FIX

The [AUTO] and [READY] indicator lamps do not come on.
Fixed bias and sensitivity levels are set according to the type of tape detected by the auto tape selector.

Note:

1. If non-standard tapes or tapes of poor sensitivity are used, an accurate output cannot be obtained. The ATTS operation is cancelled automatically, and the [ERROR] indicator lamp comes on.
2. If the [POWER] switch, an operation mode button, or any other switch is operated during ATTS operation, the ATTS operation is cancelled automatically.
3. If the ATTS operation is started near the end of the tape, and the end is subsequently reached before completion of the ATTS operation, the auto stop mechanism is activated and the ATTS operation is cancelled.
4. If a second ATTS operation is performed, the tape characteristics data of the first operation is cleared from memory, and the new data is stored instead.
5. If the tape selector switch fails to operate correctly due to the absence of a detector hole, use another tape.
6. Since the memory contents are preserved for about one day after the power is switched off, the ATTS function can also be used in timer recording.
7. Leave the [FIX/AUTO] switch in the FIX position when not using the ATTS function.
8. If the [READY] indicator lamp is off with the [AUTO] indicator lamp on, the bias and sensitivity values will be fixed values.

LINEAR ELECTRONIC COUNTER

The linear electronic counter featured in the PC-G90AD displays tape travel time (during playback rewind, and fast forward modes) in minutes and seconds in digital mode. This counter can be used in two different ways.

■ Display of Tape Travel Time

During playback, rewind, and fast forward modes, tape travel is counted (timed) in minutes and seconds.
If the tape is stopped or put into pause mode, the counter also stops. During fast forward and rewind modes, the time corresponding to the length of tape (and equivalent to the playback mode time) is displayed.

- Press the [COUNTER RESET] switch ❺ at the beginning of the tape (but do not overlook the leader tape).

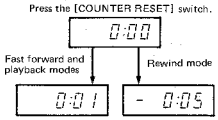


Figure 4

- When rewinding from 0:00, the counter display changes to –0:01, –0:02 and so on.

■ Display of Remaining Time

If the time of the whole tape is displayed as a minus value, the remaining amount of time is shown. This is particularly helpful in recording mode.

- Press the [▶▶ FF] button ⓰ to advance the tape to the end, and then press the [COUNTER RESET] switch ❺ . (Also remember that there is leader tape at the end of the tape.) Next press the [◀◀ REW] button ⓲ to rewind the tape back to the beginning where the counter will display a minus reading.
  (A display of –30:00 indicates that there is 30 minutes of tape left.)
  When recording is started, the counter will proceed to count down. For example, –30:00, –29:59, –29:58, ... thereby showing the remaining amount of time at all times.

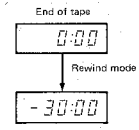


Figure 5

- This method enables the differences in recording times between tapes of different type, length, and brand etc. to be better controlled.

Caution:

Counter Precision

- This linear electronic counter is not a clock, and small differences in the displayed time do occur. (The times displayed in playback mode differ slightly from the times displayed in fast forward and rewind modes.)
- This difference varies with different tape types. (Variation also occurs between tapes of the same kind.) The counter has been standardized for C-60 and C-90 tapes. With shorter tapes or tapes with a larger hub diameter, there will be differences from the actual time.
- Although the counter counts in units of seconds, the counting rate may speed up or slow down marginally at times to compensate the counting.

Counter Display

- The counter display also includes MEMO, B, 1, and 2 function displays.
  (See page 9 for details on block repeat.)

Note:

1. Block repeat operation is not possible with minus displays. Always reset the counter at the beginning for block repeat.
2. The 1 and 2 displays cannot be erased when the display is a minus value.
3. To erase the MEMO, 1, and 2 displays, either press the [COUNTER RESET] switch ❺ , or press the [1-MEMO-2] switch ❽ when the B display is disappearing.

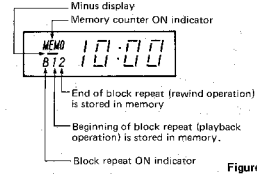


Figure 6

AUTOMATIC TUNE SELECTION (MQSS, INDEX SCAN)

■ MQSS

- The Music Quick Selector System (MQSS) is used, in playback mode, to automatically locate the start of tunes and enables immediate playback of a particular tune. Thus you can either playback the same tune or proceed to the next tune. The operating procedure is outlined below.

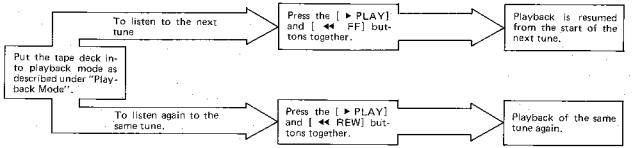


Figure 7

Note: The MQSS feature does not function if:—

- The blank portion of tape between tunes is less than 5 seconds.
- There is noise in the blank portion of tape.
- There are very quiet passages or long pauses within the tune.
- The recording level is too low.
- The fast forward or rewind button is pressed accidentally before pressing the MQSS switch. In this case, the deck will operate in normal fast forward or rewind mode.
- If the [▶ PLAY] and [◀◀ REW] buttons are pressed soon after the start of a tune, or if the [▶PLAY] and [▶▶ FF] buttons are pressed near the end of a tune, a whole tune is skipped and playback commences from the next tune (in either direction) after that.

■ Index Scan Playback

If the [INDEX SCAN] switch ⑥ is pressed during playback mode, the INDEX SCAN indicator lamp comes on, the tape is rewound to the beginning of the recorded program, and playback is resumed for about 10 seconds at that position. The tape then advances to the beginning of each tune in fast forward mode, and automatically plays the first 10 seconds of each tune. If the [▶ PLAY] button ⑮ pressed during one of these 10 second playback periods, the index scan function is cancelled and normal playback mode is resumed.
To stop index scanning, simply press the [STOP] button ⑭.

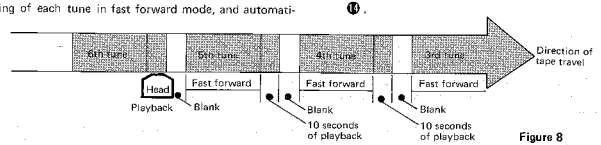


Figure 8

■ Preparation of Tape for Automatic Tune Selection

(Use of the Auto Mute Button)
Unrecorded sections of a tape are formed in the following way during recording mode to prepare tapes for automatic tune selection.

- Press the [● MUTE] button ⑲ at the end of the tune being recorded (and release the button again immediately). Approximately five seconds of blank tape is formed, the deck being switched automatically to pause mode (recording standby with the [⏸ PAUSE] button ⑱ indicator lamp on) at the end of the five seconds.
(The [▶ PLAY] button ⑮ indicator lamp blinks on and off during this recording mute mode.)

Note: Leave the [MONITOR] switch ㉑ in the < SOURCE > position to enable the source programme to be monitored, (The source programme cannot be monitored in the [MONITOR] switch is in the < TAPE > position.)

- To form a portion of unrecorded tape of more than five seconds, keep the [● MUTE] button ⑲ depressed.
- To form a portion of unrecorded tape of less than five seconds, press the [⏸ PAUSE] button ⑱ at the desired time after pressing the [● MUTE] button ⑲.

AUTOMATIC PLAYBACK

The PC-G90AD is capable of various automatic playback operations, these being set by combination of repeat switch, memory switch, and block repeat switch. (Always switch the relevant switches off after the end of the respective operations.)

Tape travel mode	[TIMER] switch ㉑	[MEMORY] switch ㉒	[BLOCK REP] switch ⑦ [1-MEMO-2] switch ⑧	Operation mode button pressed after switch setting
Memory stop S C E REW STOP	OFF	STOP	Note: Turn the block repeat ON display < B > off.	REW button
Memory play S C E REW PLAY STOP	OFF	PLAY	Note: Tune the block repeat ON display < B > off.	REW button
Auto rewind stop S E PLAY STOP REW	PLAY	OFF	Note: Turn the block repeat ON display < B > off.	PLAY button
Auto rewind memory stop S C E PLAY STOP REW	PLAY	STOP	Note: Turn the block repeat ON display < B > off.	PLAY button
Memory repeat S C E PLAY REW	PLAY	PLAY	Note: Turn the block repeat ON display < B > off.	REW (or PLAY) button
	OFF	OFF	Note: The block repeat ON display comes on.	
Block repeat I S B_1 B_2 E PLAY REW	PLAY	PLAY	B 1 2 ON ON ON	REW (or PLAY) button
Block repeat II S C B_2 E PLAY REW	PLAY	PLAY	B 2 ON ON	REW (or PLAY) button
Block repeat III S B_1 E REW	PLAY	OFF	B 1 ON ON	REW (or PLAY) button

S : Tape start
E : Tape end
C : Counter zero display (note)
B_1 : Memory 1 (PLAY at this point)
B_2 : Memory 2 (REW at this point)

Note: The C point may not always be exactly at 0:00.
[Example: −0:03]

3.DISASSEMBLY INSTRUCTIONS

CASSETTE COVER REMOVAL

1. Open cassette holder by pushing eject knob.
2. Slide the holder in direction shown by arrow Ⓐ, and the holder will be removed.

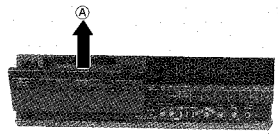


Figure 9

TOP COVER REMOVAL

1. Remove six screws Ⓑ, Ⓒ, Ⓓ, and top cover will be removed.

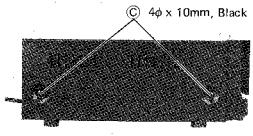


Figure 10

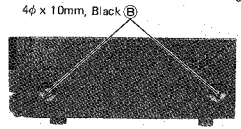


Figure 11

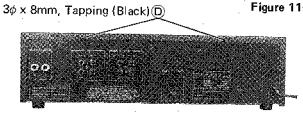


Figure 12

FRONT PANEL ASS'Y REMOVAL WITH MECHA. & P.C. BOARD

1. Remove six screws Ⓔ, Ⓕ, Ⓖ, and front panel assembly will be removed.

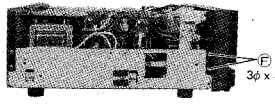


Figure 14

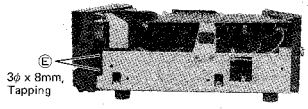


Figure 13

BOTTOM PLATE REMOVAL

1. Remove seven screws Ⓗ and bottom plate will be removed.

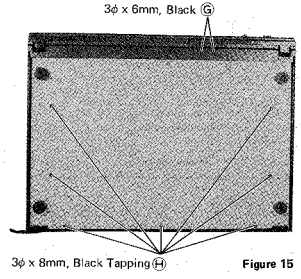


Figure 15

ACCESS TO NR (Noise Reduction) P.C. BOARD

1. Remove two screws Ⓘ and open the P.C. Board and hold it with P.C. Board holder for your convenience in servicing.

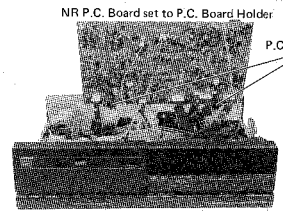


Figure 17

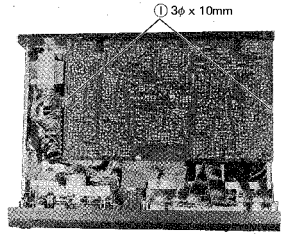


Figure 16

METER P.C. BOARD REMOVAL

1. Remove NR P.C. Board, and remove two screws Ⓙ.
2. Remove two screws Ⓚ and remove key board switch connector P.C. Board.
3. Remove one screw Ⓛ at center of Meter P.C. Board, and the P.C. Board can be removed.

   Note: Before removing P.C. Board, always remove two counter securing screws Ⓜ to prevent the counter from damage which may be caused by the P.C. Board touched to the counter.

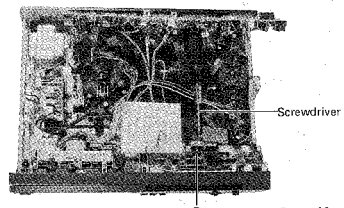


Figure 19

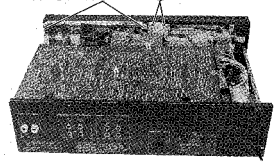


Figure 18

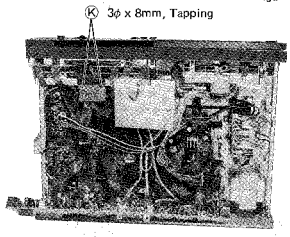


Figure 20

MECHANISM ASSEMBLY REMOVAL

1. Remove four screws Ⓝ Ⓞ, and mechanism assembly will be removed.

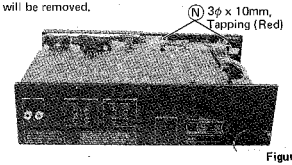


Figure 21

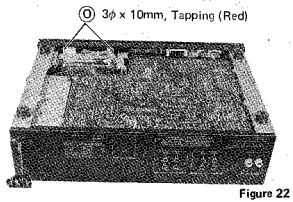


Figure 22

4. ADJUSTING PARTS LOCATION

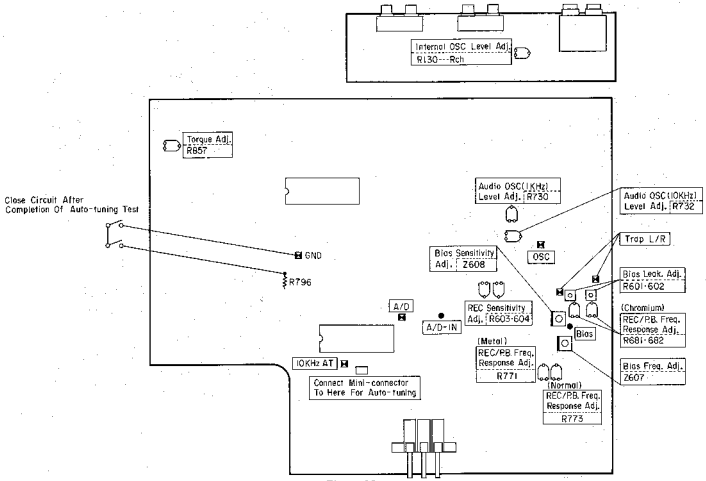


Figure 23

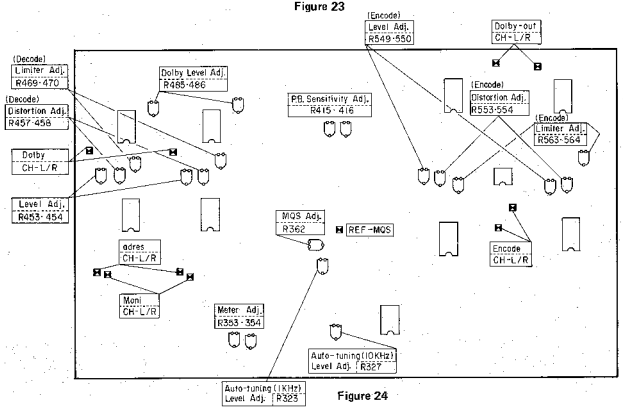


Figure 24

5. ADJUSTMEN

No	Item	Nominal Specs	Test Tape	Volume Control			Switch Position					Adjustment Position
				REC/BAL	PB	CAL	MONITOR	NR	EXT-DECK	COPY	MPX	
1	Torque Adjustment	50 ±5g-cm	Torque Tape	–	MAX	–	TAPE	OUT	OUT	OUT	OUT	R857
2	Head Azimuth Adjustment	Maximum	ATT-111	–		–						Head Azimuth Adjustment Screw
3	Tape Speed Measurement	3000 ±30 Hz	ATT-111	–		–						(Semi-fixed resistor on the Mecha. P.C. Board)
4	Playback Sensitivity Adjustment	580 ±10mV	ATT-150	–		–						R415 R416
5	DOLBY DECODE Adjustment											
①	Input Level Adjustment	580 ±10mV	–	–		Adjust.		OUT	IN			CAL Volume
②	DECODE Level Adjustment	580 ±10mV	–	–		Adjust. Position		DOLBY				R485 R486
6	adres DECODE Adjustment											
①	Input Level Adjustment	300 ±10mV	–	–				–				(CAL Volume)
②	DECODE Level Adjustment	300 ±10mV	–	–				–				R453 R454
③	DECODE Distortion Adjustment	Less than 0.1%	–	–				–				R457 R458
④	DECODE Limiter Adjustment	+ 2 ±0.2 dB	–	–				–				R469 R470
7	Meter Adjustment	AD mark	–	–				–				R353 R354
8	Playback Frequency Measurement (normal)	0 ±2 dB	ATT-255	–		–		OUT	OUT			–
9	Playback Frequency Measurement (CrO_2)	–4 ±2 dB	ATT-255	–		–						–
10	Noise Output Level (normal)	Less than 2.5mV	Tape Blank	–		–						–

1. Torque Adjustment

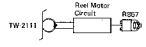


Figure 25

2. Head Azimuth Adjustment

Figure 26

3. Tape Speed Measurement

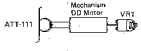


Figure 27

4. Playback Sensitivity Adjustment

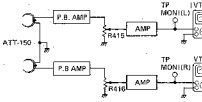


Figure 28

5. ADJUSTMENT INSTRUCTIONS

No	Item	Nominal Specs	Test Tape	Volume Control			Switch Position					Adjustment Position	Test Points	Input Frequency ATT	Remarks
				REC/BAL	PB	CAL	MONITOR	NR	EXT-DECK	COPY	MPX				
1	Torque Adjustment	50 ±5g-cm	Torque Tape	–	MAX	–	TAPE	OUT	OUT	OUT	OUT	R857	Torque Tape	–	
2	Head Azimuth Adjustment	Maximum	ATT-111	–	↓	–	↓	↓	↓	↓	↓	Head Azimuth Adjustment Screw	MONI or LINE OUT	–	After adjustment, apply a lock paint on the screw.
3	Tape Speed Measurement	3000 ±30 Hz	ATT-111	–	↓	–	↓	↓	↓	↓	↓	(Semi-fixed resistor on the Mecha. P.C. Board)	MONI or LINE OUT	–	
4	Playback Sensitivity Adjustment	580 ±10mV	ATT-150	–	↓	–	↓	↓	↓	↓	↓	R415 R416	MONI (L) MONI (R)		
5	DOLBY DECODE Adjustment														
①	Input Level Adjustment	580 ±10mV	–	–	↓	Adjust.	↓	OUT	IN	↓	↓	CAL Volume	MONI (L) MONI (R)	400 Hz –10 dB	
②	DECODE Level Adjustment	580 ±10mV	–	–	↓	Adjust. Position	↓	DOLBY	↓	↓	↓	R485 R486	DOLBY (L) DOLBY (R)	400 Hz –10 dB	①Input terminal → EXT-DECK /PLAY
6	adres DECODE Adjustment					↓									②Don't touch after completion of adjustment.
①	Input Level Adjustment	300 ±10mV	–	–	↓	↓	↓	–	↓	↓	↓	(CAL Volume)	MONI (L) MONI (R)	1 kHz –16.3 dB	③Deck STOP mode
②	DECODE Level Adjustment	300 ±10mV	–	–	↓	↓	↓	–	↓	↓	↓	R453 R454	adres (L) adres (R)	1 kHz –16.3 dB	
③	DECODE Distortion Adjustment	Less than 0.12%	–	–	↓	↓	↓	–	↓	↓	↓	R457 R458	adres (L) adres (R)	1 kHz –16.3 dB	
④	DECODE Limiter Adjustment	+ 2 ±0.2 dB	–	–	↓	↓	↓	–	↓	↓	↓	R469 R470	adres (L) adres (R)	1 kHz – 10 kHz –16.3 dB	Variation of 10 kHz referred to 1 kHz
7	Meter Adjustment	AD mark	–	–	↓	↓	↓	–	↓	↓	↓	R353 R354	Meter	1 kHz –16.3 dB	(1 dB decreased) White part all turn on → start to light up. Red part all turned off.
8	Playback Frequency Measurement (normal)	0 ±2 dB	ATT-255	–	↓	–	↓	OUT	OUT	↓	↓	–	MONI or LINE OUT	–	10 kHz level difference referred to 315 Hz level
9	Playback Frequency Measurement (CrO_2)	–4 ±2 dB	ATT-255	–	↓	–	↓	↓	↓	↓	↓	–	MONI or LINEOUT	–	Variation from 10 kHz normal
10	Noise Output Level (normal)	Less than 2.5mV	Tape Blank	–	↓	–	↓	↓	↓	↓	↓	–	MONI or LINE OUT	–	

1. Torque Adjustment

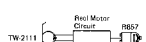


Figure 25

2. Head Azimuth Adjustment

Figure 26

3. Tape Speed Measurement

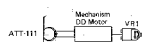


Figure 27

4. Playback Sensitivity Adjustment

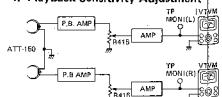


Figure 28

5. DOLBY DECODE Adjustment

ⓘ **Input Level Adjustment**

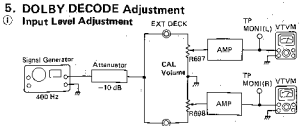


Figure 29

② **DECODE Level Adjustment**

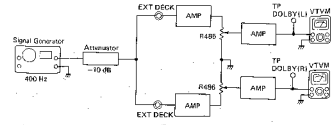


Figure 30

6. adres DECODE Adjustment

ⓘ **Input Level Adjustment**

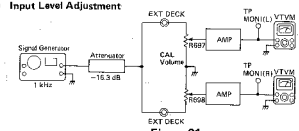


Figure 31

② **DECODE Level Adjustment**
③ **DECODE Distortion Adjustment**
④ **DECODE Limiter Adjustment**

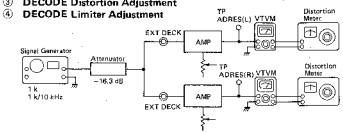


Figure 32

7. Meter Adjustment

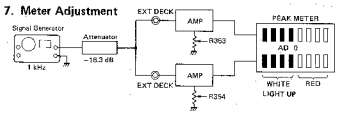


Figure 33

Measurement

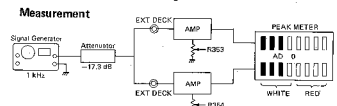


Figure 34

8. Playback Frequency Measurement (normal)
9. Playback Frequency Measurement (CrO_2)
10. Noise Output Level (normal)

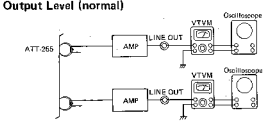


Figure 35

No	Item	Nominal Specs	Test Tape	Volume Control			Switch Position					Adjustment Position	Test Points	Input Frequency ATT	Remarks
				REC/BAL	PB	CAL	MONITOR	NR	EXT-DECK	COPY	MPX				
11	OSC Frequency Adjustment	105 kHz ±50 Hz	AC-711	–	MAX	–	TAPE	–	OUT	OUT	OUT	Z607	(T.P.) BIAS	–	
12	Bias Sensitivity Adjustment	MAX	AC-711	–		–		–				Z608	(T.P.) BIAS	–	
13	Bias Trap Adjustment	MIN (<15mV)	AC-711	–		–		–				Z601 Z602	TRAP (L) TRAP (R)	–	
14	MOS Adjustment	DC 1.8±0.1V	–	–		–		–				R362	REF-MOS	–	
15	Built-in OSC level Adjustment	300 ±10mV	–	Adjustment /Center		–		OSC				REC-VR→LCH R130→RCH	DOLBY OUT (LCH) DOLBY OUT (RCH)	–	
16	adres ENCODE Adjustment														
①	Input Level Adjustment	300 ±10mV	–	Adjustment		–		OUT				REC BAL→VR	DOLBY OUT (LCH) DOLBY OUT (RCH)	1 kHz –20 dB	Don't vary after completion of REC/BAL VR adjustment
②	ENCODE Level Adjustment	300 ±10mV	–	Adjustment Position		–		adres				R549 R550	ENCODE (L) ENCODE (R)	1 kHz –20 dB	(Input Terminal → LINE-IN)
③	ENCODE Distortion Adjustment	Less than 0.12%	–			–						R553 R554	ENCODE (L) ENCODE (R)	1 kHz –20 dB	
④	ENCODE Limiter Adjustment	–2 ±0.2 dB	–			–		↓				R563 R564	ENCODE (L) ENCODE (R)	1 kHz –10 kHz –20 dB	
⑤	ENCODE DUPLI Check	+2 +1.5 dB –0.5 dB	–			–		DUPLI				–			
17	REC/PB Frequency Adjustment (CrO_2)	0 ∿ +1.0 dB	AC-512			–		OUT				R681 R682	MONI or LINE OUT	333 Hz – 10 kHz –40 dB	
18	REC/PB Frequency Adjustment (normal)	0 ∿ +1.0 dB	AC-212			–						R773	MONI or LINE OUT	333 Hz – 10 kHz –40 dB	L/RCH difference –2 dB
19	REC/PB Frequency Adjustment (metal)	0 ∿ +1.0 dB	AC-711			–	↓					R771	MONI or LINE OUT	333 Hz – 14 kHz –40 dB	L/RCH difference –5 dB
20	REC/PB Sensitivity Adjustment (CrO_2)	SOURCE Level	AC-512			–	TAPE / SOURCE					R603 R604	MONI or LINE OUT	333 Hz –17 dB	Auto tuning in Fix position

11. OSC Frequency Adjustment

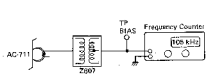


Figure 36

12. Bias Sensitivity Adjustment

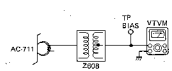


Figure 37

13. Bias Trap Adjustment

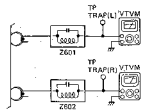


Figure 38

14. MOS Adjustment

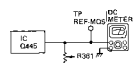


Figure 39

15. Built-in OSC Level Adjustment

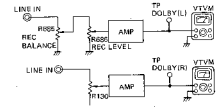


Figure 40

16. adres ENCODE Adjustment

① **Input Level Adjustment**

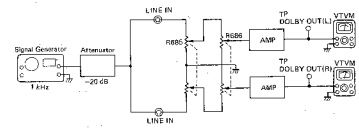


Figure 41

② **ENCODE Level Adjustment**
③ **ENCODE Limiter Adjustment**

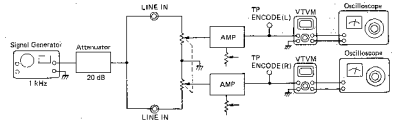


Figure 42

④ **ENCODE Limiter Adjustment**
⑤ **ENCODE DUPLI Check**

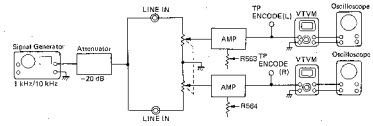


Figure 43

17. REC/PB Frequency Adjustment (CrO_2)
18. REC/PB Frequency Adjustment (normal)
19. REC/PB Frequency Adjustment (metal)
20. REC/PB Sensitivity Adjustment (CrO_2)

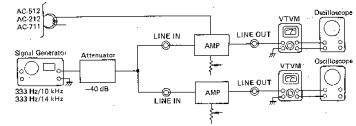


Figure 44

20. Auto-tuning Alignment Method

1. Connect test point [A/D] to the ground.
2. Connect both ends of connector terminal J705, using a short jumper jig. 
3. Use the test tape AC-512.
4. Connect AC millivoltmeter and oscilloscope as shown below.
5. Use oscilloscope.

