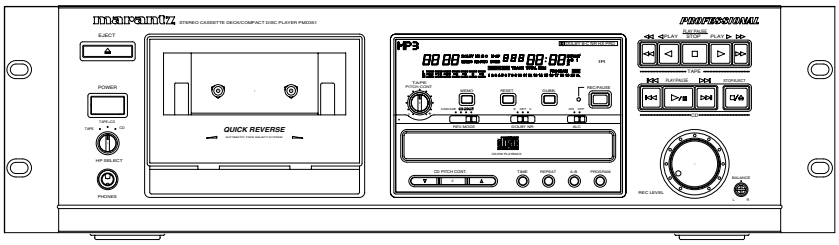
Service Manual

PMD351 /N1B/U1B

Stereo Cassette Deck / Compact Disc Player



COMPACT disc DIGITAL AUDIO

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Please use this service manual with referring to the user guide (D.F.U.) without fail.
修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行ってください。

marantz®

PMD351

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Using superior design and selected high grade components, **MARANTZ** company has created the ultimate in stereo sound. Only original **MARANTZ** parts can insure that your **MARANTZ** product will continue to perform to the specifications for which it is famous.

Parts for your **MARANTZ** equipment are generally available to our National Marantz Subsidiary or Agent.

ORDERING PARTS :

Parts can be ordered either by mail or by Fax.. In both cases, the correct part number has to be specified.

The following information must be supplied to eliminate delays in processing your order :

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature : any order form or Fax. must be signed, otherwise such part order will be considered as null and void.

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ITASCA, IL. 60143
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MARANTZ PROFESSIONAL PRODUCTS
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ROOM 604/605, ELECTRO-OFFICETEL, 16-58,
3GA, HANGANG-RO, YONGSAN-KU, SEOUL
KOREA
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FAX : +822 - 3232 - 154

SHOCK, FIRE HAZARD SERVICE TEST :

CAUTION : After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard No. 1492.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

1. TECHNICAL SPECIFICATIONS

TAPE DECK

Track System .....4 Track, 2 Channel
Recording/Erasure System..... AC 105 kHz Bias
Head System (Rotary type combination)
  Rec Play Head .....Hard Metal Alloy
  Erase Head .....Dual Gap Ferrite
Motor System
  Capstan ..... DC Servo Controlled Motor
  Reel .....DC Motor
Wow & Flutter
  W RMS..... 0.14%
Frequency Characterstics
  Frequency Response (no Dolby NR)
  type I (Normal) .....30Hz-15kHz ±3dB
  type II (High) .....30Hz-16kHz ±3dB
  type IV (Metal) .....30Hz-16kHz ±3dB
Overall S/N (no Dolby NR, IEC-A WTD)
  type I (Normal) 53dB
  type II (High) 54dB
  type IV (Metal) 55dB
Dolby NR effect (B/C, S/N improvement, CCIR-ARM WTD)
  ..... B 9dB, C 18dB
Output Level/Output Impedance..... 500mV/1kΩ
Input Sensitivity/Input Impedance
  TAPE IN 100mV/47kΩ
  MIC IN..... 0.5mV/10kΩ

CD

Channels 2
Sampling frequency.....44.1 kHz
Quantization .....16-bit linear/channel
Error correction system ..... Cross-interleave Reed-Solomon code (CIRC)
D/A Conversion .....1-bit linear/channel
Wow & Flutter ..... Quartz crystal accuracy
Optical Readout System
  Laser.....AlGaAs semiconductor
  Wavelength ..... 780 nm
Frequency Characterstics (Pitch control off)
  Frequency Response.....20Hz-20kHz ±0.3dB
  Dynamic range.....90 dB
  Signal-to-noise ratio.....96 dB
  Channel separation.....90 dB
  Total harmonic distortion..... 0.005% (1 kHz)
  Analog output
    Output Level.....2V RMS stereo
    Output Impedance..... <1kΩ
  Digital output
    Coaxial output.....0.5Vp-p/75Ω

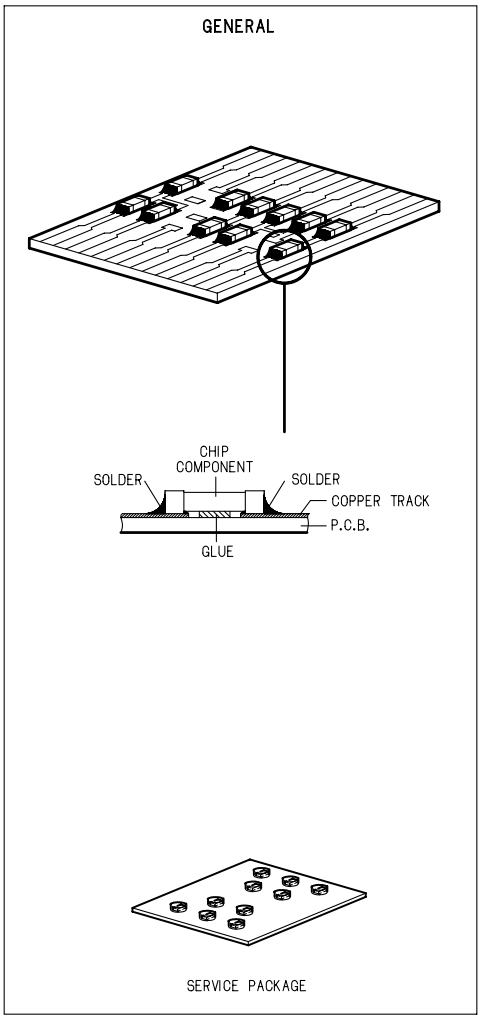
COMMON PART

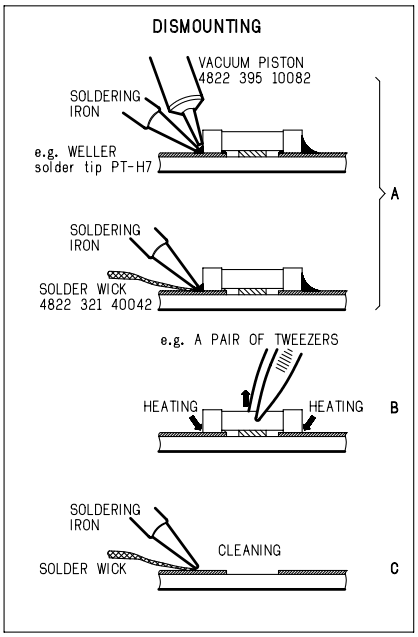
Power Supply
  /U .....120V AC 60Hz
  /N .....230V AC 50Hz

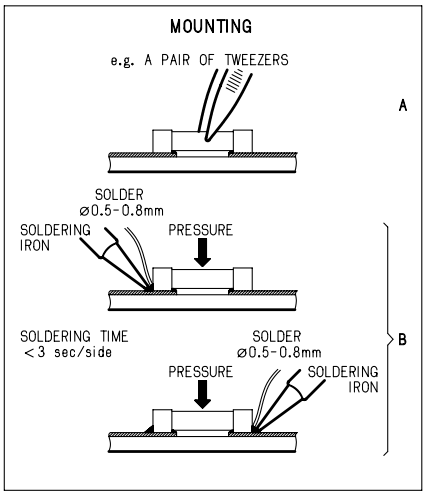
Dimensions
  Width..... 19 inches (483mm)
  Height ..... 5 3/16 inches (133mm)
  Depth ..... 11 1/32 inches (280mm)
Net Weight.....3.1 lbs. (6.8kg)

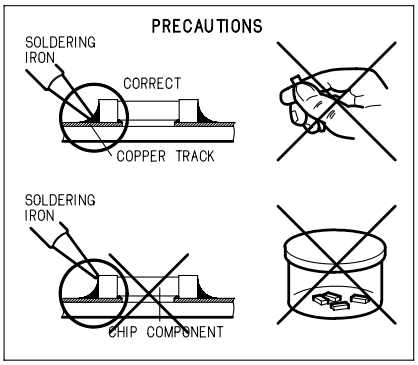
2. SERVICE HINTS AND TOOLS

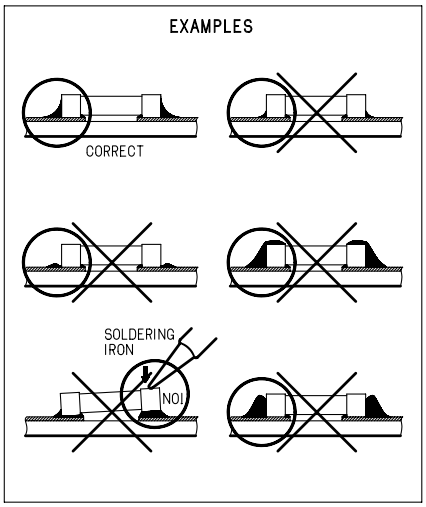
SERVICE HINTS











SERVICE TOOLS

Audio signals disc	4822 397 30184
Disc without errors (SBC444)+	
Disc with DO errors, black spots and fingerprints (SBC444A)	4822 397 30245
Disc (65 min 1kHz) without no pause	4822 397 30155
Max. diameter disc (58.0 mm)	4822 397 60141
Torx screwdrivers	
Set (straight)	4822 395 50145
Set (square)	4822 395 50132
13th order filter	4822 395 30204
DVD test disc (PAL)	4822 397 10131
DVD test disc (NTSC) ALMEDIO	TDV-540

◘ サービス時に必要な試験器材

● この Model を測定又はチェックするのに次のものが必要です。
○ オーディオ発振器
○ アッテネータ (600 Ω)
○ オーディオノイズメーター
○ オシロスコープ
○ ワウ、フラッターメーター
○ トルクメーター (カセット型)
○ デジタル周波数カウンター
○ ブランクテープ
(バルクイレーサーで完全に消去したもの)
AC-225 (Normal) AC-713 (Metal)
AC-514 (High Position)

注意：
測定値の異常がテープに起因すると考えられる場合は新しいものと交換し再測定して下さい。

○ テストテープ
TCC-112・MTT-111.....ワウ・フラッタ、テープスピード
TCC-120・MTT-212N.....S/N 比
TCC-130・MTT-150.....出力レベル調整
TCC-174A・MTT-255M...アジマス調整
(TCC-****:A-BEX/MTT-****:TEAC)

○ ヘッドおよびガイドゲージ (M-300)
THG-801.....ヘッド、ガイド調整

◘ 回路の調整 と測定

A. 調整上の注意点
1) テストテープは減衰しやすいので、使用する前にヘッド、キャプスタン等をイレーサーにて十分に消磁すること。
2) テストテープはトランス内蔵の計測機やイレーサーのすぐ近くには置かないこと。
3) 消磁の方法として、セットからやや離れた所でイレーサーのスイッチを入れヘッド、キャプスタンに近づけ上下に 4 ～ 5 回動かし、ゆっくり離し遠ざけてからスイッチを切ること。
4) 使用する工具は帯磁していないこと、時々バルクイレーサーで消磁すること。
5) 調整用半固定抵抗および可変コイル等は、極力最少の回転 / 回数で調整すること。
6) スピード、ワウ等は、セットの通常の姿勢で調整 / チェックすること。
7) ボンドロックは少量にし、周辺に付着あるいは流れ出ることなど無いよう注意のこと。
8) AC 電源電圧、低周波発振器出力電圧等は、1 日 2 ～ 3 回規定どうりかチェックすること。

3. TEST EQUIPMENT REQUIRED FOR SERVICING

For measuring or checking a Cassette Deck, the following instruments and materials are necessary.

- Audio Oscillator (Audio Signal Generator)
- Attenuator (600 ohm)
- Audio Noise Meter
- Oscilloscope
- Wow and Flutter Meter
- Torque Meter (Cassette Type)
- Digital Frequency Counter
- Test Tape
  TCC-112/MTT-111 Wow/Flutter, Tape Speed
  TCC-120/MTT-212N Signal-to-Noise Ratio
  TCC-130/MTT-150 Dolby Level Adjustment
  TCC-174A/MTT-255M Azimuth Adjustment
  (TCC-****:A-BEX/MTT-****:TEAC)
- Blank Tapes (Completely erased with bulk eraser)
  AC-225 (Normal)
  AC-514 (High Position)
  AC-713 (Metal)

NOTE:
If any doubt is noted in a measured value, which is due to a tape. Re-measurement is necessary by use the new tape.

- Mirror cassette 12um padless
  TCC-902/MTT-902 Tape flowing check
- Head guide gauge (M-300)
  THG-801

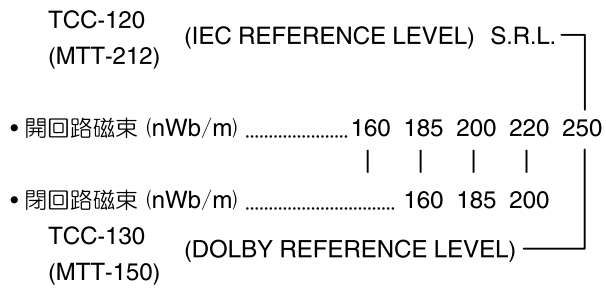
4. ELECTRICAL ADJUSTMENTS

(A) Remark for adjustment

1) Clean and de-magnetize the tape path part before measurement.
2) Keep cassette tapes away from equipments.
3) De-magnetize tools often.
4) Do not turn adjustment parts by strong force.
5) Keep a cassette deck horizontally while measuring.
6) Keep amount of glue in proper.
7) Confirm the mains voltage, output level of oscillator and etc. before adjustment and measurement.

B. S.R.L.（Standard Recording Level）基準録音レベル

1. テープ上に開回路磁束で、250nWb/m の磁束を記録出来るレベルのことであり、記録レベルとテストテープの関係は以下のとうりである。



注意：開回路磁束 ＝ 閉回路磁束 ＋ 漏洩磁束

2. PMD351 ではドルビーレベルで再生出力を調整し、基準を IEC リファレンスにしているが、便宜上以下のようにする。
   1) LINE 入力に 1kHz、100mV の信号を加え録音状態とする。
   2) REC ボリュームを調整し、ドルビーテストポイント T601 (L), T601 (R) のレベルが 300mV となるようにする。
   3) この状態から入力レベルを +1dB とした状態がすなわち、基準録音レベル (S.R.L.) での規定録音状態である。

注意：
再生の基準レベルはその測定項目により異なり、使用指定のテストテープの記録レベルが基準レベルを決定することになる。

(B) S.R.L. (Standard Recording Level)

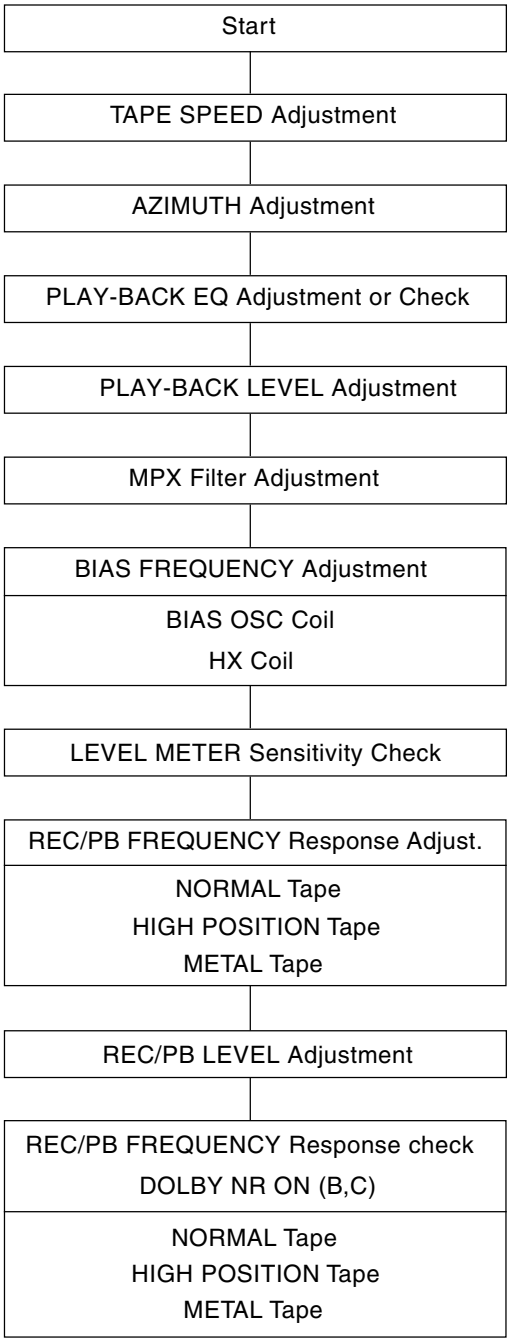
1. The Standard Recording Level is a signal of 250nWb/m on a tape at *OPEN CIRCUIT MAGNETIC FLUX.
   The relation between the recording level and a test tape is as follows.

(*): OPEN CIRCUIT MAGNETIC FLUX = CLOSED CIRCUIT MAGNETIC FLUX + LEAK MAGNETIC FLUX.
(**): TCC-130 (DOLBY REFERENCE LEVEL) (MTT-150)
(***): TCC-120 (IEC REFERENCE LEVEL) (S.R.L.) (MTT-212N)

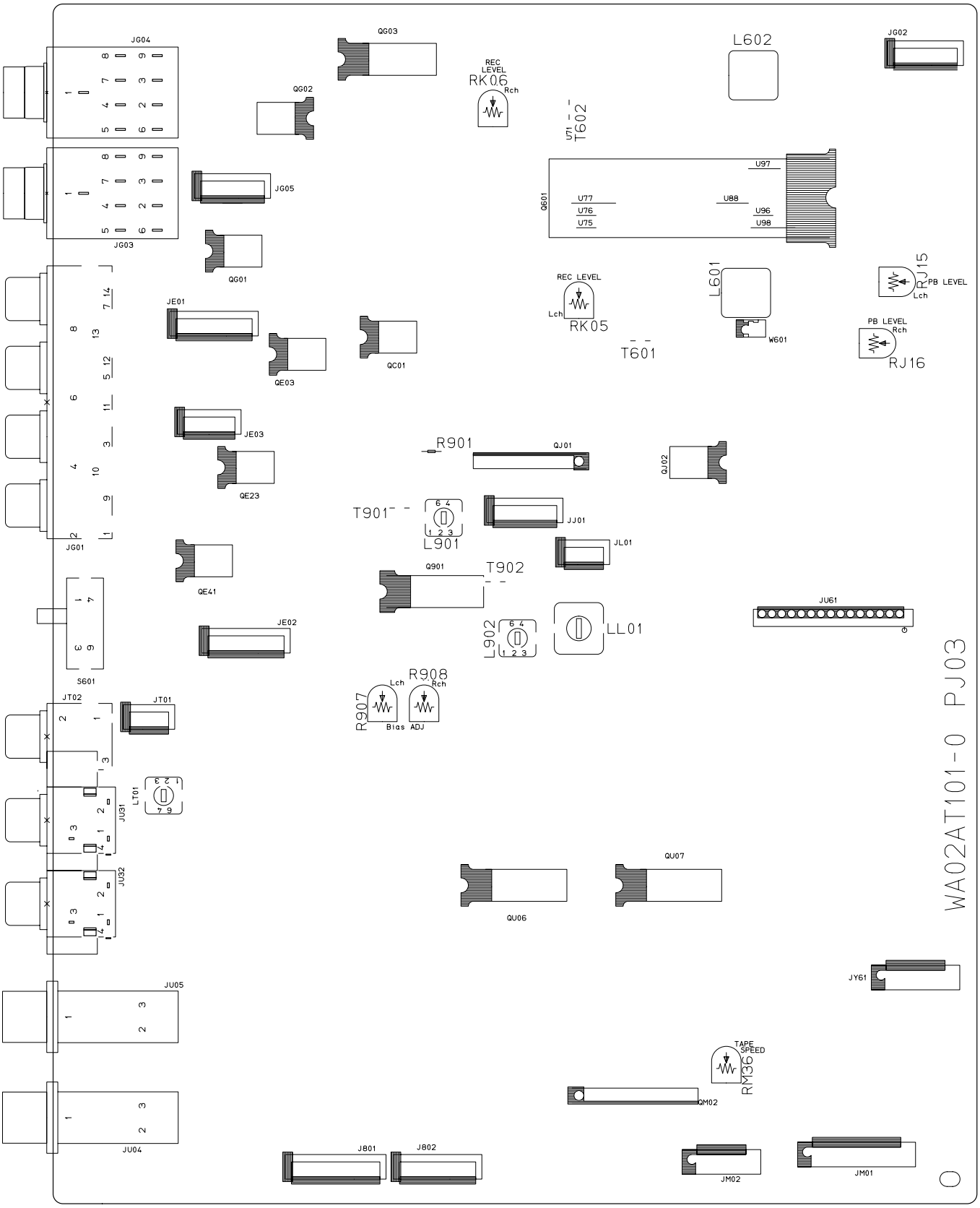
2. S.R.L. Setting
1) Apply a 1kHz, 100mV to the LINE INPUT jacks.
2) Put the unit in RECORD mode and adjust the REC LEVEL control to obtain the following level of signal at the DOLBY test points T601 (L), T602 (R) 300mV.
3) Adjust the output of the audio oscillator applied to the LINE INPUT jacks to 112.2mV (+1dB). This is the rated recording condition for the STANDARD RECORDING LEVEL.

調整フローチャート

ADJUSTMENT FLOW CHART



ADJUSTMENT POINT COMPONENT SIDE



● テープスピード調整

調整は、FWD（PLAY◁）で行い、REV（▷ PLAY）再生は、スペック内であることを確認する。

1) テープの中間を再生し、半固定抵抗 (RM36) を調整し、3000Hz(2990 ～ 3010Hz) になるようにする。
2) 設定後、再度再生して範囲内のことを確認する。

注意：

(1) 据置きの姿勢で行なう。
(2) メカニズムが常温と大きく異なる温度状態では、行なわないこと。

4.1 TAPE SPEED ADJUSTMENT

1) Playback the middle part of the Wow & Flutter test tape.
2) Adjust the variable resistor.

ADJUSTMENT POINT
RM36

for 3000Hz (2990Hz - 3010Hz).

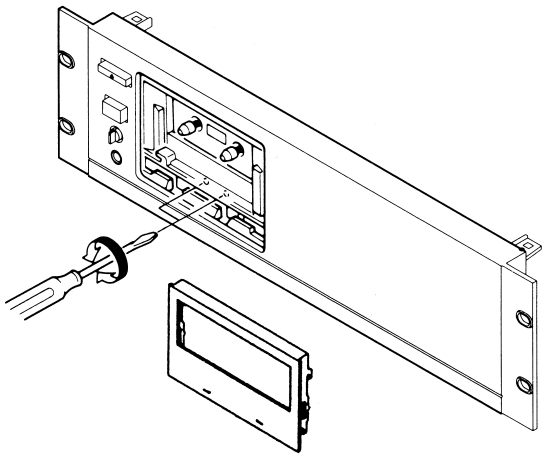
3) Repeat 1) and 2) for both directions.

● ヘッドアジマス調整 / 再生 F 特調整

1) アジマス調整用テープの、12.5kHz の信号を再生する。アジマス調整ビスを回し、締め付け方向で出力最大点に合わせる。
2) L/R ピーク点が違う場合は、低いチャンネル側を最大にし、L/R のバランスを取る。
3) 調整ビスをボンドロックする。
4) 次に、315Hz の信号を 0dB とし、12.5kHz の信号のレベルを読む。無調整タイプのセットなので異常な値でないことを確認する。

4.2 HEAD AZIMUTH ADJUSTMENT and FREQUENCY RESPONSE CHECK

1) Playback the 12.5 kHz part of the Azimuth test tape.
2) Adjust the proper azimuth screw in both directions for maximum output at the LINE OUTPUT jacks.
3) In case the L/R peak points are different, adjust the lower channel to the maximum.
4) Lock azimuth screws with glue.
5) Playback the 315 Hz part of the test tape and set a 0 dB ref., then playback the 12.5 kHz part of the test tape and confirm that the output is 0 dB, ±3 dB.



● 再生出力調整

1) ドルビーレベルテストテープを再生し、テストポイントの電圧が 300mV となるように調整する。

CH	測定点	調整点	調整値
L R	T601 T602	RJ15 RJ16	300mV

2) 調整後再度再生し、再確認する。

4.3 PLAYBACK LEVEL ADJUSTMENT

1) Playback the DOLBY test tape, adjust the following variable resistors to the values and the test points indicated below:

CH	TEST POINT	ADJ. RES.	ADJUSTMENT VALUE
L	T601	RJ15	300mV
R	T602	RJ16	

2) After adjustment, replay and check it again.

Remark:
In case of drifting output during replay, check that the tape running and the test tape are ok, because they may be defective.

