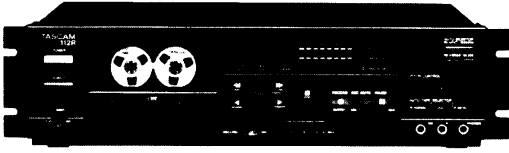




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TASCAM

TEAC Professional Division



SERVICE MANUAL

112R

Stereo Cassette Deck

1. SPECIFICATIONS

仕様

MECHANICAL CHARACTERISTICS

Tape	Compact cassette (NORMAL/CrO ₂ /METAL)
Track Format	4-track, 2-channel stereo
Head Configuration	2 Erase, 1 Record and 1 Reproduce rotary
Motors	1 DC Servo Capstan Motor; 1 DC Reel Motor; 1 DC ancillary;
Tape Speed:	4.8 cm/s (1-7/8 ips)
Speed Accuracy	±1.5 %
Pitch Control	±15 %
Fast Wind Time	Approx. 70 seconds for C-60
Dimensions (W x H x D)	432 x 118 x 290 mm without rack mount angle (17" x 4-5/8" x 11-7/16") 479 x 118 x 290 mm with rack mount angle (19-1/4" x 4-5/8" x 11-7/16")
Weight (net)	4.8 kg (12.79 lbs)

ELECTRICAL CHARACTERISTICS

Mic Input

Input Impedance

10k ohms, unbalanced

Nominal Input Level

-60 dBV (1 mV)

Minimum Input Level

-70 dBV (0.316 mV)

Line Input

Input Impedance

40k ohms, unbalanced

Nominal Input Level

-10 dBV (0.3 V)

Minimum Input Level

-22 dBV (79.4 mV)

Line Output

Output Impedance

Less than 3.5k ohms

Nominal Load Impedance

More than 25k ohms

Nominal Output Level

-10 dBV (0.3 V)

Maximum Output Level

-5 dBV (0.56 V)

Headphones Output Level

2.5 mW/channel maximum at 8-ohm stereo-phones

Bias Frequency

100 kHz

Equalization

3,180 μ s + 70 μ s (METAL, CrO₂)

3,180 μ s + 120 μ s (NORMAL)

Recording Level

200 nWb/m: 0 dB

Power Requirements

U.S.A./CANADA

120 V AC, 60 Hz

EUROPE

220 V AC, 50 Hz

U.K./AUSTRALIA

240 V AC, 50 Hz

GENERAL EXPORT

100/120/220/240 V AC, 50/60 Hz

Power Consumption

27 W

TYPICAL PERFORMANCE

Wow and Flutter 0.03 % (NAB weighted)

±0.06 % (DIN/IEC/ANSI weighted)

Frequency Response

(Overall, NR OUT)

25 Hz – 20 kHz ±3 dB at -20 dB (METAL)

25 Hz – 19 kHz ±3 dB at -20 dB (CrO₂)

25 Hz – 17 kHz ±3 dB at -20 dB (NORMAL)

Total Harmonic Distortion (THD)

1 % at 0 dB, 1,000 Hz

Signal-to-Noise Ratio

(Reference 3 % THD)

60 dB (NR OUT, WTD)

70 dB (DOLBY*B NR IN, over 5 kHz)

80 dB (DOLBY-C NR IN, over 1 kHz)

Adjacent Channel Separation

Better than 45 dB, 1,000 Hz

Erase

Better than 65 dB at 1,000 Hz, +10 dB

Changes in specifications and features may be made without notice or obligation.

*Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

"DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

注

1.仕様は改善のため、予告なく変更することがあります。

2.ドルビーノイズリダクションシステムは、ドルビー研究所からの実施権に基づき製造されています。

・ドルビー及び  は、ドルビー研究所の登録商標です。

2. OPTIONAL MODIFICATIONS

仕様変更

2-1. ACCOMMODATING THE REMOTE CONTROL UNIT RC-205 TO THE 112R

The RC-205 provides not only transport duplication but functions that the 112R alone could not provide. The connector on the cable from the RC-205 has, however, no direct compatibility with the REMOTE CONTROL connector on the 112R's rear panel, and is required to be remodelled.

The RC-205 unit is available together with a conversion connector as an RC-205K(it).

Remodelling Procedure

- 1. Remove the DIN connector on the cable from the RC-205.
- 2. By referring to illustration below, rewire the cable wires to their specific contacts on the 16-pin conversion connector (TEAC Part No. 5334037400).