Step	Item	Reference Value	Tape Used	Switch		Alignment Point	Test Point	Note
				AUTO/FIX	START			
1	AF Oscillator 1 kHz Alignment	400mV	AC512	AUTO (AUTO LED turns on)	ON	R730	TP OSC	Repeat to push start switch as OSC stops after 10 sec. elapsed.
2	Auto-tuning 1 kHz Level Alignment	HIGH → LOW LOW Level	AC-512	AUTO (AUTO LED turns on)	ON	R323	TP A/D-IN When "H" changed to "L"	
3	AF Oscillator 10 kHz Alignment	40mV	AC-512	AUTO (AUTO LED turns on)	ON	R732	Ground TP 10K.AT	
							TP OSC	
4	Auto-tuning 10 kHz Level Alignment	LOW Level Longer "L" period	AC-512	AUTO (AUTO LED turns on)	ON	R327	TP A/D-IN 0V ⊓⊓ OK 0V ⊔⊔ NG	

* After completion of the alignment, remove the short jumper jig from J705 and short-circuits C709.

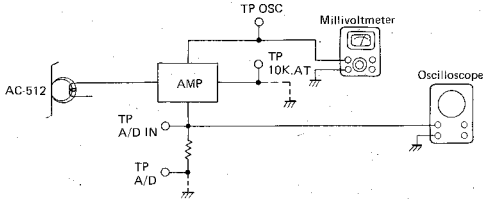
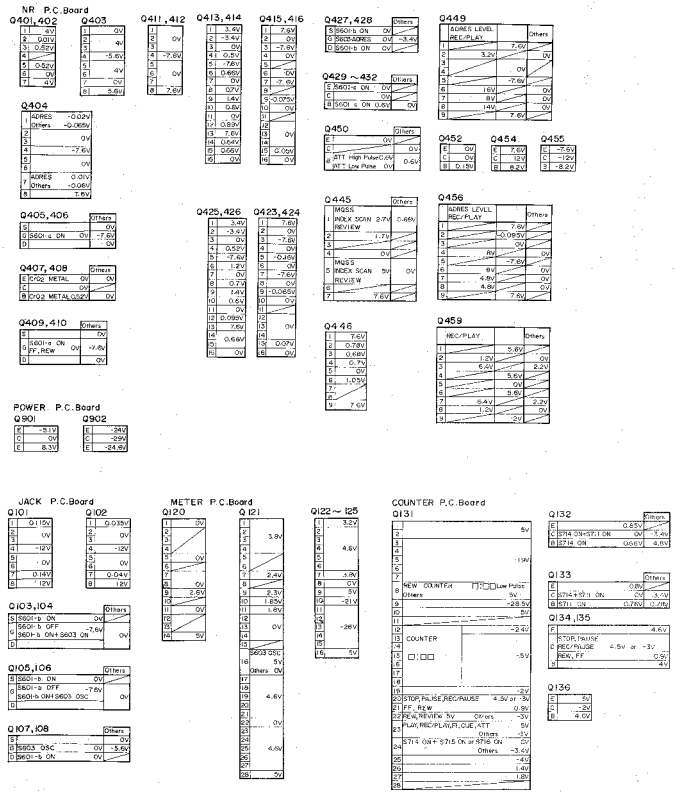


Figure 45

6. VOLTAGE CHART



 PC-G90AD

MAIN P.C.Board

Q603,604

			Others
E			
C		0V	
B	REC/PLAY,ATT	0V	0.72V

Q605~612, Q615,616

			Others
E			
C		0V	
B	FIX	0V	

Q613,614

			Others
E			
C		0V	
B	FIX	0.62V	

Q619,620

			Others
E	CrO2 METAL	0V	
C		0V	
B	CrO2 METAL	0.68V	0V

Q621,622

			Others
E	METAL	0V	
C		0V	
B	METAL	0.68V	0V

Q623,624

			Others
E	CrO2	0V	
C		0V	
B	CrO2	0.66V	0V

Q625,626

			Others
E	NORMAL	0V	
C		0V	
B	NORMAL	0.68V	0V

Q617

1	
2	0V
3	
4	−12V
5	
6	0V
7	
8	+12V

Q618

1	+12V
2	
3	0V
4	
5	−12V
6	
7	0V
8	
9	+12V

Q627

	FIX STOP	REC/PLAY, ATT
1	0V	
2	5V	
3	0.52V	
4	0.48V	
5	0V	
6	0V	
7	4.8V	0V
8		0V
9	4.6V	0V
10		
11	0V	
12		
13		
14	5V	
15	0V	
16		5V

Q628

	FIX,STOP		FIX,STOP
1	5V	9	
2	0V	10	
3	0.52V	11	
4	0.48V	12	0V
5		13	
6	0V	14	
7		15	5V
8		16	

Q630

	REC/PLAY,REC/PAUSE REC/MUTE NORMAL	CrO2	METAL	Others
E	0.05V	0.09V	0.185V	
C	3.3V	4.8V	9V	0V
B	0.4V	0.28V	0V	

Q631

	REC/PLAY,REC/PAUSE REC/MUTE NORMAL	CrO2	METAL	Others
E	0.05V	0.09V	0.185V	
C	3.3V	4.8V	9V	0V
B	0.42V	0.32V	0.02V	

Q632

	REC/PLAY,REC/PAUSE REC/MUTE NORMAL	CrO2	METAL	Others
E	3.4V	5V	9V	12V
C	3.3V	4.9V	9V	0V
B	2.7V	4.2V	8.3V	11V

Q633

		NORMAL	CrO2	METAL	Others
E		0V			
C		8.9V	9.8V	11V	
C	REC/PLAY, REC/PAUSE, REC/MUTE	0V			
B	REC/PLAY, REC/PAUSE, REC/MUTE	0.63V			0V

Q634

		NORMAL	CrO2	METAL	Others
E	REC/PLAY, REC/MUTE	2.3V	3.4V	6.2V	0V
E	REC/PAUSE	0.3V	0.38V	0.6V	
C	REC/PLAY,REC/MUTE	11.5V	11V	10.5V	
C	REC/PAUSE	0.9V	1V	1.2V	
B	REC/PLAY,REC/MUTE	3.5V	4.6V	7.4V	
B	REC/PAUSE	1.55V	1.7V	2V	0V

Q635

		NORMAL	CrO2	METAL	Others
E		12V			
C	PLAY	12V			
C	REC/PLAY,REC/MUTE	11.5V	11V	10.5V	
C	REC/PAUSE	0.9V	1V	1.2V	
B	REC/PLAY, REC/MUTE	10V			12V

Q636

			Others
E		0V	
C	PLAY, REC/PLAY, REC/MUTE	6.6V	0V
B	PLAY, REC/PLAY, REC/MUTE	0V	12V

Q637

	REC/PLAY, REC/MUTE NORMAL	CrO2	METAL	Others
E	1.3V	0.72V	0.48V	
C	2.35V	3.4V	6.2V	0V
B	1.05V	1.3V	1.75V	

Q638

	REC/PLAY, REC/MUTE NORMAL	CrO2	METAL	Others
E	0.5V	0.75V	1.35V	
C	2.3V	3.4V	5.2V	0V
B	1.1V	1.35V	1.75V	

Q701

			Others
E	S901 ON After 5 sec	0V	4.2V
C		5V	
B	S901 ON After 5 sec	0V	5V

Q702

			Others
E		0V	
C	S602 SOURCE +S603 DUPLI OFF	0.66V	0V
B	S602 SOURCE +S603 DUPLI OFF	0.05V	0V
B	S603 DUPLI ON	0.6V	

Q705

			Others
E		0V	
C	S601-a ON + S602 TAPE	8.4V	0V
B	S601-a ON + S602 TAPE	0V	0.6V

Q706

			Others
E	S901 ON After 5sec	0V	3.4V
C	FF, REW S601-a ON	−7.6V	3.1V
B	FF, REW 3.2V S601-a ON	4.4V	2.5V

Q707

			Others
E	S901 ON After 5sec	0V	4.5V
C	S601-b ON	7.8V	4.4V
B	S601-b ON	4.6V	3.8V

Q708

			Others
E	S901 ON After 5sec	0V	4.5V
C	S601-b ON S603 OSC	−7.6V	4.4V
B	S601-b ON S603 OSC	4.6V	3.8V

Q709

			Others
E		0V	
C	S603 OSC + S601-b ON, S601-b OFF	0V	4.6V
B	S603 OSC	0.66V	0V

Q710

			Others
E		0V	
C	S601-a OFF +TAPE	3V	0V
C	S601-a OFF +SOURCE	4.1V	
B	S601-c ON	0.6V	

Q711

	NORMAL	CrO2, METAL	Others
E		0V	
C	0.67V	0V	0V
B	0V	0.6V	0.6V

Q712

	NORMAL	CrO2	METAL	Others
E			0V	
C	0V	2.1V	0V	0V
B	0V	0V	0.64V	0.64V

Q713

	NORMAL, CrO2	METAL	Others
E		0V	
C	12V	0V	0V
B	0V	0.67V	0.67V

Q703

			Others
1	ATT	4.5V	0V
2	S601-a ON	5V	
3	S601-a ON + S602 TAPE + S603 N/R OUT or OSC	0.91V	
4	S601-a ON + S602 TAPE + S603 ADRES or DUPLI	3.2V	
5	S601-a ON + S602 TAPE + S603 DOLBY	3.5V	
6	S602 SOURCE + S603 DUPLI ON	2.5V	0V
7	S602 SOURCE + S603 DUPLI OFF	0.66V	
8		0V	
9	S901 ON After 5sec	0V	5V
10	S602 SOURCE + S603 DUPLI OFF	5V	−7.8V
11	S602 SOURCE + S603 DUPLI ON	5V	
12	S601-a ON + S602 TAPE + S603 DOLBY	5V	
13	S601-c ON + S602 TAPE + S603 ADRES or DUPLI	5V	−7.8V
14	S601-a ON + S602 TAPE + S603 N/R OUT or OSC	5V	−7.8V
15	S601-a ON	−4.9V	−7.7V
16		5V	

Q704

			Others
1	ATT	4.5V	0V
2	S603 ADRES, S603 DUPLI	4.6V	
3	S603 N/R OUT, S603 OSC	4.6V	
4	S603 DOLBY	5V	
5		5V	
6	S603 OSC	5V	0V
7	S601-b OFF, S601 ON + S603 OSC	0V	4.6V
8		0V	
9	S901 ON After 5 sec	0V	5V
10	S601-b OFF, S601 ON + S603 OSC	−7.4V	
11	S603 OSC	5V	−5.6V
12	S901 ON After 5 sec	−7.8V	5V
13	S603 DOLBY	5V	−7.8V
14	S603 N/R OUT, S603 OSC	5V	−7.7V
15	S603 ADRES, S603 DUPLI	5V	
16		5V	

Q714

	NORMAL	CrO2	METAL	Others
E			0V	
C	12V	0V	12V	12V
B	0V	0.67V	0V	0V

Q715

	NORMAL	CrO2, METAL	Others
E		0V	
C	0V	12V	12V
B	0.67V	0V	0V

Q716

	NORMAL, CrO2	METAL	Others
E		12V	
C	0V	12V	12V
B	12V	11.4V	11.4V

Q717

	NORMAL	CrO2	METAL	Others
E			12V	
C	0V	12V	0V	0V
B	12V	11.4V	12V	12V

Q718

	NORMAL	CrO2, METAL	Others
E		12V	
C	12V	0V	0V
B	11.4V	12V	12V

Q719

	NORMAL, CrO2	METAL	Others
E		5V	
C	5V	−8.5V	−8.5V
B	4.4V	5.6V	5.6V

Q720

		NORMAL	CrO2	METAL	Others
E				0V	
C	REC/PLAY REC/MUTE REC/PAUSE	1.2V	0.75V	0V	0V
B		0V	0V	0.65V	0.65V

Q723

		NORMAL	CrO2	METAL	Others
E				0V	
C	REC/PLAY REC/MUTE REC/PAUSE	1.25V	1.5V	1.75V	0V
B				0.1V	0.62V

Q721

	FIX	ATT
1	0V or 1.6V	
2		
3	0V	
4		5V
5	0V	
6	0.35V or 1.15V	
7	0V	
8	1.5V	
9		
10	1.15V	
11		0V
12		
13		
14		

Q728,729

	FIX	ATT
1	0V	
2	5V	
3		
4	4.6V	
5	0.025V	
6		5V
7	4.6V	
8		0V
9		
10	5V	
11		
12		
13		4.6V
14		0V
15		
16		5V

Q730,731

	FIX	ATT
1		
2		
3	5V	
4	0V	
5		
6		5V
7	4.6V	
8		0V
9	0V	
10		
11		
12	0V	
13	4.6V	
14	0V	
15	5V	
16		5V

Q735

	FIX	AUTO
E	0.07V	
C	0V	
B	NORMAL 0.07V CrO2,METAL 0.075V CASSETTE OUT 0.05V	

Q738

	FIX	AUTO
E	0.07V	
C	0V	
B	NORMAL, CrO2 0.03V METAL 0.05V	

Q739

	FIX	AUTO
E	0.03V	
C	0V	
B	4.8V	S709 ON 2.5V

Q740

	FIX	AUTO
E	0V	AUTO LED ON 4.0V
C		5V
B	0V	AUTO LED ON 4.6V

Q741

	FIX	AUTO
E	0V	ERROR LED ON 3.6V
C		5V
B	0V	ERROR LED ON 4.2V

Q722

		NORMAL	CrO2	METAL	Others
1	S603 OSC, ATT START	2V (AC)			0V
2	S603 OSC, ATT START	1.6V (AC)			
3					
4				−12V	
5	REC/PLAY	1.25V	1.6V	1.7V	0V
6	REC/MUTE	1.55V	2.05V	2.05V	
7	REC/PAUSE	3.6V	4.6V	7.6V	
8				12V	

Q724

			Others
E		0V	
C	ATT START High Pulse	0.05V	−0.005V
C	Low Pulse	−0.005V	
B	ATT START High Pulse	0.06V	0.66V
B	Low Pulse	0V	

Q725

			Others
S		2V (AC)	
G	S603 OSC. ATT	−7V	0V
D		1.6V (AC)	

Q727

	FIX	ATT
1	4.6V	Low Pulse 0.5V High Pulse 4.6V
2		High Pulse 4.6V Low Pulse 0.5V
3		0.5V
4	0V	4.6V
5		Low Pulse 0V High Pulse 3.8V
6		READY LED ON 4.6V OFF 0V
7		High Pulse 4.6V Low Pulse 0V
8		0V
9	−7.9V	High Pulse 5V → Low Pulse −7.9V
10	0V	READY LED ON 3.6V OFF 0V
11	−8.4V	High Pulse 5V Low Pulse −8.4V
12	−8.5V	5V
13	5V	−8.4V
14	5V	High Pulse 5V → Low Pulse −8.4V
15	5V	Low Pulse −7.9V → Low Pulse 5V
16		5V

Q732

	FIX	ATT
1	0V	
2	4.6V	
3		
4		
5		
6	0V	High Pulse 4.6V → Low Pulse 0V
7	0V	READY LED ON 4.6V OFF 0V
8	0V	
9	0V	4.6V
10	0V	ERROR LED ON 4.6V OFF 0V
11		
12		
13	0V	ATT STOP High Pulse
14		ATT REW High Pulse
15		ATT START High Pulse
16		4.5V
17	0.025V	
18	0V	
19	0.025V	
20	0.03V	
21		0V
22	0.07V	
23	0V	
24	0.02V	
25	0V	
26	0V	
27		0.02V
28		2V
29		
30		0V
31		4.6V
32	2.2V	
33	S901 ON 0V OFF 4.6V	
34		4V
35		
36		4V
37	TAPE-IN 4V OUT 0.5V	
38	STOP 4V	Others 0V
39	4V	ATT START 0.5V ATT STOP 4V
40	CASSETTE OUT NO-ERASURE-PREVENT 4V	Others 0.5V
41	4.2V	
42		4.6V

Q733

	FIX	ATT
1	0V	High Pulse 3.8V Low Pulse 0V
2	4.6V	High Pulse 4.6V Low Pulse 0V
3	0V	4V
4	4.6V	0V
5	0V	High Pulse 4.6V → Low Pulse 0V
6	4.6V	Low Pulse 0V → High Pulse 4.6V
7		0V
8		4.6V
9		0V
10		0V
11		4.1V
12	S901 ON 0V	S901 OFF 4.6V
13	4.4V	0V
14		4.6V

Q734

1	4.6V		
2	0.5V		
3	2.2V		
4	S709 ON 4.4V Others 0V		
5	4.6V		
6	S709 ON 0V Others 4V		
7	0V		
		STOP, PAUSE, REC/PAUSE	FF, REW
8		0V or 4.4V	2V
9	4.6V		
10			
11		0V or 4.4V	2.4V
12			2V
13	4.6V		
14	4.6V		

Q742

	FIX	AUTO		
1	0V	ATT START	High Pulse	
2	5V		Low Pulse	
3	0V		High Pulse	
4	S901 After 5sec 4.1V		Others	0V
5				5V
6				0V
7				0V
8				0V
9	FIX 0V	AUTO LED	ON	5V
			OFF	0V
10	S901 ON After 5sec 4.4V		Others	0V
11	S709 ON 4.4V		Others	0V
12	FIX 0V	AUTO	5V	
13	5V		0V	
14				5V

Q743

			Others
1	S705 ON	0V	5V
2		0V	0V
3		5V	0V
4	PLAY	0V	5V
5	REC/PLAY, REC/PAUSE, REC/MUTE	0V	4.2V
6	PLAY, REC/PLAY	4.8V	0V
7		0V	
8	PLAY, INDEX PLAY	0V	5V
9			
10		5V	0V
11	PLAY + S710 ON	0V	5V
12	PLAY	5V	
13	PLAY + S710 ON	5V	0V
14		5V	

Q744

				Others
1	PLAY + S710 ON		0V	5V
2	INDEX SCAN		0V	5V
3			5V	0V
4			0V	5V
5			5V	0V
6	PLAY		5V	0V
7			0V	
8	INDEX PLAY		4.4V	0V
9			4.4V	0V
10			0V	5V
11	INDEX	SCAN	0V	5V
12		PLAY	0V	5V
13		SCAN	5V	0V
14			5V	

Q745

			Others
1	PLAY	0V	5V
2	S705 ON	5V	0V
3	PLAY	5V	0V
4	PLAY, CUE, INDEX SCAN	0V	5V
5	INDEX SCAN, CUE	5V	0V
6	PLAY	5V	0V
7		0V	
8	S710 ON	0V	5V
9	PLAY, CUE, INDEX SCAN	0V	5V
10	PLAY + S710 ON	5V	0V
11	INDEX SCAN, CUE	5V	0V
12	PLAY	0V	5V
13	FF	0V	5V
14		5V	

Q746

				Others
1	INDEX SCAN		High Pulse	0V
2				
3			3.4V	
4	INDEX	SCAN	5V	0V
5		PLAY	4.4V	0V
6		SCAN	High Pulse	4.2V
		REW	Low Pulse	
7			0V	
8	INDEX SCAN		0V	5V
9			High Pulse	0V
10	PLAY, INDEX PLAY		5V	0V
11			3.4V	
12	INDEX SCAN		High Pulse	0V
13			High Pulse	0V
14			5V	

Q747

				Others
E			0V	
C	INDEX SCAN	Low Pulse		4.6V
B		High Pulse		0V

Q748

	FIX	ATT	Others
1	0V	ATT REW High Pulse	
2	5V	ATT REW Low Pulse	
3		0V	
4		5V	
5	S901 ON After 5sec	4.6V	0V
6		0V	5V
7		0V	
	FIX	ATT	
8	5V	S708 ON Low Pulse	
9	0V	S708 ON High Pulse	
10	5V	ATT STOP Low Pulse	
11	0V	ATT STOP High Pulse	
12	5V	S708 ON Low Pulse	
13	0V	S708 ON High Pulse	
14		5V	

Q749

				Others
1	ATT	4.5V		0V
2	S707 ON		0V	4.9V
3				5V
4	S704 ON		0V	
5				4.9V
6	ATT		4.5V	0V
7			0V	
8	S705 ON		0V	4.9V
9	ATT		4.5V	0V
10	S705 ON		0V	5V
11	S701 ON		0V	
12			0V	4.9V
13	ATT		4.5V	0V
14			5V	

Q750

			Others
E	PLAY, REC, PAUSE	0V	5V
C	PLAY, REC, PAUSE	4.6V	
C	FF, REW	4.8V	
B		4.4V	

Q751

E	0V
C	4.8V
B	0V

Q752

E	5V
C	0V
B	4.2V

Q753

		Others
E	S713 PLAY Low Pulse	4.8V
C	S713 PLAY 0V	4.8V
B	S731 PLAY Low Pulse	4.2V

Q754

	S714 OFF		S714 ON
1	4.3V		
2	0V		4.7V
3	5V		0V
4	0V		4.7V
5	5V		0V
6	4.3V		4.3V
	S901 ON After 4sec		Others
7			0V
8		4.5V	0V
9	Low Pulse		5V
10		0V	5V
11	Low Pulse		5V
12	High Pulse		0V
13			5V
14			5V

Q755

			Others
E		0V	
C	REW → COUNTER □:□□	Low Pulse	4.8V
B	REW → BLOCK 1 PLAY or FF → BLOCK 2	High Pulse	0.64V

Q756

			Others
1		5V	Others
2	PAUSE, CUE, REC/PAUSE	5V	0V
2	PLAY, REC/PLAY → STOP High Pulse		
3	PLAY, REC/PLAY, FF, REW	5V	0V
4	STOP, FF, REW	0V	5V
5	CASSETTE IN	5V	0V
6	PLAY, REC/PLAY, FF, CUE, ATT	0V	4.8V
7	REW, REVIEW	0V	4.8V
8	PLAY, REC/PLAY Low Pulse		4.8V
9	REW or PLAY, REC/PLAY → STOP Low Pulse		4.8V
10	PLAY, REC/PLAY, REC/MUTE, ATT	4.8V	0V
11	PAUSE, REC/PAUSE, PLAY REC/PLAY, ATT	4.8V	0V
12	REC/PLAY, PLAY, FF, REW → STOP High Pulse		0V
13	S901 ON After 4sec	4.5V	0V
14	PLAY, REC, REC/MUTE, ATT	0V	4.4V
14	S601 ON	2.6V	
15	REC/PLAY, ATT	0V	4.8V
16	REW, REVIEW	0V	5V
17	FF, CUE	0V	5V
18	PAUSE, REC/PAUSE	0V	5V
19	PLAY, REC/PLAY, CUE, REVIEW	0V	5V
20	REC/PLAY, REC/PAUSE, REC/MUTE	0V	5V
21		0V	

			Others
22	FF, REW	2.5V	4.5V
23	S901 ON After 1sec	0V	4.8V
24		AC1.1V	
25		AC3.5V	
26	NO-ERASURE-PREVENT	4.8V	0V
27	MQSS, INDEX SCAN, REVIEW	5V	0V
28	REW → BLOCK 1 REW → COUNTER □:□□ PLAY or FF → BLOCK 2 Low Pulse		4.8V
29	S712 PLAY	0.6V	4.8V
29	S712 STOP	0V	
30	S714 ON, S713 PLAY	0.3V	4.9V
31	S714 ON	0.4V	4.8V
31	S712 PLAY	0V	
32	S713 RLC	0V	4.8V
33	S713 PLAY Low Pulse		4.8V
34	S702 ON	0V	3.3V
35	S703 ON	0V	4.2V
35	ATT Low Pulse		
36	S701 ON	0V	5V
37		0V	
38	S705 ON	0.6V	4.9V
38	ATT Low Pulse		
39	S704 ON	0.5V	4.9V
40	S707 ON	0.6V	4.9V
40	ATT Low Pulse		
41	S706 ON	0V	4.2V
41	ATT Low Pulse		
42			