● MPX フィルター周波数調整／確認

1) ドルビーレベルで録音モニター状態とし、入力信号周波数が 1kHz の時のレベルを 0dB とする。

2) 入力信号周波数を 19kHz(± 10Hz 以内) とし、MPX フィルタースイッチが「ON」の状態でレベルが最小となるようにコイル調整する。

CH	調整点	調整値
L R	L601 L602	Minimum

● 録音バイアス周波数及び HX コイル共振調整

1) 録音状態にする。

2) バイアス発振周波数を 105kHz となるよう発振コイルを調整する。

測定点	調整点	調整値
R901	LL01	105kHz

＊周波数カウンターへの接続は、ミリバルを通して行なう。調整 / 測定が終わったら接続を外すこと。

3) 次に、HX チェックポイントにオシロスコープを接続する。

4) HX チェックポイントの電圧が最小になる様に HX コイルを調整する。

CH	測定点	調整点	調整値
L R	T901 T902	L901 L902	Minimum

● レベルメータ感度確認

1) LINE 入力 1kHz 100mV(アッテネータ、-20dB) にて録音状態とする。次に、REC-LEVEL ボリュームを調整し、ドルビーテストポイント T601, T602 のレベルが 300mV となるようにする（●再生出力調整参照)。この状態から 1dB レベルを上げる。

2) この状態で、レベルメータの 0dB ポイントが点燈していることを確認する。

注意：

(1) NR OFF とする。

4.4 MPX FILTER ADJUSTMENT

1) Put the unit in REC mode with a S.R.L. input.

2) The MPX filter switch ON and change the input frequency to 19kHz(±10Hz).

3) Adjust L601(L), L602(R) for minimum output at the LINE OUTPUT jacks.

CH	ADJ. POINT	ADJ. TO
L R	L601 L602	Minimum

4.5 RECORDING BIAS FREQUENCY AND HX COIL ADJUSTMENT

1) Put the unit in REC mode.

2) Adjust the following bias oscillator coil for 105kHz at the bias frequency.

TEST POINT	ADJ. POINT	ADJ. TO
R901	LL01	105kHz

Remark:

May have to connect FREQUENCY COUNTER through an AUDIO VOLT METER.

3) Next, connect the Oscilloscope to the HX test point (T901, T902).

4) Adjust the HX coils for minimum level.

CH	TEST POINT	COIL	ADJ. TO
L R	T901 T902	L901 L902	Minimum

4.6 LEVEL METER SENSITIVITY CHECK

1) Put the unit in REC mode with a 1kHz, 100mV signal to the LINE INPUT jacks.

2) Set the REC LEVEL at the test point T601, T602 as 300mV.

3) Check the VU LEVEL METER indicates 0dB.

Remark:

Dolby switch has to be OFF.

● 録音再生 F 特調整

1) 規定録音状態から入力レベルを 5mV(-26dB) に減じ、400Hz と 12.5kHz の信号を Dolby-OFF ポジションで録音する。(NORMAL テープ)

2) 巻き戻し再生し、400Hz と 12.5kHz の信号のレベル差を確認し、± 1.0dB 以上の場合は、半固定抵抗を調整し再度、録再し確認する。

CH	調整点
L	R907
R	R908

3) High Position、METAL では確認のみを行なう。

● 録音再生レベル調整

1) NORMAL テープにて規定録音状態とし、400Hz におけるモニターレベルを 0dB とする。

2) 巻き戻し再生し、400Hz のレベルが± 0.5dB 以内となるよう、半固定抵抗を調整する。

CH	調整点
L	RK05
R	RK06

3) High Position、METAL では確認のみを行なう。

● DOLBY NR 録音再生 F 特確認

1) 規定録音状態から入力レベルを 5mV(-26dB) に減じ、下記の信号を Dolby-B、ポジションで録音する。(NORMAL テープ)

250Hz、1kHz、3kHz、6.3kHz、10kHz、12.5kHz

2) 巻き戻し再生し、各周波数のレベル差が± 1.0dB の範囲となることを確認する。

3) Dolby-C ポジションでも同様に確認する。

4) High Position、METAL テープでも同様に行ない確認する。

4.7 REC/PLAYBACK FREQUENCY RESPONSE ADJUSTMENT

1) Adjust the output level of the audio oscillator to 5.0mV (-26dB) from the S.R.L. recording condition.
Record 400Hz and 12.5kHz signals with DOLBY OFF.

2) Playback the recorded part and confirm the level of differences between 400Hz and 12.5kHz are within ± 1.0dB. If the level difference is out of allowance, adjust the variable resistor and confirm the playback level of rerecording

CH.	ADJUSTMENT
L	R907
R	R908

3) Repeat steps #1 and 2 with High Position and METAL type tapes for confirmation.

4.8 REC/PLAYBACK LEVEL ADJUSTMENT

1) Input the 400Hz signal and put the unit into record mode. Measure the output level to set the reference level of 0dB.

2) Playback the just recorded part and adjust proper variable resistor, until the REC/PB levels are within ±0.5dB.

CH.	ADJUSTMENT
L	RK05
R	RK06

3) Repeat steps #1 and 2 with High Position and METAL type tapes for confirmation.

4.9 REC/PLAYBACK FREQUENCY RESPONSE CHECK DOLBY NR

1) Adjust the output level of the audio oscillator to 5.0mV (-26dB) from the S.R.L. recording condition.
Record the following signals with DOLBY-B ON and Normal tape at 250Hz, 1kHz, 3kHz, 6.3kHz, 10kHz and 12.5kHz.

2) Playback the just recorded part and confirm the difference of levels are within ±1.0dB.

3) Repeat steps #1 and 2, with High Position and METAL type tapes.

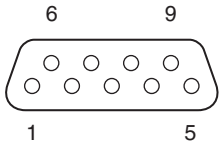
4) Repeat steps #1 and 2, with Dolby-C ON.

5. TECHNICAL DESCRIPTION

How to use the RS-232C connector

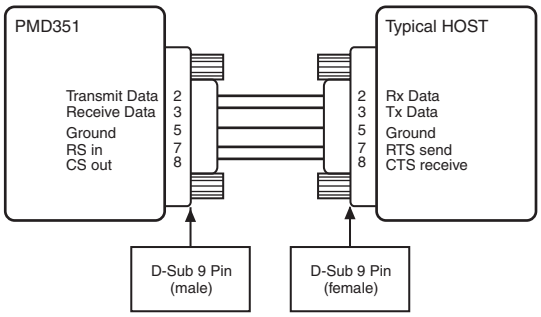
This input/output connector (D-Sub 9-pin female) is used for RS-232C external control.
A straight cable available on the market can be connected to this connector to exercise external control and send status information.

- Connector pin assignment



1	NC
2	TX
3	RX
4	NC
5	GND
6	NC
7	RTS
8	CTS
9	NC

- RS232C Connection



The wiring requirements for a 9 pin to 9 pin serial connection, are a male to female straight cable.

- RS-232C physical specifications

Cable	Straight cable
Baud rate	9600 bps
Data bits	8 bits
Parity bit	None
Stop bit	1 bit
Flow control	CS/RS Hardware Flow

- Command reception

The command packets have a data length of 7 - 10 bytes. ASCII codes from 0x00 to 0x7f are used to receive serial data. At the transmission end, therefore, take steps to convert the ASCII codes into HEX data to set the data in the data packets. CR (0x0d) is added as the data packet delimiter.

Example: Reception Time Command (code @12011)

[@]	[1]	[2]	[0]	[1]	[1]	[CR]
0x40	0x31	0x32	0x30	0x31	0x31	0x0d

When transmitting commands consecutively, put more than 100ms blank between commands.

Received command data

Command	CD Command	TAPE Command
0	"@12000"+CR	"@11800"+CR
1	"@12001"+CR	"@11801"+CR
2	"@12002"+CR	"@11802"+CR
3	"@12003"+CR	"@11803"+CR
4	"@12004"+CR	"@11804"+CR
5	"@12005"+CR	"@11805"+CR
6	"@12006"+CR	"@11806"+CR
7	"@12007"+CR	"@11807"+CR
8	"@12008"+CR	"@11808"+CR
9	"@12009"+CR	"@11809"+CR
Time	"@12011"+CR	
Recall	"@12015"+CR	
Repeat	"@12029"+CR	
Next	"@12032"+CR	"@11832"+CR
Previous	"@12033"+CR	"@11833"+CR
Pitch Reset	"@12037"+CR	
Pitch Up Start	"@12038"+CR	
Pitch Up Stop	"@1203801"+CR	
Pitch Down Start	"@12039"+CR	
Pitch Down Stop	"@1203901"+CR	
Program/Memo	"@12041"+CR	"@11841"+CR
AMS	"@12043"+CR	"@11843"+CR
Open/Close	"@12045"+CR	
Pause	"@12048"+CR	"@11848"+CR
Clear	"@12049"+CR	
Fast Backward Start	"@12050"+CR	"@11850"+CR
Fast Backward Stop	"@1205001"+CR	
Fast Forward Start	"@12052"+CR	"@11852"+CR
Fast Forward Stop	"@1205201"+CR	
Play	"@12053"+CR	"@11853"+CR
Stop	"@12054"+CR	"@11854"+CR
A-B	"@12059"+CR	
Direction		"@11847"+CR
REC Mute		"@11842"+CR
REC		"@11855"+CR

• Status confirmation command

When to confirmation of the RS232C operations, the following Status transmitting requirement commands is transmitted to PMD351, status condition is replies.

Request Command for CD		Response from CD	
Power	"@1?20POWE"+CR	Standby	"@120POFF"+CR
		PowerOn	"@120PRON"+CR
TrayMode	"@1?20TRAY"+CR	Open	"@120OPEN"+CR
		Close	"@120CLOS"+CR
PlayMode	"@1?20PLAY"+CR	Toc Reading	"@120TOCR"+CR
		Stop	"@120STOP"+CR
		Play	"@120PLAY"+CR
		Pause	"@120PASE"+CR
		FF	"@120FASF"+CR
		REW	"@120FASR"+CR
Disc	"@1?20DISC"+CR	NoDisc	"@120NODI"+CR
		ERROR	"@120ERDI"+CR
		CDDA	"@120CDDI"+CR
		MP3	"@120MPDI"+CR
RepeatMode	"@1?20RPTM"+CR	OFF	"@120RTOF"+CR
		ONE	"@120RTON"+CR
		ALL	"@120RTAL"+CR
		A-	"@120RTA-"+CR
		A-B	"@120RTAB"+CR
TimeMode	"@1?20TMOD"+CR	Track	"@120TTRA"+CR
		TrackRem	"@120TTRE"+CR
		TotalRem	"@120TREM"+CR
		TotalLap	"@120TTLA"+CR
Album	"@1?20ALBU"+CR		"@120Axxx"+CR
Track	"@1?20TRAC"+CR		"@120Txxx"+CR
Current Display Time	"@1?20TIME"+CR		"@120xxxx"+CR

Request Command for TAPE		Response from TAPE	
Power	"@1?18POWE"+CR	Standby	"@118POFF"+CR
		PowerOn	"@118PRON"+CR
Cassette	"@1?18CASS"+CR	IN	"@118CAIN"+CR
		Eject	"@118CAEJ"+CR
PlayMode	"@1?18PLAY"+CR	Stop	"@118STOP"+CR
		PlayFW	"@118PLFW"+CR
		PlayRV	"@118PLRV"+CR
		Pause	"@118PASE"+CR
		FF	"@118FASF"+CR
		REW	"@118FASR"+CR
		Cue	"@118CUE_"+CR
		Review	"@118REVI"+CR
		Rec	"@118RECO"+CR
		Rec Pause	"@118RECP"+CR
Current Display Time	"@1?18TIME"+CR		"@118xxxx"+CR
Memo	"@1?18MEMO"+CR	OFF	"@118MEOF"+CR
		ON	"@118MEON"+CR

• Status transmission

The status packets have a fixed data length of 8 bytes. ASCII codes from 0x00 to 0x7f are used to transmit serial data. For this reason, the ASCII codes are converted into HEX data before the data is set in the data packets and transmitted. CR (0x0d) is added as the data packet delimiter.

Example 1: Transmission Power On (code @120PRON)

[@]	[1]	[2]	[0]	[P]	[R]	[O]	[N]	[CR]
0x40	0x31	0x32	0x30	0x50	0x57	0x4f	0x4e	0x0d

Transmitted status data

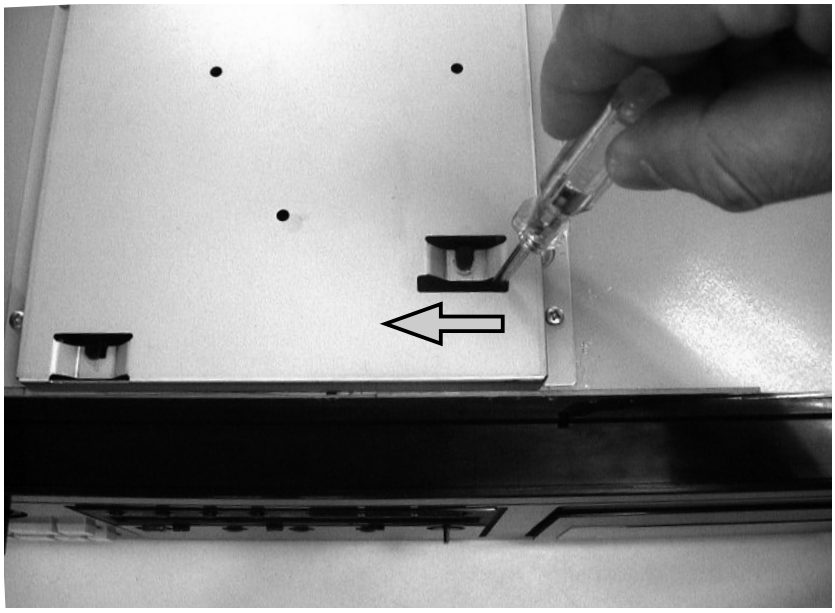
Category	Status from CD	
Power	Standby	"@120POFF"+CR
	PowerOn	"@120PRON"+CR
TrayMode	Open	"@120OPEN"+CR
	Close	"@120CLOS"+CR
PlayMode	Toc Reading	"@120TOCR"+CR
	Stop	"@120STOP"+CR
	Play	"@120PLAY"+CR
	Pause	"@120PASE"+CR
	FF	"@120FASF"+CR
	REW	"@120FASR"+CR
Disc	NoDisc	"@120NODI"+CR
	ERROR	"@120ERDI"+CR
	CDDA	"@120CDDI"+CR
	MP3	"@120MPDI"+CR
RepeatMode	OFF	"@120RTOF"+CR
	ONE	"@120RTON"+CR
	ALL	"@120RTAL"+CR
	A-	"@120RTA-"+CR
	A-B	"@120RTAB"+CR
TimeMode	Track	"@120TTRA"+CR
	TrackRem	"@120TTRE"+CR
	TotalRem	"@120TREM"+CR
	TotalLap	"@120TTLA"+CR

Category	Status from TAPE	
Power	Standby	"@118POFF"+CR
	PowerOn	"@118PRON"+CR
Cassette	IN	"@118CAIN"+CR
	Eject	"@118CAEJ"+CR
PlayMode	Stop	"@118STOP"+CR
	PlayFW	"@118PLFW"+CR
	PlayRV	"@118PLRV"+CR
	Pause	"@118PASE"+CR
	FF	"@118FASF"+CR
	REW	"@118FASR"+CR
	Cue	"@118CUE_"+CR
	Review	"@118REVI"+CR
	Rec	"@118RECO"+CR
	Rec Pause	"@118RECP"+CR
Memo	OFF	"@118MEOF"+CR
	ON	"@118MEON"+CR

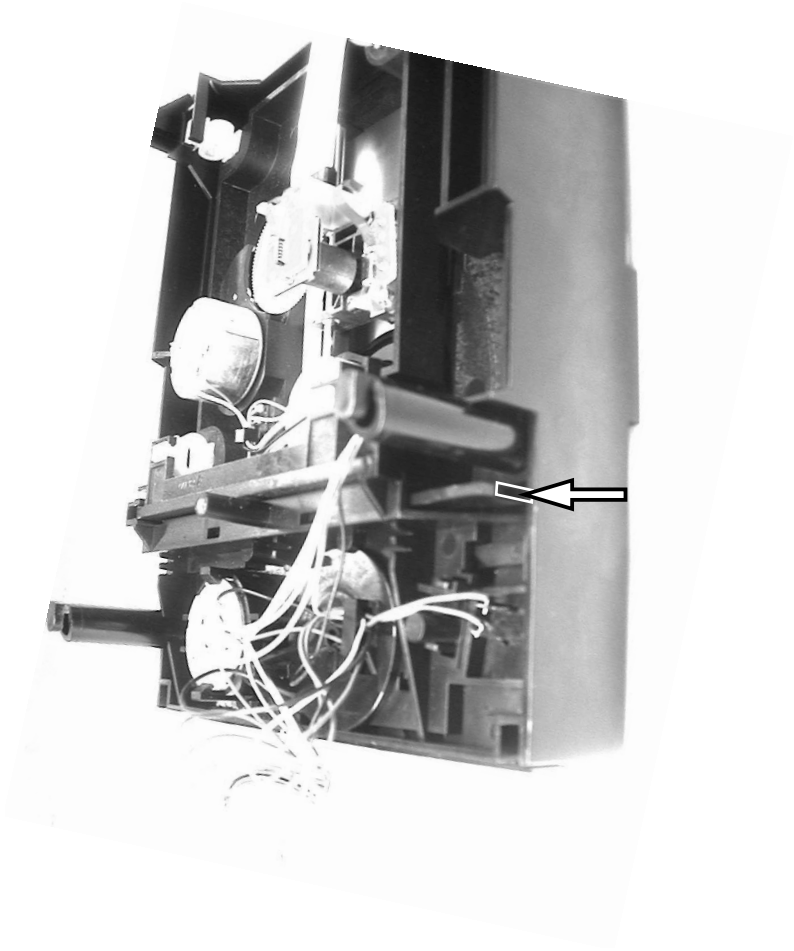
6. SERVICE PROCEDURE

Emergency Eject

1. To open the stucked tray, insert a minus driver into the hole of bottom and push the eject lever.
2. Use a minus driver. (width is about 4 mm)



This picture shows the unit upside down. The eject lever is pointed by the arrow.
The lever is thin so aim the narrow area carefully.



7. SERVICE MODE

1. How to enter into the Service Mode
   While pressing **PROGRAM, STOP/EJECT**(CD) and **STOP**(TAPE) buttons, press **POWER** button.
   " *** **00** " is diaplayed
   " *** " is Version number of the microprocessor.
2. Mode0 (Display : *** **00**)
   Status: [FOCUS OFF] [SPINDLE OFF] [RADIAL OFF] [MUTE ON]
   • While pressing ⏮ and ⏭ buttons, the sledge moves toward the outer edge. Release the button makes the sledge return to the origin.
   Press **NEXT** ⏭ button to go to Mode 1.
3. Mode 1 (Display : *** **01**)
   Status: [FOCUS ON] [SPINDLE OFF] [RADIAL OFF] [MUTE ON]
   • Press **NEXT** ⏭ button to go to Mode 2.
   • Press **PREV** ⏮ button to go to Mode 0.
4. Mode 2 (Display : *** **02**)
   Status: [FOCUS ON] [SPINDLE ON] [RADIAL OFF] [MUTE ON]
   • Press **NEXT** ⏭ button to go to Mode 3.
   • Press **PREV** ⏮ button to go to Mode 1.
5. Mode 3 (Display : *** **03**)
   Status: [FOCUS ON] [SPINDLE ON] [RADIAL ON] [MUTE OFF]
   • Press **PREV** ⏮ button to go to Mode 2.
6. Others

* In the Mode 0 or 1, pressing the number button 3 on the remote makes the spindle motor rotate and "**FrEE**" is displayed. Press the number button 4 to stop rotation.

* In this Service Mode, all of the following button functions work in any status.
  1) Press **TIME** button, " **FL dISP** " is displayed. Press it again then each FL segment lights up one by one. Press it again then light up all the FL segments. Press **STOP/EJECT** button to go to Mode 0
  2) Press **STOP/EJECT** button, " **CodE** " is displayed. Then press a button on the unit. The name of the button is displayed. Pressing a button on the Remote controler for RC-5 unit display the RC-5 code (Ex. : **rc2001**) of the button. Press **STOP/EJECT**(CD) and **STOP**(CD) button to go to Mode 0.

7. サービスモード

1. サービスモードへの入り方
   PROGRAM と **STOP/EJECT**(CD) と **STOP**(TAPE) ボタンを押しながら **POWER** ボタンを押します。
   " ＊＊＊ ００" と表示されます。（モード０）
   " ＊＊＊ " はマイコンの **Ver.** です。
2. モード０（表示 : ＊＊＊ ００ ）
   状態：[FOCUS OFF] [SPINDLE OFF] [RADIAL OFF] [MUTE ON]
   • ⏮ または ⏭ ボタンを押している間だけスレッドが外周へ移動します。ボタンを放すと原点に戻ります。
   NEXT ⏭ ボタンを押すとモード１へ移行します。

3. モード１（表示 : ＊＊＊ ０１）
状態：[FOCUS ON] [SPINDLE OFF] [RADIAL OFF] [MUTE ON]
   • **NEXT** ⏭ ボタンを押すとモード２へ移行します。
   • **PREV** ⏮ ボタンを押すとモード０へ移行します。
4. モード２（表示 : ＊＊＊ ０２）
   状態：[FOCUS ON] [SPINDLE ON] [RADIAL OFF] [MUTE ON]
   • **NEXT** ⏭ ボタンを押すとモード３へ移行します。
   • **PREV** ⏮ ボタンを押すとモード１へ移行します。
5. モード３（表示 : ＊＊＊ ０３）
   状態：[FOCUS ON] [SPINDLE ON] [RADIAL ON] [MUTE OFF]
   • **PREV** ⏮ ボタンを押すとモード２へ移行します。
6. その他

＊モード 0 または 1 の状態からリモートコントロールの数字 **3** を押すと " **FrEE** " と表示されスピンドルモーターが回転し、数字 **4** 押すと回転が止まります。

＊サービスモードの全ての状態で以下のボタンが有効です。
  1) **TIME** ボタンを押すと " **FL dISP** " と表示されもう一度押すと各セグメントが順次点燈します。もう一度押すと FL が全点灯します。**STOP/EJECT** ボタンを押すと、このモードは解除されます。
  2) **STOP/EJECT** ボタンを押すと " **CodE** " と表示され、本体のボタンを押すとそのボタンの名前が下記表の KEY MATRIX に対応した数字が表示されます。RC-5 対応リモコンのボタンを押すと RC-5 コードが表示（例：**rc2001**）されます。**STOP/EJECT**(CD) と **STOP**(CD) ボタンを押すと、このモードは解除されます

	6	**5**	**4**	**3**	**2**	**1**	**0**
1	PITCH +	TIME	One-way mode	MEMO	STOP/EJECT	◀◀ (REW)	◀ (PLAY)
2	PITCH 0	REPEAT	Continuous mode	RESET	▶▶ (NEXT)	STOP	▶ (PLAY)
3	PITCH -	PROGRAM	CASCADE	ALC ON	⏮ (PREV)	PLAY/PAUSE	▶▶ (FF)
4		A-B	DOLBY-C	DOLBY-B		DUBB.	REC/PAUSE

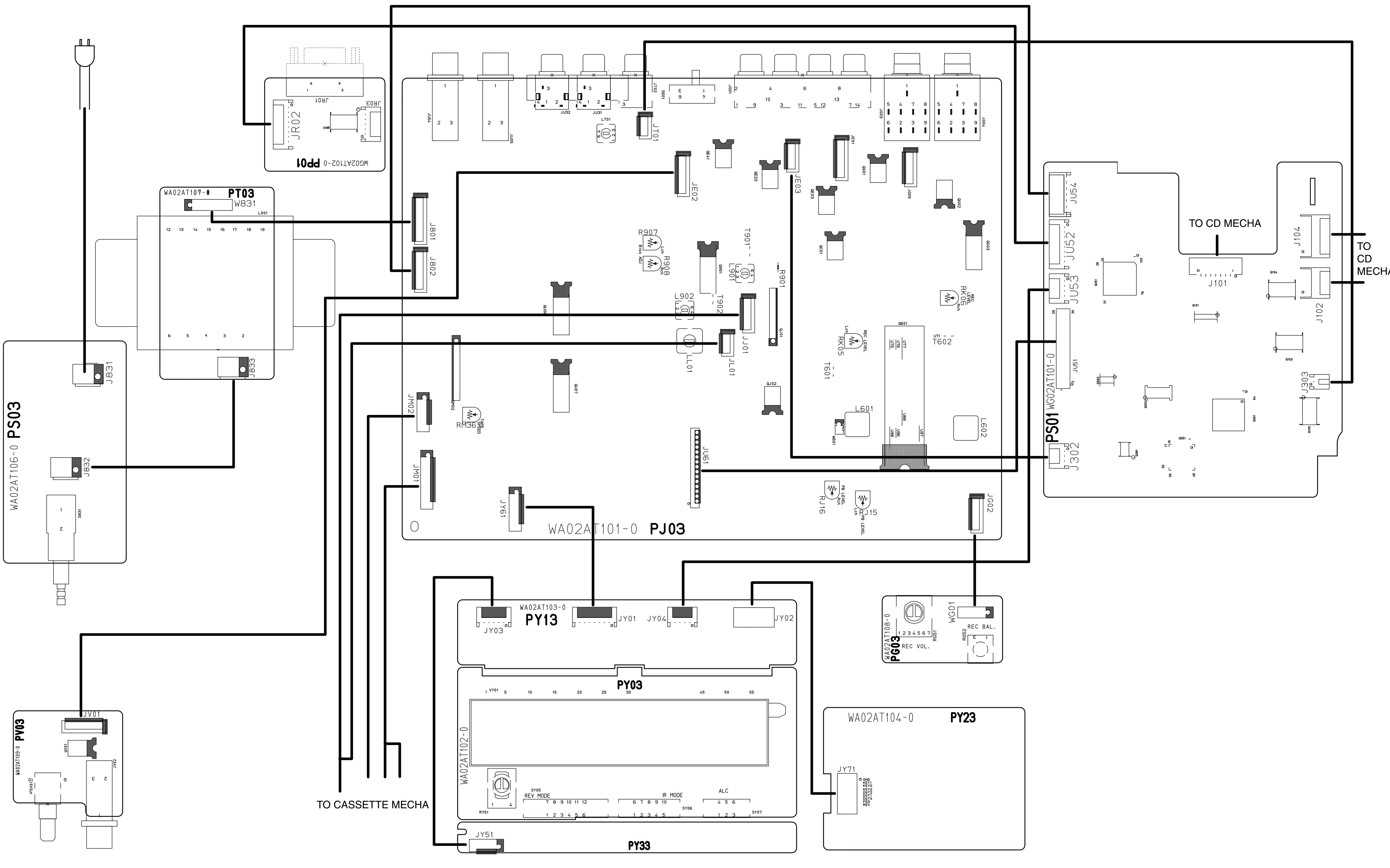
Ex.: Press **PITCH +** button, "**1-6**" is displayed.