2-1 オプション、リモート・コントロールユニットRC-205の使用

リモート・コントロールRC-205を本体後面のマルチに接続するとRC-205のすべての機能(本体にない)を動かすことができます。RC 205のコネクタはDINのため次の改造が必要です。

改造要領

- 1. RC-205のDINコネクタを外す。
 - 2. RC 205の外したワイヤー・コートをマルチプラグ (TEAC品番5334037400) 端子に接続
- 接続は下図、下表を参照してください。

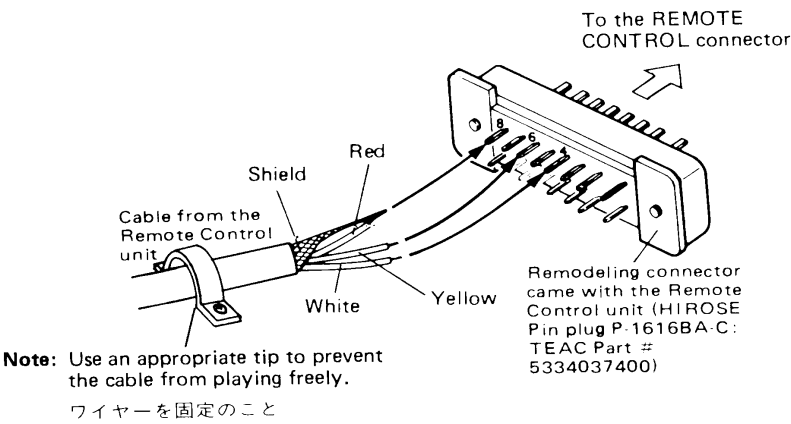


Fig. 2-1. RC-205 Connector Conversion

Wires from the RC-205 (with DIN connector removed)	Pins of the 16-pin Connector
	(rewire to)
White	#4 (STOP)
Yellow	#6 (REC)
Red (& Shield)	#8 (GND)

RC-205コード (DINコネクタ)	マルチ・コ
ワイヤー・白色	# 4 (STO
ワイヤー・黄色	# 6 (REC
ワイヤー・赤色とシールド	# 8 (GND

表2-1

Schematic below shows signal connections from the RC-205 to the control circuit inside the 112R.