Q757

			Others
1	PLAY, REC/PLAY, FF, CUE, ATT	0V	4.8V
2	REW, REVIEW	0V	4.8V
3	PLAY, PLAY/REC, REC/MUTE, ATT	0V	5V
4	REW or PLAY, REC/PLAY → STOP Low Pulse		4.8V
5	PLAY, REC/PLAY Low Pulse		4.8V
6	REW, REVIEW	0V	
7	PLAY, REC/PLAY, FF, CUE, ATT	0V	
8		0V	
9	PLAY, REC/PLAY, FF, CUE, ATT	4.6V	0V
10	REW, REVIEW	4.6V	
11	PLAY, REC/PLAY High Pulse		
12	REW or PLAY, REC/PLAY → STOP High Pulse		
13	PLAY, REC/PLAY, REC/MUTE, ATT	5V	
14	REW, REVIEW	5V	−3V
15	PLAY, REC/PLAY, REC/MUTE, ATT	5V	
16		5V	

Q758

			Others
1	PLAY, REC/PLAY, REC/MUTE, ATT	4.8V	0V
2	REC/PLAY, REC/PAUSE, REC/MUTE	0V	5V
3	PLAY, REC/PLAY, CUE, REVIEW	0V	
4	PAUSE, REC/PAUSE	0V	
5	FF, CUE	0V	
6	REW, REVIEW	0V	
7	S901 ON After 4sec	4.5V	0V
8		0V	
9	S901 ON After 5sec	0V	5V
10	REW, REVIEW	3.6V	0V
11	FF, CUE	3.6V	
12	PAUSE, REC/PAUSE	3.6V	
13	PLAY, REC/PLAY, CUE, REVIEW	3.6V	
14	REC/PLAY, REC/PAUSE, REC/MUTE	3.8V	
15	PLAY, REC/PLAY, REC/MUTE, ATT	0V	5V
16		5V	

Q759

	PLAY, REC/PLAY, REC/MUTE	Others
S	3.8V	7.5V
G	8.1V	12.5V
D	5V	8.1V

Q760

			Others
E	PLAY, REC/PLAY, REC/MUTE	3.8V	7.5V
C	REW, REVIEW	0V	7V
B	PLAY, REC/PLAY, ATT	3V	7V

Q761

			Others
E	PLAY, REC/PLAY, REC/MUTE	3.8V	7.5V
C	PLAY, REC/PLAY, FF, CUE, ATT	0V	7V
B	PLAY, REC/PLAY, REC/MUTE	3.7V	7V

Q762

			Others
C	PLAY, REC/PLAY, REC/MUTE	3.7V	7V
C	REW, REVIEW	0V	
B	REW, REVIEW	0.76V	0V
E		0V	

Q763

			Others
E		0V	
C	PLAY, REC/PLAY, FF, CUE, ATT	0V	7V
B		0.8V	0V

Q764

			Others
E		0V	
C	PLAY, REC/PLAY, REC/MUTE	0V	8.1V
B		0.65V	0V

Q765

			Others
E		0V	
C	PLAY, REC/PLAY	Low Pulse	13V
B	FF, REW → STOP	High Pulse	0V

Q766

			Others
E	PLAY, REC/PLAY ON or PLAY, REC/PLAY → STOP Low Pulse		8V
C		12V	
B		9V	

Q767

		Others
E	PLAY, REC/PLAY ON or PLAY REC/PLAY → STOP Low Pulse	8V
C	PLAY, REC/PLAY → STOP Low Pulse	7.6V
B	PLAY, REC/PLAY ON Low Pulse	7.6V

Q768

		Others
E	PLAY, REC/PLAY ON or PLAY REC/PLAY → STOP Low Pulse	8V
C	PLAY, REC/PLAY ON or REW FF → STOP Low Pulse	7.6V
B	PLAY, REC/PLAY → STOP Low Pulse	7.6V

Q769

			Others
E		0V	
C	PLAY, REC/PLAY → STOP	Low Pulse	7.6V
B	PLAY, REC/PLAY → STOP	High Pulse	0V

Q770

			Others
E		0V	
C	PLAY, REC/PLAY ON	Low Pulse	7.6V
B	PLAY, REC/PLAY ON	High Pulse	0V

Q771

	S714 OFF	S714 ON
E	0V	0V
C	4.5V	0V
B	0V	0.7V

Q772

			Others
E		0V	Others
C	REW → COUNTER □:□□	High Pulse	0V
B	REW → BLOCK 1 PLAY or FF → BLOCK 2	Low Pulse	0.64V

Q773

	STOP	Others
1		0V
2		0V
3	5V	ATT START Low Pulse
4		0V
5		ATT REW Low Pulse
6		0V
7	0V	
8		S901 ON After 5sec 0V
9		0V
10	5V	ATT REW Low Pulse
11		REW, REVIEW 0V
12		FF, CUE 0V
13		PAUSE, REC/PAUSE 0V
14		

Q774

			Others
F	INDEX SCAN	4V	0V
C		4.6V	5V
B		0V	

Q775

			Others
E	INDEX SCAN, CUE	4.2V	0V
C		0V	
B	INDEX SCAN, CEW	4.8V	0V

Q903

E	12.8V
C	19.8V
B	13.5V

Q904

E	13.5V
C	19.8V
B	14V

Q905

E	5V
C	18.7V
B	5.6V

Q906

E	12V
C	19V
B	12.8V

Q907

E	12.8V
C	19V
B	13.5V

Q908

E	5.6V
C	13.5V
B	6.2V

Q909

E	−12V
C	−14V
B	−13V

Q910

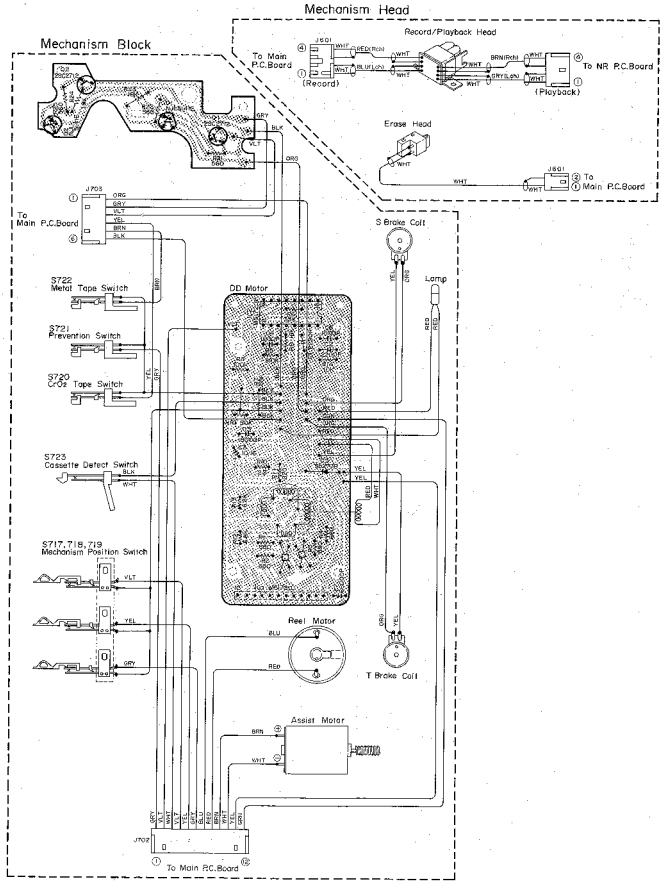
E	−13V
C	−14V
B	−13.6V

Q911

E	−5.6V
C	−13.6V
B	−6.2V

ELECTRICAL PARTS LOCATIONS (MECHANISM BLOCK)

7. ELECTRICAL PARTS LOCATIONS



SCHEMATIC DIAGRAM (MECHANISM BLOCK)

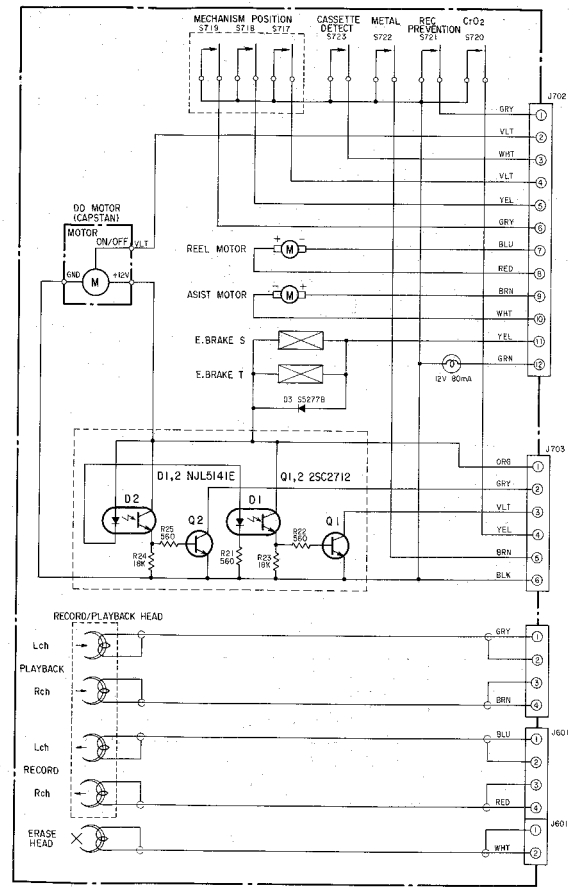


Figure 46

ELECTRICAL PARTS LOCATIONS (OTHER P.C. BOARDS)

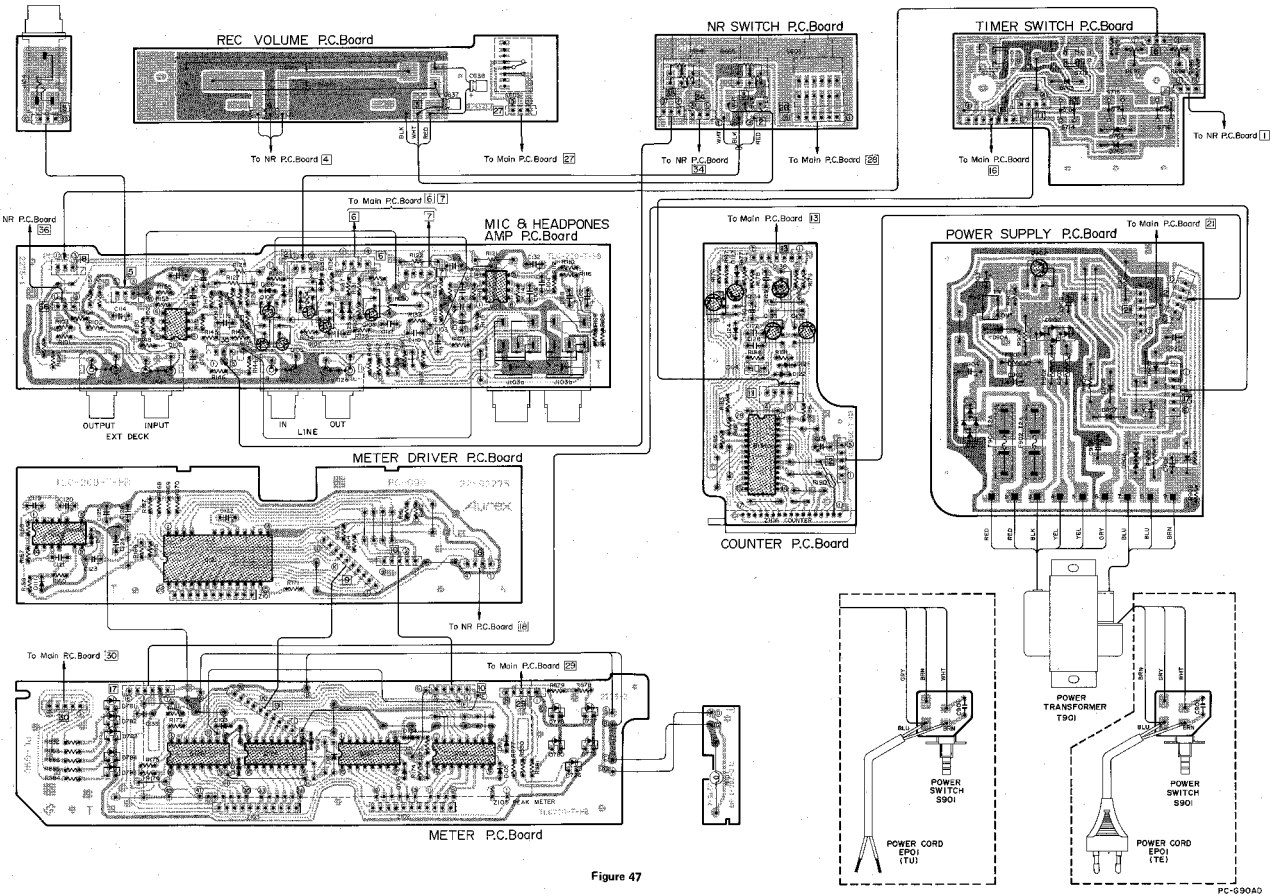


Figure 47

ELECTRICAL PARTS LOCATIONS (NR P.C. BOARD)

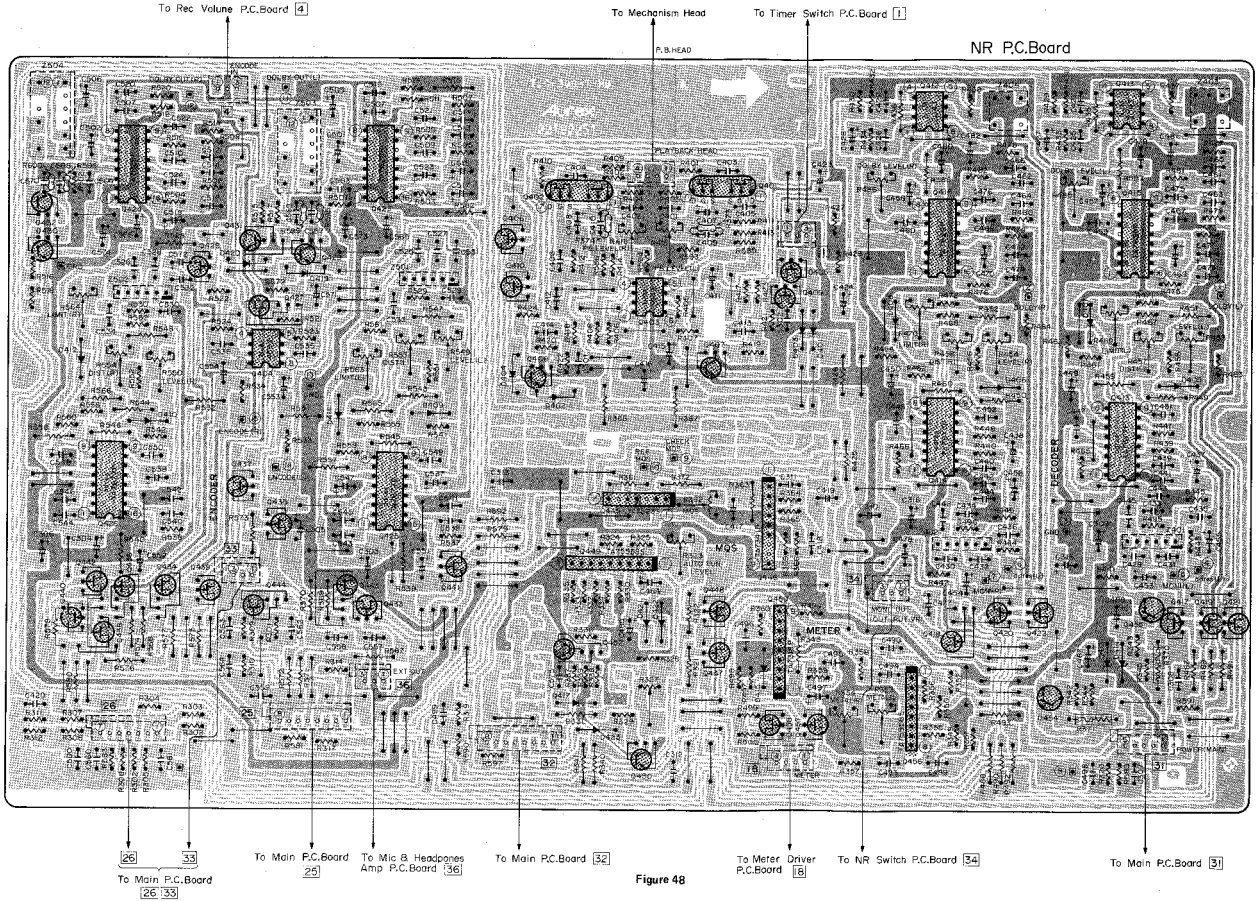


Figure 48

ELECTRICAL PARTS LOCATIONS (NR P.C. BOARD)

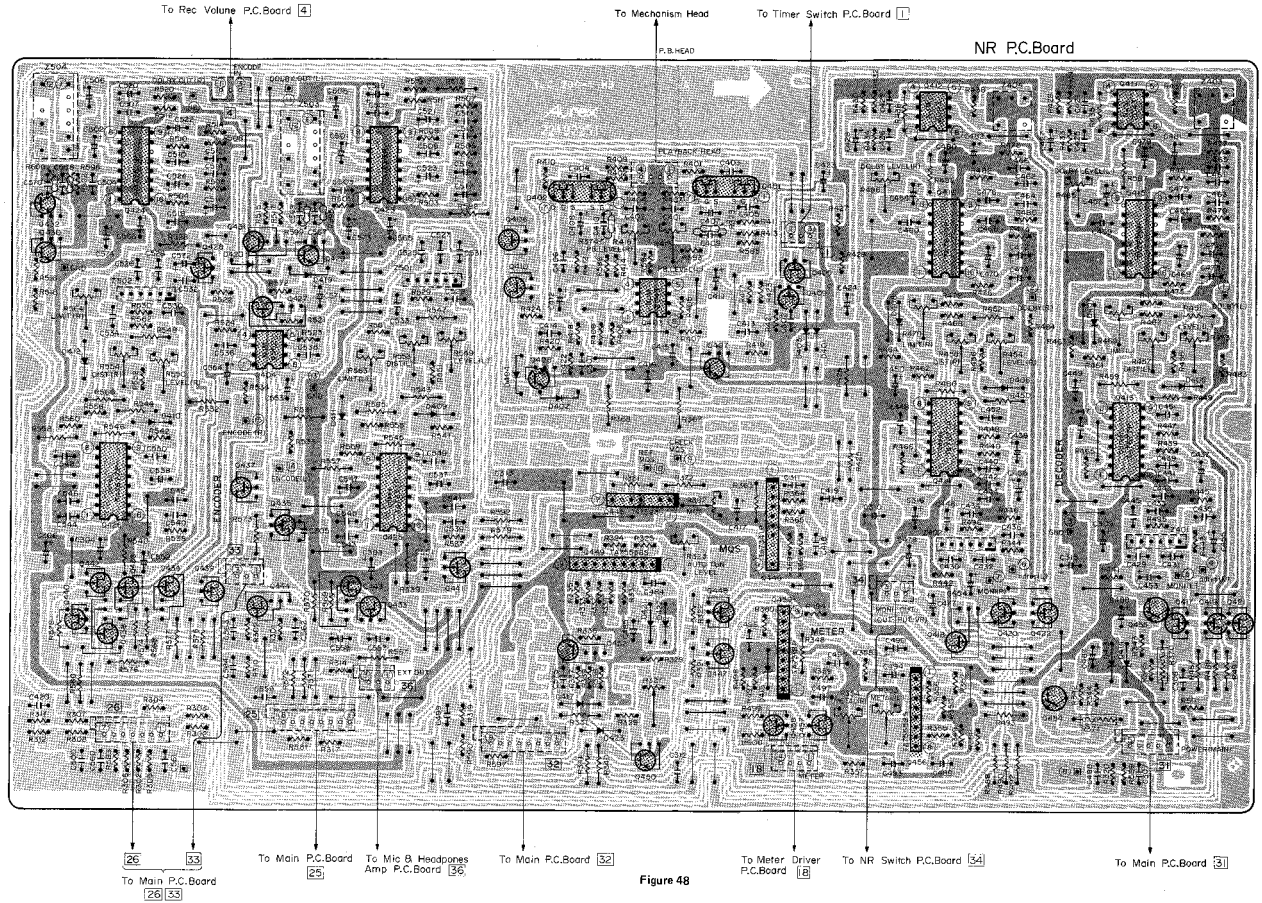
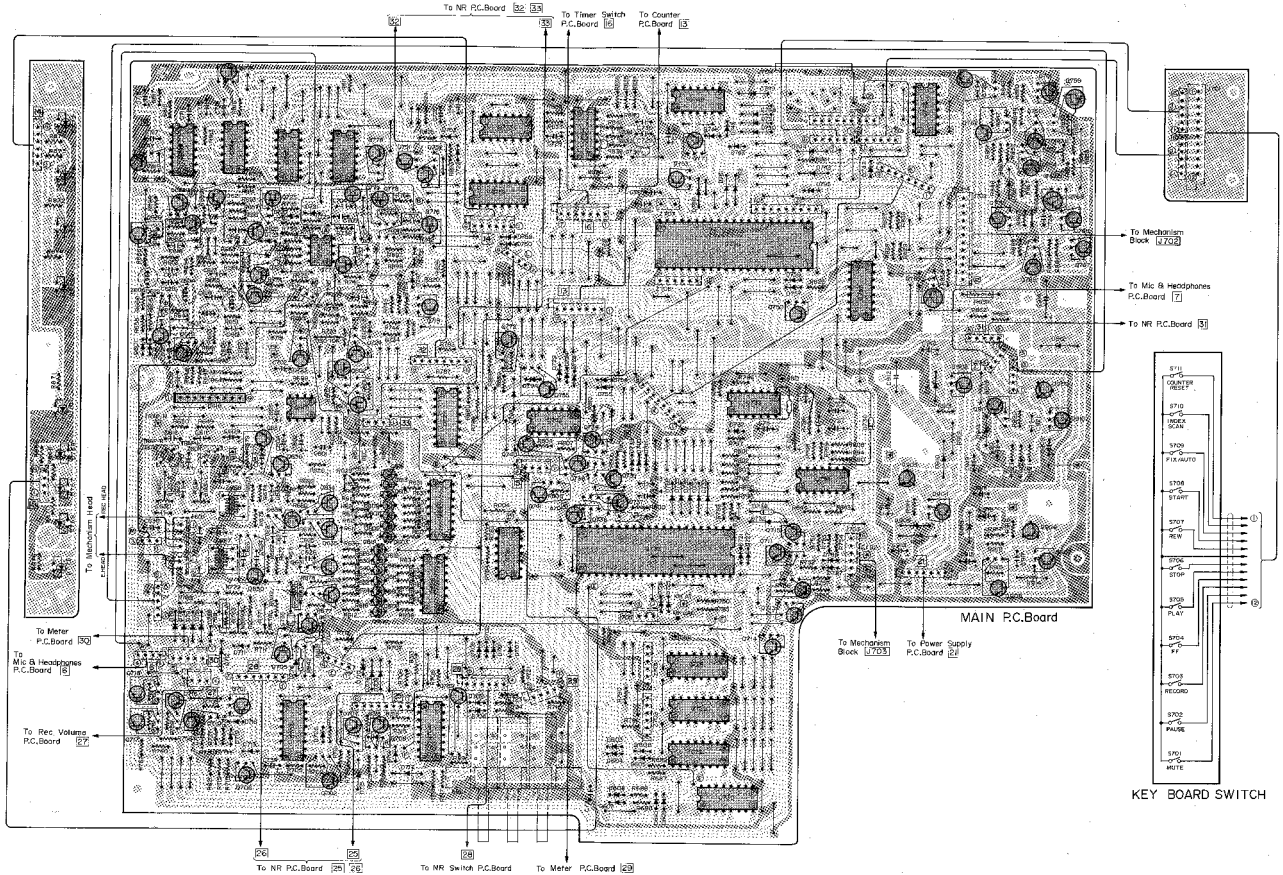
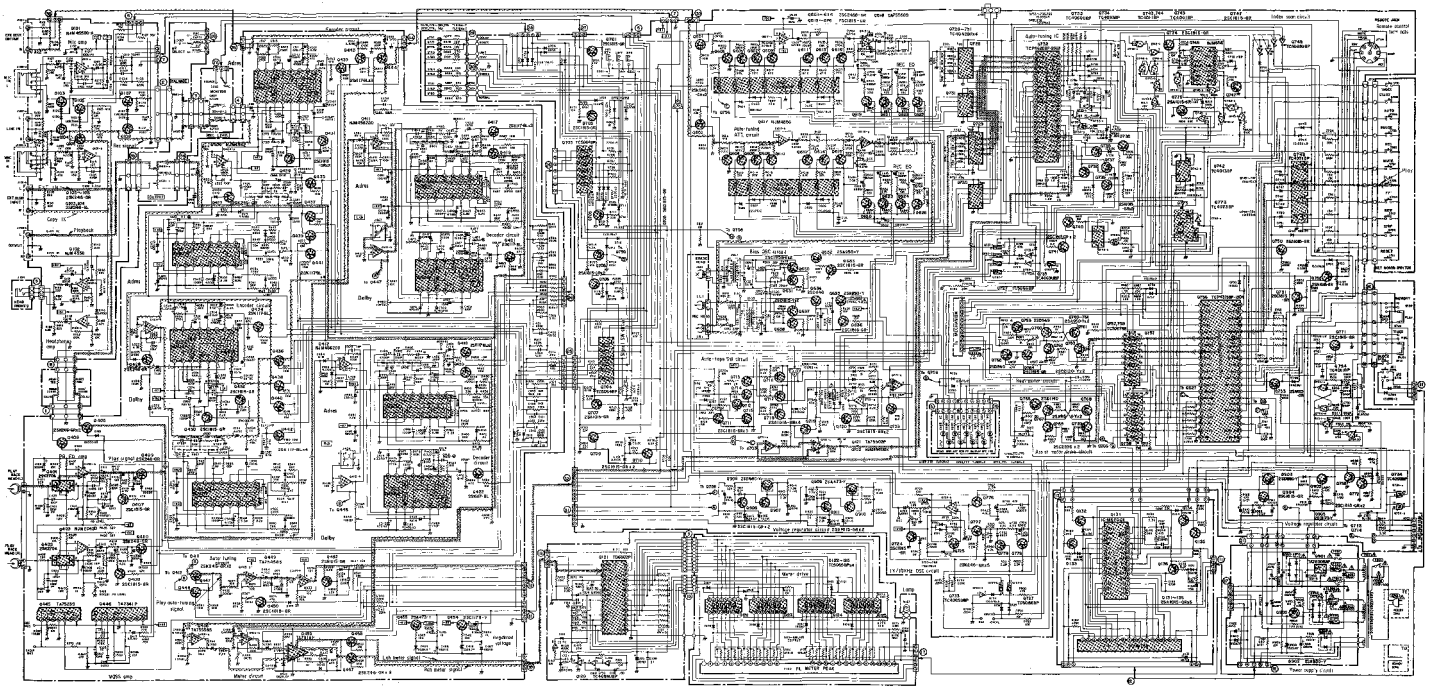


Figure 48

ELECTRICAL PARTS LOCATIONS (MAIN P.C. BOARD)



8. SCHEMATIC DIAGRAM



	Name of switch	Current position
S601-a	: External deck adres unit switch	OFF
S601-b	: Copy switch	OFF
S601-c	: Multiplex filter switch	OFF
S602	: Monitor switch	Tape
S603	: Noise reduction switch	adres
S701	: Mute switch	OFF
S702	: Pause switch	OFF
S703	: REC switch	OFF
S704	: FF switch	OFF
S705	: Play switch	OFF
S706	: Stop switch	OFF
S707	: REW switch	OFF
S708	: Start switch	OFF
S709	: Fix auto switch	OFF
S710	: Index scan switch	OFF
S711	: Counter reset switch	OFF
S712	: Memory switch	OFF
S713	: Timer switch	Play
S714	: Block reset switch	OFF
S715	: Memory 1 switch	OFF
S716	: Memory 2 switch	OFF
S717	: Tape position detection switch	OFF
S719	:	
S720	: Chromium tape switch	OFF
S721	: Erase protection switch	OFF
S722	: Metal tape switch	OFF
S723	: Cassette tape detection switch	OFF
S901	: Power switch	OFF

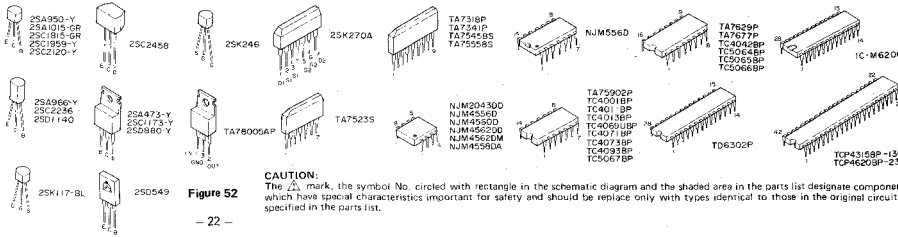


Figure 52

CAUTION:
The ⚠ mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replace only with types identical to those in the original circuit or specified in the parts list.