7. Terminating Service Mode
   Turn off power to quit Service Mode.

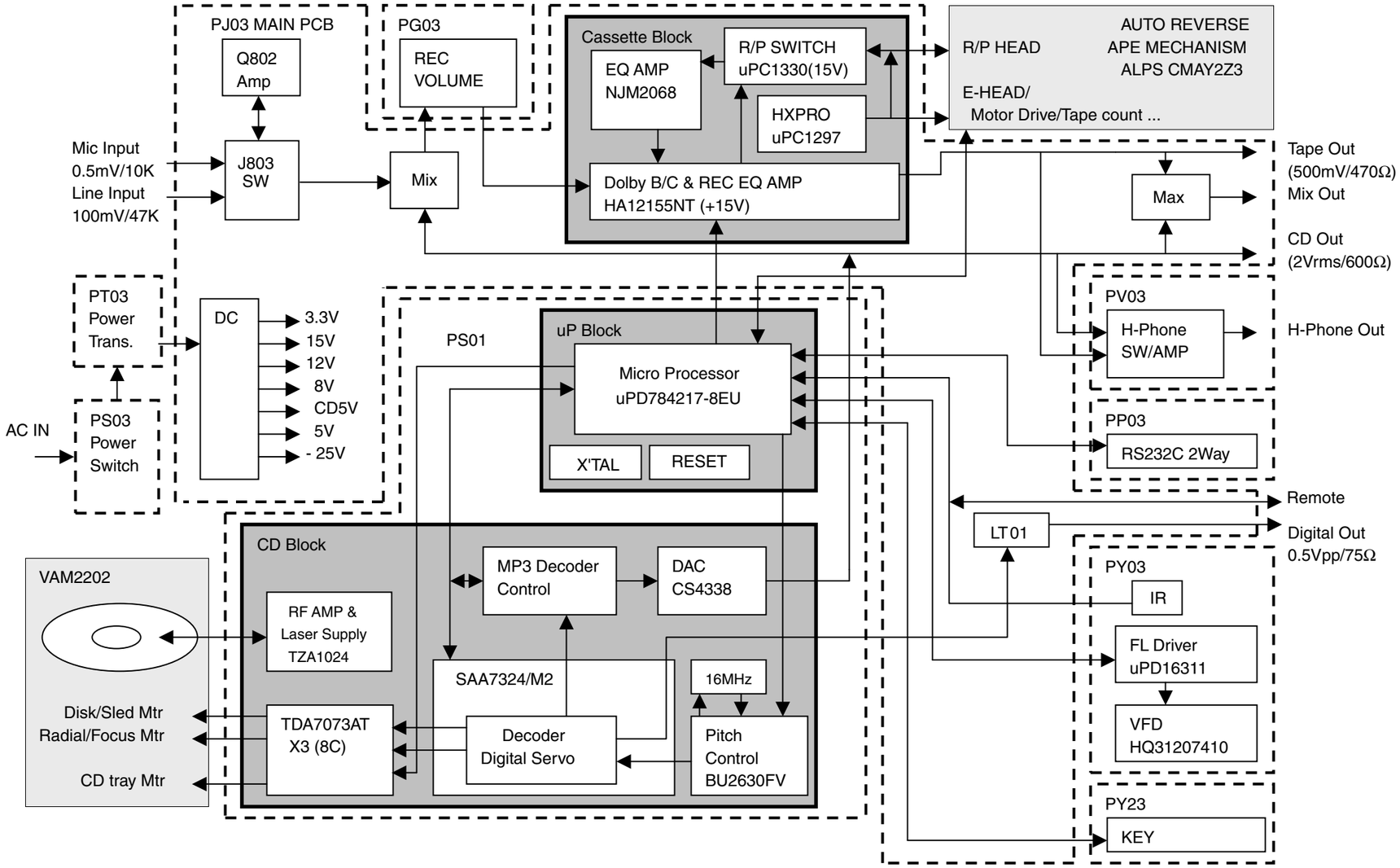
7. サービスモードの解除
   電源を切るとサービスモードが解除されます。

Personal notes:

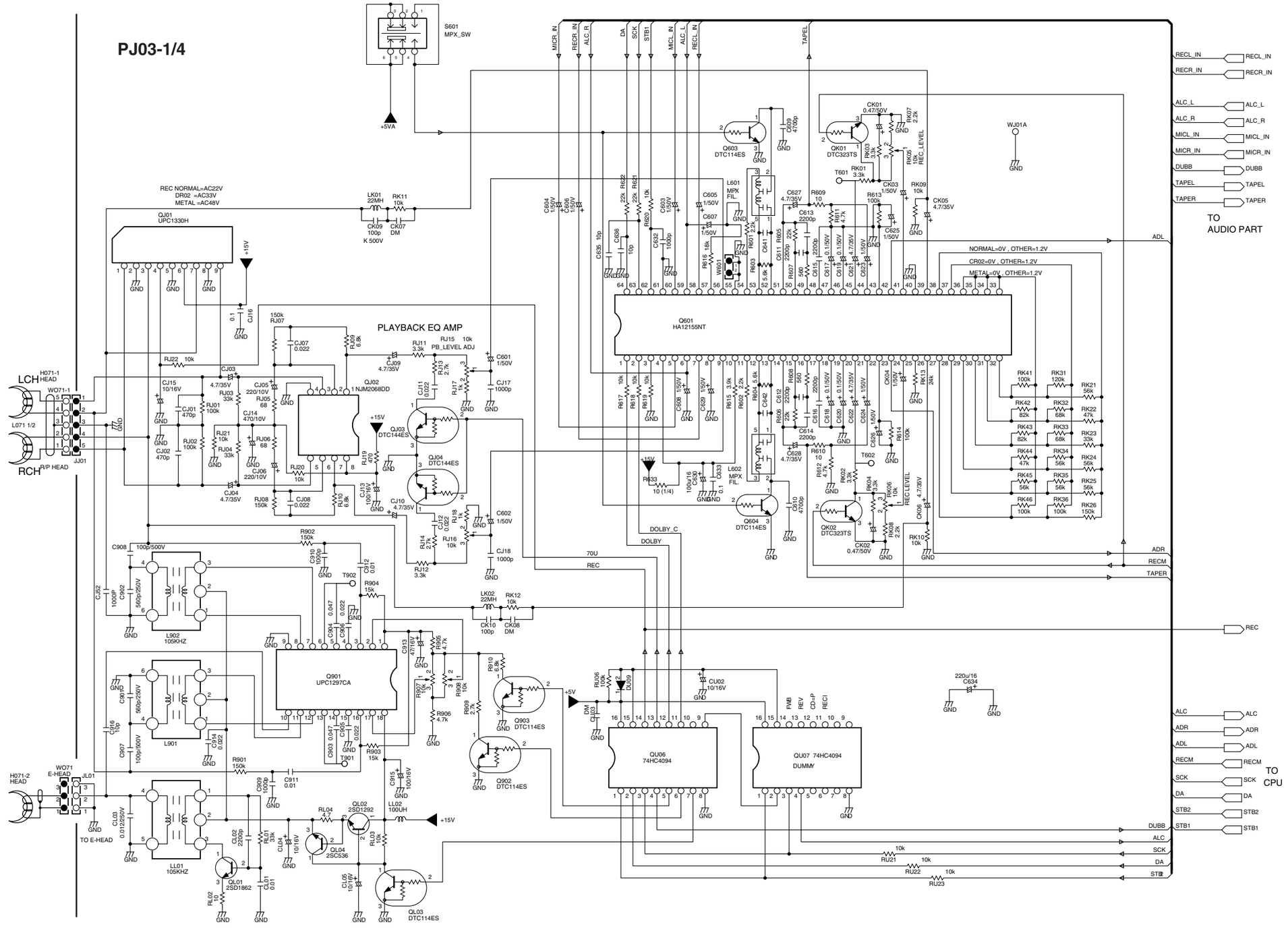
8. WIRING DIAGRAM

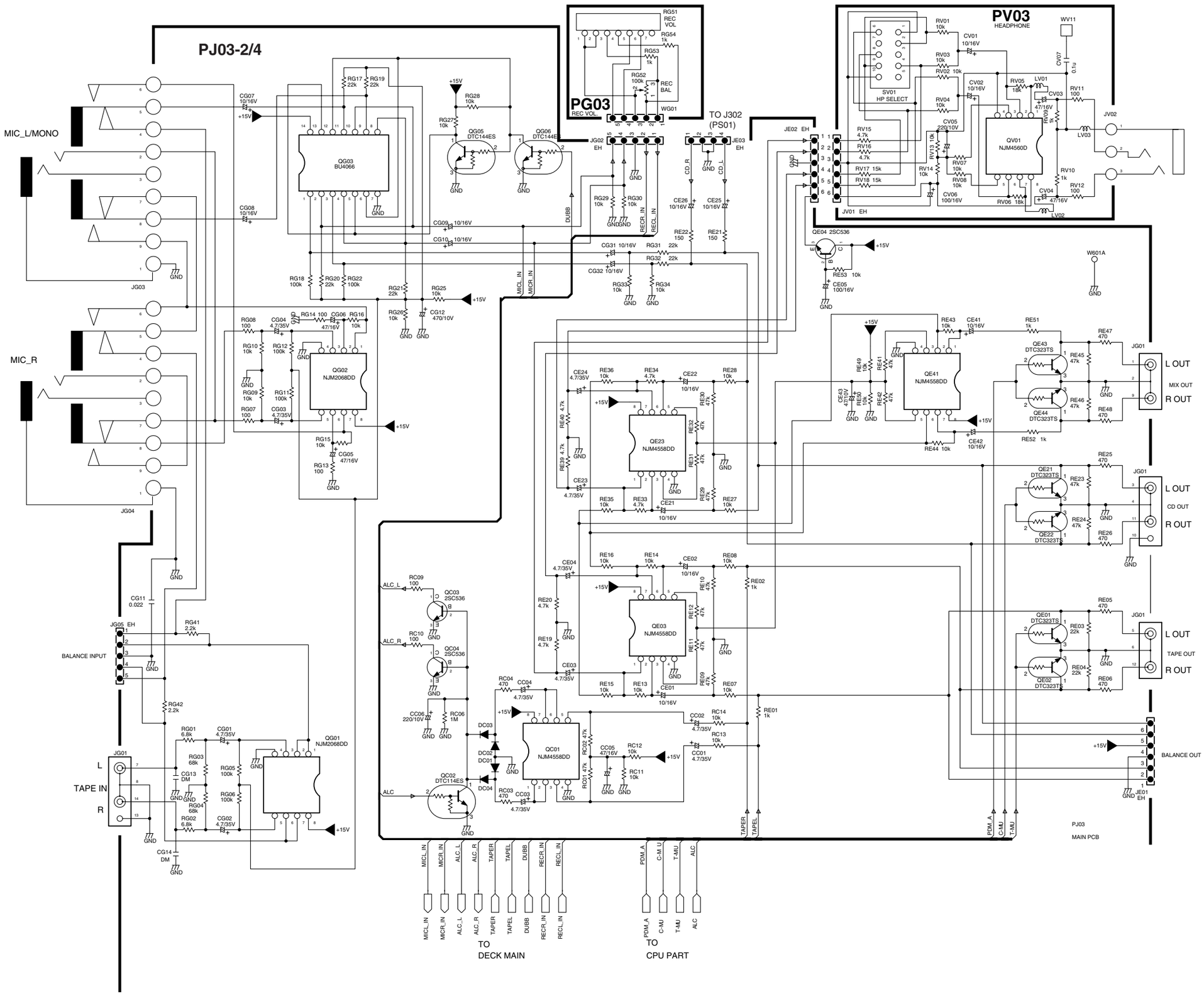


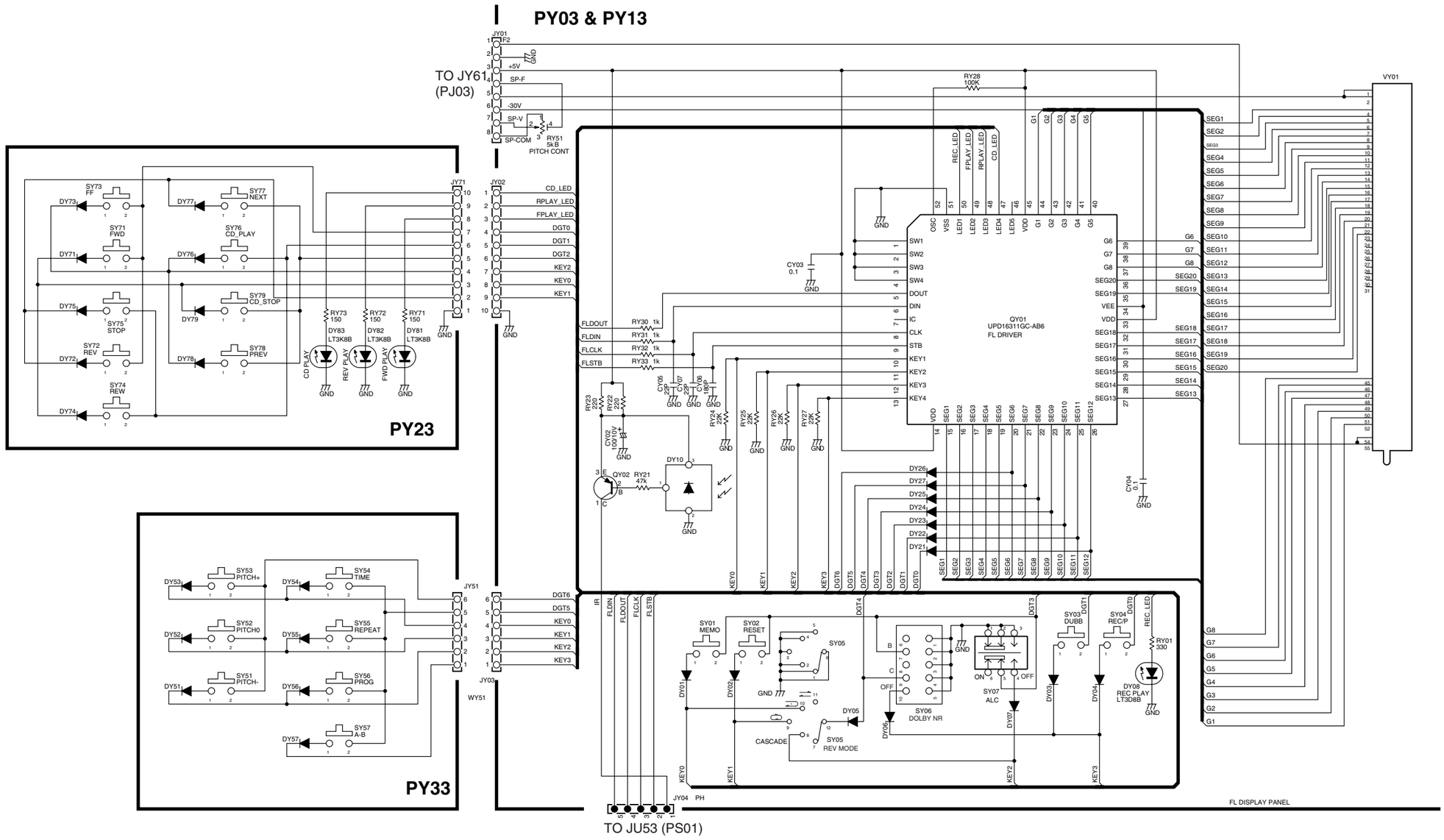
9. BLOCK DIAGRAM

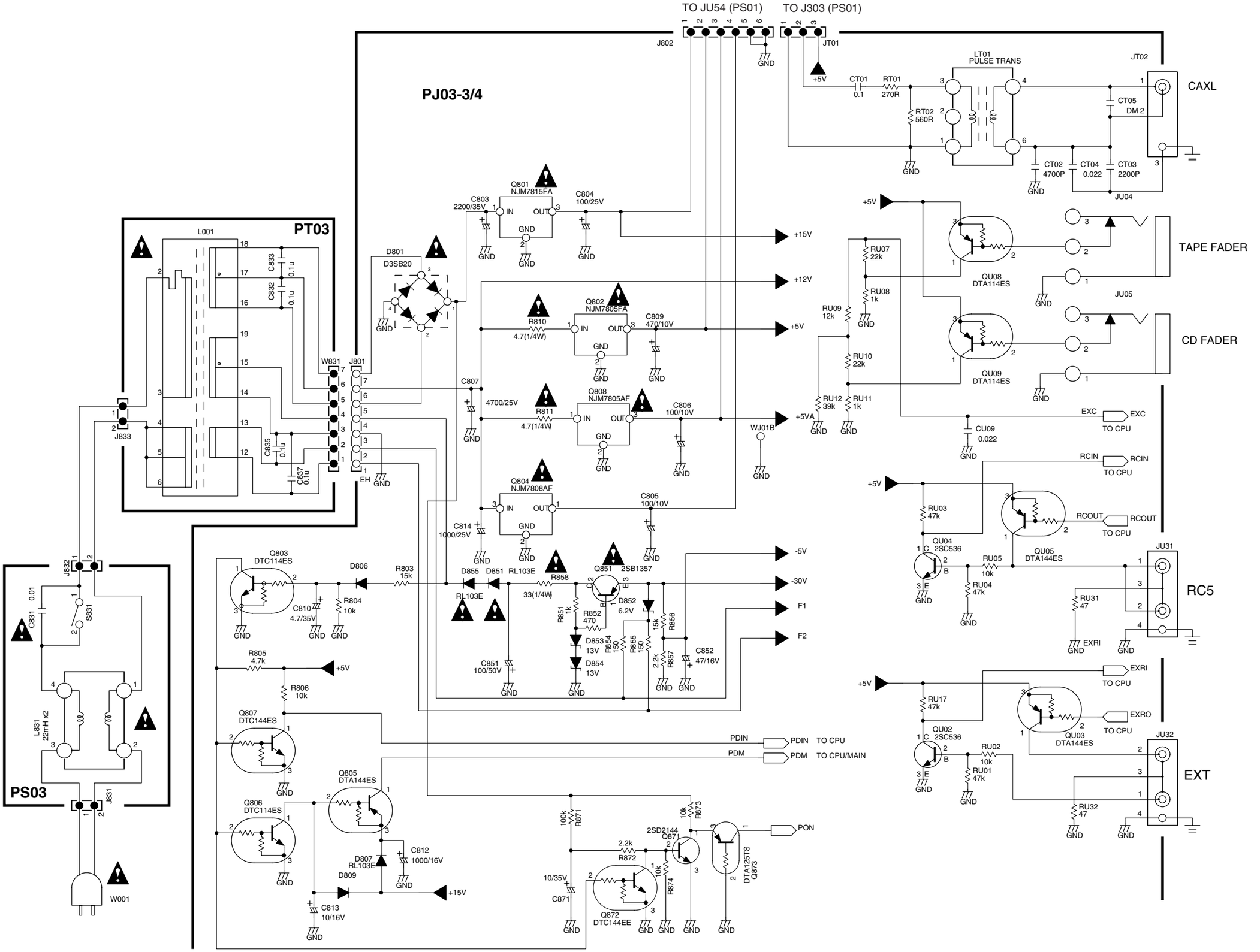


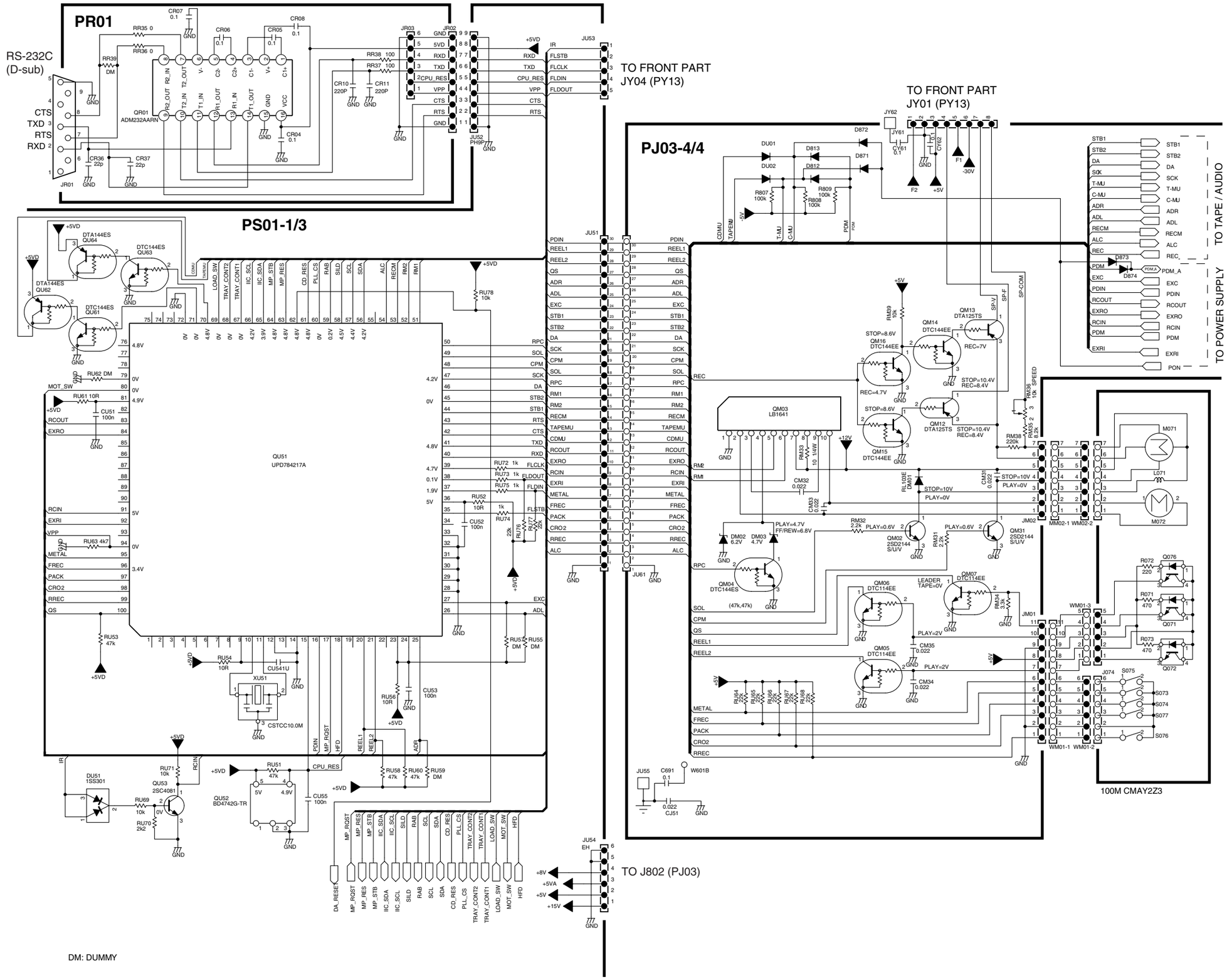
10. SCHEMATIC DIAGRAM

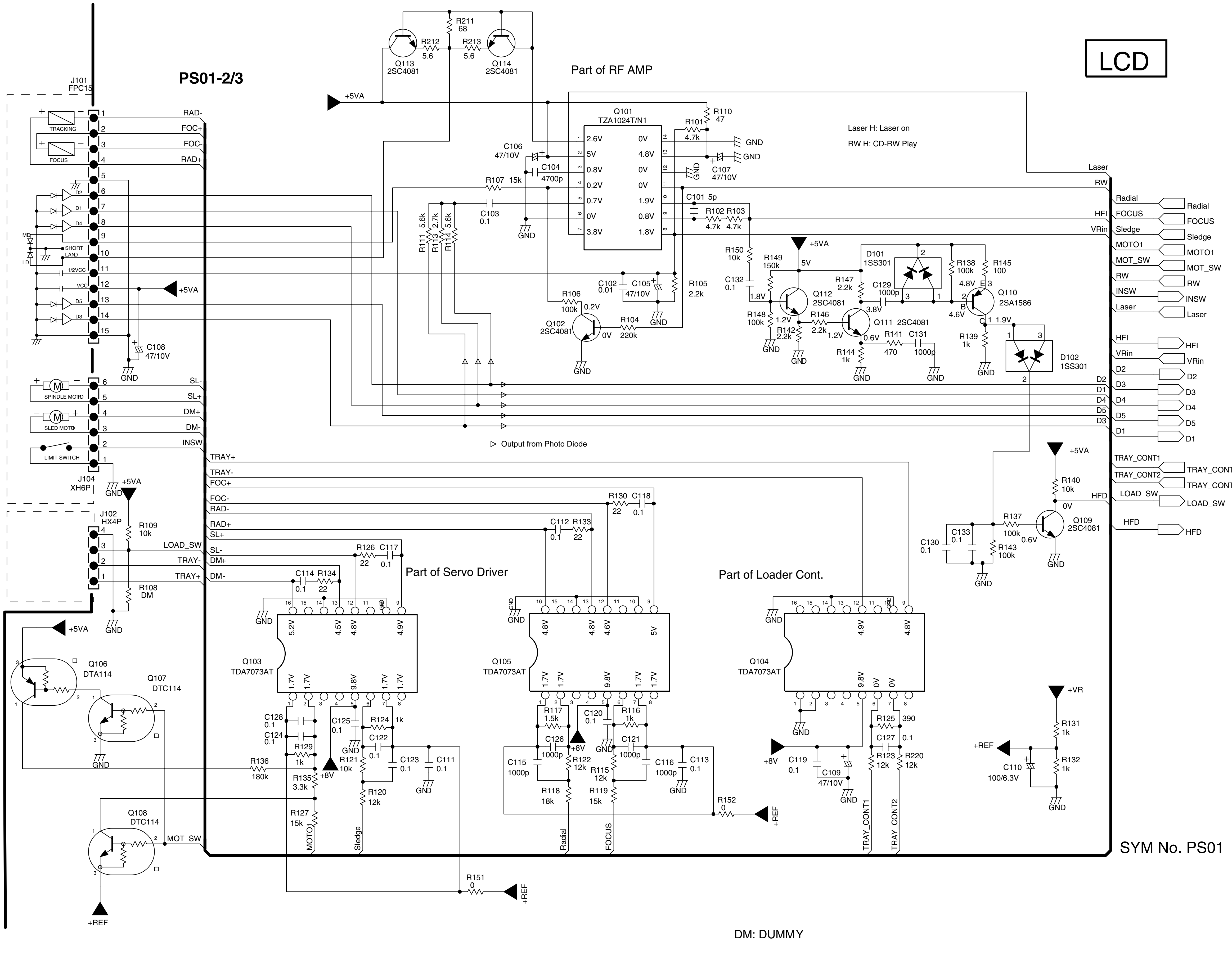



PJ03-2/4
PG03
REC VOL.
RG51 REC VOL
RG54 1k
RG53 1k
RG52 100k
REC BAL
WG01
TO J302 (PS01)
JG02 EH
JE03 EH
PV03
HEADPHONE
WV11
SV01 HP SELECT
JV01 EH
JV02
QV01 NJM4560D
MIC_L/MONO
MIC_R
JG03
JG04
QG03 BU4066
QG05 DTC144ES
QG06 DTC144ES
QG02 NJM2068DD
QG01 NJM2068DD
QE23 NJM4558DD
QE41 NJM4558DD
QE03 NJM4558DD
QC01 NJM4558DD
QE04 2SC536
QC03 2SC536
QC04 2SC536
QC02 DTC114ES
L OUT
MIX OUT
R OUT
CD OUT
TAPE OUT
BALANCE OUT
BALANCE INPUT
TAPE IN
JG05 EH
JG01
W601A
MICL_IN
MICR_IN
ALC_L
ALC_R
TAPER
TAPEL
DUBB
RECR_IN
RECL_IN
PDM_A
C-MJ
T-MJ
ALC
TO DECK MAIN
TO CPU PART
PJ03 MAIN PCB


PY03 & PY13
TO JY61 (PJ03)
JY01
F2
GND
+5V
SP-F
-30V
SP-V
SP-COM
RY51 5kB PITCH CONT
JY02
CD_LED
RPLAY_LED
FPLAY_LED
DGT0
DGT1
DGT2
KEY2
KEY0
KEY1
JY71
GND
SY73 FF
SY77 NEXT
SY71 FWD
SY76 CD_PLAY
SY79 CD_STOP
SY75 STOP
SY72 REV
SY78 PREV
SY74 REW
DY73
DY77
DY71
DY76
DY75
DY79
DY72
DY78
DY74
RY73 150
RY72 150
RY71 150
DY83 LT3K8B
DY82 LT3K8B
DY81 LT3K8B
CD PLAY
REV PLAY
FWD PLAY
PY23
PY33
JY51
JY03
WY51
DGT6
DGT5
KEY0
KEY1
KEY2
KEY3
SY53 PITCH+
SY54 TIME
SY52 PITCH0
SY55 REPEAT
SY51 PITCH-
SY56 PROG
SY57 A-B
DY53
DY54
DY52
DY55
DY51
DY56
DY57
QY01 UPD16311GC-AB6 FL DRIVER
OSC
VSS
LED1
LED2
LED3
LED4
LED5
VDD
SW1
SW2
SW3
SW4
DOUT
DIN
IC
CLK
STB
KEY1
KEY2
KEY3
KEY4
VEE
REC_LED
FPLAY_LED
RPLAY_LED
CD_LED
CY03 0.1
CY04 0.1
RY28 100K
FLDOUT
FLDIN
FLCLK
FLSTB
RY30 1k
RY31 1k
RY32 1k
RY33 1k
CY05 22P
CY07 22P
CY06 180P
RY23 220
RY22 220
CY02 1001OV
RY24 22K
RY25 22K
RY26 22K
RY27 22K
QY02 RY21 47k
DY10
DY26
DY27
DY25
DY24
DY23
DY22
DY21
VY01
SEG1
SEG2
SEG3
SEG4
SEG5
SEG6
SEG7
SEG8
SEG9
SEG10
SEG11
SEG12
SEG13
SEG14
SEG15
SEG16
SEG17
SEG18
SEG19
SEG20
G1
G2
G3
G4
G5
G6
G7
G8
IR
FLDIN
FLDOUT
FLCLK
FLSTB
DGT4
DGT3
DGT1
DGT0
REC_LED
SY01 MEMO
SY02 RESET
SY05
SY05 REV MODE
CASCADE
DY05
SY06 DOLBY NR
SY07 ALC
ON
OFF
SY03 DUBB
SY04 REC/P
RY01 330
DY08 REC PLAY LT3D8B
DY01
DY02
DY03
DY04
DY06
DY07
JY04 PH
FL DISPLAY PANEL
TO JU53 (PS01)


PJ03-3/4
TO JU54 (PS01)
TO J303 (PS01)
J802
JT01
GND
+5V
LT01
PULSE TRANS
JT02
CAXL
CT01
0.1
RT01
270R
RT02
560R
CT05
DM 2
CT02
4700P
CT04
0.022
CT03
2200P
JU04
PT03
L001
C833
0.1u
C832
0.1u
C835
0.1u
C837
0.1u
W831
J801
J833
EH
C803
2200/35V
Q801
NJM7815FA
C804
100/25V
+15V
D801
D3SB20
Q802
NJM7805FA
R810
4.7(1/4W)
C809
470/10V
+12V
+5V
C807
4700/25V
Q808
NJM7805AF
R811
4.7(1/4W)
C806
100/10V
WJ01B
Q804
NJM7808AF
C805
100/10V
C814
1000/25V
-5V
-30V
F1
F2
Q803
DTC114ES
D806
R803
15k
C810
4.7/35V
R804
10k
D855
D851
RL103E
R858
33(1/4W)
Q851
2SB1357
D852
6.2V
R851
1k
R852
470
D853
13V
D854
13V
R854
150
R855
150
2.2k
R857
15k
R856
C852
47/16V
C851
100/50V
R805
4.7k
R806
10k
Q807
DTC144ES
Q805
DTA144ES
Q806
DTC114ES
D807
RL103E
D809
C812
1000/16V
C813
10/16V
PDIN
PDIN TO CPU
PDM
PDM TO CPU/MAIN
100k
R871
2.2k
R872
2SD2144
Q871
10k
R873
10k
R874
C871
10/35V
Q872
DTC144EE
DTA125TS
Q873
PON
J832
C831
0.01
S831
L831
22mH x2
J831
PS03
W001
+5V
RU07
22k
RU08
1k
RU09
12k
RU10
22k
RU12
39k
RU11
1k
+5VA
QU08
DTA114ES
TAPE FADER
JU05
QU09
DTA114ES
CD FADER
EXC
EXC
TO CPU
CU09
0.022
RCIN
RCIN
TO CPU
RU03
47k
RCOUT
RCOUT
TO CPU
QU04
2SC536
QU05
DTA144ES
RU05
10k
RU04
47k
JU31
RC5
RU31
47
EXRI
EXRI
TO CPU
RU17
47k
EXRO
EXRO
TO CPU
QU02
2SC536
QU03
DTA144ES
RU02
10k
RU01
47k
JU32
EXT
RU32
47

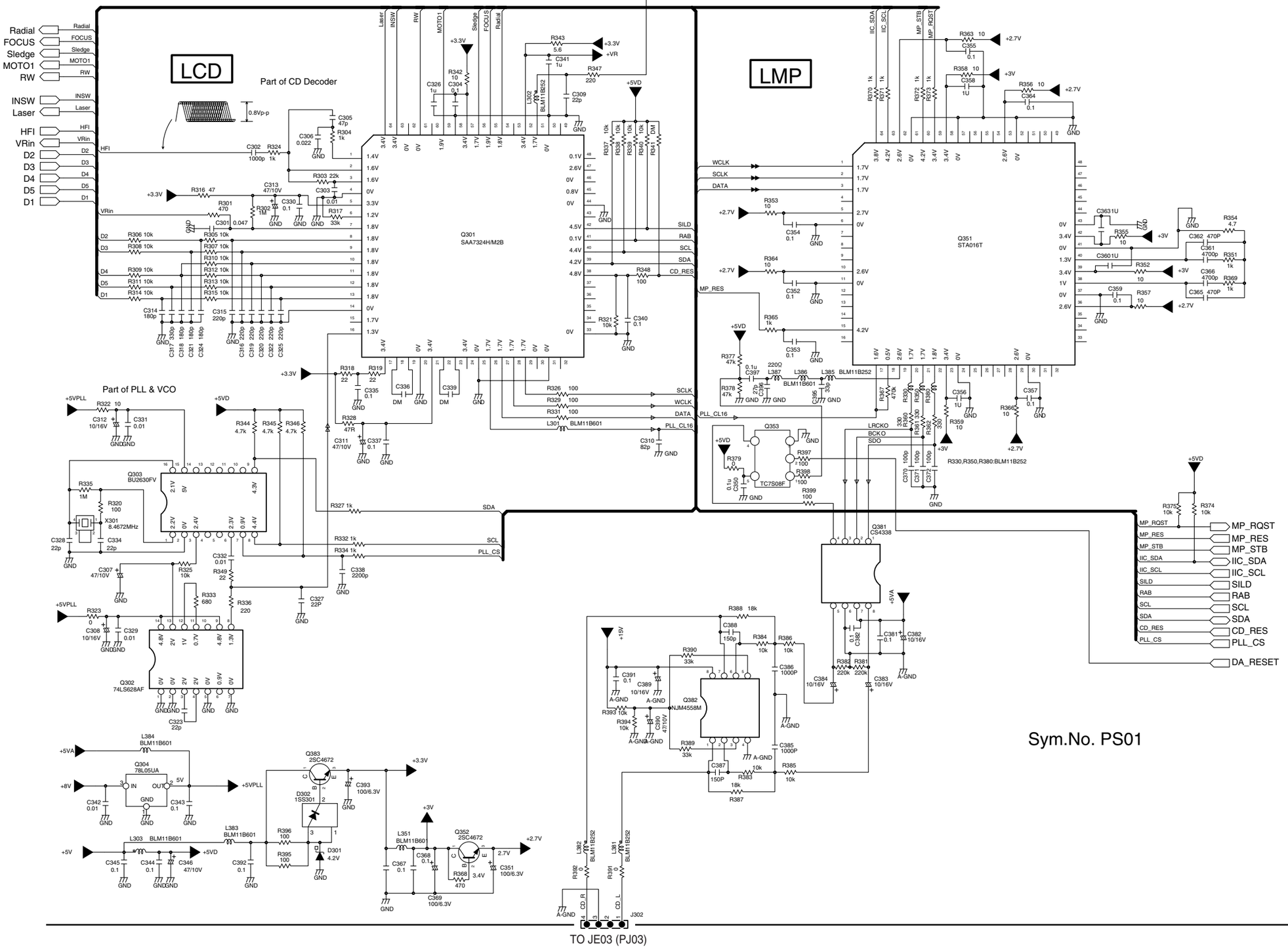

PR01
PS01-1/3
PJ03-4/4
RS-232C
(D-sub)
CTS
TXD
RTS
RXD
JR01
QR01
ADM232AARN
JR03
JR02
JU52
PH9P
TO FRONT PART
JY04 (PY13)
JU53
IR
FLSTB
FLCLK
FLDIN
FLDOUT
CPU_RES
VPP
TO FRONT PART
JY01 (PY13)
JY62
JY61
CY61
0.1
CY62
F1
-30V
F2
+5V
D872
D871
D873
D874
PDM_A
TO TAPE / AUDIO
TO POWER SUPPLY
STB1
STB2
DA
SCK
T-MU
C-MU
ADR
ADL
RECM
ALC
REC
EXC
PDIN
RCOUT
EXRO
RCIN
PDM
EXRI
PON
JU51
QU51
UPD784217A
QU64
QU63
QU62
QU61
DTA144ES
DTC144ES
RU78
10k
RU62 DM
MOT_SW
RU61 10R
CU51
100n
RCOUT
EXRO
RCIN
EXRI
VPP
METAL
FREC
PACK
CRO2
RREC
QS
RU63 4k7
RU53
47k
RU54
10R
CU541U
XU51
CSTCC10.0M
RU56
10R
CU53
100n
RU55
DM
RU57
DM
RU72 1k
RU73 1k
RU75 1k
RU74
1k
RU76
22k
RU77
22k
RU52
10R
CU52
100n
FLCLK
FLDOUT
FLDIN
FLSTB
DU51
1SS301
QU53
2SC4081
RU71
10k
RU69
10k
RU70
2k2
QU52
BD4742G-TR
RU51
47k
CU55
100n
RU58
47k
RU60
47k
RU59
DM
JU54
EH
TO J802 (PJ03)
DA_RESET
MP_RQST
MP_RES
MP_STB
IIC_SDA
IIC_SCL
SILD
RAB
SCL
SDA
CD_RES
PLL_CS
TRAY_CONT2
TRAY_CONT1
LOAD_SW
MOT_SW
HFD
+8V
+5VA
+5V
+15V
DM: DUMMY
JU61
JU55
C691
0.1
CJ51
0.022
W601B
DU01
DU02
D813
D812
R807
100k
R809
100k
R808
100k
CDMU
TAPEMU
T-MU
C-MU
PDM
QM03
LB1641
QM13
DTA125TS
QM14
DTC144EE
QM16
DTC144EE
QM12
DTA125TS
QM15
DTC144EE
RM39
10k
RM38
220k
RM36
10k
SPEED
RM37
8.2k
SP-F
SP-V
SP-COM
STOP=8.6V
REC=7V
REC=4.7V
STOP=10.4V
REC=8.4V
RM33
10
1/4W
CM32
0.022
CM33
0.022
CM31
0.022
RL103E
DM01
STOP=10V
PLAY=0V
M071
L071
M072
JM02
MM02-1
MM02-2
PLAY=4.7V
FF/REW=6.8V
DM02
6.2V
DM03
4.7V
QM04
DTC144ES
(47k,47k)
RM32
2.2k
PLAY=0.6V
QM02
2SD2144
S/U/V
RM31
2.2k
QM31
2SD2144
S/U/V
QM06
DTC114EE
QM07
DTC114EE
LEADER
TAPE=0V
RM34
2.2k
PLAY=2V
QM05
DTC114EE
CM35
0.022
CM34
0.022
JM01
WM01-3
WM01-1
WM01-2
R072
220
R071
470
R073
470
Q076
Q071
Q072
J074
S075
S073
S074
S077
S076
RU64
2k
RU65
2k
RU66
2k
RU67
2k
RU68
22k
100M CMAY2Z3



PS01-2/3
LCD
Part of RF AMP
Part of Servo Driver
Part of Loader Cont.
Laser H: Laser on
RW H: CD-RW Play
Output from Photo Diode
Q101 TZA1024T/N1
Q103 TDA7073AT
Q104 TDA7073AT
Q105 TDA7073AT
J101 FPC15
J104 XH6P
J102 HX4P
SYM No. PS01
DM: DUMMY

TO JT01 (PJ03)

PS01-3/3

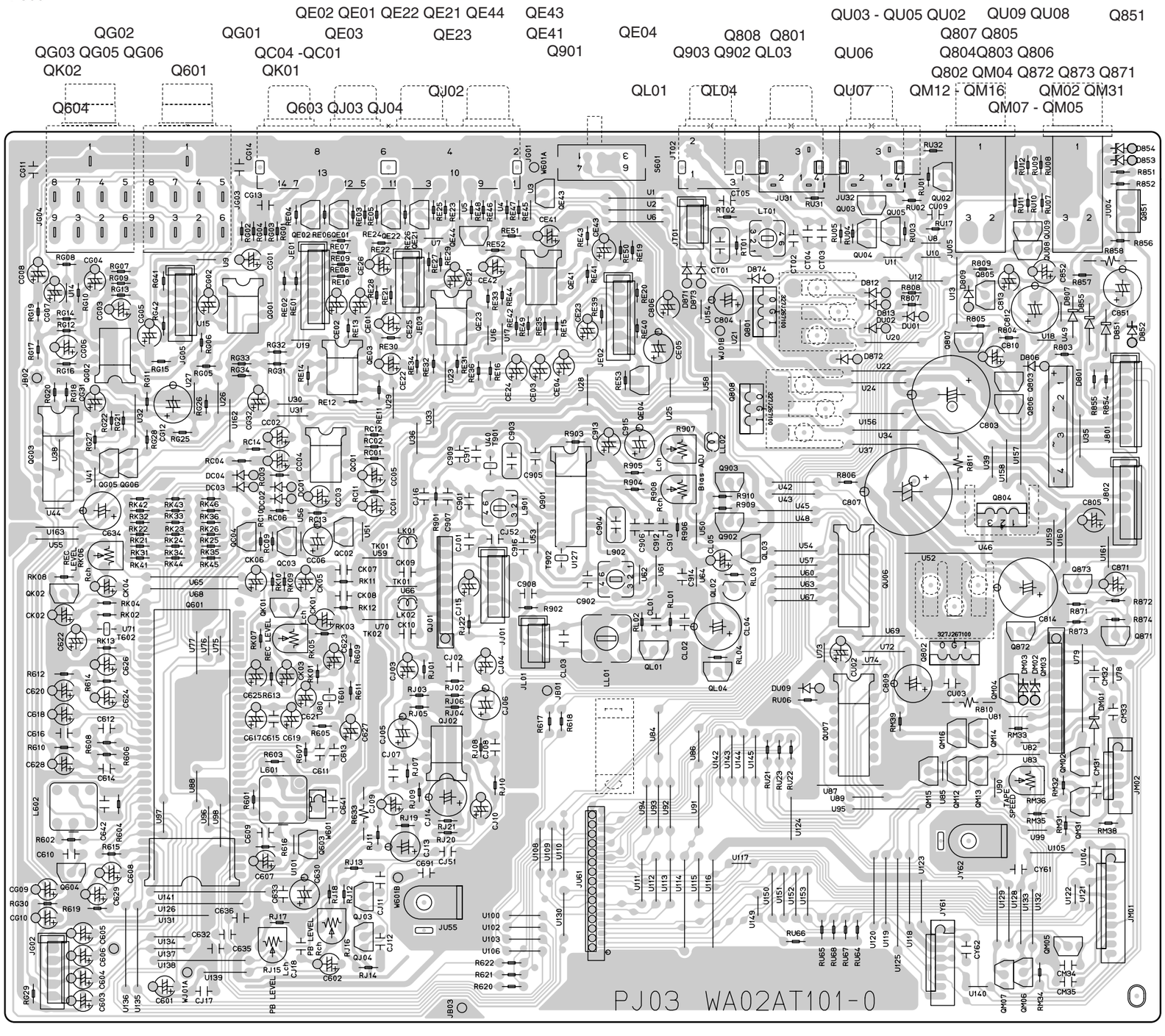


Sym.No. PS01

TO JE03 (PJ03)