9-1. EXPLODED VIEW MECHANISM

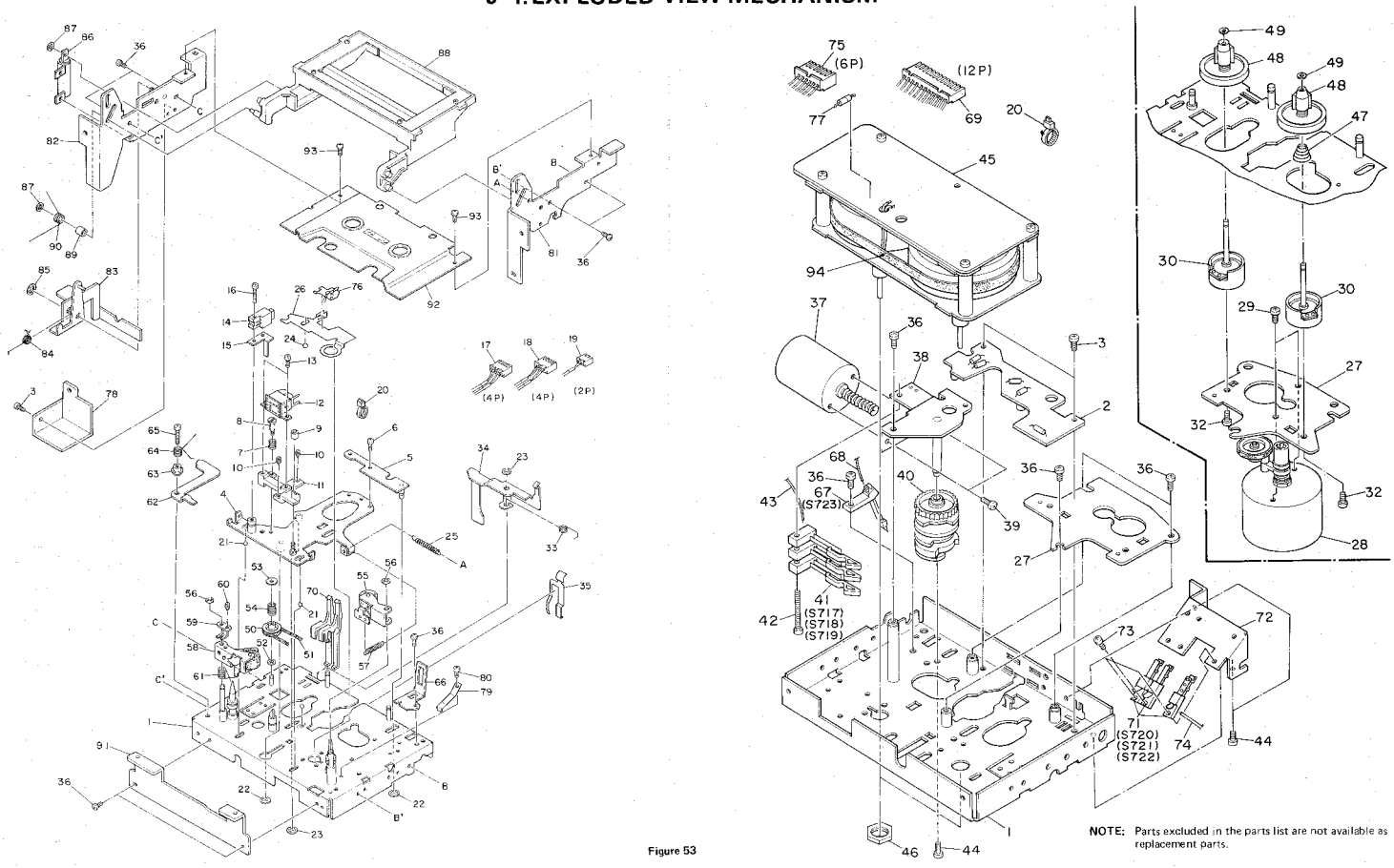


Figure 53

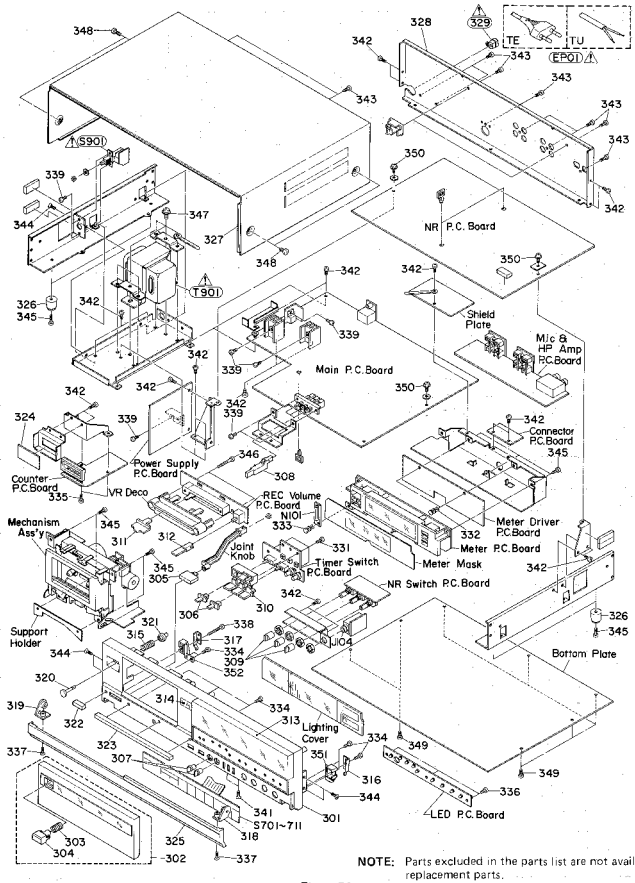
NOTE: Parts excluded in the parts list are not available as replacement parts.

9-2. MECHANISM PARTS LIST

Symbol No.	Part No.	Description
1	25791600	Mechanism Chassis Ass'y
3	22707989	Screw, 2.5φ x 4mm, FT
4	25791601	Head Base Ass'y
5	25791602	Plate Ass'y, Connection
6	22707990	Screw, 2.5φ x 3.5mm, FT
7	25777244	Spring
8	22707991	Screw, Pivot
9	22702201	Nut, Adjustment
10	22701440	Screw, 2φ x 4mm
11	25791603	Head Block
12	22217410	Head, Record/Playback, HRPT-410
13	22701270	Screw, 2φ x 4mm
14	22218265	Head, Erase
16	22707508	Screw, 2φ x 12mm
21	25757116	Steel Ball, 2φ
22	22703279	E Ring, 3φ
23	22703119	E Ring, 2.5φ
24	25757120	Steel Ball, 3φ
25	25776600	Spring
26	25791604	Head Holder Plate
28	25791605	Reel Motor Ass'y, with Idler
29	22701389	Screw, 2.6φ x 3mm
30	22147257	Electromagnet Brake Coil
32	22707992	Screw, 2.3φ x 4mm
33	25778123	Spring
34	25748963	Detector Lever
35	25779343	Spring, Cassette Tape
36	22707350	Screw, 2.6φ x 5mm
37	25791608	PAD Motor Ass'y
38	25791606	Cam Gear Mount
39	22701467	Screw, 2φ x 3mm
40	25756371	Cam Gear
41	22196270	Leaf Switch
42	22707993	Screw, 2.5φ x 20mm
44	22701270	Screw, 2φ x 4mm
45	25791609	DD Motor Ass'y, with Flywheel
46	22702107	Nut, 9φ
47	25777245	Spring
48	25712438	Reel Ass'y
49	25766050	Washer, 1.6φ
50	25713574	Pulley
51	25755582	Belt, Back Tension
52	25766125	Washer
53	25766123	Washer
54	25777246	Spring
55	25717573	Pressure Roller Ass'y
56	22703118	E Ring, 2φ
57	25776602	Spring

Symbol No.	Part No.	Description
58	25717574	Pressure Roller Ass'y, S
59	25748964	Adjust Plate
60	22707994	Screw, 2φ x 3mm
61	25778124	Spring
63	25753361	Collar
64	25773125	Spring
65	22707995	Screw, 2.5φ x 10mm
67	22196271	Leaf Switch
70	25748967	Lever, Record
71	22196272	Leaf Switch
73	22707265	Screw, 2φ x 4mm
76	25748965	Lamp Holder Ass'y
77	A7978380	Diode, S5277B
79	25779342	Spring, Cassette
80	22707996	Screw
82	25791607	Side Plate Ass'y, Left
83	25748966	Release Lever Ass'y
84	25778127	Spirng
85	22703279	E Ring, 3φ
86	25857181	Damper Unit
87	20798037	CS Ring, 1.9φ
88	25881845	Cassette Holder Ass'y
89	25753362	Collar
90	25778126	Spring
92	25791610	Mechanism Cover Ass'y
93	22707997	Screw, 2.5φ x 3.5mm, FT
94	25755583	Belt, DD Motor

10-1. EXPLODED VIEW CABINET



NOTE: Parts excluded in the parts list are not available as replacement parts.

Figure 54

10-2. CABINET PARTS LIST

CAUTION:
The ⚠ mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replace only with types identical to those in the original circuit or specified in the parts list.

Symbol No.	Part No.	Description
301	25829518	Front Panel Ass'y
302	25881642	Cassette Cover Ass'y
303	25777192	Spring, Eject
304	25837919	Knob, Eject
305	25837938	Knob, Power
306	25837970	Knob, Timer/Memory
307	25837937	Knob, Calibration, Left/Right
308	25837934	Knob, EXT Deck/Copy/MPX
309	25837936	Knob, NR/Balance/Output
310	25837933	Knob, Block Repeat/ Memory 1, 2
311	25837931	Knob, Record Level
312	25837932	Knob, Monitor/Source/Tape
313	25832714	Meter Cover
314	25832715	Counter Cover
315	25777195	Spring
316	25779314	Spring, Left
317	25779315	Spring, Right
318	25810144	Shaft, Left
319	25810145	Shaft, Right
320	25810146	Eject Pin, A
321	25810147	Eject Pin, B
322	25814363	Decoration Panel, A
323	25814364	Decoration Panel, B
324	25832761	Filter, Counter
325	25881881	Sealing Ass'y
326	22874041	Foot
327	25864210	Top Cover
328	25864245	Jack Plate (TE)
328	25864246	Jack Plate (TU)
⚠ 329	25845528	Board, P.C.
331	22701325	Screw, 3ϕ x 8mm, BID
332	22705020	Plastic Rivet, 3ϕ x 4.5mm
333	22705026	Plastic Rivet, 3ϕ x 6.5mm
334	22707037	Screw, 2.6ϕ x 6mm, BID
335	22707366	Screw, 2.6ϕ x 6mm, DTBID
336	22707323	Screw, 2.6ϕ x 8mm, BID
337	22707931	Screw, 2.6ϕ x 10mm, FLT Tapping
338	22707918	Screw, 2.6ϕ x 20mm, BID
339	22707066	Screw, 3ϕ x 6mm, BID
341	22707051	Screw, 3ϕ x 6mm, FLT
342	22707842	Screw, 3ϕ x 8mm, DTBID Tapping
343	22707911	Screw, 3ϕ x 8mm, DTBID Tapping
344	22707909	Screw, 3ϕ x 8mm, DTFLT Tapping

Symbol No.	Part No.	Description
345	22707844	Screw, 3ϕ x 10mm, BID Tapping
346	22707932	Screw, 3ϕ x 25mm, BID
347	22707196	Screw, 4ϕ x 8mm, FLETPAN
348	22707519	Screw, 4ϕ x 10mm, DTBID
349	22707942	Screw, 3ϕ x 6mm, DTBID Tapping
350	22707798	Screw, 3ϕ x 10mm, DTPAN
351	25833533	Sealing Guide, Left
352	25833534	Sealing Guide, Right

11. PARTS LIST

CAUTION:
The ⚠ mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replace only with types identical to those in the original circuit or specified in the parts list.

Symbol No.	Part No.	Description
IC'S, TRANSISTORS & DIODES		
Q101	22114470	IC, NJM4558D-A
Q102	22114901	IC, NJM4556
Q103, 104	A6044640	Transistor, 2SK246-BL
Q105, 106, 107, 108	A6044630	Transistor, 2SK246-GR
Q120	B0470693	IC, TC4069UBP
Q121	22117218	IC, TD6302P
Q122, 123, 124, 125	B0480652	IC, TC5065BP
Q131	22117083	IC, M62001
Q132, 133, 134, 135, 136	A6534060	TRansistor, 2SA1015-GR
Q401, 402	A6046030	Transistor, 2SK270A-BL
Q403	22117147	IC, NJM2043D
Q404, 411, 412	22114979	IC, NJM4562DD
Q405, 406, 409, 410, 427, 428, 447, 448, 457, 458	A6044630	Transistor, 2SK246-GR
Q407, 408, 429, 430, 431, 432, 450	A6317460	Transistor, 2SC1815NEW-GR
Q413, 414, 425, 426	B0356770	IC, TA7677P
Q415, 416, 423, 424	B0356150	IC, TA7629P
Q417, 418, 419, 420, 421, 422, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444	A6041880	Transistor, 2SK117-BL
Q445	B0347130	IC, TA7523S
Q446	B0325320	IC, TA7341P
Q449, 456	B0350510	IC, TA75558S
Q452	A6534060	Transistor, 2SA1015-GR
Q454	A677164A	Transistor, 2SC1173-Y,X
Q455	A6500740	Transistor, 2SA473-Y
Q459	B0324880	IC, TA7318P-2

Symbol No.	Part No.	Description
Q601, 602	A6044630	Transistor, 2SK246-GR
Q603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616	A6332440	Transistor, 2SC2458-GR
Q617	22114901	IC, NJM4556
Q618	B0350510	IC, TA75558S
Q619, 620, 621, 622, 623, 624, 625, 626, 633, 636, 637, 638	A6317460	Transistor, 2SC1815NEW-GR
Q630, 631	A6319300	Transistor, 2SC1959NEW-Y
Q632, 635	A6532940	Transistor, 2SA950-Y
Q634	A6857700	Transistor, 2SD1140
Q627, 628	B0480662	IC, TC5066BP
Q701, 702, 705, 709, 710, 711, 712, 713, 714, 715, 720, 723, 724, 740, 741, 747, 751, 755, 764, 771, 772, 774	A6317460	Transistor, 2SC1815NEW-GR
Q703, 704	B0480642	IC, TC5064BP
Q706, 707, 708, 716, 717, 718, 719, 735, 736, 737, 738, 739, 750, 752, 753, 775	A6534060	Transistor, 2SA1015-GR
Q721	B0351500	IC, TA75902P
Q722	22114866	IC, NJM4560DX
Q725, 776, 777, 778, 779	A6044630	Transistor, 2SK246-GR
Q727	B0480662	IC, TC5066BP

Symbol No.	Part No.	Description
Q728, 729, 730, 731	B0470422	IC, TC4042BP
Q732	22117217	IC, TC4620BP-2303
Q733, 748	B0470693	IC, TC4069UBP
Q734	B0470932	IC, TC4093BP
Q742	B0470135	IC, TC4013BP
Q743, 744, 754	B0470116	IC, TC4011BP
Q745	B0470016	IC, TC4001BP
Q746	22117144	IC, NJM556D
Q749	B0470713	IC, TC4071BP
Q756	22117082	IC, TMP4315-1304
Q757, 758	B0480672	IC, TC5067BP
Q759	A6841900	Transistor, 2SD549
Q760, 761	A6532940	Transistor, 2SA950-Y
Q762, 763	A6321240	Transistor, 2SC2120-Y
Q765, 766	A6857700	Transistor, 2SD1140
Q767, 768	A6533240	Transistor, 2SA966-Y
Q769, 770	A6325540	Transistor, 2SC2236-Y
Q773	B0470732	IC, TC4073BP
Q901	B0372540	IC, TA78005AP
Q902	A6532940	Transistor, 2SA950-Y
Q903, 906	A6848520	Transistor, 2SD880-Y
Q904, 907, 908	A6317460	Transistor, 2SC1815NEW-GR
Q905	A677164A	Transistor, 2SC1173-Y,X
Q909	A6500740	Transistor, 2SA473-Y
Q910, 911	A6534060	Transistor, 2SA1015-GR
D101, 102, 103, 104, 105, 106, 108, 110, 111, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130	A7160570	Diode, 1SS176
D107	A7246703	Diode, 1S1555V
D401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 417, 419, 420, 423	A7246703	Diode, 1S1555V
D413, 414	A7110208	Diode, 05Z8.2-Y-X/Y
D415	A7110017	Diode, 05Z5.6-Y-Y/Z
D421, 422	22115808	Diode, 1K60A

Symbol No.	Part No.	Description
D601, 602, 603, 604, 605, 606, 607, 608, 609, 610	A7160570	Diode, 1SS176
D701, 702, 703, 704, 705, 706, 707, 710, 711, 713, 714, 716, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 731, 737, 739, 740, 741, 742, 745, 746, 747, 752, 753, 754, 755, 756, 757, 759, 760, 786, 787, 788, 794, 795, 797	A7160570	Diode, 1SS176
D708, 709, 712, 715, 717, 733, 734, 735, 736, 743, 744, 748, 749, 750, 751, 764, 765, 766, 776, 789, 790, 791, 792, 793	A7246703	Diode, 1S1555V
D732	A7978380	Diode, S5277B
D758	A7110262	Diode, 05Z9.1-Y
D761, 762, 763, 796	22115808	Diode, 1K60A
D767, 772	A8611940	Diode, TLO124
D768, 774	A8601150	Diode, TLR124
D769, 773, 775	A8606201	Diode, TLG124A

Symbol No.	Part No.	Description
D770, 771	A8608500	Diode, TLY124
D776, 779, 780, 781, 782, 783, 785	A8636570	Diode, TLS164
D777, 778, 784	A8606460	Diode,, TLG164
⚠ D901, 902	22116737	Diode, KBP01
⚠ D903	A7682012	Diode, 1B2C1-TU
D904	A7110664	Diode, 05Z24-Y
D905	A7110262	Diode, 05Z9.1-Y
D906	A7110411	Diode, 05Z12-Y-X/Y
D907, 910, 912	A7978380	Diode, S5277B
D908, 911, 913, 914	A7110017	Diode, 05Z5.6-Y-Y/Z
D909	22115867	Diode, XZ137

ELECTRICAL PARTS

⚠ T901	22224240	Transformer, Power
N101	22113592	Lamp, 12V, 80mA, GRN
⚠ F901, 902	22144378	Fuse, T2A, 250V
S601	22196165	Switch, Push, EXT DECK/ COPY/MPX
S602	22196164	Switch, Push, Monitor
S603	22196166	Switch, Rotary, NR
S701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711	25819525	Key Board Switch Ass'y, Mute/Pause, Record/FF, Play/Stop, REW/Start, FIX Auto/Index Scan, Counter Reset
S712, 713	22195566	Switch, Slide, Memory/Timer
S714, 715, 716	22195924	Switch, Key, Block Repeat/ Memory-1/Memory-2

Symbol No.	Part No.	Description
S717, 718, 719	22196270	Switch, Leaf, Mecha Position Detector
S720, 721, 722	22196272	Switch, Leaf, Chrome/REC Prevention/Metal
S723	22196271	Switch, Leaf, Tape Detector
⚠ S901	22196150	Switch, Push, Power
J101, 102	22163887	Jack, US4P
J103	22163886	Jack, 6φ x 2, Microphone
J104	22163889	Jack, 6φ, Headphone
J701	22169012	Socket, Jump, Key Board
J704	22167964	DIN Jack, 8P
Z101, 102, 103	22134150	Composite Part, 47K x 10
Z104	22153244	Ceramic Oscillator, 455 KHz
Z105	22104588	Meter, Peak
Z106	22104587	Counter
Z401, 402	22134147	Composite Part, 120K/33K/ 33K/33K/3.9K
Z403, 404	22212065	Coil, Bias Trap, 105 kHz
Z501, 502	22134147	Composite Part, 120K/33K/ 33K/33K/3.9K
Z503, 504	22212064	Filter, Dolby
Z601, 602	22235218	Coil, Bias Trap, 105 KHz
Z603, 604, 605, 606	22232278	Coil, Choke, 8.2mH
Z607, 608	22235226	Coil, Bias Oscillator
Z701, 702	22134154	Composite Part, 50K x 3/10K x 5
Z703	22153188	Ceramic Oscillator, 400 KHz
Z704	22130709	Composite Part, 15K/33K/ 100K/15K/15K/100K/15K/ 15K
Z705	22130708	Composite Part, 15K x 6
Z706	22134167	Composite Part, 4.7K x 5
Z707	22153244	Ceramic Oscillator, 455 KHz
⚠ EP01	22176642	Power Cord (TE)
⚠ EP01	22176641	Power Cord (TU)
EP02	22165047	Fuse Holder

Symbol No.	Part No.	Description
CAPACITORS		
D = ±0.5pF, G = ±2%, J = ±5%, K = ±10%, M = ±20%, Z = −20 + 80%		
ABBREVIATIONS: EL = Electrolytic, CD = Ceramic Disk, MY = Mylar, PP = Polypropylene, PS = Polystyrene		
C101, 102	22488479	EL, 4.7mfd, 50V
C103, 104	22349471	CD, 470pF, 50V, K
C105, 106	22349471	CD, 470pF, 50V, K
C107, 108	22488479	EL, 4.7mfd, 50V
C109	22485470	EL, 47mfd, 16V
C110, 111	22360484	CD, 0.047mfd, 50V, Z
C113, 114	22485330	EL, 33mfd, 16V
C115, 116	22488478	EL, 0.47mfd, 50V
C117, 118	22485470	EL, 47mfd, 16V
C119, 120	22488109	EL, 1mfd, 50V
C121	22342473	CD, 0.047mfd, 50V, Z
C122	22488478	EL, 0.47mfd, 50V
C123	22480006	EL, 0.33mfd, 50V
C124	22371102	MY, 0.001mfd, 50V, J
C125	22483101	EL, 100mfd, 10V
C126	22372104	MY, 0.1mfd, 50V, K
C127	22362680	CD, 68pF, 50V, K
C128	22349221	CD, 220pF, 50V, K
C129	22349471	CD, 470pF, 50V, K
C130	22488109	EL, 1mfd, 50V
C131	22485100	EL, 10mfd, 16V
C132	22485470	EL, 47mfd, 16V
C133	22488100	EL, 10mfd, 50V
C301, 302	22371102	MY, 1000pF, 50V, J
C303, 304	22483471	EL, 470mfd, 10V
C305, 306	22483471	EL, 470mfd, 10V
C307, 308	22342103	CD, 0.01mfd, 50V, Z
C309, 310	22483471	EL, 470mfd, 10V
C311, 312	22342103	CD, 0.01mfd, 50V, Z
C313	22485330	EL, 33mfd, 16V
C315, 316	22483471	EL, 470mfd, 10V
C401, 402	22321164	PP, 220pF, 50V, J
C403, 404	22362101	CD, 100pF, 50V, K
C405, 406	22362180	CD, 18pF, 50V K
C407, 408	22483101	EL, 100mfd, 10V
C409, 410	22371153	MY, 0.015mfd, 50V, J
C411, 412	22485330	EL, 33mfd, 16V
C413, 414	22372103	MY, 0.01mfd, 50V, K
C415, 416	22483221	EL, 220mfd, 10V
C417	22485100	EL, 10mfd, 16V
C418	22342223	CD, 0.022mfd, 50V, Z
C419	22488339	EL, 3.3mfd, 50V
C420	22342223	CD, 0.022mfd, 50V Z