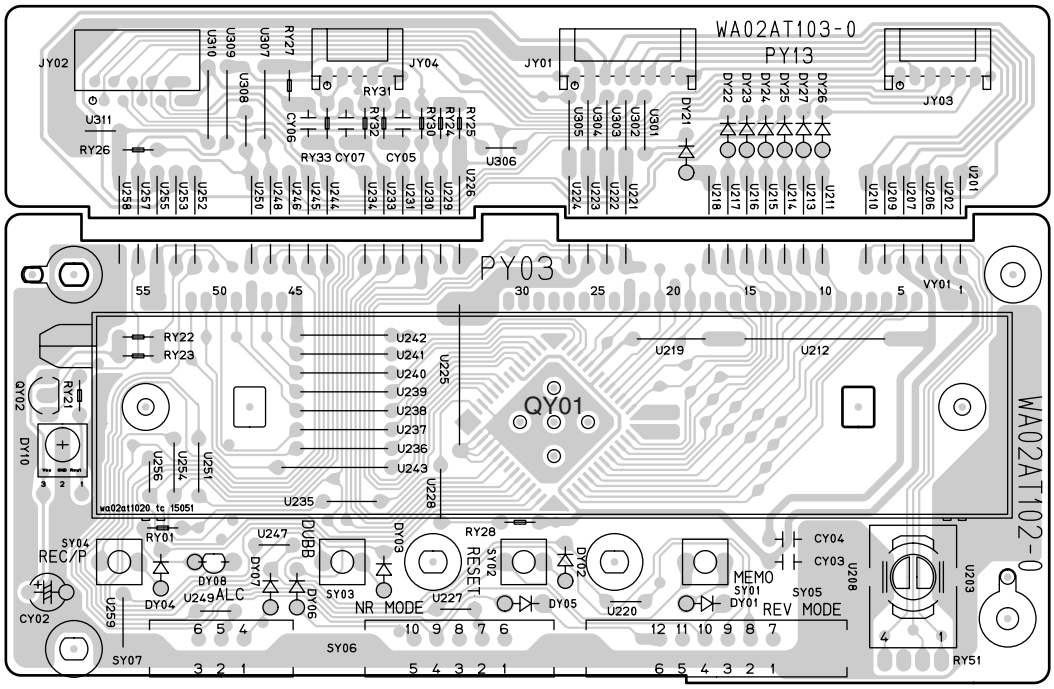
11. PARTS LOCATION

PJ03

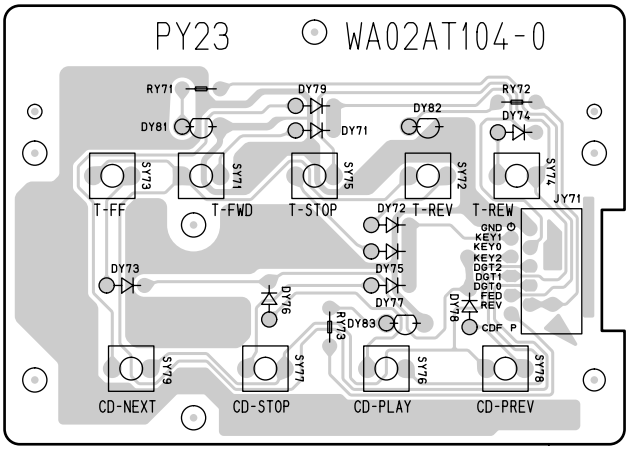


PY03, PY13

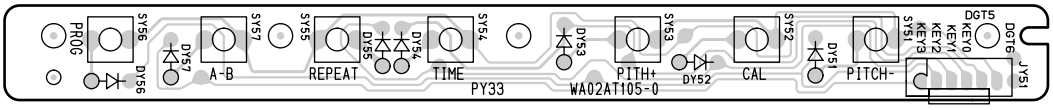
QY02 QY01



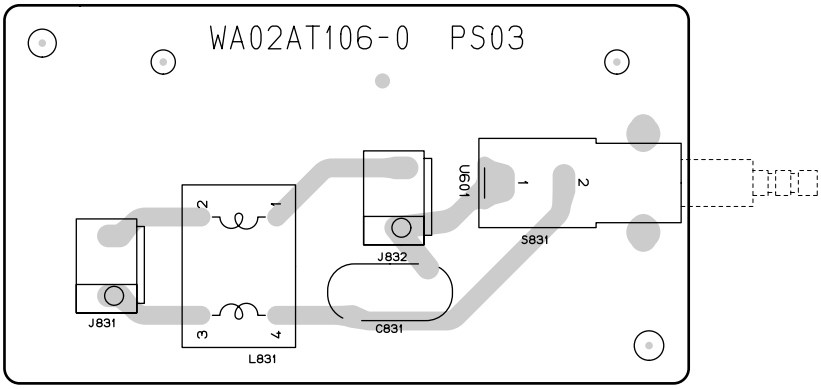
PY23



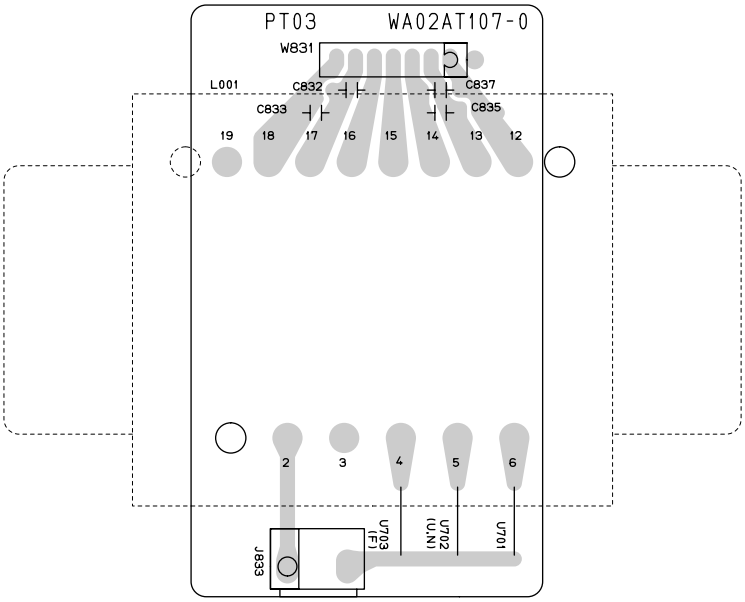
PY33



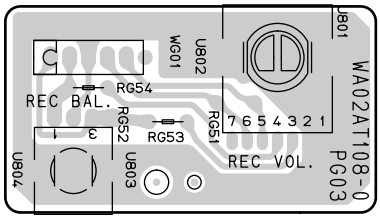
PS03



PT03

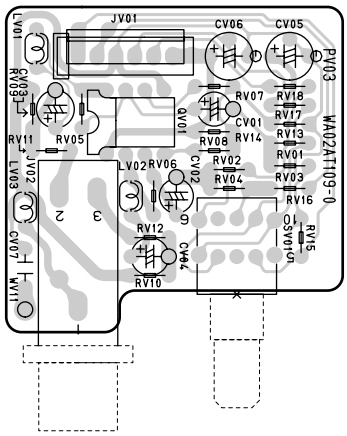


PG03



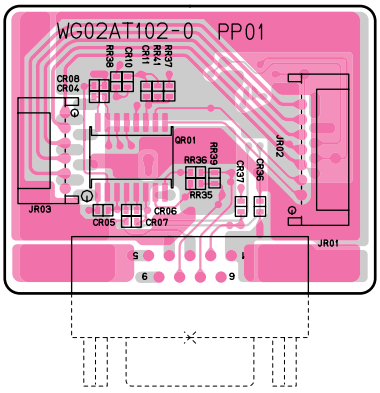
PV03

QV01



PP01

QR01



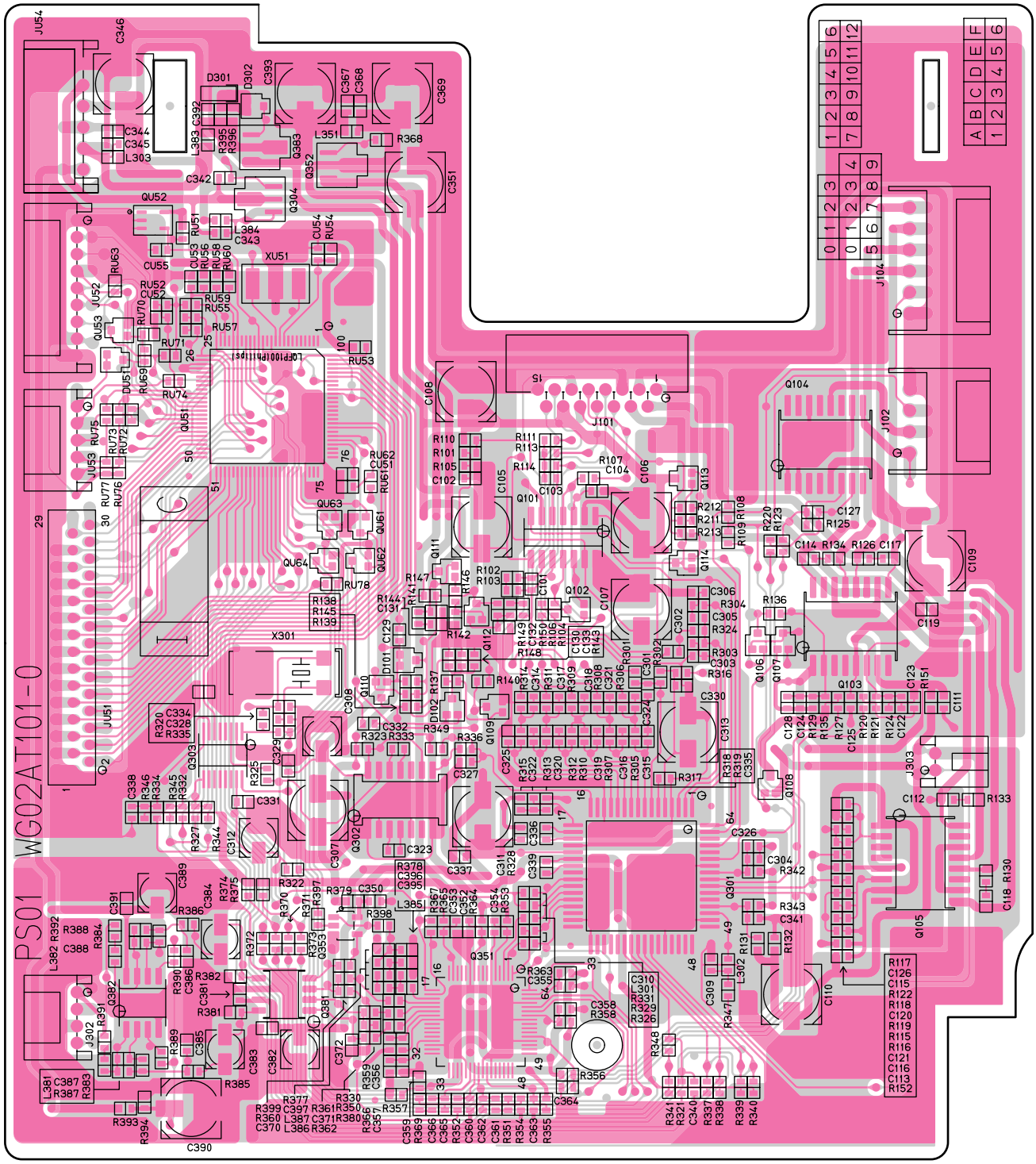
PS01

QU53 QU52 Q383 Q304 Q352

QU51 QU64 - QU61 Q111 Q112 Q101 Q102 Q113 Q114 Q106 Q107 Q104 Q103

Q303 Q110 Q302 Q109 Q301 Q108 Q105

Q382 Q381 Q351



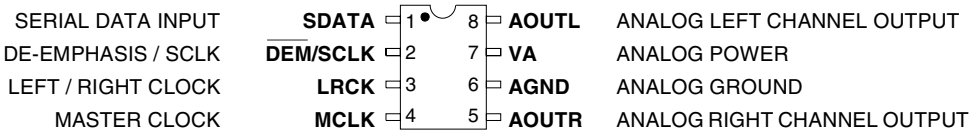
12. MICROPROCESSOR AND IC DATA

Q303:BU2630FV

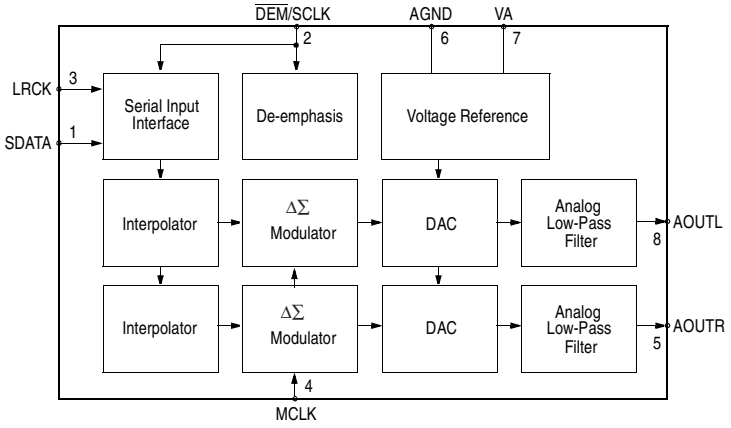
Pin descriptions

Pin No.	Pin name	Name	Function	I/O cuircuit
16	XOUT	Crystal resonator	For reference frequency	TYPE A
1	XIN			
2	V_{SS}			
3	RPD	Phase comparator output	This is LO if the locally divided value is higher than the reference frequency, HI if it is lower, and Z if it matches.	TYPE E
4	P—R	Output port	This is controlled by the input data.	TYPE D
5	RON			
6	F—R	VCO input	Local input for reception	TYPE F
7	CE	Chip enable clock signal serial data	When CE is HIGH, the DA synchronized to the rise of CK is read into the internal shift register, and is latched at the timing of the CE fall.	TYPE B
8	CK			
9	DA			
10	LD	Unlock output	This goes ON when the PLL is unlocked on the transmission side	TYPE D
11	F—T	VCO input	Local input for transmission	TYPE F
12	TON	Output port	This is controlled by the input data	TYPE D
13	P—T			
14	TPD	Phase comparator output	This is LO if the locally divided value is higher than the reference frequency, HI if it is lower, and Z if it matches.	TYPE E
15	V_{DD}	Power supply	2.5~5.5V	

Q381:CS4338



No.	Pin Name	I/O	Pin Function and Description
1	SDATA	I	**Serial Audio Data Input** - two's complement MSB-first serial data is input on this pin. The data is clocked into the CS4334/5/8/9 via internal or external SCLK, and the channel is determined by LRCK.
2	$\overline{\text{DEM}}$/SCLK	I	**De-Emphasis/External Serial Clock Input** - used for de-emphasis filter control or external serial clock input.
3	LRCK	I	**Left/Right Clock** - determines which channel is currently being input on the Audio Serial Data Input pin, SDATA.
4	MCLK	I	**Master Clock** - frequency must be 256x, 384x, or 512x the input sample rate in BRM and either 128x or 192x the input sample rate in HRM.
5	AOUTR	O	**Analog Right Channel Output** - typically 3.5 Vp-p for a full-scale input signal.
6	AGND	I	**Analog Ground** - analog ground reference is 0V.
7	VA	I	**Analog Power** - analog power supply is nominally +5V.
8	AOUTL	O	**Analog Left Channel Output** - typically 3.5 Vp-p for a full-scale input signal.



Q351:STA016

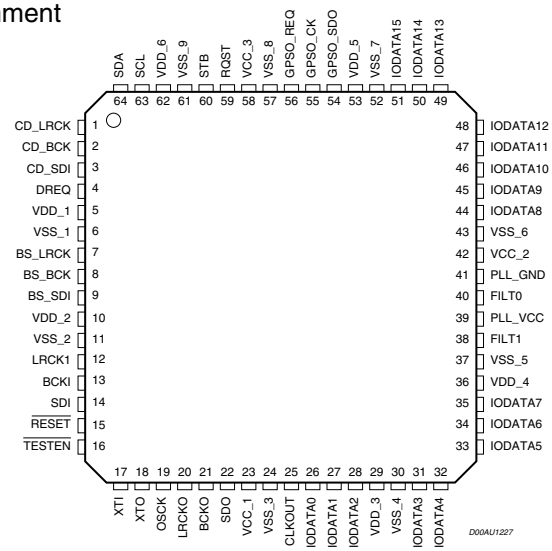
Pin Description

PIN	Pin Name	Type	Description	Sourde/Dest
CDDSP interface				
1	CD_LRCK	I	DSP Interface left/right Clock	From DSP
3	CD_SDI	I	DSP interface serial data	From DSP
2	CD_BCK	I	DSP interface bit clock	From DSP
SDI interface				
9	BS_SDI	I	Bitstream interface serial data	From MCU
7	BS_LRCK	I	Bitstream interface left/right Clock	From MCU
8	BS_BCK	I	Bitstream interface clock	From MCU
4	DREQ	O	Bitstream data request	To MCU
PCM IN interface				
13	BCKI	I	ADC bit clock	From ADC
14	SDI	I	ADC serial data	From ADC
12	LRCKI	I	ADC left/right Clock	From ADC
PCM OUT interface				
20	LRCKO	O	DAC Interface left/right Clock	To DAC
22	SDO	O	DAC serial data	To DAC
21	BCKO	O	DAC bit clock	To DAC
19	OSCK	O	DAC oversampling clock	To DAC/ADC
GPSO interface				
55	GPSO_CK	I	GPSO bit clock	From MCU
54	GPSO_SDO	O	GPSO serial data	To MCU
56	GPSO_REQ	O	GPSO request signal	To MCU
GPIO interface				
26	IODATA0	I/O	GPIODATA0	
27	IODATA1	I/O	GPIODATA1	
28	IODATA2	I/O	GPIODATA2	
31	IODATA3	I/O	GPIODATA3	
32	IODATA4	I/O	GPIODATA4	
33	IODATA5	I/O	GPIODATA5	
34	IODATA6	I/O	GPIODATA6	
35	IODATA7	I/O	GPIODATA7	
44	IODATA8	I/O	GPIODATA8	
45	IODATA9	I/O	GPIODATA9	
46	IODATA10	I/O	GPIODATA10	
47	IODATA11	I/O	GPIODATA11	
48	IODATA12	I/O	GPIODATA12	
49	IODATA13	I/O	GPIODATA13	
50	IODATA14	I/O	GPIODATA14	
51	IODATA15	I/O	GPIODATA15	

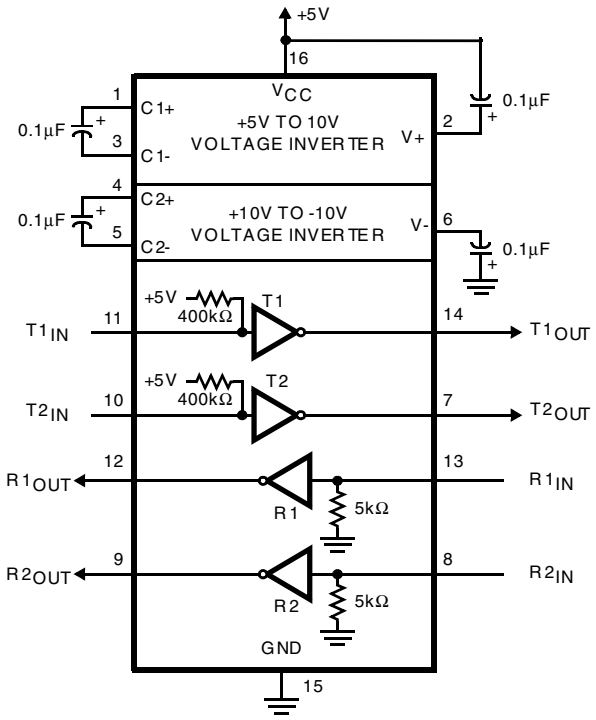
Q351:STA016

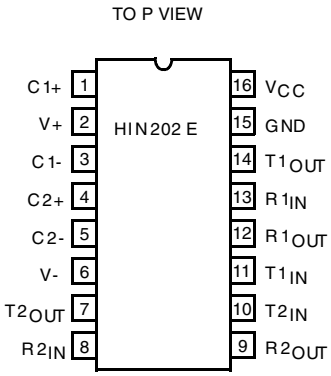
PIN	Pin Name	Type	Description	Sourde/Dest
			HANDSHAKE SIGNALS	
60	STB	I	Strobe signal	From MCU
59	RQST	O	I2C data signal	To MCU
			I^2C LINK	
63	SCL	I	I2C clock signal	From MCU
64	SDA	I/O	I2C data signal	To MCU
			MISCELLANEOUS	
17	XTI	I	Oscillator input	
18	XTO	O	Oscillator output	
25	CLKOUT	O	Buffered output clock	
15	$\overline{\text{RESET}}$	I	Reset	
16	$\overline{\text{TESTEN}}$	I	Reserved for test purpose	
40	FILT0	I	PLL external filter	
38	FILT1		PLL external filter	
			POWER SUPPLY	
39	PLL_VCC			
41	PLL_GND			
5	VDD_1		Digital supply (2.5V Power Supply)	
10	VDD_2		Digital supply (2.5V Power Supply)	
29	VDD_3		Digital supply (2.5V Power Supply)	
36	VDD_4		Digital supply (2.5V Power Supply)	
53	VDD_5		Digital supply (2.5V Power Supply)	
62	VDD_6		Digital supply (2.5V Power Supply)	
23	VCC_1		Digital supply (3.3V Power Supply)	
42	VCC_2		Digital supply (3.3V Power Supply)	
58	VCC_3		Digital supply (3.3V Power Supply)	
6	VSS_1			
11	VSS_2			
24	VSS_3			
30	VSS_4			
37	VSS_5			
43	VSS_6			
52	VSS_7			
57	VSS_8			
61	VSS_9			

Pin Assignment



QR01 : HIN202ECB





Pin Descriptions

PIN	FUNCTION
V_{CC}	Power Supply Input 5V ±10%.
V+	Internally generated positive supply (+10V nominal).
V-	Internally generated negative supply (-10V nominal).
GND	Ground Lead. Connect to 0V.
C1+	External capacitor (+ terminal) is connected to this lead.
C1-	External capacitor (- terminal) is connected to this lead.
C2+	External capacitor (+ terminal) is connected to this lead.
C2-	External capacitor (- terminal) is connected to this lead.
T_{IN}	Transmitter Inputs. These leads accept TTL/CMOS levels. An internal 400kW pull-up resistor to V_{CC} is connected to each lead.
T_{OUT}	Transmitter Outputs. These are RS-232 levels (nominally ±10V).
R_{IN}	Receiver Inputs. These inputs accept RS-232 input levels. An internal 5kW pull-down resistor to GND is connected to each input
R_{OUT}	Receiver Outputs. These are TTL/CMOS levels.
$\overline{EN}$, EN	Receiver Enable Input. With $\overline{EN}$ = 5V (HIN213E EN=0V), the receiver outputs are placed in a high impedance state.
SD, $\overline{SD}$	Shutdown Input. With SD = 5V (HIN213E $\overline{SD}$ = 0V), the charge pump is disabled, the receiver outputs are in a high impedance state (except R4 and R5 of HIN213E) and the transmitters are shut off.
NC	No Connect. No connections are made to these leads.

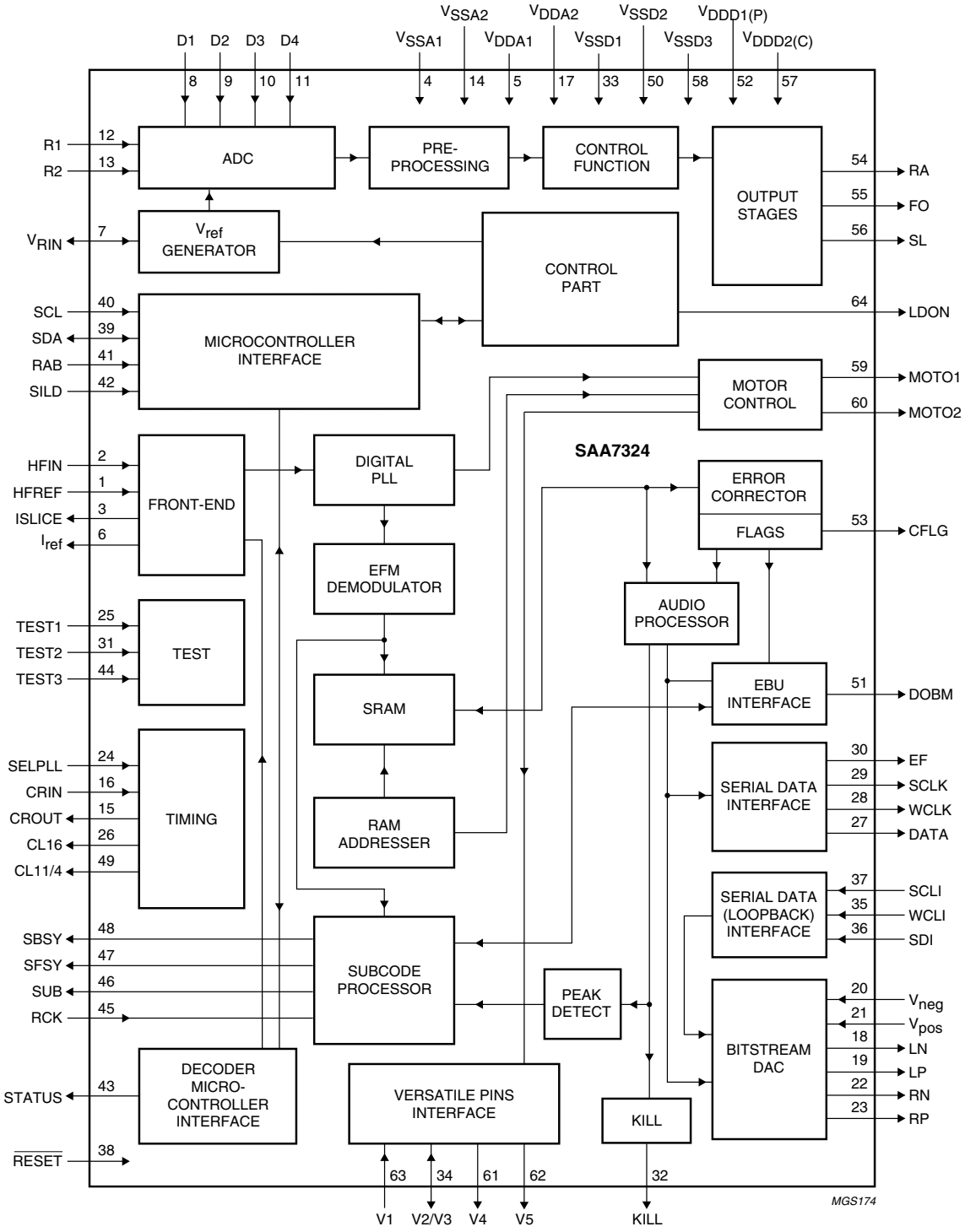
Q301:SAA7324

Pin Description

SYMBOL	PIN	DESCRIPTION
HFREF	1	comparator common mode input
HFIN	2	comparator signal input
ISLICE	3	current feedback output from data slicer
V_{SSA1}	4(1)	analog ground 1
V_{DDA1}	5(1)	analog supply voltage 1
I_{ref}	6	reference current output pin
V_{RIN}	7	reference voltage for servo ADC's
D1	8	unipolar current input (central diode signal input)
D2	9	unipolar current input (central diode signal input)
D3	10	unipolar current input (central diode signal input)
D4	11	unipolar current input (central diode signal input)
R1	12	unipolar current input (satellite diode signal input)
R2	13	unipolar current input (satellite diode signal input)
V_{SSA2}	14(1)	analog ground 2
CROUT	15	crystal/resonator output
CRIN	16	crystal/resonator input
V_{DDA2}	17(1)	analog supply voltage 2
LN	18	DAC left channel differential output - negative
LP	19	DAC left channel differential output - positive
V_{neg}	20(1)	DAC negative reference supply (equivalent to DAC V_{SS})
V_{pos}	21(1)	DAC positive reference supply (equivalent to DAC V_{DD})
RN	22	DAC right channel differential output - negative
RP	23	DAC right channel differential output - positive
SELPLL	24	selects whether internal clock multiplier PLL is used
TEST1	25	test control input 1; this pin should be tied LOW
CL16	26	16.9344 MHz system clock output
DATA	27	serial data output (3-state)
WCLK	28	word clock output (3-state)
SCLK	29	serial bit clock output (3-state)
EF	30	C2 error flag output (3-state)
TEST2	31	test control input 2; this pin should be tied LOW
KILL	32	kill output (programmable; open-drain)
V_{SSD1}	33(1)	digital ground 2
V2/V3	34	versatile I/O: input versatile pin 2 or output versatile pin 3 (open-drain)
WCLI	35	word clock input (for data loopback to DAC)
SDI	36	serial data input (for data loopback to DAC)
SCLI	37	serial bit clock input (for data loopback to DAC)
$\overline{RESET}$	38	power-on reset input (active LOW)
SDA	39	microcontroller interface data I/O line (open-drain output)
SCL	40	microcontroller interface clock line input
RAB	41	microcontroller interface R/$\overline{W}$ and load control line input (4-wire bus mode)
SILD	42	microcontroller interface $\overline{R}$/W and load control line input (4-wire bus mode)
STATUS	43	servo interrupt request line/decoder status register output (open-drain)
TEST3	44	test control input 3; this pin should be tied LOW
RCK	45	subcode clock input
SUB	46	P-to-W subcode bits output (3-state)
SFSY	47	subcode frame sync output (3-state)
SBSY	48	subcode block sync output (3-state)
CL11/4	49	11.2896 MHz or 4.2336 MHz (for microcontroller) clock output
V_{SSD2}	50(1)	digital ground 3
DOBM	51	bi-phase mark output (externally buffered; 3-state)
$V_{DDD1(P)}$	52(1)	digital supply voltage 2 for periphery
CFLG	53	correction flag output (open-drain)
RA	54	radial actuator output
FO	55	focus actuator output
SL	56	sledge control output
$V_{DDD2(C)}$	57(1)	digital supply voltage 3 for core
V_{SSD3}	58(1)	digital ground 4
MOTO1	59	motor output 1; versatile (3-state)
MOTO2	60	motor output 2; versatile (3-state)
V4	61	versatile output pin 4
V5	62	versatile output pin 5
V1	63	versatile input pin 1
LDON	64	laser drive on output (open-drain)