Symbol No.	Part No.	Description
C421, 422	22362101	CD, 100pF, 50V, K
C423, 424	22485100	EL, 10mfd, 16V
C425, 426	22362180	CD, 18pF, 50V, K
C427, 428	22488479	EL, 4.7mfd, 50V
C429, 430	22321307	PP, 4700pF, 100V, G
C431, 432	22321309	PP, 235pF, 100V, G
C433, 434	22321308	PP, 9100pF, 100V, G
C435, 436	22321306	PP, 1500pF, 100V, G
C437, 438	22485100	EL, 10mfd, 16V
C439, 440	22361809	CD, 8pF, 50V, D
C441, 442	22349221	CD, 220pF, 50V, K
C443, 444	22362101	CD, 100pF, 50V, K
C445, 446	22372104	MY, 0.1mfd, 50V, K
C447, 448	22349102	CD, 1000pF, 50V, K
C449, 450	22488479	EL, 4.7mfd, 50V
C451, 452	22349222	CD, 2200pF, 50V, K
C453, 454	22485100	EL, 10mfd, 16V
C455, 456	22485100	EL, 10mfd, 16V
C457, 458	22485100	EL, 10mfd, 16V
C459, 460	22362101	CD, 100pF, 50V, K
C461, 462	22371562	MY, 5600pF, 50V, J
C463, 464	22371472	MY, 4700pF, 50V, J
C465, 466	22371273	MY, 0.027mfd, 50V, J
C467, 468	22371473	MY, 0.047mfd, 50V, J
C469, 470	22485100	EL, 10mfd, 16V
C471, 472	22480003	EL, 0.1mfd, 50V
C473, 474	22480006	EL, 0.33mfd, 50V
C475, 476	22485100	EL, 10mfd, 16V
C477, 478	22485100	EL, 10mfd, 16V
C479, 480	22483101	EL, 100mfd, 10V
C481, 482	22483101	EL, 100mfd, 10V
C484, 485	22488479	EL, 4.7mfd, 50V
C487, 488	22483101	EL, 100mfd, 10V
C489, 490	22488478	EL, 0.47mfd, 50V
C493, 494	22488479	EL, 4.7mfd, 50V
C495, 496	22371153	MY, 0.015mfd, 50V, J
C497	22483470	EL, 47mfd, 10V
C498, 499	22342103	CD, 0.01mfd, 50V, Z
C500	22349103	CD, 0.01mfd, 50V, K
C501, 502	22488109	EL, 1mfd, 50V
C503, 504	22362101	CD, 100pF, 50V, K
C505, 506	22485100	EL, 10mfd, 16V
C507, 508	22371562	MY, 5600pF, 50V, J
C509, 510	22371472	MY, 4700pF, 50V, J
C511, 512	22371273	MY, 0.027mfd, 50V, J
C513, 514	22371473	MY, 0.047mfd, 50V, J
C515, 516	22480003	EL, 0.1mfd, 50V
C517, 518	22480006	EL, 0.33mfd, 50V
C519, 520	22485100	EL, 10mfd, 16V
C521, 522	22485100	EL, 10mfd, 16V

Symbol No.	Part No.	Description
C523, 524	22485100	EL, 10mfd, 16V
C525, 526	22321307	PP, 4700pF, 100V, G
C527, 528	22321309	PP, 235pF, 100V, G
C529, 530	22321308	PP, 9100pF, 100V, G
C531, 532	22321306	PP, 1500pF, 100V, G
C533, 534	22372104	MY, 0.1mfd, 50V, K
C535, 536	22362101	CD, 100pF, 50V, K
C537, 538	22485100	EL, 10mfd, 16V
C539, 540	22361809	CD, 8pF, 50V, D
C541, 542	22349221	CD, 220pF, 50V, K
C543, 544	22362101	CD, 100pF, 50V, K
C545, 546	22349102	CD, 1000pF, 50V, K
C547, 548	22488479	EL, 4.7mfd, 50V
C549, 550	22349222	CD, 2200pF, 50V, K
C551, 552	22485100	EL, 10mfd, 16V
C553, 554	22485100	EL, 10mfd, 16V
C557, 558	22488339	EL, 3.3mfd, 50V
C559, 560	22342103	CD, 0.01mfd, 50V, Z
C561, 562	22342103	CD, 0.01mfd, 50V, Z
C563, 564	22342103	CD, 0.01mfd, 50V, Z
C565, 566	22483101	EL, 100mfd, 10V
C567, 568	22371122	MY, 1200pF, 50V, J
C569, 570	22349821	CD, 820pF, 50V, K
C571, 572	22488339	EL, 3.3mfd, 50V
C573, 574	22483101	EL, 100mfd, 10V
C575	22360484	CD, 0.047mfd, 50V, Z
C601, 602	22488479	EL, 4.7mfd, 50V
C603, 604	22488479	EL, 4.7mfd, 50V
C604, 606	22488479	EL, 4.7mfd, 50V
C607, 608	22480006	EL, 0.33mfd, 50V
C609, 610	22488479	LE, 4.7mfd, 50V
C611, 612	22371182	MY, 1800pF, 50V, J
C613, 614	22372682	MY, 6800pF, 50V, K
C615, 616	22371682	MY, 6800pF, 50V, J
C617, 618	22371332	MY, 3300pF, 50V, J
C619, 620	22371822	MY, 8200pF, 50V, J
C621	22380100	PS, 3300pF, 200V, K
C622	22485330	EL, 33mfd, 16V
C623	22371103	MY, 0.01mfd, 50V, J
C624, 625	22349332	CD, 3300pF, 50V, K
C626	22372682	MY, 6800pF, 50V, K
C627, 628	22349332	CD, 3300pF, 50V, K
C629, 630	22349221	CD, 220pF, 50V, K
C631	22380269	PS, 1800pF, 125V, J
C632	22486220	EL, 22mfd, 25V
C633	22349472	CD, 4700pF, 50V, K
C634	22488479	EL, 4.7mfd, 16V
C635, 636	22485330	EL, 33mfd, 16V
C637, 638	22488479	EL, 4.7mfd, 50V

Symbol No.	Part No.	Description
C701	22488339	EL, 3.3mfd, 50V
C702	22488478	EL, 0.47mfd, 50V
C703, 704	22371122	MY, 0.0012mfd, 50V, J
C705	22349391	CD, 390pF, 50V, K
C706, 707	22371332	MY, 0.0033mfd, 50V, J
C709	22440573	EL, 47000mfd, 5.5V
C710	22482102	EL, 1000mfd, 6.3V
C711	22488479	EL, 4.7mfd, 50V
C712	22371333	MY, 0.033mfd, 50V, J
C713, 714	22362101	CD, 100pF, 50V, K
C715	22485330	EL, 33mfd, 16V
C716, 717	22342103	CD, 0.01mfd, 50V, Z
C718, 719	22488109	EL, 1mfd, 50V
C720	22488339	EL, 3.3mfd, 50V
C721	22488479	EL, 4.7mfd, 50V
C722	22488109	EL, 1mfd, 50V
C723, 724	22342473	CD, 0.047mfd, 50V, Z
C725, 726	22362101	CD, 100pF, 50V, K
C727	22488108	EL, 0.1mfd, 50V
C728	22488109	EL, 1mfd, 50V
C729, 730	22349102	CD, 1000pF, 50V, K
C731	22488478	EL, 0.47mfd, 50V
C732	22349391	CD, 390pF, 50V, K
C733	22342103	CD, 0.01mfd, 50V, Z
C734	22488339	EL, 3.3mfd, 50V
C735	22488478	EL, 0.47mfd, 50V
C736	22362151	CD, 150pF, 50V, K
C737	22362470	CD, 47pF, 50V, K
⚠ C901	22340150	CD, 4700pF, 400V, M
⚠ C902	22483471	EL, 470mfd, 10V
⚠ C903	22485330	EL, 33mfd, 16V
⚠ C904	22486222	EL, 2200mfd, 25V
⚠ C905	22486102	EL, 1000mfd, 25V
⚠ C906	22488470	EL, 47mfd, 50V
⚠ C907	22485100	EL, 10mfd, 16V
⚠ C908	22483101	EL, 100mfd, 10V
C909	22485101	EL, 100mfd, 16V
C910	22485470	EL, 47mfd, 16V
C911	22485471	EL, 470mfd, 16V
C912	22446472	EL, 4700mfd, 25V
C913	22488109	EL, 1mfd, 50V
C914	22440543	EL, 10000mfd, 16V
C915	22486221	EL, 220mfd, 25V
C916	22485330	EL, 33mfd, 16V
C917	22362101	CD, 100pF, 50V, K
C918	22485101	EL, 100mfd, 16V
C919	22486221	EL, 220mfd, 25V
C920	22485330	EL, 33mfd, 16V
C921	22362101	CD, 100pF, 50V, K
C922	22485100	EL, 10mfd, 16V

Symbol No.	Part No.	Description
RESISTORS Resistors are carbon film ¼W, ±5%, unless otherwise noted. 1K = 1000, 1M = 1000K		
R001	22545225	2.2M ohm
R002, 003	22545101	100 ohm
R004	22545182	1.8K ohm
R101, 102	22545102	1K ohm
R103, 104	22545473	47K ohm
R105, 106	22545563	56K ohm
R107, 108	22545102	1K ohm
R109, 110	22545123	12K ohm
R111, 112	22545151	150 ohm
R113, 114	22545123	12K ohm
R115, 116	22545473	47K ohm
R117, 118	22545104	100K ohm
R121, 122	22545101	100 ohm
R123, 124	22545103	10K ohm
R125, 126	22545473	47K ohm
R129	22545471	470 ohm
R130	22658622	1K ohm, B, Semi-fixed Variable
R131, 132	22545183	18K ohm
R133, 134	22545224	220K ohm
R135	22545474	470K ohm
R136	22545333	33K ohm
R137	22545563	56K ohm
R138	22555563	56K ohm
R139, 140	22545273	27K ohm
R141, 142	22545104	100K ohm
R143, 144	22545102	1K ohm
R145, 146	22545333	33K ohm
R147, 148	22545473	47K ohm
R149, 150	22545103	10K ohm
R151, 152	22545104	100K ohm
R153, 154	22545221	220 ohm
R155, 156	22545332	3.3K ohm
R157	22545225	2.2M ohm
R158	22545103	10K ohm
R159	22545474	470K ohm
R160, 161	22545103	10K ohm
R162	22545103	10K ohm
R163	22545222	2.2K ohm
R164	22545392	3.9K ohm
R165	22545562	5.6K ohm
R166	22555106	10M ohm
R167, 168	22545473	47K ohm
R169, 170	22545473	47K ohm
R171	22545101	100 ohm
R172, 173	22545153	15K ohm
R174	22545153	15K ohm

Symbol No.	Part No.	Description
R175, 176	22545563	56K ohm
R177	22545473	47K ohm
R178	22545222	2.2K ohm
R179, 180	22545223	22K ohm
R181	22545473	47K ohm
R182	22545332	3.3K ohm
R183	22545563	56K ohm
R184	22545471	470 ohm
R185	22545563	56K ohm
R186, 187	22545223	22K ohm
R188	22545223	22K ohm
R190	22555474	470K ohm
R195, 196	22545223	22K ohm
R301	22545224	220K ohm
R302, 303	22545223	22K ohm
R304, 305	22545223	22K ohm
R306, 307	22545223	22K ohm
R308	22545223	22K ohm
R309, 310	22545224	220K ohm
R311, 312	22545224	220K ohm
R313	22545224	220K ohm
R314	22545223	22K ohm
R315, 316	22545223	22K ohm
R317	22545223	22K ohm
R318	22545223	22K ohm
R319	22545105	1M ohm
R320	22545224	220K ohm
R321, 322	22545106	10M ohm
R323	22658603	50K ohm, B, Semi-fixed Variable
R324	22545103	10K ohm
R325	22545273	27K ohm
R327	22658602	5K ohm, B, Semi-fixed Variable
R328	22545273	27K ohm
R329	22546473	47K ohm
R330	22545103	10K ohm
R332, 333	22545103	10K ohm
R335	22545103	10K ohm
R336	22545562	5.6K ohm
R337	22545103	10K ohm
R338	22545273	27K ohm
R339	22555122	1.2K ohm
R340, 341	22545224	220K ohm
R342, 343	22545101	100 ohm
R344, 345	22555102	1K ohm
R348	22545681	680 ohm
R349, 350	22545104	100K ohm
R351, 352	22545473	47K ohm
R353, 354	22658599	10K ohm, B, Semi-fixed Variable

Symbol No.	Part No.	Description
R355, 356	22545223	22K ohm
R357, 358	22545272	2.7K ohm
R359, 360	22545100	10 ohm
R361	22545103	10K ohm
R362	22658599	10K ohm, B, Semi-fixed Variable
R363	22545273	27K ohm
R364	22545104	100K ohm
R365	22545102	1K ohm
R366	22545154	150K ohm
R367, 368	22545223	22K ohm
R369	22545103	10K ohm
⚠ R370, 371	22500169	4.7 ohm, Fusible
R372	22545103	10K ohm
R373, 374	22545225	2.2M ohm
R401, 402	22545221	220 ohm
R403, 404	22545563	56K ohm
R405, 406	22545103	10K ohm
R407, 408	22545103	10K ohm
R409, 410	22545183	18K ohm
R411, 412	22545224	220K ohm
R413, 414	22545103	10K ohm
R415, 416	22658601	500 ohm, B, Semi-fixed Variable
R417, 418	22545472	4.7K ohm
R419, 420	22545472	4.7K ohm
R421, 422	22545473	47K ohm
R423, 424	22545473	47K ohm
R425, 426	22545331	330 ohm
R427, 428	22545104	100K ohm
R429, 430	22545103	10K ohm
R431, 432	22545104	100K ohm
R433, 434	22545104	100K ohm
R435, 436	22545222	2.2K ohm
R437, 438	22545103	10K ohm
R439, 440	22545683	68K ohm
R441, 442	22545473	47K ohm
R443, 444	22545102	1K ohm
R445, 446	22545473	47K ohm
R447, 448	22545224	220K ohm
R449, 450	22545823	82K ohm
R451, 452	22545393	39K ohm
R453, 454	22658603	50K ohm, B, Semi-fixed Variable
R455, 456	22545333	33K ohm
R457, 458	22658603	50K ohm, B, Semi-fixed Variable
R459, 460	22545221	220 ohm
R461, 462	22545224	220K ohm
R463, 464	22545822	8.2K ohm
R465, 466	22555335	3.3M ohm
R467, 468	22545563	56K ohm

Symbol No.	Part No.	Description
R479, 470	22658599	10K ohm, B, Semi-fixed Variable
R471, 472	22545183	18K ohm
R473, 474	22545154	150K ohm
R475, 476	22545274	270K ohm
R477, 478	22545332	3.3K ohm
R479, 480	22545473	47K ohm
R481, 482	22545181	180 ohm
R483, 484	22545473	47K ohm
R485, 486	22658599	10K ohm, B, Semi-fixed Variable
R487, 488	22545106	10M ohm
R489, 490	22545106	10M ohm
R491, 492	22545106	10M ohm
R493, 494	22545473	47K ohm
R495, 496	22550235	2K ohm, ±2%
R497, 498	22545471	470 ohm
R499, 500	22555106	10M ohm
R501, 502	22545104	100K ohm
R503, 504	22545274	270K ohm
R505, 506	22545154	150K ohm
R507, 508	22545332	3.3K ohm
R509, 510	22545473	47K ohm
R511, 512	22545181	180 ohm
R513, 514	22545473	47K ohm
R515, 516	22545222	2.2K ohm
R517, 518	22545222	2.2K ohm
R519, 520	22545563	56K ohm
R521, 522	22545332	3.3K ohm
R523, 524	22545684	680K ohm
R527, 528	22545104	100K ohm
R529, 530	22550235	2K ohm, ±2%
R531, 532	22545473	47K ohm
R533, 534	22545102	1K ohm
R537, 538	22545683	68K ohm
R539, 540	22545473	47K ohm
R541, 542	22545224	220K ohm
R543, 544	22545823	82K ohm
R545, 546	22545221	220 ohm
R547, 548	22545393	39K ohm
R549, 550	22658603	50K ohm, B, Semi-fixed Variable
R551, 552	22545333	33K ohm
R553, 554	22658603	50K ohm, B, Semi-fixed Variable
R555, 556	22545335	3.3M ohm
R557, 558	22545822	8.2K ohm
R559, 560	22545224	220K ohm
R561, 562	22545563	56K ohm
R563, 564	22658599	10K ohm, B, Semi-fixed Variable
R565, 566	22545183	18K ohm
R567, 568	22545106	10M ohm

Symbol No.	Part No.	Description
R569, 570	22545104	100K ohm
R571, 572	22545106	10M ohm
R573, 574	22545106	10M ohm
R575, 576	22545106	10M ohm
R577, 578	22545106	10M ohm
R579, 580	22545106	10M ohm
R581	22545224	220K ohm
R582	22545103	10K ohm
R583, 584	22545224	220K ohm
R585, 586	22545124	120K ohm
R587, 588	22545103	10K ohm
R589, 590	22545224	220K ohm
R591	22545224	220K ohm
R592	22545471	470 ohm
R593, 594	22545102	1K ohm
R595, 596	22545105	1M ohm
R597	22545223	22K ohm
R599, 600	22545105	1M ohm
R601, 602	22555106	10M ohm
R603, 604	22658599	10K ohm, B, Semi-fixed Variable
R605, 606	22545473	47K ohm
R607, 608	22545222	2.2K ohm
R609, 610	22545273	27K ohm
R611, 612	22555824	820K ohm
R613, 614	22545273	27K ohm
R615, 616	22545394	390K ohm
R617, 618	22545273	27K ohm
R619, 620	22545225	2.2M ohm
R621, 622	22545225	2.2M ohm
R623, 624	22545225	2.2M ohm
R625, 626	22545473	47K ohm
R627, 628	22545154	150K ohm
R629, 630	22545103	10K ohm
R631, 632	22545273	27K ohm
R633, 634	22545273	27K ohm
R635, 636	22545683	68K ohm
R637, 638	22545273	27K ohm
R639, 640	22545274	270K ohm
R641, 642	22545274	270K ohm
R643, 644	22545332	3.3K ohm
R645, 646	22545103	10K ohm
R647, 648	22545104	100K ohm
R649, 650	22545472	4.7K ohm
R651, 652	22545221	220 ohm
R653, 654	22545223	22K ohm
R655, 656	22545332	3.3K ohm
R657, 658	22545472	4.7K ohm
R659, 660	22545223	22K ohm
R661, 662	22545103	10K ohm
R663, 664	22545153	15K ohm
R665, 666	22545101	100 ohm
R667, 668	22545223	22K ohm

Symbol No.	Part No.	Description
R669, 670	22545223	22K ohm
R671, 672	22555689	6.8 ohm
R673, 674	22545153	15K ohm
R675, 676	22545330	33 ohm
R677	22545103	10K ohm
R678	22545223	22K ohm
R679	22545104	100K ohm
R680	22545103	10K ohm
R681, 682	22658603	50K ohm, B, Semi-fixed Variable
⚠ R683	22500169	4.7 ohm, Fusible
R685	22651579	50K ohm, MN, Variable, Balance
R686	22657269	50K ohm, A, Variable, REC Level
R687, 688	22545473	47K ohm
R689, 690	22545473	47K ohm
R691	22651580	10K ohm, B, Variable, Output
R692	22545103	10K ohm
R693, 694	22545223	22K ohm
R695, 696	22545333	33K ohm
R697, 698	22658280	22K ohm, B, Semi-fixed Variable
R699	22545224	220K ohm
R701	22545103	10K ohm
R702	22545104	100K ohm
R703	22545102	1K ohm
R705, 706	22545224	220K ohm
R707, 708	22545224	220K ohm
R709	22545224	220K ohm
R710	22545104	100K ohm
R711	22545223	22K ohm
R712	22545104	100K ohm
R713	22545472	4.7K ohm
R714	22545104	100K ohm
R715	22545103	10K ohm
R716	22545104	100K ohm
R717	22545473	47K ohm
R718	22545104	100K ohm
R719	22545154	150K ohm
R720	22545332	3.3K ohm
R721	22545223	22K ohm
R722, 723	22545104	100K ohm
R724, 725	22545104	100K ohm
R726	22545104	100K ohm
R727	22545223	22K ohm
R728	22545103	10K ohm
R729	22545101	100 ohm
R730	22658599	10K ohm, B, Semi-fixed Variable
R731	22545182	1.8K ohm
R732	22658601	500 ohm, B, Semi-fixed Variable

Symbol No.	Part No.	Description
R733	22545102	1K ohm
R734	22545103	10K ohm
R735	22545153	15K ohm
R736	22545333	33K ohm
R737	22545224	220K ohm
R738	22545472	4.7K ohm
R739	22545183	18K ohm
R740, 741	22545472	4.7K ohm
R742, 743	22545473	47K ohm
R744, 745	22545224	220K ohm
R746	22545224	220K ohm
R747	22555471	470 ohm
R748, 749	22545224	220K ohm
R750	22545103	10K ohm
R751	22545223	22K ohm
R752, 753	22545103	10K ohm
R754, 755	22545103	10K ohm
R756, 757	22545103	10K ohm
R758, 760	22545332	3.3K ohm
R759, 761	22545223	22K ohm
R762	22545332	3.3K ohm
R763	22545223	22K ohm
R764, 765	22545473	47K ohm
R766	22545223	22K ohm
R767	22547471	470 ohm, ½W
⚠ R768	22500176	22 ohm, Fusible
R769	22547471	470 ohm, ½W
R770	22545102	1K ohm
R771, 773	22658631	20K ohm, B, Semi-fixed Variable
R772	22545682	6.8K ohm
R774	22545472	4.7K ohm
R775	22545104	100K ohm
R776	22545274	270K ohm
R777	22545224	220K ohm
R778, 780	22545104	100K ohm
R779	22545224	220K ohm
R781	22545223	22K ohm
R782	22555155	1.5M ohm
R783	22555824	820K ohm
R784	22545104	100K ohm
R785	22545103	10K ohm
R786	22545104	100K ohm
R787, 788	22545473	47K ohm
R789	22545104	100K ohm
R790, 791	22545473	47K ohm
R792, 793	22545473	47K ohm
R794	22545473	47K ohm
R795	22545104	100K ohm
R796	22545101	100 ohm
R797	22545563	56K ohm
R798	22545103	10K ohm
R799, 800	22545105	1M ohm
R801, 802	22545223	22K ohm

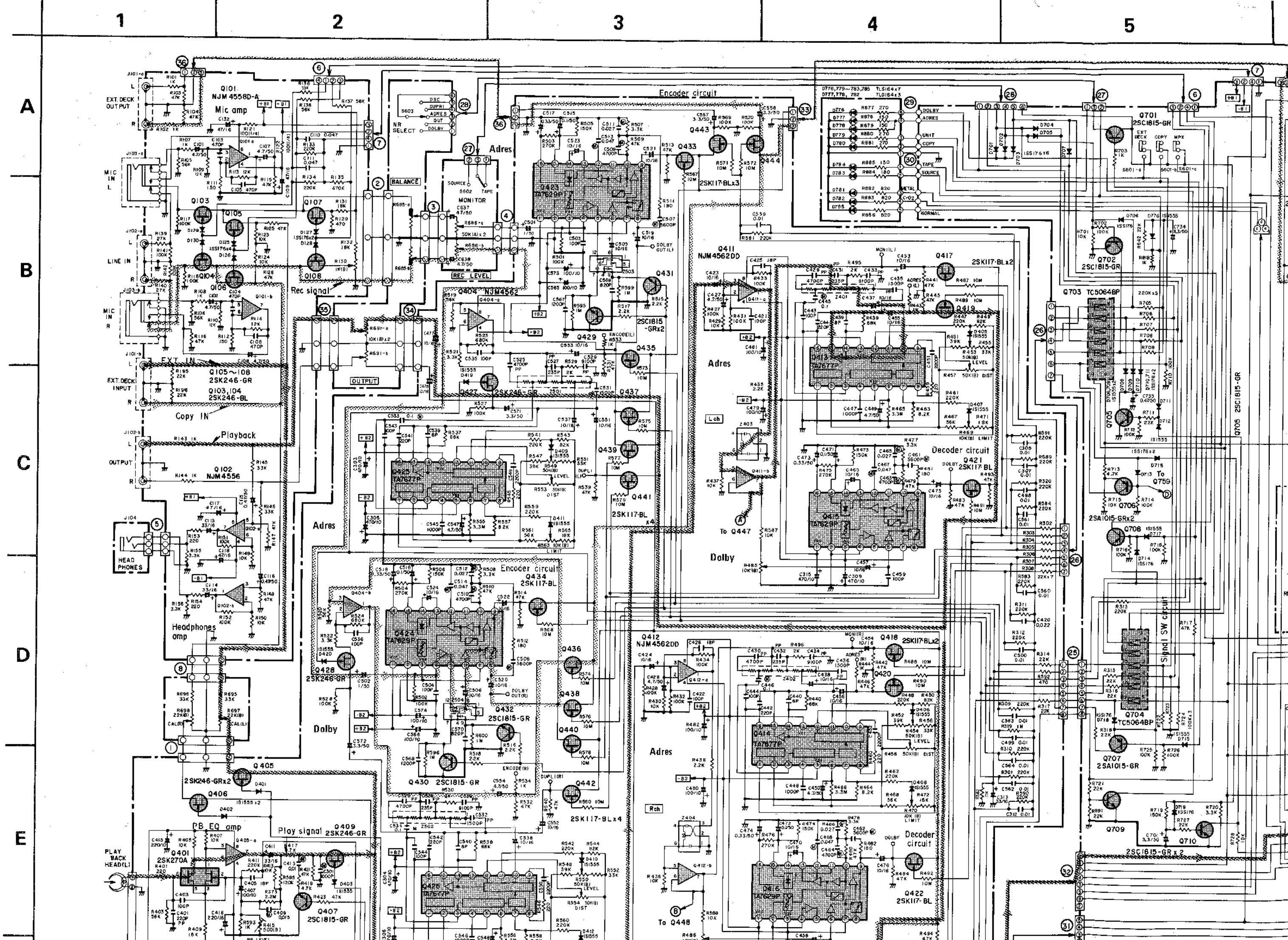
Symbol No.	Part No.	Description
R803, 804	22545223	22K ohm
R805	22545223	22K ohm
R806, 807	22545103	10K ohm
R808	22545103	10K ohm
R809	22545223	22K ohm
R810	22545224	220K ohm
R811	22545153	15K ohm
R812	22545103	10K ohm
R813	22545274	270K ohm
R814, 815	22545104	100K ohm
R816	22545223	22K ohm
R817	22545334	330K ohm
R818	22555102	1K ohm
R819	22545103	10K ohm
R820	22545153	15K ohm
R821	22545103	10K ohm
R822, 823	22545104	100K ohm
R824	22545473	47K ohm
R825	22545103	10K ohm
R826	22545104	100K ohm
R827, 828	22545152	1.5K ohm
R829, 830	22545152	1.5K ohm
R831	22545104	100K ohm
R832	22545103	10K ohm
R833, 834	22545103	10K ohm
R835, 836	22545104	100K ohm
R837	22545103	10K ohm
R838	22545154	150K ohm
R839, 840	22545103	10K ohm
R841	22545394	390K ohm
R842	22555223	22K ohm
R843, 844	22555332	3.3K ohm
R845	22545104	100K ohm
R846	22545473	47K ohm
R847	22545102	1K ohm
R848	22545223	22K ohm
R849, 850	22545102	1K ohm
R851	22545102	1K ohm
R852	22545223	22K ohm
R853	22570298	18 ohm, 2W, Metal Film
R854	22545562	5.6K ohm
R855	22545102	1K ohm
R856	22545123	12K ohm
R857	22658599	10K ohm, B, Semi-fixed Variable
R858	22545472	4.7K ohm
⚠ R859	22500176	22 ohm, Fusible
R860, 861	22545471	470 ohm
R862, 864	22545471	470 ohm
R863, 865	22545223	22K ohm
R866	22545681	680 ohm
R867	22545101	100 ohm
R868	22545181	180 ohm
R869	22545221	220 ohm

Symbol No.	Part No.	Description
R870, 871	22545181	180 ohm
R872, 873	22545181	180 ohm
R874	22545181	180 ohm
R875	22545221	220 ohm
R876	22545181	180 ohm
R877	22545271	270 ohm
R878, 879	22545151	150 ohm
R880, 881	22545271	270 ohm
R882, 883	22545821	820 ohm
R884	22545181	180 ohm
R885	22545151	150 ohm
R886	22545821	820 ohm
R887	22545104	100K ohm
R888, 889	22545473	47K ohm
R890	22545104	100K ohm
R891	22545223	22K ohm
R892	22545472	4.7K ohm
R893	22545223	22K ohm
R894, 895	22545473	47K ohm
R896	22545104	100K ohm
R897, 898	22545225	2.2M ohm
R899	22545225	2.2M ohm
R900	22545473	47K ohm
⚠ R901	22500168	3.3 ohm, Fusible
⚠ R902, 903	22500167	2.2 ohm, Fusible
R904	22547102	1K ohm, ½W
R905	22545101	100 ohm
R906	22547272	2.7K ohm, ½W
R907	22547681	680 ohm ½W
R908	22547100	10 ohm, ½W
R909	22545103	10K ohm
R910	22547471	470 ohm, ½W
R911	22545680	68 ohm
R912	22545392	3.9K ohm
R913	22545471	470 ohm
R914, 915	22545222	2.2K ohm
R916, 917	22545222	2.2K ohm
R918	22545102	1K ohm
R919, 920	22545222	2.2K ohm
R921, 922	22545222	2.2K ohm
R923	22545102	1K ohm

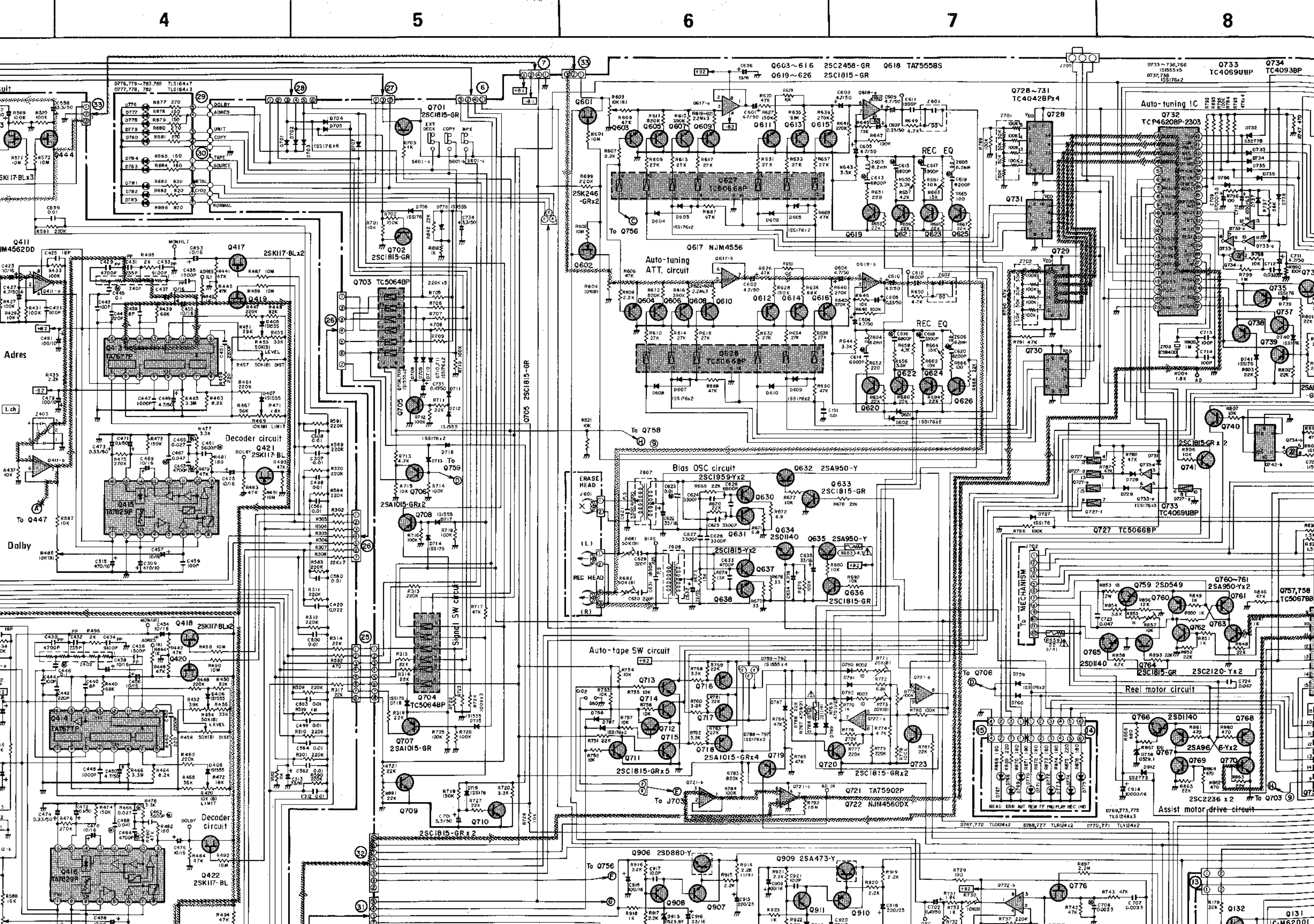
ACCESSORIES

AC01	22903634	Owner's Manual
AC02	22990756	Head Cleaner
AC03	22164775	Connector Cord

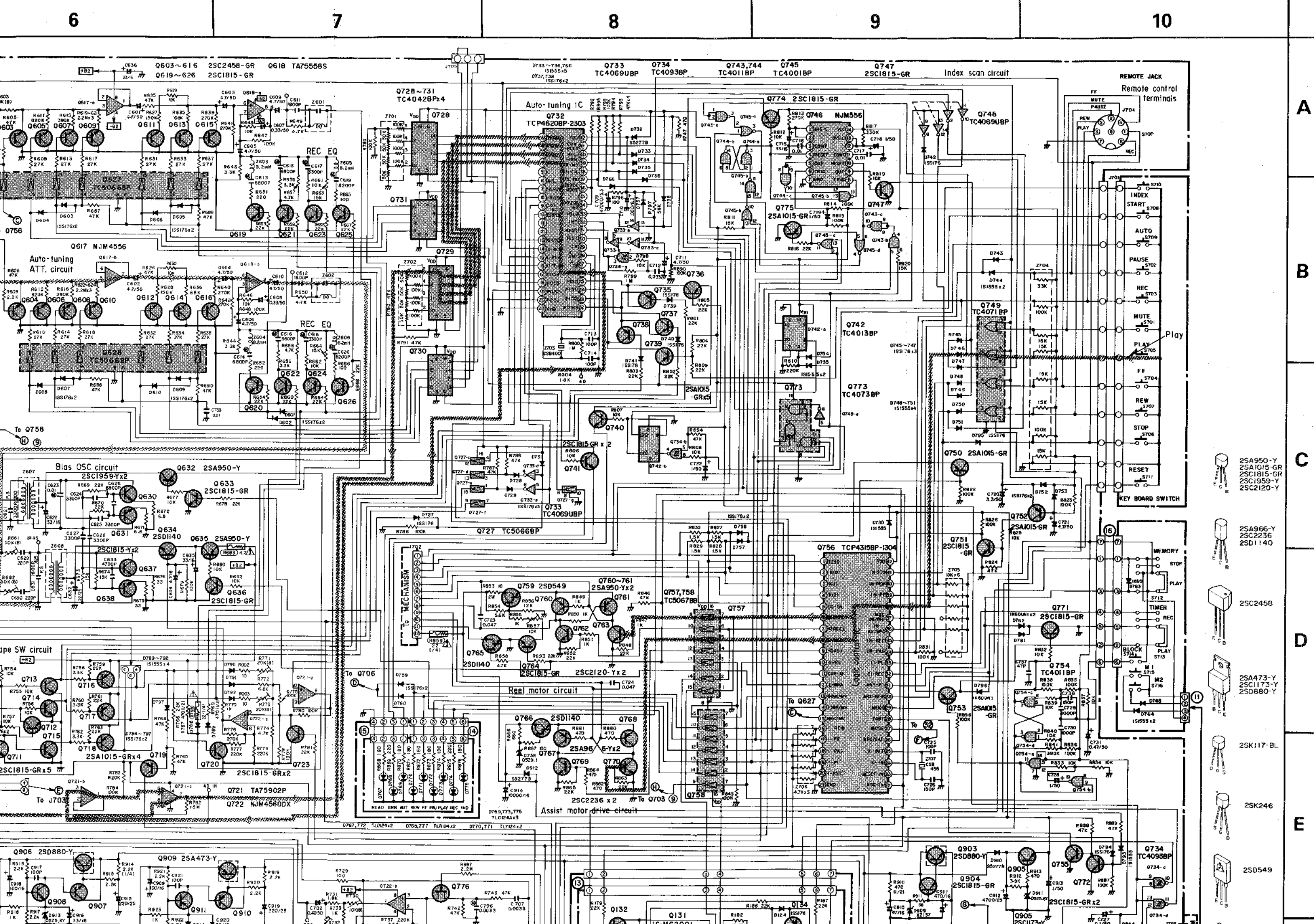
Symbol No.	Part No.	Description



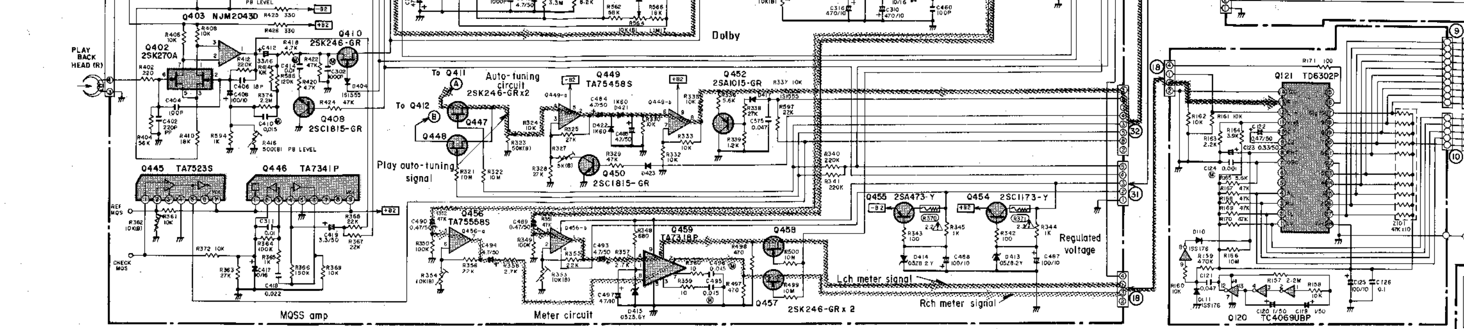
1
2
3
4
5
A
B
C
D
E
EXT. DECK OUTPUT
Mic amp
MIC IN L
LINE IN
MIC IN R
EXT. DECK INPUT
EXT. IN
Copy IN
Playback
OUTPUT
HEAD PHONES
Headphones amp
PB EQ amp
PLAY BACK HEAD(L)
Play signal
Rec signal
NR SELECT
Adres
MONITOR
BALANCE
REC LEVEL
Encoder circuit
Decoder circuit
Dolby
Lch
Rch
To Q447
To Q448
To Q759
Signal SW circuit
Q101 NJM4558D-A
Q102 NJM4556
Q105~108 2SK246-GR
Q103, 104 2SK246-BL
Q405 2SK246-GRx2
Q406
Q401 2SK270A
Q407 2SC1815-GR
Q409 2SK246-GR
Q411 NJM4562DD
Q412 NJM4562DD
Q423 TA7629P
Q424 TA7629P
Q415 TA7629P
Q416 TA7629P
Q413 TA7677P
Q414 TA7677P
Q425 TA7677P
Q421 2SK117-BL
Q422 2SK117-BL
Q434 2SK117-BL
Q443 Q444 2SK117-BLx3
Q417 2SK117-BLx2
Q418 2SK117-BLx2
Q429 Q431 2SC1815-GRx2
Q432 2SC1815-GR
Q430 2SC1815-GR
Q427 2SK246-GR
Q428 2SK246-GR
Q404 NJM4562
Q703 TC5064BP
Q704 TC5064BP
Q701 2SC1815-GR
Q702 2SC1815-GR
Q705 2SC1815-GR
Q706 2SA1015-GRx2
Q707 2SA1015-GR
2SC1815-GR x 2
Q709
Q710
DOLBY
ADRES
UNIT
COPY
TAPE
SOURCE
METAL
CrO2
NORMAL
SOURCE S602 TAPE



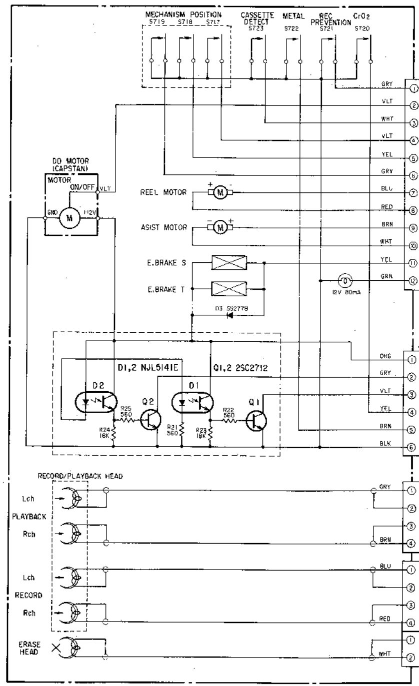
4
5
6
7
8
Q603～616 2SC2458-GR Q618 TA75558S
Q619～626 2SC1815-GR
Q733 TC4069UBP
Q734 TC4093BP
Q728～731 TC4042BPx4
Auto-tuning IC
Q732 TCP4620BP-2303
Q701 2SC1815-GR
Q702 2SC1815-GR
Q703 TC5064BP
Q704 TC5064BP
Q705 2SC1815-GR
Q707 2SA1015-GR
Q617 NJM4556
Auto-tuning ATT. circuit
REC EQ
Q627 TC5066BP
Q628 TC5066BP
2SK246 -GRx2
Q411 NJM4562DD
Q417
2SK117-BLx2
Q418 2SK117-BLx2
Q419
Q420
Q421 2SK117-BL
Q422 2SK117-BL
Decoder circuit
Adres
Dolby
To Q447
Q415 TA7629P
Q416 TA7629P
TA7677P
Bias OSC circuit
2SC1959-Yx2
Q632 2SA950-Y
Q633 2SC1815-GR
Q634 2SD1140
Q635 2SA950-Y
2SC1815-Yx2
Q636 2SC1815-GR
ERASE HEAD
REC HEAD
Signal SW circuit
Auto-tape SW circuit
2SC1815-GRx5
2SA1015-GRx4
2SC1815-GRx2
Q721 TA75902P
Q722 NJM4560DX
To Q756
To Q758
To Q759
To Q706
To Q703
To J703
MECHANISM
Q727 TC5066BP
Q740
Q741
Q759 2SD549
Q760～761 2SA950-Yx2
Q757,758 TC5067BP
Q764 2SC1815-GR
Q765 2SD1140
2SC2120-Yx2
Reel motor circuit
Q766 2SD1140
2SA96 6-Yx2
2SC2236 x 2
Assist motor drive circuit
READ ERR AUT REW FF FWD PLAY REC IND
Q906 2SD880-Y
Q909 2SA473-Y
Q776
Q131
Q132



6
7
8
9
10
A
B
C
D
E
Q603~616 2SC2458-GR
Q619~626 2SC1815-GR
Q618 TA75558S
Q728~731 TC4028BPx4
Q733 TC4069UBP
Q734 TC4093BP
Q743,744 TC4011BP
Q745 TC4001BP
Q747 2SC1815-GR
Index scan circuit
REMOTE JACK
Remote control terminals
Auto-tuning IC
Q732 TCP4620BP-2303
Q774 2SC1815-GR
Q746 NJM556
Q748 TC4069UBP
REC EQ
Q617 NJM4556
Auto-tuning ATT. circuit
Q627 TC5066BP
Q628 TC5066BP
Q775 2SA1015-GR
Q742 TC4013BP
Q773 TC4073BP
Q749 TC4071BP
INDEX
START
AUTO
PAUSE
REC
MUTE
Play
FF
REW
STOP
RESET
KEY BOARD SWITCH
To Q756
Bias OSC circuit
2SC1959-Yx2
Q632 2SA950-Y
Q633 2SC1815-GR
Q634 2SD1140
Q635 2SA950-Y
2SC1815-Yx2
Q636 2SC1815-GR
Q740
Q741
2SC1815-GR x 2
Q727 TC5066BP
Q750 2SA1015-GR
Q752 2SA1015-GR
Q751 2SC1815-GR
MECHANISM
Q759 2SD549
Q760~761 2SA950-Yx2
Q757,758 TC5067BP
Q756 TCP4315BP-1304
Logic control IC
MEMORY
TIMER
BLOCK
Q771 2SC1815-GR
Q754 TC4011BP
Q753 2SA1015-GR
Tape SW circuit
2SA1015-GRx4
2SC1815-GRx5
2SC1815-GRx2
Q721 TA75902P
Q722 NJM4560DX
To J703
To Q706
Reel motor circuit
Q765 2SD1140
Q764 2SC1815-GR
2SC2120-Yx2
Q766 2SD1140
Q768
2SA966-Yx2
2SC2236 x 2
Assist motor drive circuit
To Q703
To Q627
READ ERR AUT REW FF PAU PLAY REC IND
Q906 2SD880-Y
Q909 2SA473-Y
Q776
Q903 2SD880-Y
Q904 2SC1815-GR
Q905 2SC1173-Y
Q734 TC4093BP
2SC1815-GRx2
2SA950-Y
2SA1015-GR
2SC1815-GR
2SC1959-Y
2SC2120-Y
2SA966-Y
2SC2236
2SD1140
2SC2458
2SA473-Y
2SC1173-Y
2SD880-Y
2SK117-BL
2SK246
2SD549



SCHEMATIC DIAGRAM (MECHANISM BLOCK)



MAIN P.C.Board

Q603,604

		Others
E		
C	0V	
B	REC/PLAY,ATT 0V	0.72V

Q605~612, Q615,616

		Others
E		
C	0V	
B	FIX 0V	

Q613,614

		Others
E		
C	0V	
B	FIX 0.62V	

Q619,620

		Others
E	CrO2 METAL 0V	
C		
B	CrO2 METAL 0.68V	0V

Q621,622

		Others
E	METAL 0V	
C	0V	
B	METAL 0.68V	0V

Q623,624

		Others
E	CrO2 0V	
C	0V	
B	CrO2 0.66V	0V

Q625,626

		Others
E	NORMAL 0V	
C	0V	
B	NORMAL 0.68V	0V

Q627

	FIX STOP	REC/PLAY,ATT
1	0V	
2	5V	
3	0.52V	
4	0.48V	
5	0V	
6	0V	
7	4.8V	0V
8		0V
9	4.6V	0V
10		
11	0V	
12		
13		
14	5V	
15	0V	
16		5V

Q628

	FIX,STOP		FIX,STOP
1	5V	9	
2	0V	10	
3	0.52V	11	
4	0.48V	12	0V
5		13	
6	0V	14	
7		15	5V
8		16	

Q630

	REC/PLAY,REC/PAUSE REC/MUTE			Others
	NORMAL	CrO2	METAL	
E	0.05V	0.09V	0.185V	
C	3.3V	4.8V	9V	0V
B	0.4V	0.28V	0V	

Q631

	REC/PLAY,REC/PAUSE REC/MUTE			Others
	NORMAL	CrO2	METAL	
E	0.05V	0.09V	0.185V	
C	3.3V	4.8V	9V	0V
B	0.42V	0.32V	0.02V	

Q617

1	
2	0V
3	
4	-12V
5	
6	0V
7	
8	+12V

Q618

1	+12V
2	0V
3	
4	-12V
5	
6	
7	0V
8	
9	+12V

Q632

	REC/PLAY,REC/PAUSE REC/MUTE			Others
	NORMAL	CrO2	METAL	
F	3.4V	5V	9V	12V
C	3.3V	4.9V	9V	0V
B	2.7V	4.2V	8.3V	11V

Q633

		Others
E	0V	
C	NORMAL 8.9V, CrO2 9.8V, METAL 11V	
	REC/PLAY, REC/PAUSE, REC/MUTE 0V	
B	REC/PLAY, REC/PAUSE, REC/MUTE 0.63V	0V

Q634

		NORMAL	CrO2	METAL	Others
E	REC/PLAY,REC/MUTE	2.3V	3.4V	6.2V	0V
	REC/PAUSE	0.3V	0.38V	0.6V	
C	REC/PLAY,REC/MUTE	1.5V	1V	10.5V	
	REC/PAUSE	0.9V	1V	1.2V	
B	REC/PLAY,REC/MUTE	3.5V	4.6V	7.4V	
	REC/PAUSE	1.55V	1.7V	2V	0V

Q635

		NORMAL	CrO2	METAL	Others
E		12V			
	PLAY	12V			
C	REC/PLAY,REC/MUTE	11.5V	1V	10.5V	
	REC/PAUSE	0.9V	1V	1.2V	
B	REC/PLAY, REC/MUTE			0V	12V