Note

1. All supply pins must be connected to the same external power supply voltage


D1
D2
D3
D4
VSSA2
VDDA2
VSSD2
VDDD1(P)
VSSA1
VDDA1
VSSD1
VSSD3
VDDD2(C)
8
9
10
11
4
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5
17
33
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58
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57
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R2
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PRE-PROCESSING
CONTROL FUNCTION
OUTPUT STAGES
54
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56
RA
FO
SL
VRIN
7
Vref GENERATOR
CONTROL PART
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SDA
RAB
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MICROCONTROLLER INTERFACE
MOTOR CONTROL
59
60
MOTO1
MOTO2
SAA7324
HFIN
HFREF
ISLICE
Iref
2
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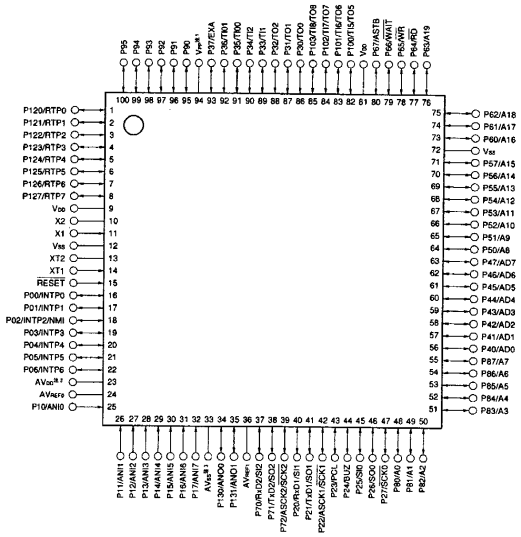
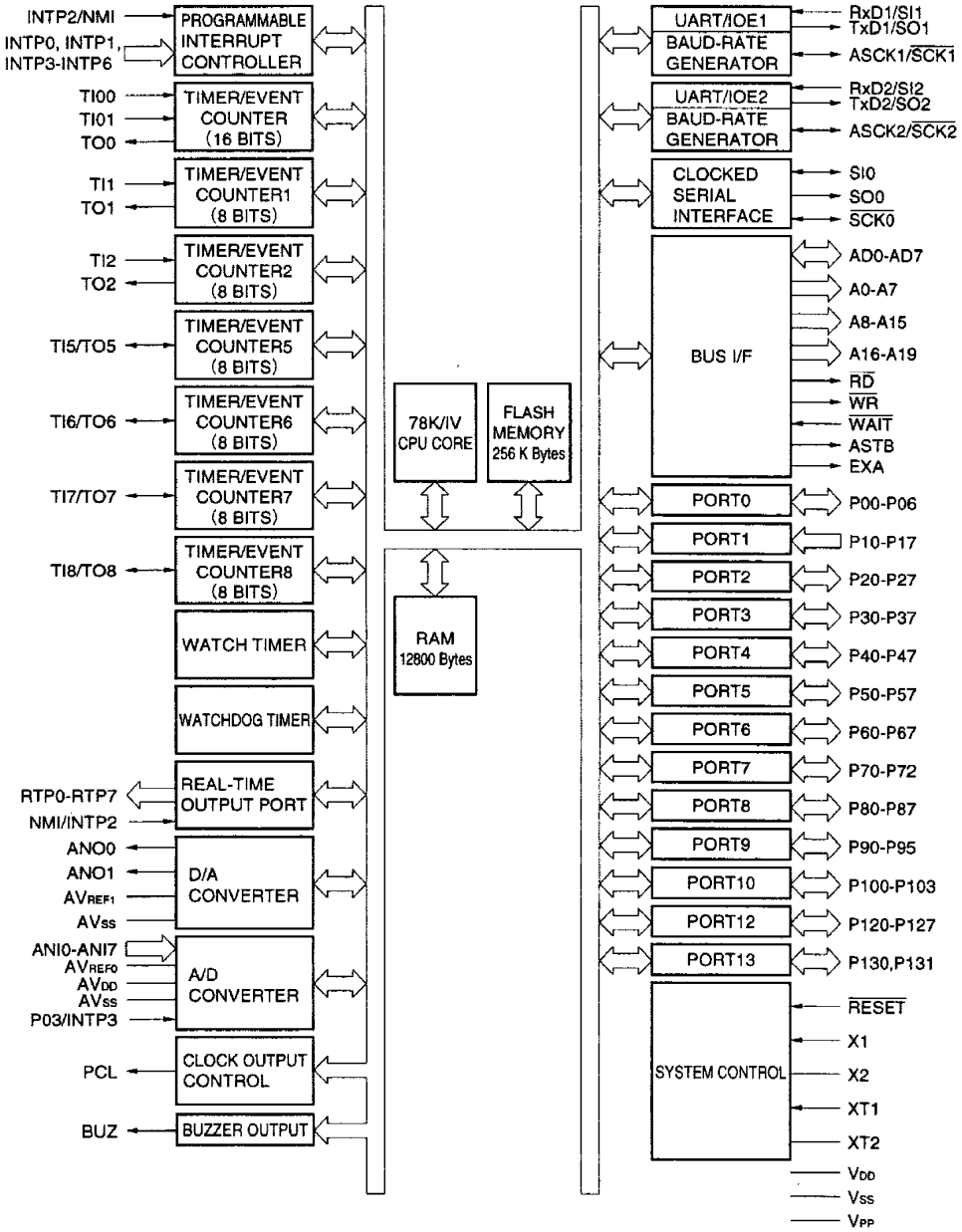
3
6
FRONT-END
DIGITAL PLL
ERROR CORRECTOR
FLAGS
53
CFLG
EFM DEMODULATOR
AUDIO PROCESSOR
TEST1
TEST2
TEST3
25
31
44
TEST
SRAM
EBU INTERFACE
51
DOBM
SELPLL
CRIN
CROUT
CL16
CL11/4
24
16
15
26
49
TIMING
RAM ADDRESSER
SERIAL DATA INTERFACE
30
29
28
27
EF
SCLK
WCLK
DATA
SERIAL DATA (LOOPBACK) INTERFACE
37
35
36
SCLI
WCLI
SDI
SBSY
SFSY
SUB
RCK
48
47
46
45
SUBCODE PROCESSOR
PEAK DETECT
BITSTREAM DAC
20
21
18
19
22
23
Vneg
Vpos
LN
LP
RN
RP
STATUS
43
DECODER MICRO-CONTROLLER INTERFACE
VERSATILE PINS INTERFACE
KILL
RESET
38
63
34
61
62
32
V1
V2/V3
V4
V5
KILL
MGS174

QU51 : µPD784217AGC-192-8EU





QU51 : µPD784217AGC-192-8EU

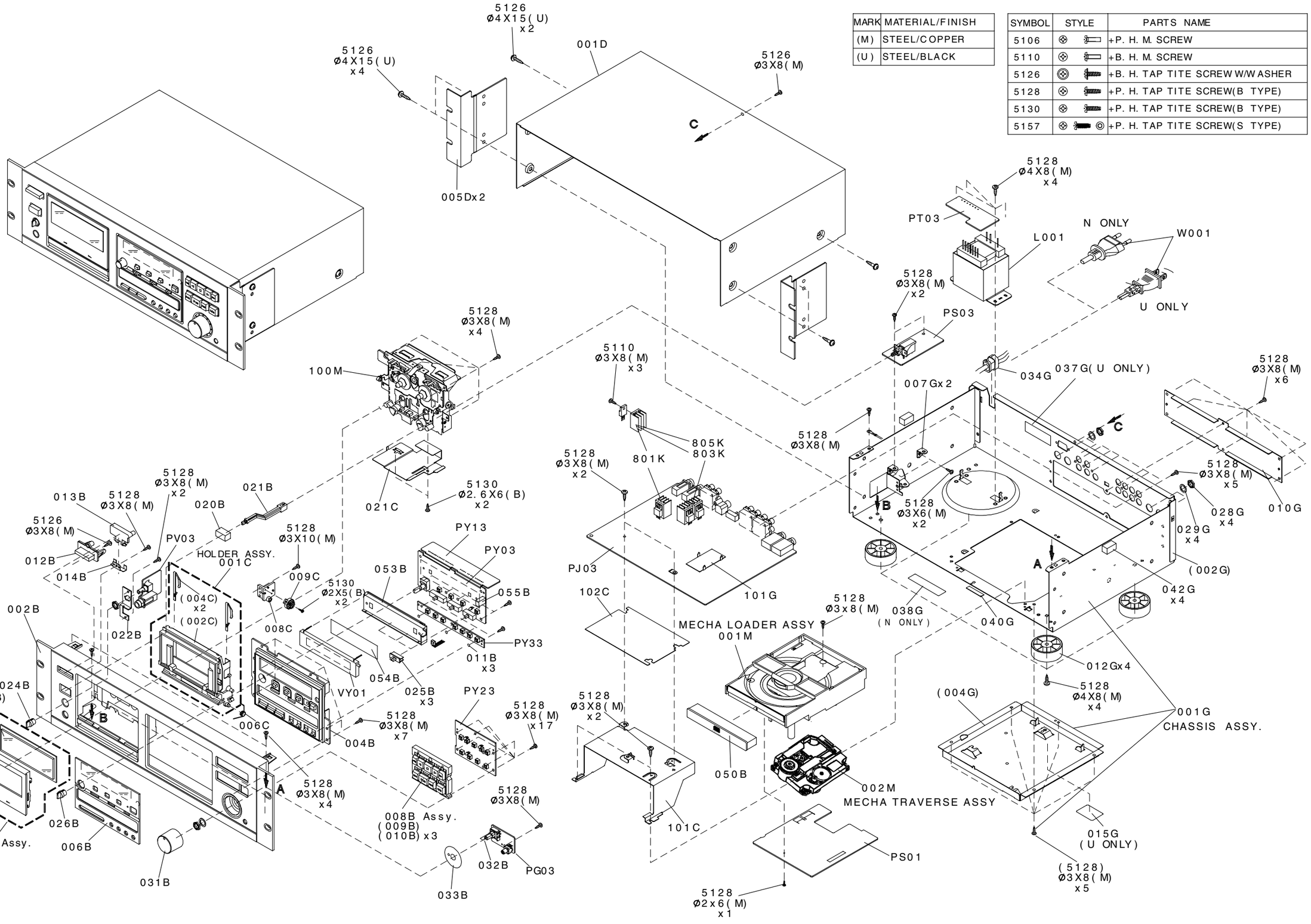
Pin No.	Port Name	I/O	Signal Name	Remarks
1	P120/RTP0	O	n.c.	n.c.
2	P121/RTP1	O	n.c.	n.c.
3	P122/RTP2	O	n.c.	n.c.
4	P123/RTP3	O	n.c.	n.c.
5	P124/RTP4	O	n.c.	n.c.
6	P125/RTP5	O	n.c.	n.c.
7	P126/RTP6	O	n.c.	n.c.
8	P127/RTP7	O	n.c.	n.c.
9	VDD		+5V	Power +5V
10	X2	O	10MHz	Main system clock 10MHz
11	X1	I	10MHz	Main system clock 10MHz
12	VSS		GND	GND
13	XT2		n.c.	n.c.
14	XT1		GND	GND
15	$\overline{\text{RESET}}$	I	CPU_RES	Reset active low
16	P00/INTP0	I	PDIN	Power down in (active Low)
17	P01/INTP1	I	MP_RQST	From STA016T
18	P02/INTP2/NMI	I	HFD	From HF Detector
19	P03/INTP3	I	n.c.	n.c.
20	P04/INTP4	I	REEL1	Reel pulse1 from tape deck
21	P05/INTP5	I	REEL2	Reel pulse2 from tape deck
22	P06/INTP6	I	n.c.	n.c.
23	AVDD		+5V	Power +5V
24	AVREF0		+5V	A/D reference
25	P10/ANI0	I	ADR	A/D tape Rch level meter
26	P11/ANI1	I	ADL	A/D tape Lch level meter
27	P12/ANI2	I	EXC	A/D fader selection
28	P13/ANI3	I	GND	GND
29	P14/ANI4	I	GND	GND
30	P15/ANI5	I	GND	GND
31	P16/ANI6	I	GND	GND
32	P17/ANI7	I	GND	GND
33	AVSS		GND	GND
34	P130/ANO0	O	n.c.	n.c.
35	P131/ANO1	O	FL_STB	Strobe for uPD161311
36	AVREF1		+5V	D/A reference
37	P70/RXD2/SI2	O	FL_DIN	Data in from uPD161311
38	P71/TXD2/SO2	O	FL_DOUT	Data out for uPD161311
39	P72/ASCK2/$\overline{\text{SCK2}}$	O	FL_CLK	Clock for uPD161311
40	P20/RXD1/SI1	I	RXD	For 232C interface
41	P21/TXD1/SO1	O	TXD	For 232C interface
42	P22/ASCK1/$\overline{\text{SCK1}}$	O	CTS	For 232C interface
43	P23/PCL	O	RTS	For 232C interface
44	P24/BUZ	O	STB1	Strobe1 for 74HC4094(Ext.port)
45	P25/SI0/SDA0	O	STB2	Strobe2 for HA12155NT(DolbyIC)
46	P26/SO0	O	DA	Data out for HA12155/74HC4094
47	P27/SCK0/SCL0	O	SCK	Clock for HA12155/74HC4094
48	P80/A0	O	CPM	Capstan motor on/off
49	P81/A1	O	SOL	Solenoid on/off
50	P82/A2	O	RPC	Reel speed high/low

Pin No.	Port Name	I/O	Signal Name	Remarks
51	P83/A3	O	RM1	Reel motor1 on/off
52	P84/A4	O	RM2	Reel motor2 on/off
53	P85/A5	O	RECM	Rec mute. For HA12155
54	P86/A6	O	ALC	ALC On=LOW, Off=HIGH
55	P87/A7	O	n.c.	n.c.
56	P40/AD0	I/O	CD_SDA	Data for CD10/BU2630
57	P41/AD1	O	CD_SCL	Clock for CD10/BU2630
58	P42/AD2	O	CD_SILD	Latch for CD10 servo part
59	P43/AD3	O	CD_RAB	Latch for CD10 decoder part
60	P44/AD4	O	PLL_CS	CS for BU2630
61	P45/AD5	O	CD_RES	Reset for CD10
62	P46/AD6	O	n.c.	n.c.
63	P47/AD7	O	MP_RES	Reset for STA016T
64	P50/A8	O	MP_STB	Strobe for STA016T
65	P51/A9	I/O	IIC_SDA	Data for STA016T
66	P52/A10	O	IIC_SCL	Clock for STA016T
67	P53/A11	O	TRAY_CONT1	Tray in/out control
68	P54/A12	O	TRAY_CONT2	Tray in/out control
69	P55/A13	I	LOAD_SW	Tray loading sw Low active
70	P56/A14	O	TAPEMU	Tape mute cont.
71	P57/A15	O	CDMU	CD mute cont.
72	VSS		GND	GND
73	P60/A16	O	n.c.	n.c.
74	P61/A17	O	n.c.	n.c.
75	P62/A18	O	n.c.	n.c.
76	P63/A19	O	n.c.	n.c.
77	P64/$\overline{\text{RD}}$	O	n.c.	n.c.
78	P65/$\overline{\text{WR}}$	O	n.c.	n.c.
79	P66/$\overline{\text{WAIT}}$	I	MP3_EN	MP3 Enable = OpenMP3 Disable = Low
80	P67/ASTB	O	MOT_SW	Spindle Free RUN Active HIGH
81	VDD		+5V	Power +5V
82	P100/TI5/TO5	O	n.c.	n.c.
83	P101/TI6/TO6	O	RCOUT	RC5 out
84	P102/TI7/TO7	O	EXRO	External RC out
85	P103/TI8/TO8	O	n.c.	n.c.
86	P30/TO0	O	n.c.	n.c.
87	P31/TO1	O	n.c.	n.c.
88	P32/TO2	O	n.c.	n.c.
89	P33/TI1	O	n.c.	n.c.
90	P34/TI2	O	n.c.	n.c.
91	P35/TI00	I	RCIN	RC5 in
92	P36/TI01	I	EXRI	External RC in
93	P37/EXA	O	n.c.	n.c.
94	TEST		GND	GND
95	P90	I	METAL	From tape deck sw
96	P91	I	FREC	From tape deck sw
97	P92	I	PACK	From tape deck sw
98	P93	I	CRO2	From tape deck sw
99	P94	I	RREC	From tape deck sw
100	P95	I	QS	Quick Sensor from tape deck

13. EXPLODED VIEW AND PARTS LIST

MARK	MATERIAL/FINISH
(M)	STEEL/COPPER
(U)	STEEL/BLACK

SYMBOL	STYLE	PARTS NAME
5106		+P. H. M. SCREW
5110		+B. H. M. SCREW
5126		+B. H. TAP TITE SCREW W/WASHER
5128		+P. H. TAP TITE SCREW(B TYPE)
5130		+P. H. TAP TITE SCREW(B TYPE)
5157		+P. H. TAP TITE SCREW(S TYPE)

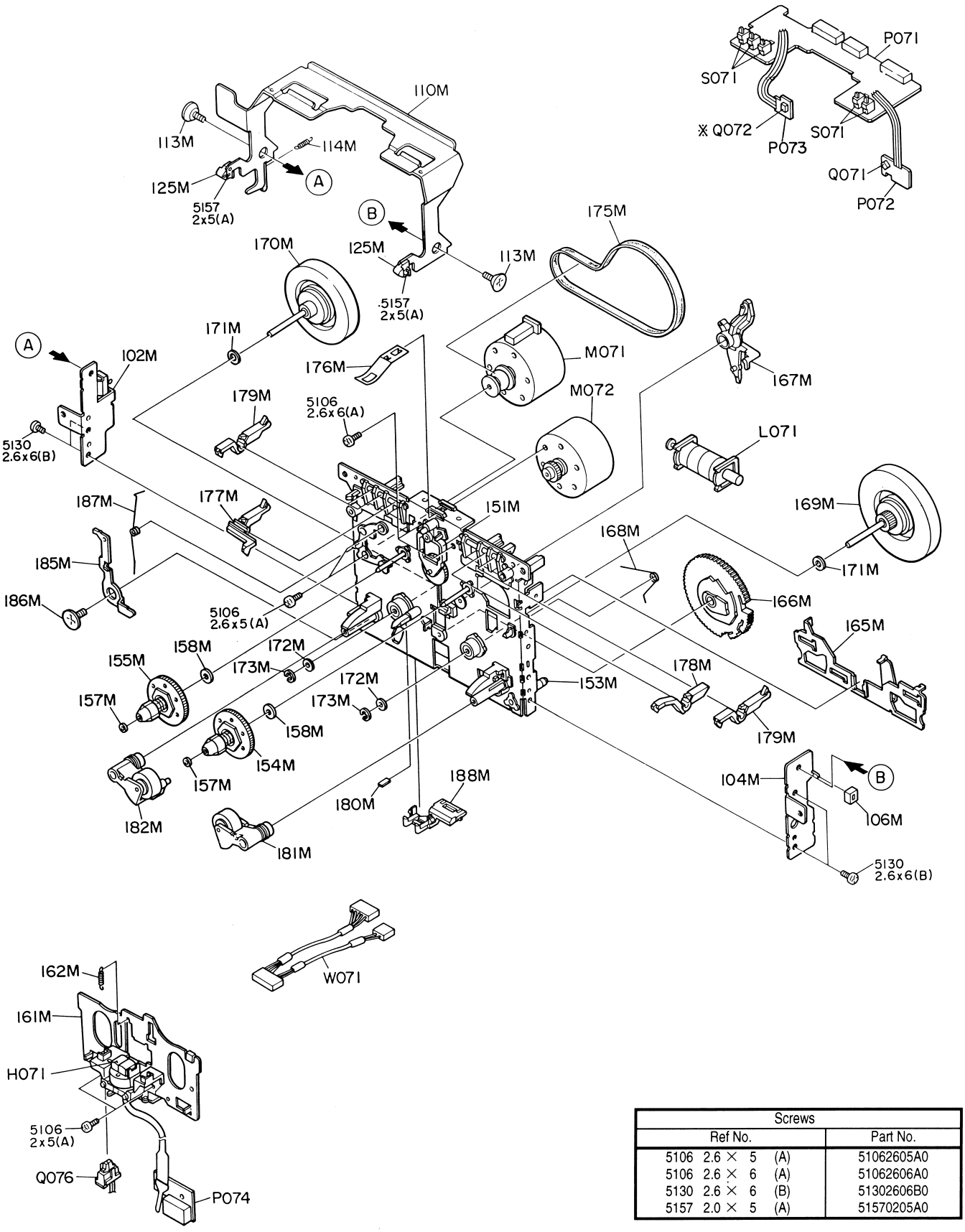


POS. NO	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART NO. (MJI)
002B		474T248110	FRONT PANEL	474T248110
004B		474T053010	COVER	474T053010
006B		474T158020	WINDOW	474T158020
008B		474T270500	MECHA BUTTON K	474T270500
009B		474T270010	MECHA BUTTON	474T270010
010B		474T355010	LENS (PLAY)	474T355010
012B		416T270040	EJECT BUTTON FOR FRONT PANEL	416T270040
013B		416T354010	EJECT LEVER FOR FRONT PANEL	416T354010
020B		023J270020	POWER BUTTON	023J270020
021B		416T121010	POWER SW LINK	416T121010
024B		284T154310	HP SW KNOB	284T154310
025B		453T154010	SLIDE KNOB	453T154010
026B		284T154310	PITCH KNOB	284T154310
031B		431T154010	REC LEVEL KNOB	431T154010
045B		457T053500	CASSETTE COVER K	457T053500
050B		02AT063010	ESCUTCHEON CD	02AT063010
001C		416T271500	CASSETTE HOLDER K	416T271500
002C		415T271020	CASSETTE HOLDER	415T271020
004C		416T116020	LEAF SPRING FOR CLAMPER	416T116020
006C		420T115030	CASSETTE HOLDER OPEN SPRING	420T115030
009C		415T130010	GEAR DAMPER	415T130010
012G		176H057630	LEG FOR MAIN CHASSIS	176H057630
028G		075S011010	NUT FOR JACK D:6.4	075S011010
001M		05AK304500	MECHA LOADER ASSY VAL2212 08	05AK304500
002M		05AK304510	MECHA TRAVERSE ASSY VAM2202 08	05AK304510
W001	/N	YC01800790	MAINS CORD N (MAYOR)	YC01800790
⚠ W001	/U		MAINS CORD UL/CSA	YC02000880
⚠			NON-INTEGRAL	
WU03		nsp	JUMPER LEAD JU61-JU51 U-CON CONTROL	YU30230520
WY02		nsp	JUMPER LEAD JY02-JY71 CD/TAPE CONTROL	YU10110500
			PACKING	
001T		02AT851250	USER GUIDE PMD351	02AT851250
004T		02AT851020	USER GUIDE CD-ROM	02AT851020
			NOT STANDARD SPARE PARTS	
001S		nsp	PACKING CASE	02AT801010
002S		nsp	CUSHION	457T809010
001D		nsp	LID TOP COVER	418T257030
005D		nsp	SIDE BRACKET (L&R)	457T160110