Q636

			Others
E		0V	
C	PLAY, REC/PLAY, REC/MUTE	6.6V	0V
B	PLAY, REC/PLAY, REC/MUTE	0V	12V

Q637

	REC/PLAY, REC/MUTE			Others
	NORMAL	CrO2	METAL	
E	1.3V	0.72V	0.48V	
C	2.35V	3.4V	6.2V	0V
B	1.05V	1.3V	.75V	

Q638

	REC/PLAY, REC/MUTE			Others
	NORMAL	CrO2	METAL	
E	0.5V	0.75V	1.35V	
C	2.5V	3.4V	6.2V	0V
B	1.1V	1.35V	.75V	

Q701

			Others
E	S901 ON After 5 sec	0V	4.2V
C			
B	S901 ON After 5 sec	0V	5V

Q702

			Others
E		0V	
C	S602 SOURCE+S603 DUPLI OFF	0.86V	0V
	S602 SOURCE+S603 DUPLI OFF	0.03V	
B	S603 DUPLI ON	0.5V	0V

Q705

			Others
E		0V	
C	S601-a ON + S602 TAPE	8.4V	0V
B	S601-a ON + S602 TAPE	0V	0.6V

Q706

			Others
E	S901 ON After 5sec	0V	3.4V
C	FF, REW S601-a ON	-7.6V	3.1V
B	FF, REW 3.2V S601-a ON	4.4V	2.5V

Q707

			Others
E	S901 ON After 5sec		4.5V
C	S601-b ON	-7.8V	4.4V
B	S601-b ON	4.6V	3.8V

Q708

			Others
E	S901 ON After 5sec	0V	4.5V
C	S601-b ON S603 OSC	-7.6V	4.4V
B	S601-b ON S603 OSC	4.6V	3.8V

Q709

			Others
E		0V	
C	S603 OSC+S601-b ON, S601-a OFF	0V	4.6V
B	S603 OSC	0.66V	0V

Q710

			Others
E		0V	
C	S601-c OFF	+TAPE 3V, +SOURCE 4.1V	0V
B	S601-a ON	0.6V	

Q703

			Others
1	ATT	4.5V	
2	S601-a ON	5V	
3	S601-a ON+S602 TAPE+S603 N/R OUT or OSC	0.21V	
4	S601-a ON+S602 TAPE +S603 ADRES or DUPLI	3.2V	0V
5	S601-a ON+S602 TAPE+S603 DOLBY	3.5V	
6		4.6V	
7	S602 SOURCE+S603 DUPLI ON / OFF	2.5V / 0.86V	0V
8		0V	
9	S901 ON After 5sec	0V	3V
10			
11	S602 SOURCE+S603 DUPLI OFF / ON	5V / 0V	5V
12	S601-a ON+S602 TAPE+S603 DOLBY	5V	-7.8V
13	S601-a ON+S602 TAPE +S603 ADRES or DUPLI	5V	-7.8V
14	S601-a ON+S602 TAPE +S603 N/R OUT or OSC	5V	-7.8V
15	S601-a ON	4.9V	-7.7V
16		5V	

Q704

			Others
1	ATT	4.5V	
2	S603 ADRES, S603 DUPLI	4.6V	
3	S603 N/R OUT, S603 OSC	4.6V	0V
4	S603 DOLBY	5V	
5		5V	
6	S603 OSC	0V	
7	S601-b OFF, S601 ON+S603 OSC	0V	4.6V
8		0V	
9	S901 ON After 5 sec	0V	5V
10	S601-b OFF, S601 ON+S603 OSC	-7.4V	
11	S603 OSC	5V	5.6V
12	S901 ON After 5 sec	-7.8V	5V
13	S603 DOLBY	5V	-7.8V
14	S603 N/R OUT, S603 OSC	5V	-7.7V
15	S603 ADRES, S603 DUPLI	5V	
16		5V	

Q711

	NORMAL	CrO2	METAL	Others
E			0V	
C	0.67V		0V	0V
B	0V		0.6V	0.6V

Q712

	NORMAL	CrO2	METAL	Others
E			0V	
C	0V	2V	0V	0V
B	0V	0V	0.64V	0.64V

Q713

	NORMAL	CrO2	METAL	Others
E			0V	
C		12V	0V	
B	0V		0.67V	0.67V

Q714

	NORMAL	CrO2	METAL	Others
E			0V	
C	2V	0V	12V	12V
B	0V	0.67V	0V	0V

Q715

	NORMAL	CrO2	METAL	Others
E				
C	0V		12V	12V
B	0.67V		0V	0V

Q716

	NORMAL, CrO2	METAL	Others
E		12V	
C	0V	12V	12V
B	12V	1.4V	1.4V

Q717

	NORMAL	CrO2	METAL	Others
E			12V	
C	0V	2V	0V	0V
B	12V	11.4V	12V	12V

Q718

	NORMAL, CrO2	METAL	Others
E		12V	
C	12V	0V	0V
B	1.4V	12V	12V

Q719

	NORMAL, CrO2	METAL	Others
E		5V	
C	5V	-8.9V	-8.5V
H	4.4V	5.6V	5.6V

Q720

	NORMAL	CrO2	METAL	Others
E			0V	
C	REC/PLAY, REC/MUTE, REC/PAUSE 1.2V	0.75V	0V	0V
B	0V	0V	0.65V	0.65V

Q723

	NORMAL	CrO2	METAL	Others
E			0V	
C	REC/PLAY, REC/MUTE, REC/PAUSE 1.25V	1.6V	1.75V	0V
B			0.1V	0.62V

Q724

			Others
E		0V	
C	ATT START High Pulse / Low Pulse	0.05V / -0.005V	-0.005V
B	ATT START High Pulse / Low Pulse	0.06V / 0V	0.66V

Q722

			Others
1	S603 OSC, ATT START	2V (AC) 1.6V (AC)	0V
2			
3			
4		-12V	
	NORMAL / CrO2 / METAL		
5	REC/PLAY 1.25V / 1.6V / 1.7V		
6	REC/MUTE 1.55V / 2.05V / 2.05V		0V
7	REC/PAUSE 3.6V / 4.6V / 7.6V		
8		12V	

Q721

	FIX	ATT
1	0V or 1.6V	
2		
3	0V	
4		5V
5		
6	0.35V or 1.15V	
7	0V	
8		
9	1.5V	
10		
11	.5V	
12		
13	0V	
14		

Q725

			Others
E		2V (AC)	
G	S603 OSC ATT	-7V	0V
B		1.6V (AC)	

Q727

	FIX	ATT
1	4.6V	Low Pulse 0.5V High Pulse 4.6V
2		High Pulse 4.6V Low Pulse 0.5V
3		0.5V
4		4.6V
5	0V	Low Pulse 0V High Pulse 3.8V
6		READY LED ON 4.6V OFF 0V
7		High Pulse 4.6V Low Pulse 0V
8		0V
9	-7.9V	High Pulse 5V → Low Pulse -7.9V
10	0V	READY LED ON 3.6V OFF 0V
11	-8.4V	High Pulse 5V Low Pulse -8.4V
12	-8.5V	5V
13		-8.4V
14	5V	High Pulse 5V → Low Pulse -8.4V
15	5V	Low Pulse -7.9V → Low Pulse 5V
16		5V

Q728,729

	FIX	ATT
1		0V
2		5V
3		0V
4	4.6V	
5	0.025V	
6		5V
7	4.6V	
8		0V
9		
10	5V	
11		
12		4.6V
13		0V
14		0V
15		
16		5V

Q730,731

	FIX	ATT
1		
2		5V
3		0V
4		
5		5V
6	4.6V	
7		
8	0V	
9		
10		
11	0V	
12	4.6V	
13	0V	
14	5V	
15		
16		5V

Q735

	FIX	AUTO
E	0.07V	
C	0V	
B	NORMAL / CrO2, METAL / CASSETTE OUT	0.07V / 0.075V / 0.05V

Q738

	FIX	AUTO
E	0.07V	
C	0V	
B	NORMAL, CrO2 / METAL	0.03V / 0.05V

Q739

	FIX	AUTO
E	0.03V	
C	0V	
B	4.8V	S709 ON 2.5V

Q740

	FIX	AUTO
E	0V	AUTO LED ON 4.0V
B	0V	AUTO LED ON 4.6V

Q741

	FIX	AUTO
E	0V	ERROR LED ON 3.6V
C		5V
B	0V	ERROR LED ON 4.2V

Q742

	FIX	AUTO		
1	0V		High Pulse	
2	5V	ATT START	Low Pulse	
3	0V		High Pulse	
4	S901 After 5sec	4.1V		Others 0V
5				0V
6				0V
7				0V
8				0V
9	FIX 0V	AUTO LED	ON / OFF	5V
10	S901 ON After 5sec		4.4V Others	0V
11	S709 ON		4.4V Others	0V
12	FIX 0V / 5V	AUTO	5V / 0V	
13				
14				5V

Q732

	FIX	ATT
1	0V	
2		
3	4.6V	
4		
5		
6	0V	High Pulse 4.6V → Low Pulse 0V
7	0V	READY LED ON 4.6V OFF 0V
8	0V	
9	0V	4.6V
10	0V	ERROR LED ON 4.6V OFF 0V
11		
12		
13		ATT STOP High Pulse
14	0V	ATT REW High Pulse
15		ATT START High Pulse
16		4.5V
17	0.025V	
18	0V	
19	0.025V	
20	0.03V	
21		0V
22	0.07V	
23	0V	
24	0.02V	
25	0V	
26	0V	
27		0.02V
28		2V
29		
30		0V
31		4.6V
32	2.2V	
33	S901 ON 0V OFF 4.6V	
34		4V
35		
36		4V
37	TAPE IN 4V OUT 0.5V	
38	STOP 4V	Others 0V
39	4V ATT START 0.5V ATT STOP 4V	
40	CASSETTE OUT NO-ERASURE-PREVENT	4V / Others 0.5V
41	4.2V	
42		4.6V

Q734

1	4.6V	
2	0.5V	
3	2.2V	
4	S709 ON 4.4V	Others 0V
5	4.6V	
6	S709 ON 0V	Others 4V
7	0V	
8	STOP,PAUSE, REC/PAUSE	FF, REW
	0V or 4.4V	2V
9	4.6V	
10		
11	0V or 4.4V	2.4V
12		2V
13	4.6V	
14	4.6V	

Q733

	FIX	ATT
1	0V	High Pulse 3.8V / Low Pulse 0V
2	4.6V	High Pulse 4.6V / Low Pulse 0V
3	0V	4V
4	4.6V	0V
5	0V	High Pulse 4.6V → Low Pulse 0V
6	4.6V	Low Pulse 0V → High Pulse 4.6V
7		4.6V
8		4.6V
9		0V
10		0V
11		4.1V
12	S901 ON 0V	S901 OFF 4.6V
13	4.4V	0V
14		4.6V

Q743

1	
2	S705 ON
3	
4	PLAY
5	REC/PLAY,REC/PAUS
6	PLAY, REC/PLAY
7	
8	
9	PLAY, INDEX PLAY
10	
11	PLAY+S710 ON
12	PLAY
13	PLAY+S710 ON
14	

Q744

1	PLAY+S710 ON
2	
3	INDEX SCAN
4	
5	
6	PLAY
7	
8	INDEX PLAY
9	
10	
11	SCAN
12	INDEX PLAY
13	SCAN
14	

Q745

1	PLAY
2	S705 ON
3	PLAY
4	PLAY,CUE,INDEX S
5	INDEX SCAN,CUE
6	PLAY
7	
8	S710 ON
9	PLAY,CUE,INDEX S
10	PLAY+S710 ON
11	INDEX SCAN, CUE
12	PLAY
13	FF
14	

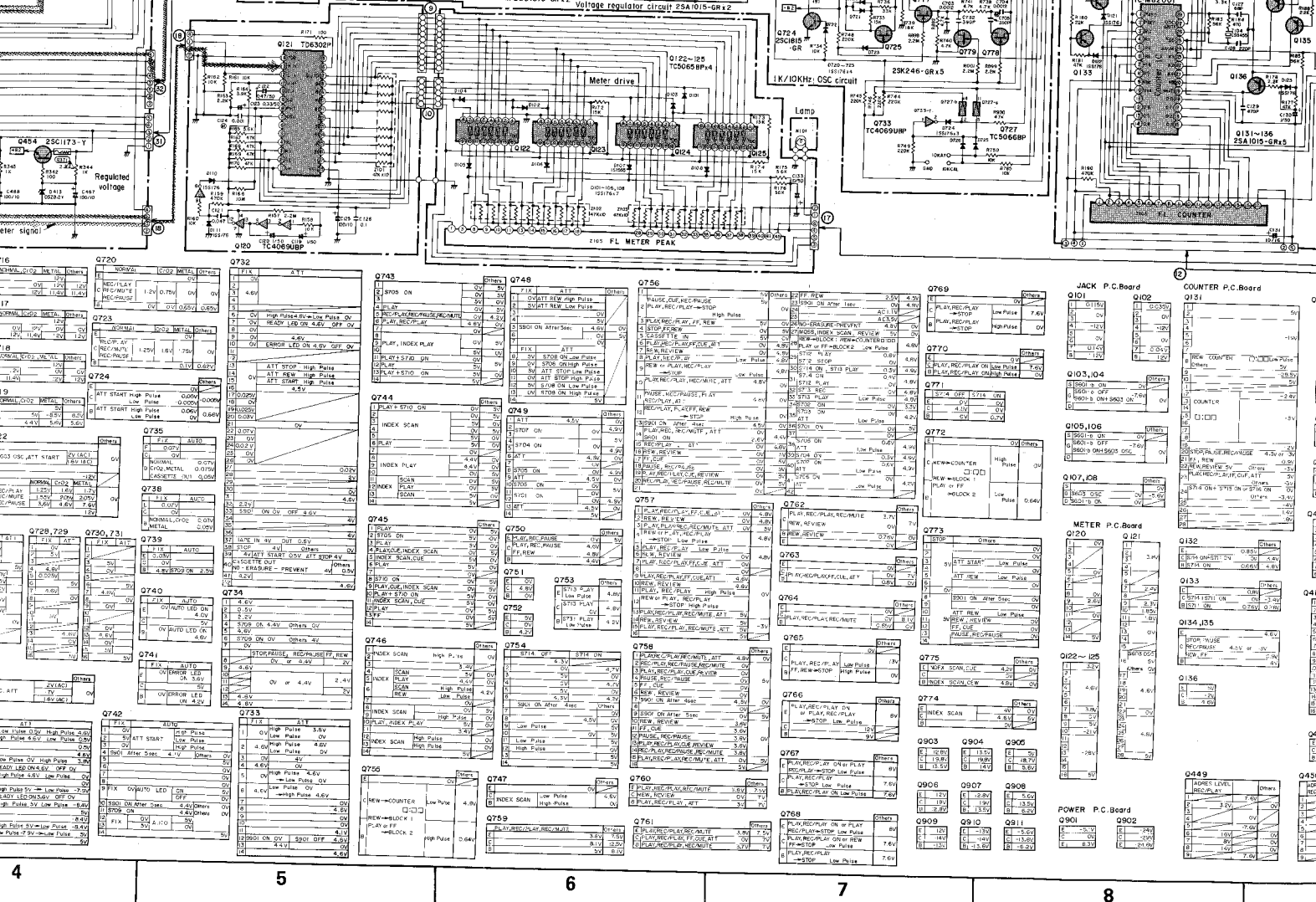
Q746

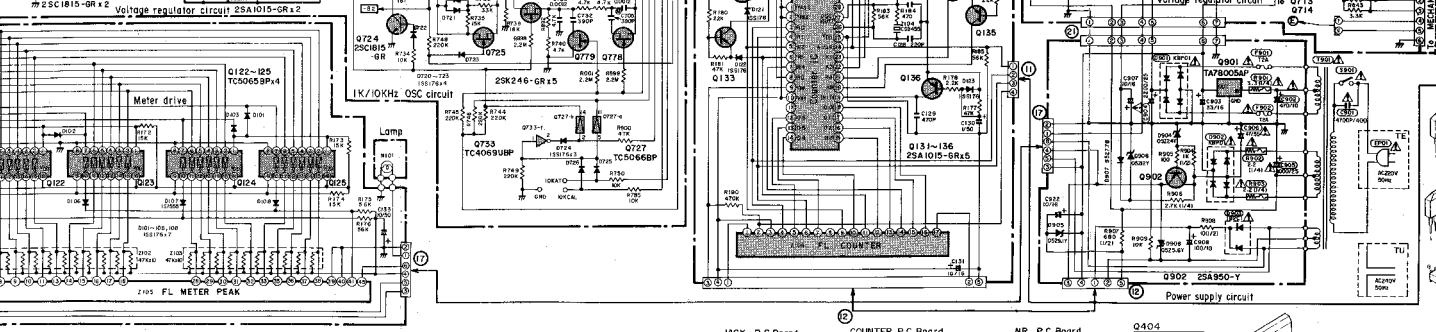
1	INDEX SCAN
2	
3	
4	SCAN
5	INDEX PLAY
6	SCAN
	REW
7	
8	INDEX SCAN
9	
10	PLAY, INDEX PLAY
11	
12	INDEX SCAN
13	
14	

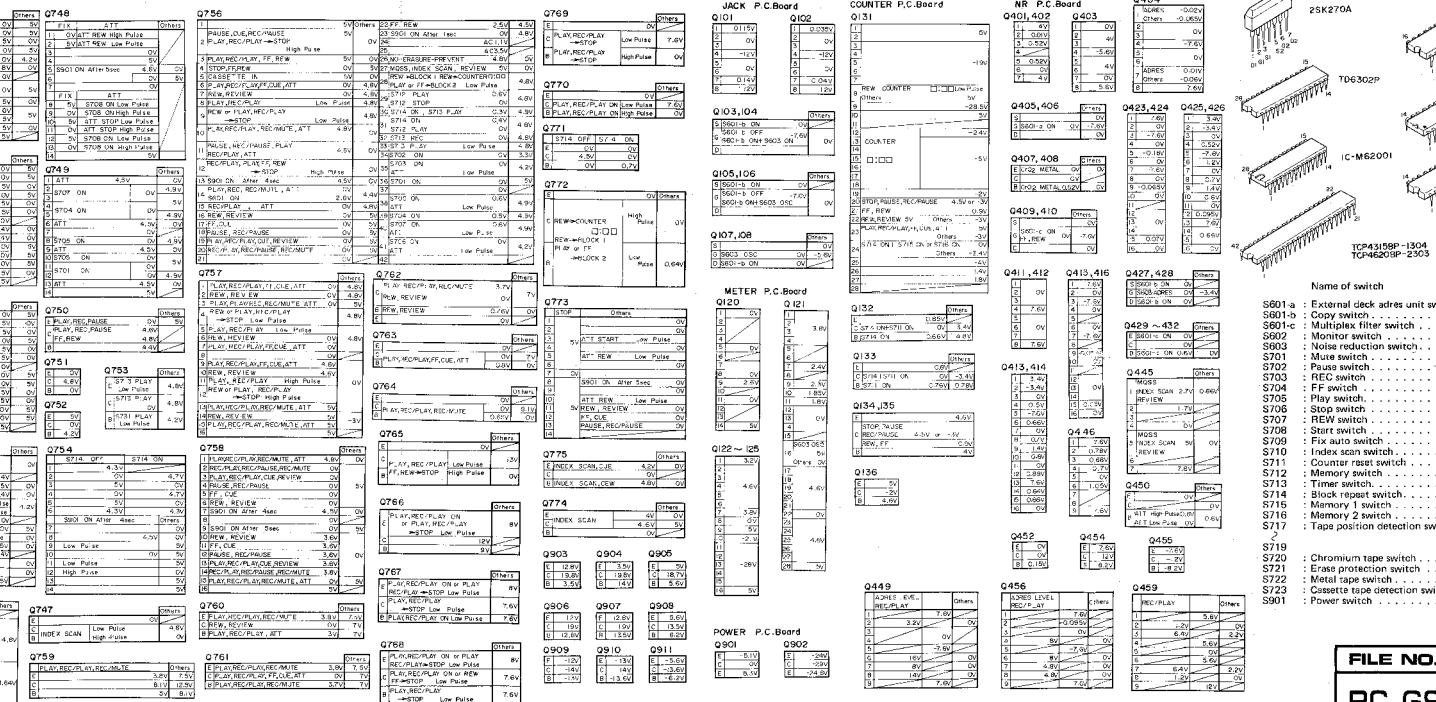
Q755

E	
C	REW→COUNTER
B	REW→BLOCK 1 / PLAY or FF →BLOCK 2

1 2 3 4 5


Voltage regulator circuit 2SA1015-GRx2
Regulated voltage
Meter drive
Lamp
1K/10KHz OSC circuit
2SK246-GRx5
FL METER PEAK
COUNTER
JACK P.C.Board
COUNTER P.C.Board
METER P.C.Board
POWER P.C.Board
Q720
Q723
Q724
Q732
Q733
Q734
Q735
Q738
Q739
Q740
Q741
Q742
Q743
Q744
Q745
Q746
Q747
Q748
Q749
Q750
Q751
Q752
Q753
Q754
Q755
Q756
Q757
Q758
Q759
Q760
Q761
Q762
Q763
Q764
Q765
Q766
Q767
Q768
Q769
Q770
Q771
Q772
Q773
Q774
Q775
Q903
Q904
Q905
Q906
Q907
Q908
Q909
Q910
Q911
Q101
Q102
Q103,104
Q105,106
Q107,108
Q120
Q121
Q122~125
Q131
Q132
Q133
Q134,135
Q136
Q449
Q901
Q902
4
5
6
7
8





Name of switch	Current position
S601-a : External deck adres unit switch	OFF
S601-b : Copy switch	OFF
S601-c : Multiplex filter switch	OFF
S602 : Monitor switch	Tape
S603 : Noise reduction switch	adres
S701 : Mute switch	OFF
S702 : Pause switch	OFF
S703 : REC switch	OFF
S704 : FF switch	OFF
S705 : Play switch	OFF
S706 : Stop switch	OFF
S707 : REW switch	OFF
S708 : Start switch	OFF
S709 : Fix auto switch	OFF
S710 : Index scan switch	OFF
S711 : Counter reset switch	OFF
S712 : Memory switch	OFF
S713 : Timer switch	OFF
S714 : Block repeat switch	OFF
S715 : Memory 1 switch	OFF
S716 : Memory 2 switch	OFF
S717 : Tape position detection switch	–
S719	
S720 : Chromium tape switch	–
S721 : Erase protection switch	–
S722 : Metal tape switch	–
S723 : Cassette tape detection switch	–
S901 : Power switch	OFF

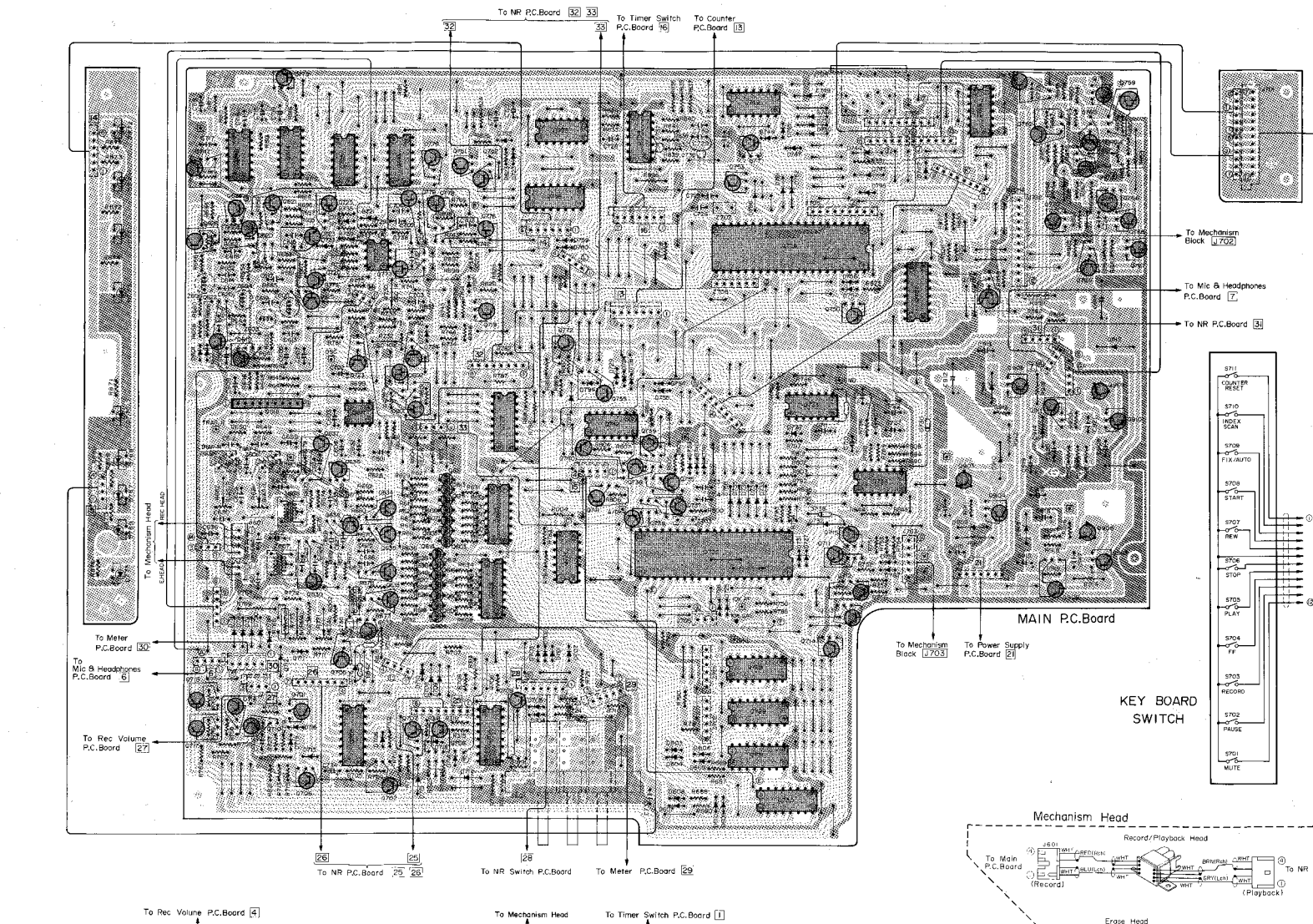
FILE NO. 101-173

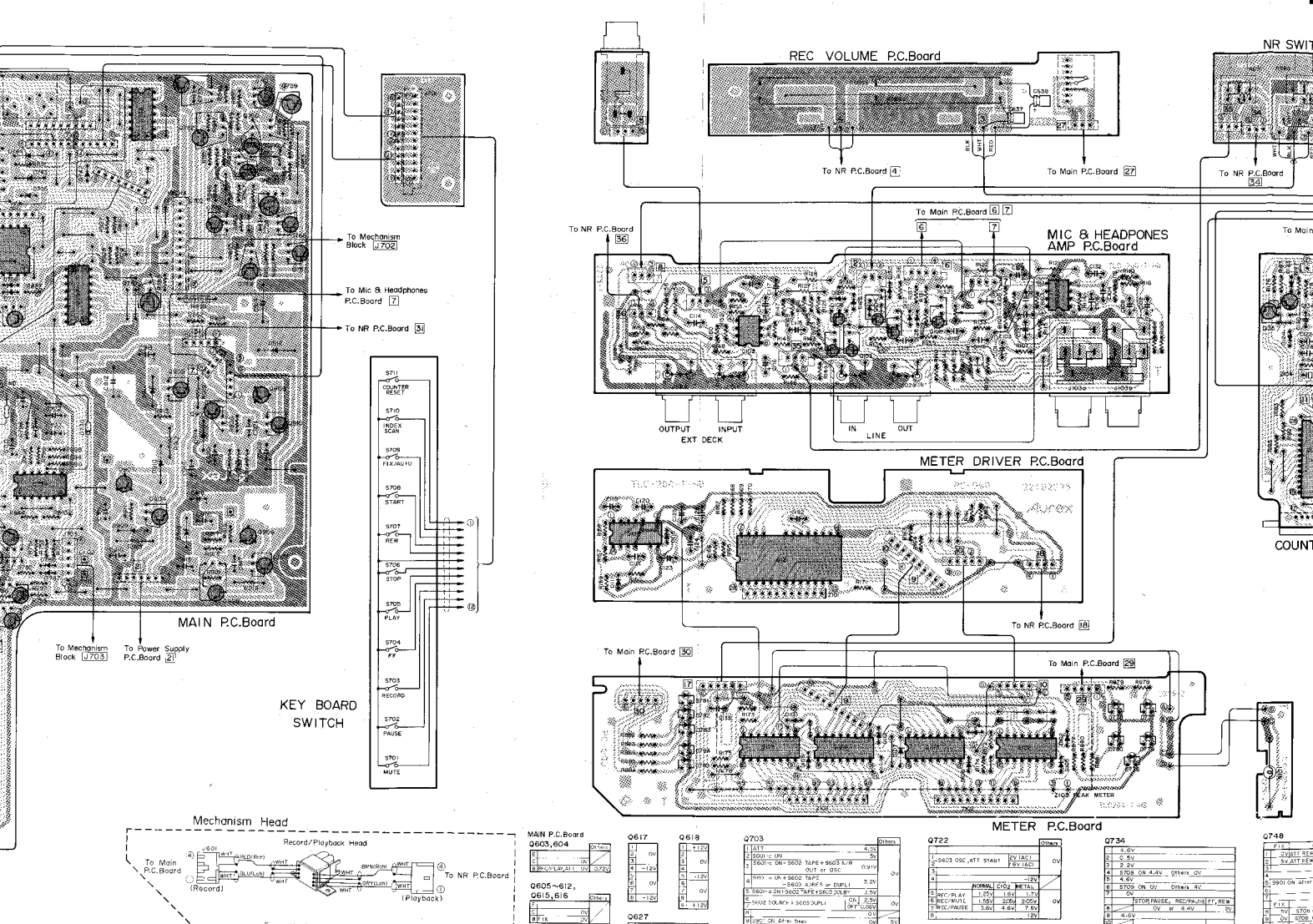
PC-G90AD TE, TU

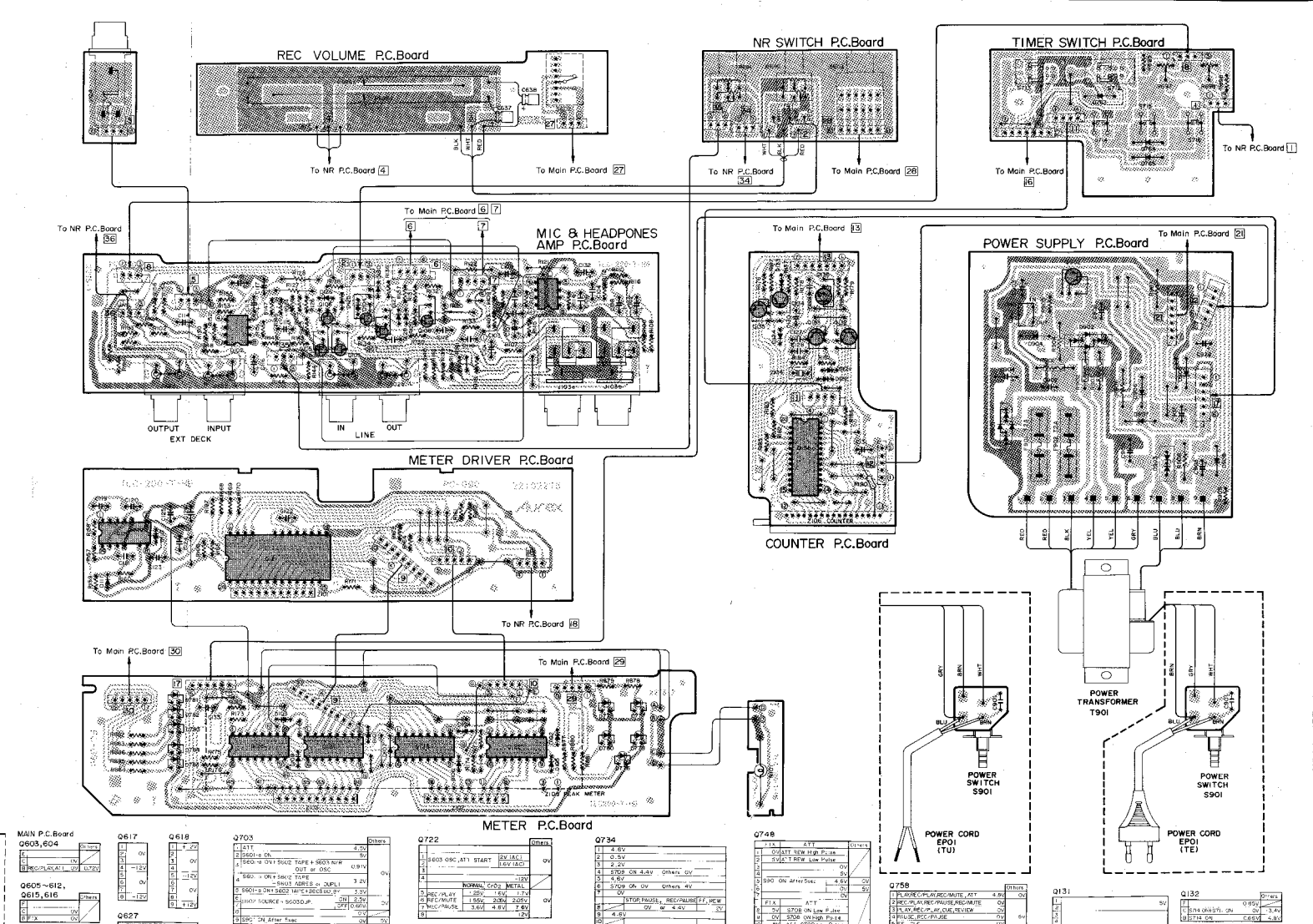
TOSHIBA PRINTED IN JAPAN April, 1983 (S)

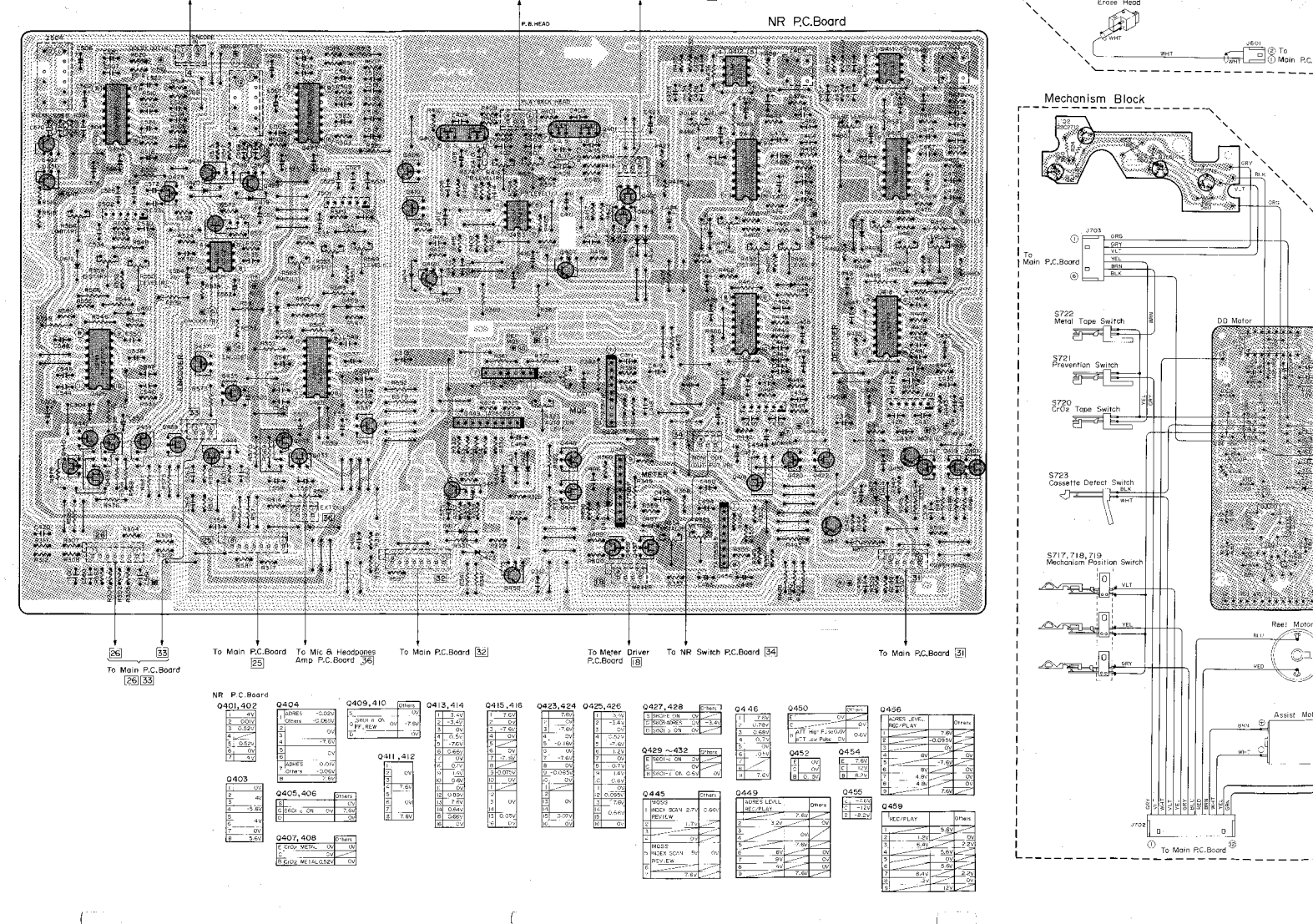
F G H I J

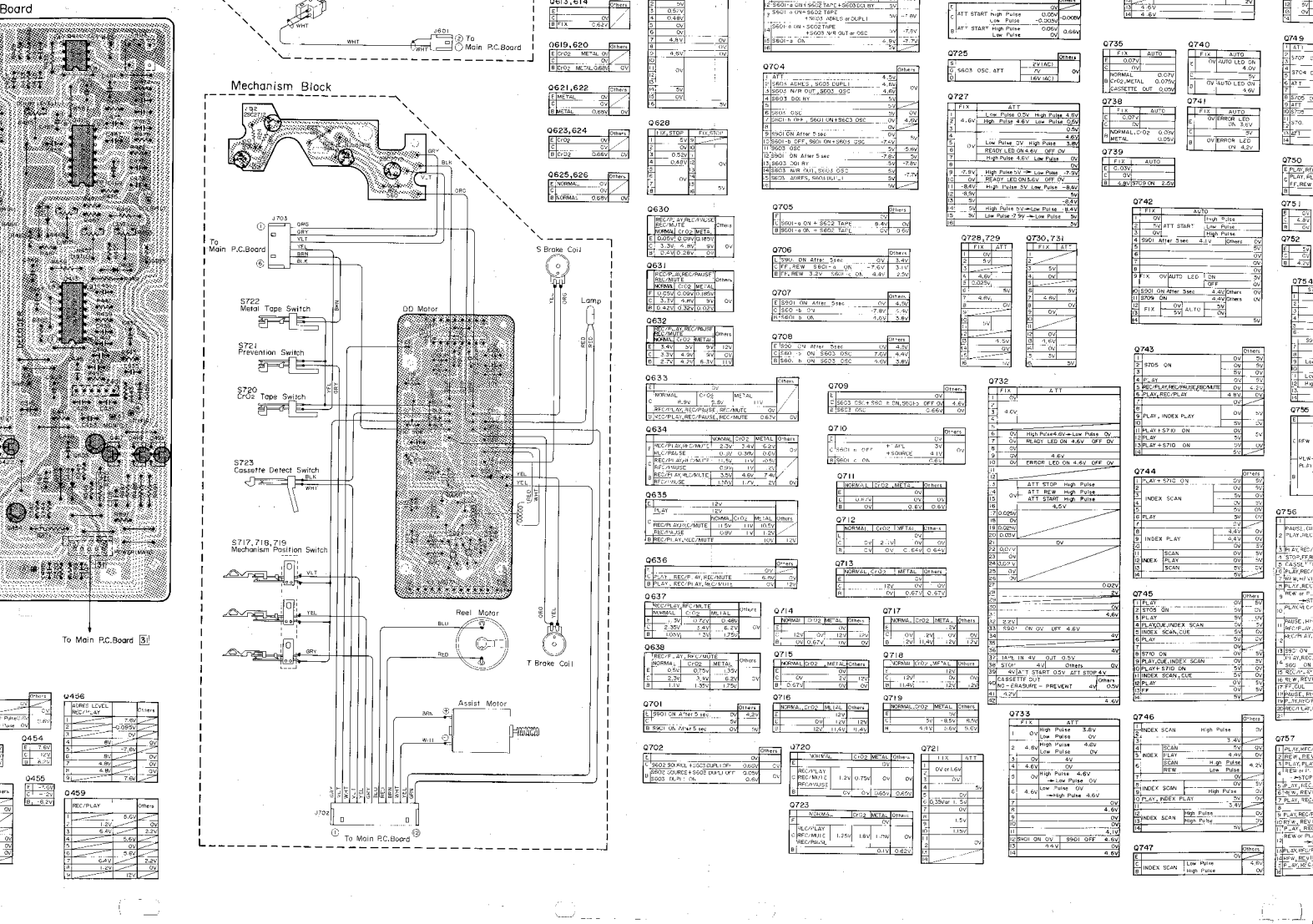
6 7 8 9 10

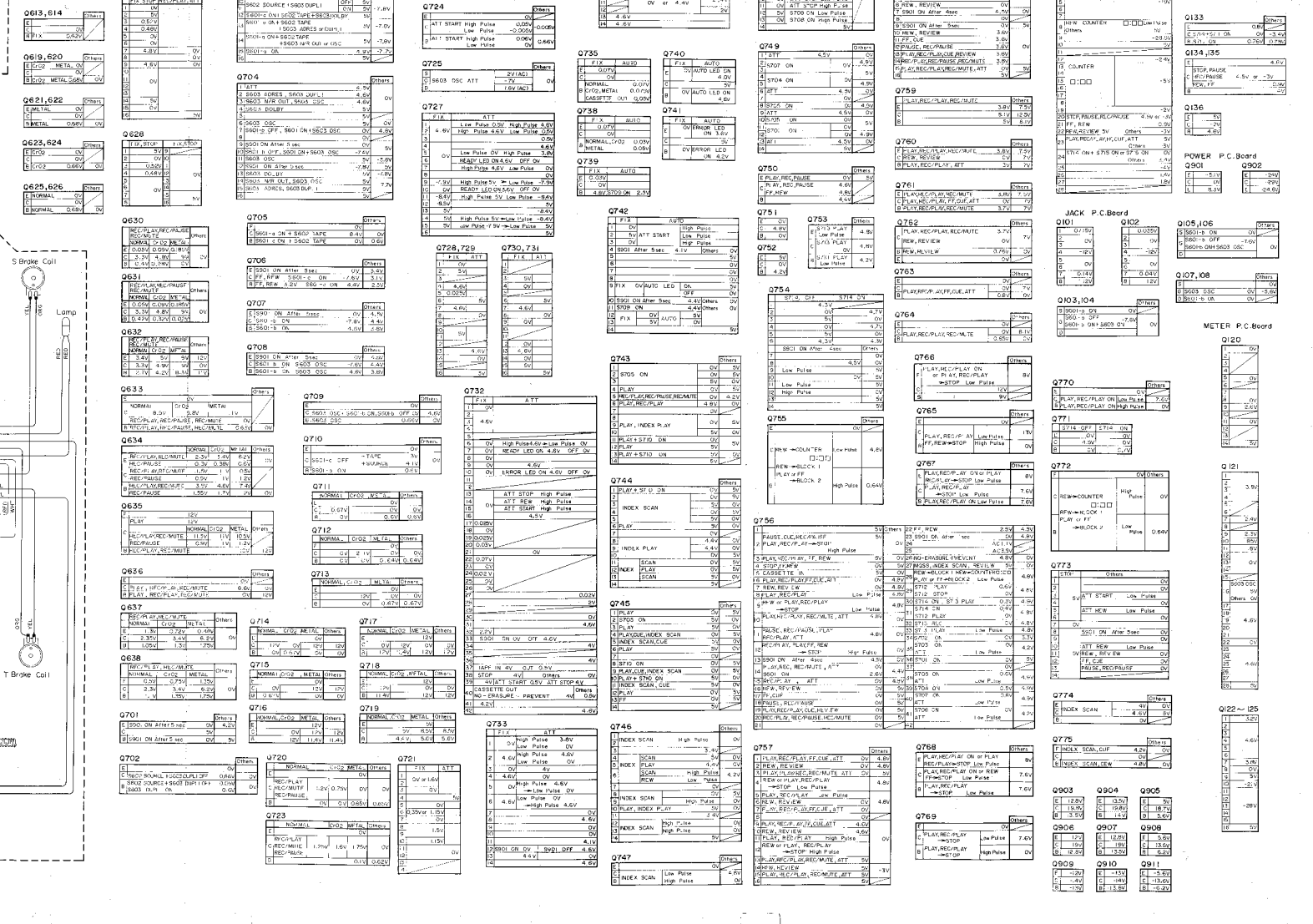

To NR P.C.Board 32 33
To Timer Switch P.C.Board 16
To Counter P.C.Board 13
To Mechanism Block J702
To Mic & Headphones P.C.Board 7
To NR P.C.Board 31
To Mechanism Head
REC HEAD
ERASE
To Meter P.C.Board 30
To Mic & Headphones P.C.Board 6
To Rec Volume P.C.Board 27
MAIN P.C.Board
To Mechanism Block J703
To Power Supply P.C.Board 21
KEY BOARD SWITCH
S711 COUNTER RESET
S710 INDEX SCAN
S709 FIX/AUTO
S708 START
S707 REW
S706 STOP
S705 PLAY
S704 FF
S703 RECORD
S702 PAUSE
S701 MUTE
26
25
To NR P.C.Board 25 26
28
To NR Switch P.C.Board
To Meter P.C.Board 29
Mechanism Head
Record/Playback Head
To Main P.C.Board
J601
(Record)
(Playback)
To NR
Erase Head
To Rec Volume P.C.Board 4
To Mechanism Head
To Timer Switch P.C.Board 1


REC VOLUME P.C.Board
To NR P.C.Board 4
To Main P.C.Board 27
NR SWIT
To NR P.C.Board 34
To Main P.C.Board 6 7
To NR P.C.Board 36
MIC & HEADPONES AMP P.C.Board
OUTPUT EXT DECK
INPUT
IN LINE
OUT
METER DRIVER P.C.Board
To NR P.C.Board 18
To Main P.C.Board 30
To Main P.C.Board 29
METER P.C.Board
To Mechanism Block J702
To Mic & Headphones P.C.Board 7
To NR P.C.Board 31
MAIN P.C.Board
To Mechanism Block J703
To Power Supply P.C.Board 21
KEY BOARD SWITCH
S711 COUNTER RESET
S710 INDEX SCAN
S709 FIX.AUTO
S708 START
S707 REW
S706 STOP
S705 PLAY
S704 FF
S703 RECORD
S702 PAUSE
S701 MUTE
Mechanism Head
Record/Playback Head
To Main P.C.Board
(Record)
(Playback)
To NR P.C.Board
MAIN P.C.Board
Q603,604
Q605~612, Q615,616
Q617
Q618
Q627
Q703
Q722
Q734
Q748


REC VOLUME P.C.Board
NR SWITCH P.C.Board
TIMER SWITCH P.C.Board
To NR P.C.Board 4
To Main P.C.Board 27
To NR P.C.Board 34
To Main P.C.Board 28
To Main P.C.Board 16
To NR P.C.Board 1
To NR P.C.Board 36
To Main P.C.Board 6 7
MIC & HEADPONES AMP P.C.Board
OUTPUT EXT DECK
INPUT
IN LINE
OUT
To Main P.C.Board 13
COUNTER P.C.Board
POWER SUPPLY P.C.Board
To Main P.C.Board 21
METER DRIVER P.C.Board
To NR P.C.Board 18
To Main P.C.Board 30
To Main P.C.Board 29
METER P.C.Board
POWER TRANSFORMER T901
POWER SWITCH S901
POWER CORD EP01 (TU)
POWER CORD EP01 (TE)
MAIN P.C.Board
Q603,604
Q605~612, Q615,616
Q617
Q618
Q627
Q703
Q722
Q734
Q748
Q758
Q131
Q132


NR P.C.Board
P.B.HEAD
Erase Head
J601
To Main P.C.
Mechanism Block
J703
To Main P.C.Board
S722
Metal Tape Switch
S721
Prevention Switch
S720
CrO2 Tape Switch
S723
Cassette Defect Switch
S717, 718, 719
Mechanism Position Switch
DD Motor
Reel Motor
Assist Mot
J702
To Main P.C.Board 12
26
33
To Main P.C.Board 26 33
To Main P.C.Board 25
To Mic & Headpones Amp P.C.Board 36
To Main P.C.Board 32
To Meter Driver P.C.Board 18
To NR Switch P.C.Board 34
To Main P.C.Board 31
NR P.C.Board
Q401, 402
Q403
Q404
Q405, 406
Q407, 408
Q409, 410
Q411, 412
Q413, 414
Q415, 416
Q423, 424
Q425, 426
Q427, 428
Q429 ~432
Q445
Q446
Q449
Q450
Q452
Q454
Q455
Q456
Q459


Mechanism Block
To Main P.C.Board
S Brake Coil
Lamp
S722 Metal Tape Switch
S721 Prevention Switch
S720 CrO2 Tape Switch
S723 Cassette Detect Switch
S717,718,719 Mechanism Position Switch
DD Motor
Reel Motor
T Brake Coil
Assist Motor
To Main P.C.Board
Q704
Q705
Q706
Q707
Q708
Q709
Q710
Q711
Q712
Q713
Q714
Q715
Q716
Q717
Q718
Q719
Q720
Q721
Q723
Q725
Q727
Q728,729
Q730,731
Q732
Q733
Q735
Q738
Q739
Q740
Q741
Q742
Q743
Q744
Q745
Q746
Q747
Q750
Q751
Q752
Q754
Q755
Q756
Q757
Q436
Q454
Q455
Q459
Q613,614
Q619,620
Q621,622
Q623,624
Q625,626
Q628
Q630
Q631
Q632
Q633
Q634
Q635
Q636
Q637
Q638
Q701
Q702


Q613,614
Q619,620
Q621,622
Q623,624
Q625,626
Q628
Q630
Q631
Q632
Q633
Q634
Q635
Q636
Q637
Q638
Q701
Q702
Q704
Q705
Q706
Q707
Q708
Q709
Q710
Q711
Q712
Q713
Q714
Q715
Q716
Q717
Q718
Q719
Q720
Q721
Q723
Q724
Q725
Q727
Q728,729
Q730,731
Q732
Q733
Q735
Q738
Q739
Q740
Q741
Q742
Q743
Q744
Q745
Q746
Q747
Q749
Q750
Q751
Q752
Q753
Q754
Q755
Q756
Q757
Q759
Q760
Q761
Q762
Q763
Q764
Q765
Q766
Q767
Q768
Q769
Q133
Q134,135
Q136
POWER P.C.Board
Q901
Q902
JACK P.C.Board
Q101
Q102
Q105,106
Q103,104
Q107,108
METER P.C.Board
Q120
Q770
Q771
Q772
Q121
Q773
Q774
Q775
Q122~125
Q903
Q904
Q905
Q906
Q907
Q908
Q909
Q910
Q911
S Brake Coil
T Brake Coil
Lamp