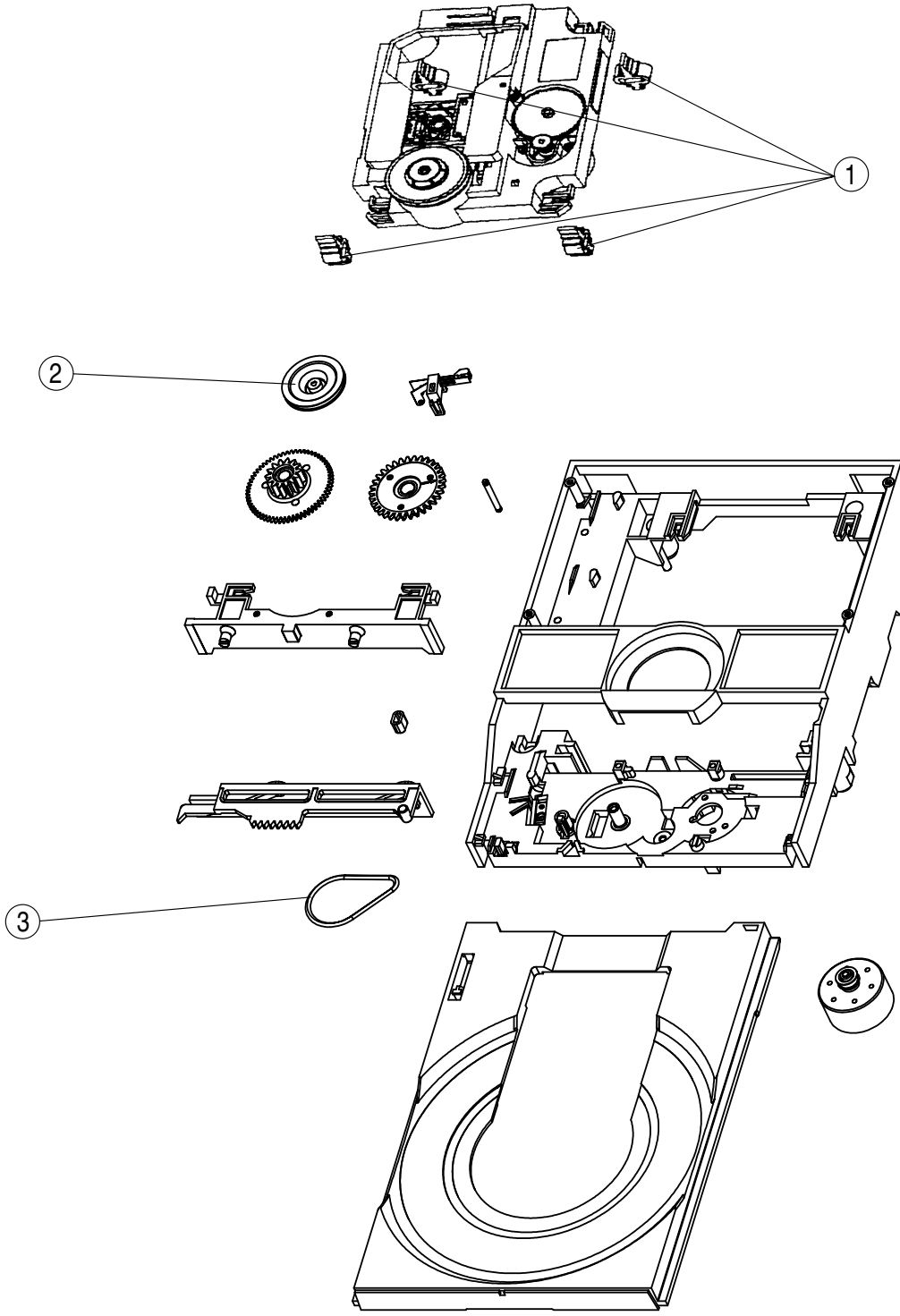
NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

POS. NO	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART NO. (MJI)
100M		466T304500	MECHANISM ASSY CMAY2Z3	466T304500
102M		nsp	MECHA BRACKET (L) (FC53D-22]	415T160020
104M		nsp	MECHA BRACKET (R) [FC53E-12]	415T160030
106M		nsp	STOPPER FOR EJECT [FD46H-12]	415T114010
110M		nsp	EJECT HOOK LEVER [FC49P-91]	415T258310
113M		nsp	SCREW [UG14M-31]	415T010010
114M		nsp	SPRING (LEFT-SIDE) [FK23R-11]	415T115040
125M		nsp	MOLD HOOK [FD35W-11]	415T258020
151M		456T001050	IDLER [F517-049]	456T001050
153M		nsp	MECHA MAIN CHASSIS [F612-180]	456T105050
154M		420T352050	R-REEL BASE [F623-038]	420T352050
155M		420T352050	L-REEL BASE [F623-038]	420T352050
157M		59163202G0	WASHER [FJ111-17]	59163202G0
158M		59020802G0	WASHER [UJ12V-11]	59020802G0
161M		nsp	HEAD BASE [FC52E-37]	456T160050
162M		nsp	SPRING [FK26N-14]	420T115070
165M		nsp	HEAD SIFTTER [FC52F-16]	456T110050
166M		456T054050	CAM GEAR [FD45B-16]	456T054050
167M		420T002050	PLAY ARM [FD45G-21]	420T002050
168M		420T115060	SPRING [FK28R-12]	420T115060
169M		425T273100	FLY-WHEEL ASSY (R) [FR22D-11]	425T273100
170M		425T273110	FLY-WHEEL ASSY (L) [FR22E-13]	425T273110
171M		59264702G0	WASHER [FJ111-30]	59264702G0
172M		59264705G0	WASHER [FJ111-14]	59264705G0
173M		64001500L0	E-RING [UG13U-15]	64001500L0
175M		456T264050	MAIN BELT [FF17G-31]	456T264050
176M		nsp	SPRING [FC52H-13]	420T116050
177M		420T354070	METAL SEARCH LEVER [FD44V-12]	420T354070
178M		420T354060	PACK SEARCH LEVER [FD44Y-12]	420T354060
179M		424T354100	REC SEARCH LEVER [FD44T-14]	424T354100
180M		nsp	REFLECTOR [UT11R-11]	420T274050
181M		456T358550	PINCH ROLLER (R) [FR20L-22]	456T358550
182M		456T358560	PINCH ROLLER (L) [FR20M-41]	456T358560
185M		nsp	ANTI EJECT ARM [FC39L-70]	424T002100
186M		nsp	SCREW [UG15S-11A]	424T010100
187M		nsp	SPRING FOR 185M [FK28R-15]	424T115100
188M		nsp	HEAD PCB HOLDER [FD45H-15]	420T271050
H071		*LH500030R	HEAD ASSY HADKH5559C	*LH500030R
L071		ME1035011R	SOLENOID ASSY [765-263]	ME1035011R
M071		MM1120904R	MAIN MOTOR ASSY F525-256	MM1120904R
M072		MM0075002R	REEL MOTOR ASSY [564-288]	MM0075002R
P071		nsp	CASSETTE SENSOR PCB [F567-404]	nsp
P072		nsp	PHOTO REFLECTOR PCB (TAKE UP)	nsp
P073		nsp	PHOTO REFLECTOR PCB (SUPPLY)	nsp
P074		nsp	MECHA CONNECT PCB (HEAD WIRE)	nsp
Q071		HW1000100R	PHOTO REFLE TAKE UP [AW13G-00]	HW1000100R
Q072		HW1000100R	PHOTO REFLE SUPPLY [AW13G-00]	HW1000100R
Q076		HW1000200R	QUICK SENSOR ASSY [AZ13P-00]	HW1000200R
S073 ∫ S076		*SP000130R	SWITCH [UE16E-11]	*SP000130R
S077		*SP000130R	CRO2 SW [UE16E-11]	*SP000130R

NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.



Screws	
Ref No.	Part No.
5106 2.6 × 5 (A)	51062605A0
5106 2.6 × 6 (A)	51062606A0
5130 2.6 × 6 (B)	51302606B0
5157 2.0 × 5 (A)	51570205A0



POS. NO	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART NO. (MJI)
1		QP40410986	SUSPENSION(4822 404 10986)	QP40410986
2		QP40111709	CLAMPER(4822 401 11709)	QP40111709
3		QP35810266	BELT(4822 358 10266)	QP35810266

NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

14. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTORS

R✻✻✻: 1) GD05×××140, Carbon film fixed resistor, ±5% 1/4W
R✻✻✻: 2) GD05×××160, Carbon film fixed resistor, ±5% 1/6W
① —— Resistance value

Examples ;
① Resistance value

0.1 Ω 001	10 Ω 100	1 kΩ 102	100 kΩ 104
0.5 Ω 005	18 Ω 180	2.7 kΩ 272	680 kΩ 684
1 Ω 010	100 Ω 101	10 kΩ 103	1 MΩ 105
6.8 Ω 068	390 Ω 391	22 kΩ 223	4.7 MΩ 475

Note : Please distinguish 1/4W from 1/6W by the shape of parts used actually.

CAPACITORS

C✻✻✻: CERAMIC CAP.
3) DD1××××370, Ceramic capacitor
② ③ Disc type
Temp.coeff.P350 ～N1000, 50V
③ —— Capacity value
② —— Tolerance

Examples ;
② Tolerance (Capacity deviation)
±0.25 pF 0
±0.5 pF 1
±5% 5
✻ Tolerance of COMMON PARTS handled here are as follows :
0.5 pF～ 5 pF .... ±0.25 pF
6 pF～ 10 pF .... ±0.5 pF
12 pF～ 560 pF .... ±5%
③ Capacity value

0.5 pF 005	3 pF 030	100 pF 101	
1 pF 010	10 pF 100	220 pF 221	
1.5 pF 015	47 pF 470	560 pF 561	

C✻✻✻ : CERAMIC CAP.
4) DK16××× 300, High dielectric constant ceramic capacitor
④ Disc type
Temp.chara. 2B4, 50V
④ —— Capacity value

Examples ;
④ Capacity value

100 pF 101	1000 pF 102	10000 pF 103
470 pF 471	2200 pF 222	

C✻✻✻ : 5) ELECTROLY CAP. (⏚), 6) FILM CAP. (⏤)
5) EA××××××10, Electrolytic capacitor
⑤ ⑥ One-way lead type, Tolerance ±20%
⑥ —— Working voltage
⑤ —— Capacity value

Examples ;
⑤ Capacity value

0.1 µF 104	4.7 µF 475	100 µF 107	
0.33 µF 334	10 µF 106	330 µF 337	
1 µF 105	22 µF 226	1100 µF 118	
		2200 µF 228	

⑥ Working voltage

6.3V 006	25V 025
10V 010	35V 035
16V 016	50V 050

6) DF15××× 350 → Plastic film capacitor
DF15××× 310 → One-way type, Mylar ±5% 50V
DF16××× 310 → Plastic film capacitor
⑦ One-way type, Mylar ±10% 50V
⑦ —— Capacity value

Examples ;
⑦ Capacity value

0.001 µF (1000 pF) 102	0.1 µF 104
0.0018 µF 182	0.56 µF 564
0.01 µF 103	1 µF 105
0.015 µF 153	

NOTE : 1) The above CODES (R✻✻✻ , R✻✻✻ , C✻✻✻ , C✻✻✻ and C ✻✻✻) are omitted on the schematic diagram in some case.
2) On the occasion, be confirmed the common parts on the parts list.
3) Refer to "Common Parts List" for the other common parts (**RI05**, **DD4**, **DK4**).

NOTE ON SAFETY FOR FUSIBLE RESISTOR :

The suppliers and their type numbers of fusible resistors are as follows;
1. KOA Corporation

Part No. (MJI)	Type No. (KOA)	Description
NH05×××140	→ RF25S××××ΩJ	(±5% 1/4W)
NH05×××120	→ RF50S××××ΩJ	(±5% 1/2W)
NH85×××110	→ RF73B2A××××ΩJ	(±5% 1/10W)
NH95×××140	→ RF73B2E××××ΩJ	(±5% 1/4W)

✻ Resistance value — Resistance value (0.1 Ω – 10 kΩ)

2. Matsushita Electronic Components Co., Ltd

Part No. (MJI)	Type No. (MEC)	Description
NF05×××140	→ ERD-2FCJ×××	(±5% 1/4W)
RF05×××140		
NF02×××140	→ ERD-2FCG×××	(±2% 1/4W)
RF02×××140		

✻ Resistance value — ✻ Resistance value

Examples ;
✻ Resistance value

0.1 Ω 001	10 Ω 100	1 kΩ 102	100 kΩ 104
0.5 Ω 005	18 Ω 180	2.7 kΩ 272	680 kΩ 684
1 Ω 010	100 Ω 101	10 kΩ 103	1 MΩ 105
6.8 Ω 068	390 Ω 391	22 kΩ 223	4.7 MΩ 475

ABBREVIATION AND MARKS

ANT.	: ANTENNA	BATT.	: BATTERY
CAP.	: CAPACITOR	CER.	: CERAMIC
CONN.	: CONNECTING	DIG.	: DIGITAL
HP	: HEADPHONE	MIC.	: MICROPHONE
µ-PRO	: MICROPROCESSOR	REC.	: RECORDING
RES.	: RESISTOR	SPK	: SPEAKER
SW	: SWITCH	TRANSF.	: TRANSFORMER
TRIM.	: TRIMMING	TRS.	: TRANSISTOR
VAR.	: VARIABLE	X'TAL	: CRYSTAL

NOTE ON FUSE :

Regarding to all parts of parts code **FS20**xxx**2**xx, replace only with Wickmann-Werke GmbH, Type 372 non glass type fuse.

NOTE ON SAFETY :

Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replaced any part marked with symbol ⚠ . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

安全上の注意 :

⚠がついている部品は、安全上重要な部品です。必ず指定されている部品番号の部品を使用して下さい。

POS. NO	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART NO. (MJI)
			PG03-REC. VOL.	
			CIRCUIT BOARD	
RG51		RM02030360	VAR. RES. 20K-A	RM02030360
RG52		RK01040660	VAR. RES. 100KB RK09K113 C,C BALANCE	RK01040660
RG53		nsp	RES. 1k ±5% 1/6W	GD05102160
RG54		nsp	RES. 1k ±5% 1/6W	GD05102160
			PJ03-MAIN	
			CIRCUIT BOARD	
			PJ03-CAPACITORS	
C617		nsp	ELECT. 0.1µF 50V	EJ10405010
C618		nsp	ELECT. 0.1µF 50V	EJ10405010
C619		nsp	ELECT. 0.1µF 50V	EJ10405010
C620		nsp	ELECT. 0.1µF 50V	EJ10405010
C630		EA10701620	ELECT. 100µF 16V	EA10701620
C804		nsp	ELECT. 100µF M 16V RA-2	OA10701620
C807		nsp	ELECT. 4700µF 25V	OA47802520
C809		EA47701020	ELECT. 470µF 10V	EA47701020
C814		EA10802520	ELECT. 1000µF 25V	EA10802520
C852		EA47601620	ELECT. 47µF 16V	EA47601620
C871		EA10605020	ELECT. 10µF 50V	EA10605020
C913		EA47601620	ELECT. 47µF 16V	EA47601620
C915		nsp	ELECT. 100µF M 16V RA-2	OA10701620
CC05		EA47601620	ELECT. 47µF 16V	EA47601620
CE05		nsp	ELECT. 100µF M 16V RA-2	OA10701620
CE43		EA47601620	ELECT. 47µF 16V	EA47601620
CG05		EA47601620	ELECT. 47µF 16V	EA47601620
CG06		EA47601620	ELECT. 47µF 16V	EA47601620
CJ13		nsp	ELECT. 100µF M 16V RA-2	OA10701620
CK01		nsp	ELECT. 0.47µF 50V	EJ47405010
CK02		nsp	ELECT. 0.47µF 50V	EJ47405010
			PJ03-RESISTORS	
R633		NF02100140	FUSE 10 G 1/4W	NF02100140
⚠ R810		NF05047140	FUSE 4.7 J 1/4W	NF05047140
⚠ R811		NF05047140	FUSE 4.7 J 1/4W	NF05047140
⚠ R858		NF02330140	FUSE 33 G 1/4W	NF02330140
R907		RA01030780	TRIM. 10k RH0638C14R	RA01030780
R908		RA01030780	TRIM. 10k RH0638C14R	RA01030780
RJ15		RA01030780	TRIM. 10k RH0638C14R	RA01030780
RJ16		RA01030780	TRIM. 10k RH0638C14R	RA01030780
RK05		RA01030780	TRIM. 10k RH0638C14R	RA01030780
RK06		RA01030780	TRIM. 10k RH0638C14R	RA01030780
RK13		nsp	24k ±5% 1/6W	GD05243160
RM33		NH05100140	FUSIBLE 10 J 1/4W	NH05100140
RM36		RA01030780	TRIM. 10k RH0638C14R	RA01030780
			PJ03-SEMICONDUCTORS	
⚠ D801		HE20020290	DIODE D3SB20 V=200V IO=3.0A	HE20020290
D806		nsp	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000
D807		nsp	DIODE RL103E RECTRON DSF10C	HD20003000
D809		nsp	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000
D812		nsp	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000
D813		nsp	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000
⚠ D851		HD20003000	DIODE RL103E RECTRON DSF10C	HD20003000
D852		HD30621000	ZENER DIODE 6.2V	HD30621000
D853		HD31301000	ZENER DIODE 13V	HD31301000
D854		HD31301000	ZENER DIODE 13V	HD31301000
⚠ D855		HD20003000	DIODE RL103E RECTRON DSF10C	HD20003000
D871 ∫ D874		nsp	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000

POS. NO	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART NO. (MJI)
DC01 ∫ DC04		nsp	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000
DM01		nsp	DIODE RL103E RECTRON DSF10C	HD20003000
DM02		HD30621000	ZENER DIODE 6.2V	HD30621000
DM03		HD30471000	ZENER DIODE NTJ4.7B 4.7V	HD30471000
DU01		nsp	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000
DU02		nsp	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000
DU09		nsp	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000
Q601		HC10101010	IC HA12155NT DOLBY B/C REC AMP	HC10101010
Q603		BA20001000	DIG.TRS. DTC114ES UN4211 10K 10K	BA20001000
Q604		BA20001000	DIG.TRS. DTC114ES UN4211 10K 10K	BA20001000
⚠ Q801		HC3891509F	AVR NJM7815FA 15V 1A	HC3891509F
⚠ Q802		HC3890509F	AVR NJM7805FA 5V 1A	HC3890509F
Q803		BA20001000	DIG.TRS. DTC114ES UN4211 10K 10K	BA20001000
⚠ Q804		HC3890809F	AVR NJM7808FA 8V 1A	HC3890809F
Q805		BA10002000	DIG.TRS. DTA144ES UN4113 47K 47K	BA10002000
Q806		BA20001000	DIG.TRS. DTC114ES UN4211 10K 10K	BA20001000
Q807		BA20002000	DIG.TRS. DTC144ES UN4213 47K 47K	BA20002000
⚠ Q808		HC3890509F	AVR NJM7805FA 5V 1A	HC3890509F
⚠ Q851		HT213572B0	TRS. 2SB1357 E OR F 50V 1.8W	HT213572B0
Q871		HT421442A0	TRS. 2SD2144S U OR V	HT421442A0
Q872		BA20002000	DIG.TRS. DTC144ES UN4213 47K 47K	BA20002000
Q873		BA10032210	DIG.TRS. DTA125TS	BA10032210
Q901		HC10200060	IC UPC1297CA HX-PRO	HC10200060
Q902		BA20001000	DIG.TRS. DTC114ES UN4211 10K 10K	BA20001000
Q903		BA20001000	DIG.TRS. DTC114ES UN4211 10K 10K	BA20001000
QC01		HC10008090	IC NJM4558D-D	HC10008090
QC02		BA20001000	DIG.TRS. DTC114ES UN4211 10K 10K	BA20001000
QC03		HT30001000	TRS. 2SC536SP 2SC2458 2SC3311 2SC1740S	HT30001000
QC04		HT30001000	TRS. 2SC536SP 2SC2458 2SC3311 2SC1740S	HT30001000
QE01		BA20028210	DIG.TRS. DTC323TS 2.2K	BA20028210
QE02		BA20028210	DIG.TRS. DTC323TS 2.2K	BA20028210
QE03		HC10008090	IC NJM4558D-D	HC10008090
QE04		HT30001000	TRS. 2SC536SP 2SC2458 2SC3311 2SC1740S	HT30001000
QE21		BA20028210	DIG.TRS. DTC323TS 2.2K	BA20028210
QE22		BA20028210	DIG.TRS. DTC323TS 2.2K	BA20028210
QE23		HC10008090	IC NJM4558D-D	HC10008090
QE41		HC10008090	IC NJM4558D-D	HC10008090
QE43		BA20028210	DIG.TRS. DTC323TS 2.2K	BA20028210
QE44		BA20028210	DIG.TRS. DTC323TS 2.2K	BA20028210
QG01		HC10053090	IC NJM-2068-DD	HC10053090
QG02		HC10053090	IC NJM-2068-DD	HC10053090
QG03		HC406621B0	IC BU4066B C-MOS	HC406621B0
QG05		BA20002000	DIG.TRS. DTC144ES UN4213 47K 47K	BA20002000
QG06		BA20002000	DIG.TRS. DTC144ES UN4213 47K 47K	BA20002000
QJ01		HC10206060	IC UPC1330HA HEAD SWITCH	HC10206060

NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

POS. NO	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART NO. (MJI)
QJ02		HC10053090	IC NJM-2068-DD	HC10053090
QJ03		BA20002000	DIG.TRS. DTC144ES UN4213 47K 47K	BA20002000
QJ04		BA20002000	DIG.TRS. DTC144ES UN4213 47K 47K	BA20002000
QK01		BA20028210	DIG.TRS. DTC323TS 2.2K	BA20028210
QK02		BA20028210	DIG.TRS. DTC323TS 2.2K	BA20028210
QL01		HT418622A0	TRS. 2SD1862 TV-2 NPN Q R	HT418622A0
QL02		HT412922A0	TRS. 2SD1292 Q OR R	HT412922A0
QL03		BA20001000	DIG.TRS. DTC114ES UN4211 10K 10K	BA20001000
QL04		HT30001000	TRS. 2SC536SP 2SC2458 2SC3311 2SC1740S	HT30001000
QM02		HT421442A0	TRS. 2SD2144S U OR V	HT421442A0
QM03		HC10279030	IC LB1641 MOTOR DRIVER	HC10279030
QM04		BA20002000	DIG.TRS. DTC144ES UN4213 47K 47K	BA20002000
QM05 ∫ QM07		BA20001000	DIG.TRS. DTC114ES UN4211 10K 10K	BA20001000
QM12		BA10032210	DIG.TRS. DIGI-TRA DTA125TS	BA10032210
QM13		BA10032210	DIG.TRS. DTA125TS	BA10032210
QM14 ∫ QM16		BA20002000	DIG.TRS. DTC144ES UN4213 47K 47K	BA20002000
QM31		HT421442A0	TRS. 2SD2144S U OR V	HT421442A0
QU02		HT30001000	TRS. 2SC536SP 2SC2458 2SC3311 2SC1740S	HT30001000
QU03		BA10002000	DIG.TRS. DTA144ES UN4113 47K 47K	BA10002000
QU04		HT30001000	TRS. 2SC536SP 2SC2458 2SC3311 2SC1740S	HT30001000
QU05		BA10002000	DIG.TRS. DTA144ES UN4113 47K 47K	BA10002000
QU06		HC709449B0	IC 74HC4094 16PIN DIP PHILIPS	HC709449B0
QU08		BA10001000	DIG.TRS. DTA114ES UN4111 10K 10K	BA10001000
QU09		BA10001000	DIG.TRS. DTA114ES UN4111 10K 10K	BA10001000
			PJ03-MISCELLANEOUS	
JG01		YT02080140	TERMINAL CINCH PIN JACK 2L8P LEFT SIDE SHIELD	YT02080140
JG03		YJ01004780	PHONE JACK YKB21-5209 GOLD	YJ01004780
JG04		YJ01004780	PHONE JACK YKB21-5209 GOLD	YJ01004780
JT02		YT02010780	TERMINAL CINCH PIN 14X14 RA 1L1P BLK NI FLM-GND	YT02010780
JU04		YJ01003050	JACK HLJ0521-01-1010 TAPE FADER	YJ01003050
JU05		YJ01003050	JACK HLJ0521-01-1010 CD FADER	YJ01003050
JU31		YT02020890	TERMINAL 2P CINCH PIN JACK FOR RC-5	YT02020890
JU32		YT02020970	TERMINAL CINCH PIN YKC21-3249 FOR EXT. I/O	YT02020970
L601		LS10415020	M.P.X. COIL	LS10415020
L602		LS10415020	M.P.X. COIL	LS10415020
L901		TC10110030	OSC TRANSF. HX-PRO COIL 105k Hz	TC10110030
L902		TC10110030	OSC TRANSF. HX-PRO COIL 105k Hz	TC10110030
LK01		LC22260710	CHOKE COIL TL-8 223J	LC22260710
LK02		LC22260710	CHOKE COIL TL-8 223J	LC22260710
LL01		TC10140350	OSC TRANSF. BIAS OSC COIL 105KHZ OF-10	TC10140350
LL02		LC11010130	CHOKE COIL EL0607RA101K	LC11010130
LT01		TP41042010	PULSE TRANSF. FOR CD	TP41042010
S601		SS02020970	SLIDE SWITCH MPX FILTER SSSUI-6MM KNOB	SS02020970

POS. NO	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART NO. (MJI)
			PP01-RS232C CIRCUIT BOARD	
			PP01-CAPACITORS	
CR04 ∫ CR08		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
CR10		nsp	CER. CHIP 220pF	DK96221300
CR11		nsp	CER. CHIP 220pF	DK96221300
CR36		nsp	CER. CHIP 22pF ±5% CG 50V	DD95220300
CR37		nsp	CER. CHIP 22pF ±5% CG 50V	DD95220300
			PP01-RESISTORS	
RR35		nsp	CHIP 0Ω ±5% 1/16W	NN05000610
RR36		nsp	CHIP 0Ω ±5% 1/16W	NN05000610
RR37		nsp	CHIP 100Ω ±5% 1/16W	NN05101610
RR38		nsp	CHIP 100Ω ±5% 1/16W	NN05101610
			PP01-SEMICONDUCTOR	
QR01		HC10204990	IC HIN202ECB 16LEAD WIDE BODY	HC10204990
			PP01-MISCELLANEOU	
JR01		YT02090160	TERMINAL D-SUB 9PIN F	YT02090160
			PS01-CD MAIN CIRCUIT BOARD	
			PS01-CAPACITORS	
C101		nsp	CER. CHIP 5pF ±0.25pF CH 50V	DD90050300
C102		nsp	CER. CHIP 0.01µF	DK98103300
C103		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C104		nsp	CER. CHIP 4700pF ±10 % B 50V	DK96472300
C105 ∫ C109		EY47601020	TANTL. CHIP 47µF 10V	EY47601020
C110		EY10700620	TANTL. CHIP 100µF 6.3V	EY10700620
C111 ∫ C114		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C115		nsp	CER. CHIP 1000pF ±10 % B 50V	DK96102300
C116		nsp	CER. CHIP 1000pF ±10 % B 50V	DK96102300
C117 ∫ C120		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C121		nsp	CER. CHIP 1000pF ±10 % B 50V	DK96102300
C122 ∫ C125		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C126		nsp	CER. CHIP 1000pF ±10 % B 50V	DK96102300
C127		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C128		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C129		nsp	CER. CHIP 1000pF ±10 % B 50V	DK96102300
C130		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C131		nsp	CER. CHIP 1000pF ±10 % B 50V	DK96102300
C132		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C133		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C301		nsp	CER. CHIP 0.047µF	DK98473300
C302		nsp	CER. CHIP 1000pF ±10 % B 50V	DK96102300
C303		nsp	CER. CHIP 0.01µF	DK98103300
C304		nsp	CER. CHIP 1µF 10V F	DK98105200
C305		nsp	CER. CHIP 47pF ±5 % CG 50V	DD95470300
C306		nsp	CER. CHIP 0.022µF	DK98223300
C307		EY47601020	TANTL. CHIP 47µF 10V	EY47601020
C308		EY10601620	TANTL. CHIP 10µF 16V	EY10601620
C309		nsp	CER. CHIP 22pF ±5 % CG 50V	DD95220300
C310		nsp	CER. CHIP 82pF	DD95820300
C311		EY47601020	TANTL. CHIP 47µF 10V	EY47601020
C312		EY10601620	TANTL. CHIP 10µF 16V	EY10601620
C313		EY47601020	TANTL. CHIP 47µF 10V	EY47601020
C314		nsp	CER. CHIP 180pF	DD95181300

NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

POS. NO	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART NO. (MJI)
C315		nsp	CER. CHIP 220pF	DK96221300
C316		nsp	CER. CHIP 220pF	DK96221300
C317		nsp	CER. CHIP 330pF	DK96331300
C318		nsp	CER. CHIP 180pF	DD95181300
C319		nsp	CER. CHIP 220pF	DK96221300
C320		nsp	CER. CHIP 220pF	DK96221300
C321		nsp	CER. CHIP 180pF	DD95181300
C322		nsp	CER. CHIP 220pF	DK96221300
C323		nsp	CER. CHIP 22pF ±5 % CG 50V	DD95220300
C324		nsp	CER. CHIP 180pF	DD95181300
C325		nsp	CER. CHIP 220pF	DK96221300
C326		nsp	CER. CHIP 1µF 10V F	DK98105200
C327		nsp	CER. CHIP 22pF ±5 % CG 50V	DD95220300
C328		nsp	CER. CHIP 22pF ±5 % CG 50V	DD95220300
C329		nsp	CER. CHIP 0.01µF	DK98103300
C330		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C331		nsp	CER. CHIP 0.01µF	DK98103300
C332		nsp	CER. CHIP 0.01µF	DK98103300
C334		nsp	CER. CHIP 22pF ±5 % CG 50V	DD95220300
C335		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C337		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C338		nsp	CER. CHIP 2200pF	DK96222300
C340		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C341		nsp	CER. CHIP 1µF 10V F	DK98105200
C342		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C343		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C344		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C345		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C346		EY47601020	TANTL. CHIP 47µF 10V	EY47601020
C350		nsp	CER. CHIP C1608X7R1H104K	DK96104300
C351		EY10700620	TANTL. CHIP 100µF 6.3V	EY10700620
C352		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C353		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C354		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C355		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C356		nsp	CER. CHIP 1µF 10V F	DK98105200
C357		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C358		nsp	CER. CHIP 1µF 10V F	DK98105200
C359		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C360		nsp	CER. CHIP 1µF 10V F	DK98105200
C361		nsp	CER. CHIP 4700pF ±10 % B 50V	DK96472300
C362		nsp	CER. CHIP 470pF	DK96471300
C363		nsp	CER. CHIP 1µF 10V F	DK98105200
C364		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C365		nsp	CER. CHIP 470pF	DK96471300
C366		nsp	CER. CHIP 4700pF ±10 % B 50V	DK96472300
C367		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C368		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C369		EY10700620	TANTL. CHIP 100µF 6.3V	EY10700620
C370		nsp	CER. CHIP 100pF ±5 % CG 50V	DD95101300
C371		nsp	CER. CHIP 100pF ±5 % CG 50V	DD95101300
C372		nsp	CER. CHIP 100pF ±5 % CG 50V	DD95101300
C381		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C382		EY10601620	TANTL. CHIP 10µF 16V	EY10601620
C383		EY10601620	TANTL. CHIP 10µF 16V	EY10601620
C384		EY10601620	TANTL. CHIP 10µF 16V	EY10601620
C385		nsp	CER. CHIP 1000pF ±10 % B 50V	DK96102300
C386		nsp	CER. CHIP 1000pF ±10 % B 50V	DK96102300
C387		nsp	CER. CHIP 150pF ±5 % CG 50V	DD95151300
C388		nsp	CER. CHIP 150pF ±5 % CG 50V	DD95151300
C389		EY10601620	TANTL. CHIP 10µF 16V	EY10601620
C390		EY47601020	TANTL. CHIP 47µF 10V	EY47601020
C391		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C392		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
C393		EY10700620	TANTL. CHIP 100µF 6.3V	EY10700620
C395		nsp	CER. CHIP 39pF ±5 % CG 50V	DD95390300
C396		nsp	CER. CHIP 27pF	DD95270300
C397		nsp	CER. CHIP C1608X7R1H104K	DK96104300

POS. NO	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART NO. (MJI)
CU51		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
CU52		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
CU53		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
CU54		nsp	CER. CHIP 1µF 10V F	DK98105200
CU55		nsp	CER. CHIP 0.1µF GRM39F104Z16	DK98104200
			PS01-RESISTORS	
R101		nsp	CHIP 4.7kΩ ±5% 1/16W	NN05472610
R102		nsp	CHIP 4.7kΩ ±5% 1/16W	NN05472610
R103		nsp	CHIP 4.7kΩ ±5% 1/16W	NN05472610
R104		nsp	CHIP 220kΩ ±5% 1/16W	NN05224610
R105		nsp	CHIP 2.2kΩ ±5% 1/16W	NN05222610
R106		nsp	CHIP 100kΩ ±5% 1/16W	NN05104610
R107		nsp	CHIP 15kΩ ±5% 1/16W	NN05153610
R109		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R110		nsp	CHIP 47Ω ±5% 1/16W	NN05470610
R111		nsp	CHIP 5.6kΩ ±5% 1/16W	NN05562610
R113		nsp	CHIP 2.7kΩ ±5% 1/16W	NN05272610
R114		nsp	CHIP 5.6kΩ ±5% 1/16W	NN05562610
R115		nsp	CHIP 12kΩ ±5% 1/16W	NN05123610
R116		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
R117		nsp	CHIP 1.5kΩ ±5% 1/16W	NN05152610
R118		nsp	CHIP 18kΩ ±5% 1/16W	NN05183610
R119		nsp	CHIP 15kΩ ±5% 1/16W	NN05153610
R120		nsp	CHIP 12kΩ ±5% 1/16W	NN05123610
R121		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R122		nsp	CHIP 12kΩ ±5% 1/16W	NN05123610
R123		nsp	CHIP 12kΩ ±5% 1/16W	NN05123610
R124		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
R125		nsp	CHIP 390Ω ±5% 1/16W	NN05391610
R126		nsp	CHIP 22Ω ±5% 1/16W	NN05220610
R127		nsp	CHIP 15kΩ ±5% 1/16W	NN05153610
R129		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
R130		nsp	CHIP 22Ω ±5% 1/16W	NN05220610
R131		nsp	CHIP 220Ω ±5% 1/16W	NN05221610
R132		nsp	CHIP 220Ω ±5% 1/16W	NN05221610
R133		nsp	CHIP 22Ω ±5% 1/16W	NN05220610
R134		nsp	CHIP 22Ω ±5% 1/16W	NN05220610
R135		nsp	CHIP 3.3kΩ ±5% 1/16W	NN05332610
R136		nsp	CHIP 180kΩ ±5% 1/16W	NN05184610
R137		nsp	CHIP 100kΩ ±5% 1/16W	NN05104610
R138		nsp	CHIP 100kΩ ±5% 1/16W	NN05104610
R139		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
R140		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R141		nsp	CHIP 470Ω ±5% 1/16W	NN05471610
R142		nsp	CHIP 2.2kΩ ±5% 1/16W	NN05222610
R143		nsp	CHIP 100kΩ ±5% 1/16W	NN05104610
R144		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
R145		nsp	CHIP 100Ω ±5% 1/16W	NN05101610
R146		nsp	CHIP 2.2kΩ ±5% 1/16W	NN05222610
R147		nsp	CHIP 2.2kΩ ±5% 1/16W	NN05222610
R148		nsp	CHIP 100kΩ ±5% 1/16W	NN05104610
R149		nsp	CHIP 150kΩ ±5% 1/16W	NN05154610
R150		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R151		nsp	CHIP 0Ω ±5% 1/16W	NN05000610
R152		nsp	CHIP 0Ω ±5% 1/16W	NN05000610
R211		nsp	CHIP 68Ω ±5% 1/16W	NN05680610
R212		nsp	CHIP 5.6Ω ±5% 1/16W	NN05056610
R213		nsp	CHIP 5.6Ω ±5% 1/16W	NN05056610
R220		nsp	CHIP 12kΩ ±5% 1/16W	NN05123610
R301		nsp	CHIP 470Ω ±5% 1/16W	NN05471610
R302		nsp	CHIP 1MΩ ±5% 1/16W	NN05105610
R303		nsp	CHIP 22kΩ ±5% 1/16W	NN05223610
R304				
ʃ		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R315				
R316		nsp	CHIP 47Ω ±5% 1/16W	NN05470610

NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

POS. NO	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART NO. (MJI)
R317		nsp	CHIP 33kΩ ±5% 1/16W	NN05333610
R318		nsp	CHIP 22Ω ±5% 1/16W	NN05220610
R319		nsp	CHIP 22Ω ±5% 1/16W	NN05220610
R320		nsp	CHIP 100Ω ±5% 1/16W	NN05101610
R321		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R322		nsp	CHIP 10Ω ±5% 1/16W	NN05100610
R323		nsp	CHIP 0Ω ±5% 1/16W	NN05000610
R324		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
R325		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R326		nsp	CHIP 100Ω ±5% 1/16W	NN05101610
R327		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
R328		nsp	CHIP 47Ω ±5% 1/16W	NN05470610
R329		nsp	CHIP 100Ω ±5% 1/16W	NN05101610
R330		FN31000020	CHIP FERRITE BLM11B252SD	FN31000020
R331		nsp	CHIP 100Ω ±5% 1/16W	NN05101610
R332		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
R333		nsp	CHIP 680Ω ±5% 1/16W	NN05681610
R334		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
R335		nsp	CHIP 1MΩ ±5% 1/16W	NN05105610
R336		nsp	CHIP 220Ω ±5% 1/16W	NN05221610
R337		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R338		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R339		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R340		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R342		nsp	CHIP 10Ω ±5% 1/16W	NN05100610
R343		nsp	CHIP 5.6Ω ±5% 1/16W	NN05056610
R344		nsp	CHIP 4.7kΩ ±5% 1/16W	NN05472610
R345		nsp	CHIP 4.7kΩ ±5% 1/16W	NN05472610
R346		nsp	CHIP 4.7kΩ ±5% 1/16W	NN05472610
R347		nsp	CHIP 220Ω ±5% 1/16W	NN05221610
R348		nsp	CHIP 100Ω ±5% 1/16W	NN05101610
R349		nsp	CHIP 22Ω ±5% 1/16W	NN05220610
R350		FN31000020	CHIP FERRITE BLM11B252SD	FN31000020
R351		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
R352		nsp	CHIP 10Ω ±5% 1/16W	NN05100610
R353		nsp	CHIP 10Ω ±5% 1/16W	NN05100610
R354		nsp	CHIP 4.7Ω ±5% 1/16W	NN05047610
R355 ∫ R359		nsp	CHIP 10Ω ±5% 1/16W	NN05100610
R360		nsp	CHIP 330Ω ±5% 1/16W	NN05331610
R361		nsp	CHIP 330Ω ±5% 1/16W	NN05331610
R362		nsp	CHIP 330Ω ±5% 1/16W	NN05331610
R363		nsp	CHIP 10Ω ±5% 1/16W	NN05100610
R364		nsp	CHIP 10Ω ±5% 1/16W	NN05100610
R365		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
R366		nsp	CHIP 10Ω ±5% 1/16W	NN05100610
R367		nsp	CHIP 470kΩ ±5% 1/16W	NN05474610
R368		nsp	CHIP 470Ω ±5% 1/16W	NN05471610
R369 ∫ R373		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
R374		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R375		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R377		nsp	CHIP 47kΩ ±5% 1/16W	NN05473610
R378		nsp	CHIP 47kΩ ±5% 1/16W	NN05473610
R379		nsp	CHIP 0Ω ±5% 1/16W	NN05000610
R380		FN31000020	CHIP FERRITE BLM11B252SD	FN31000020
R381		nsp	CHIP 220kΩ ±5% 1/16W	NN05224610
R382		nsp	CHIP 220kΩ ±5% 1/16W	NN05224610
R383 ∫ R386		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R387		nsp	CHIP 18kΩ ±5% 1/16W	NN05183610
R388		nsp	CHIP 18kΩ ±5% 1/16W	NN05183610
R389		nsp	CHIP 33kΩ ±5% 1/16W	NN05333610
R390		nsp	CHIP 33kΩ ±5% 1/16W	NN05333610
R391		nsp	CHIP 0Ω ±5% 1/16W	NN05000610
R392		nsp	CHIP 0Ω ±5% 1/16W	NN05000610

POS. NO	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART NO. (MJI)
R393		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R394		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
R395 ∫ R398		nsp	CHIP 100Ω ±5% 1/16W	NN05101610
R399		FC90020110	CHIP FERRITE BLM11B601S	FC90020110
RU51		nsp	CHIP 47kΩ ±5% 1/16W	NN05473610
RU52		nsp	CHIP 10Ω ±5% 1/16W	NN05100610
RU53		nsp	CHIP 47kΩ ±5% 1/16W	NN05473610
RU54		nsp	CHIP 10Ω ±5% 1/16W	NN05100610
RU56		nsp	CHIP 10Ω ±5% 1/16W	NN05100610
RU58		nsp	CHIP 47kΩ ±5% 1/16W	NN05473610
RU60		nsp	CHIP 47kΩ ±5% 1/16W	NN05473610
RU61		nsp	CHIP 10Ω ±5% 1/16W	NN05100610
RU63		nsp	CHIP 4.7kΩ ±5% 1/16W	NN05472610
RU69		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
RU70		nsp	CHIP 2.2kΩ ±5% 1/16W	NN05222610
RU71		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
RU72		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
RU73		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
RU74		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
RU75		nsp	CHIP 1kΩ ±5% 1/16W	NN05102610
RU76		nsp	CHIP 22kΩ ±5% 1/16W	NN05223610
RU77		nsp	CHIP 22kΩ ±5% 1/16W	NN05223610
RU78		nsp	CHIP 10kΩ ±5% 1/16W	NN05103610
			PS01-SEMICONDUCTORS	
D101		HZ21005000	CHIP DIODE 1SS301 DAN202U	HZ21005000
D102		HZ21005000	CHIP DIODE 1SS301 DAN202U	HZ21005000
D301		HZ30011020	CHIP DIODE MA8043M	HZ30011020
D302		HZ21005000	CHIP DIODE 1SS301 DAN202U	HZ21005000
DU51		HZ21005000	CHIP DIODE 1SS301 DAN202U	HZ21005000
Q101		HC10207490	IC TZA1024 RF AMP	HC10207490
Q102		HX300012A0	CHIP TRS. 2SC4081 Q R 2SC4116 Y GR	HX300012A0
Q103		HC10165490	IC TDA7073AT SOP DUAL BTL DRIVER	HC10165490
Q104		HC10165490	IC TDA7073AT SOP DUAL BTL DRIVER	HC10165490
Q105		HC10165490	IC TDA7073AT SOP DUAL BTL DRIVER	HC10165490
Q106		BA10026210	DIG.TRS. DTA114EU	BA10026210
Q107		BA20035210	DIG.TRS. DTC114EU	BA20035210
Q108		BA20035210	DIG.TRS. DTC114EU	BA20035210
Q109		HX300012A0	CHIP TRS. 2SC4081 Q R 2SC4116 Y GR	HX300012A0
Q110		HX100012A0	CHIP TRS. 2SA1586 Y GR 2SA1576A Q R	HX100012A0
Q111 ∫ Q114		HX300012A0	CHIP TRS. 2SC4081 Q R 2SC4116 Y GR	HX300012A0
Q301		HC10209490	IC SAA7324H M2B	HC10209490
Q302		HC762837Z0	IC SN74LS628NS	HC762837Z0
Q303		HC10225210	IC BU2630FV-E2	HC10225210
Q351		HC10010540	IC STA016T MP3 DECODER	HC10010540
Q352		HX346721A0	CHIP TRS. 2SC4672 Q	HX346721A0
Q353		HC700805S0	IC TC7S08F	HC700805S0
Q381		HC10016880	IC CS4338 DAC 8PIN 24BIT 96KHz	HC10016880
Q382		HC10011090	IC NJM4558M Y	HC10011090
Q383		HX346721A0	CHIP TRS. 2SC4672 Q	HX346721A0
QU51		HU02ATN00F	IC µP784217AGC-192-8EU	HU02ATN00F
QU52		HC10224210	IC BD4742G RESET IC 4.2V	HC10224210
QU53		HX300012A0	CHIP TRS. 2SC4081 Q R 2SC4116 Y GR	HX300012A0
QU61		BA20021210	DIG.TRS. DTC144EC	BA20021210
QU62		BA10014210	DIG.TRS. DTA144EU	BA10014210
QU63		BA20021210	DIG.TRS. DTC144EC	BA20021210
QU64		BA10014210	DIG.TRS. DTA144EU	BA10014210

NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

POS. NO	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART NO. (MJI)
			PS01-MISCELLANEOUS	
L301		FC90020110	CHIP FERRITE BLM11B601S	FC90020110
L302		FN31000020	CHIP FERRITE BLM11B252SD	FN31000020
L303		FC90020110	CHIP FERRITE BLM11B601S	FC90020110
L351		FC90020110	CHIP FERRITE BLM11B601S	FC90020110
L381 ∫ L384		FC90020110	CHIP FERRITE BLM11B601S	FC90020110
L385		FN31000020	CHIP FERRITE BLM11B252SD	FN31000020
L386		FC90020110	CHIP FERRITE BLM11B601S	FC90020110
L387			CHIP 220Ω ±5% 1/16W	NN05221610
X301		JX08001320	CRYSTAL CM309S 8.4672MHz	JX08001320
XU51		FQ01005020	CERAMIC VIB. CSTCC10.0MG RESONATOR 10MHz	FQ01005020
			PS03-POWER SW CIRCUIT BOARD	
⚠ C831		DK17103900	CER. DE1610F 103M-KH	DK17103900
⚠ L831		FN01020020	LINE FILTER LF-4D-102	FN01020020
⚠ S831		SP01011830	PUSH SWITCH SDDLB TV-3 F-TYPE C E-TYPE4	SP01011830
			PT03-POWER TRANS CIRCUIT BOARD	
⚠ L001	/N	TS15724210	MAINS TRANSF 200V 230V 240V	TS15724210
⚠ L001	/U		MAINS TRANSF. FOR U/C	TS15724200
			PV03-HP. AMP CIRCUIT BOARD	
			PV03-CAPACITORS	
CV03		EA47601620	ELECT. 47µF 16V	EA47601620
CV04		EA47601620	ELECT. 47µF 16V	EA47601620
CV05		nsp	ELECT. 220µF 10V	EA22701010
CV06		nsp	ELECT. 100µF M 16V RA-2	OA10701620
			PV03- RESISTORS (COMMON)	
R***			CARBON FILM FIXED RES. ±5% 1/6W : RV01-RV18	
			PV03-SEMICONDUCTOR	
QV01		HC10007090	IC NJM4560D	HC10007090
			PV03-MISCELLANEOUS	
JV02		YJ01003020	JACK PHONE JACKS	YJ01003020
SV01		SR02030200	ROTARY SWITCH SRBM13N-F15 2-3 N S HP SELECTOR	SR02030200
			PY03-DISPLAY CIRCUIT BOARD	
			PY03-CAPACITOR	
CY02		nsp	ELECT. 100µF M 10V RA-2	OA10701020
			PY03-RESISTOR	
RY51		RK05020530	VAR. 5kΩ B CT CC L=12.5 RK11K114	RK05020530
			PY03- RESISTORS (COMMON)	
R***			CARBON FILM FIXED RES. ±5% 1/6W : RY01 RY21-RY23 RY28	
			PY03-SEMICONDUCTORS	
DY01 ∫ DY07		nsp	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000
DY08		HI10062320	L.E.D. LT3D8B RED 3O REC IND.	HI10062320
DY10		HW10004210	PHOTO UNIT RPM6936-V4 IR SENSOR	HW10004210
QY01		HC10283060	IC UPD16311GC-AB6 FTD DRIVER	HC10283060
QY02		HT10001000	TRS. A1048 A933S A1267 ETC.	HT10001000

POS. NO	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART NO. (MJI)
			PY03-MISCELLANEOUS	
SY01 ∫ SY04		SP01012030	PUSH SWITCH SKHVBF 260GF RED	SP01012030
SY05		SS02040040	SLIDE SWITCH REV. MODE SW SSSU024-P06N1	SS02040040
SY06		SS02030370	SLIDE SWITCH SSSU0 2-3 DOLBY SW	SS02030370
SY07		SS02021250	SLIDE SWITCH SSSU L=6MM ALC SW	SS02021250
VY01		HQ30802920	DISPLAY UNIT CR2095C FOR CD/TAPE FL	HQ30802920
			PY13-DISPLAY CIRCUIT BOARD SUB	
			PY13- RESISTORS (COMMON)	
R***			CARBON FILM FIXED RES. ±5% 1/6W : RY24-RY27 RY30-RY33	
			PY13-SEMICONDUCTORS	
DY21 ∫ DY27		nsp	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000
			PY23-MECHA KEY CIRCUIT BOARD	
			PY23- RESISTORS (COMMON)	
R***			CARBON FILM FIXED RES. ±5% 1/6W : RY71-RY73	
			PY23-SEMICONDUCTORS	
DY71 ∫ DY79		nsp	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000
DY81		HI10114320	L.E.D. LT3K8B GREEN TAPE FWD.	HI10114320
DY82		HI10114320	L.E.D. LT3K8B GREEN TAPE REV.	HI10114320
DY83		HI10114320	L.E.D. LT3K8B GREEN CD PLAY	HI10114320
			PY23-MISCELLANEOUS	
SY71 ∫ SY79		SP01013310	TACT SW. SKQNAEH/5MM 160GF	SP01013310
			PY33-CD FUNC. KEY CIRCUIT BOARD	
			PY33-SEMICONDUCTORS	
DY51 ∫ DY57		nsp	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000
			PY33-MISCELLANEOUS	
SY51 ∫ SY57		SP01013310	TACT SW. SKQNAEH/5MM 160GF	SP01013310

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