RC 205と本体のコントロール部を接続した回路はつきのようになります。

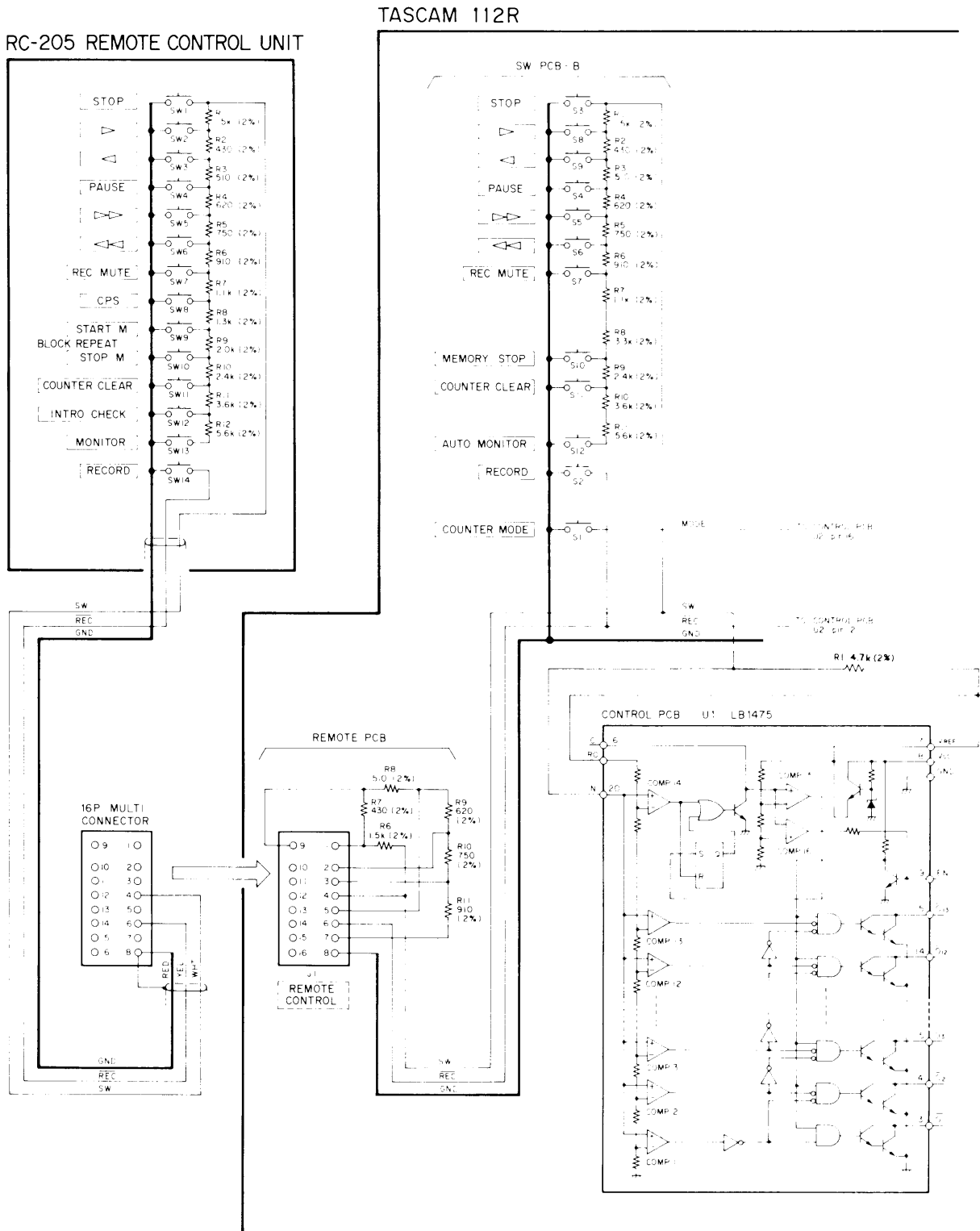


Fig. 2-2 Remote Control Signal Connections

RC-205とコントロール部の接続回路

2-2. CARRYING OUT TALLY SIGNALS AND A REV. END SIGNAL

The following paragraphs explain circuitry modifications which enable the REMOTE CONTROL connector on the deck's rear panel to carry the tally signals, i.e. signals indicating the current transport status and, when connected to an external control system, letting this to supervise the overall transport functions. Though the REV END signal is also referred to and shown in the following schematics, actually it is before a signal reserved for functions offered in the Owner's Manual as optionally available. As for the optional functions and modifications concerned, refer to "2-3 Function Expansion", page 10.

The REMOTE CONTROL connector on the 112R's rear panel will carry the TALLY and REV. END signals by additionally mounting the electrical components shown below in the REMOTE PCB inside the 112R and making necessary wirings between the CONTROL PCB and the REMOTE PCB.

1. Electrical Components Required

Reference No.	Part No.
U1, U2 : BA6251	5232250900
U3 : μ PD4011BC	5220022600
D1, D2 : 1SS133T	5224015020
R3, R4, R5 : 10 k Ω	5181506000
R13 : 100 Ω	5181458000
*C1, C2 : 100 μ F/16 V	5260162550
C4 : 1 μ F/50 V	5260265650
(R12) : JUMPER WIRE	5181763000

* Make sure that C1 and C2 are clear from the chassis when mounting.

2. Mounting Additional Components in the REMOTE PCB

By referring to Figs 2-3/4, mount the electrical components listed above. This entails cutting of one printed conductor and bridging of one capacitor (C4) and one resistor (R13), as shown. As for the REMOTE PCB's having Part No. 5210190701, the components can all be mounted just after the foil (no need of cutting any conductors or bridging any components).

3. Wiring the REMOTE PCB to the CONTROL PCB

Connect the remodelled REMOTE PCB to the CONTROL PCB, as shown. (Seven connecting wires, 500 mm length each, are required.)

Cutting of specific connections will however become necessary depending on the interface expansion requests from the users (refer to "Example 2: Continuous Play", page 10).

2-2 .TALLY出力信号とREVエンド出力信号の取り出し

本体内のREMOTE PCBに必要な電気製品をマウントし、ワイヤーでCONTROL PCBとREMOTE PCBを接続することによってマルチコネクタの空端子にTALLY出力信号とREVエンド出力信号を取り出すことができます。

1. マウントに必要な電気部品

品 名	品 番
U2 : BA6251	5232250900
U3 : μ PD4011BC	5220022600
D1, D2 : 1SS133T	5224015020
R3, R4, R5 : 10k Ω	5181506000
R13 : 100 Ω	5181458000
*C1, C2 : 100 μ F/16V	5260162550
C4 : 1 μ F/50V	5260265650
(R12) : JUMPER WIRE	5181763000

※近くのシャーシの接触到に注意のこと

2. REMOTE PCBのマウント

電気部品を右図のようにマウントし、ハターンの一部分カットとコンデンサーと抵抗の裏付を行います。(図2-3、2-参照)

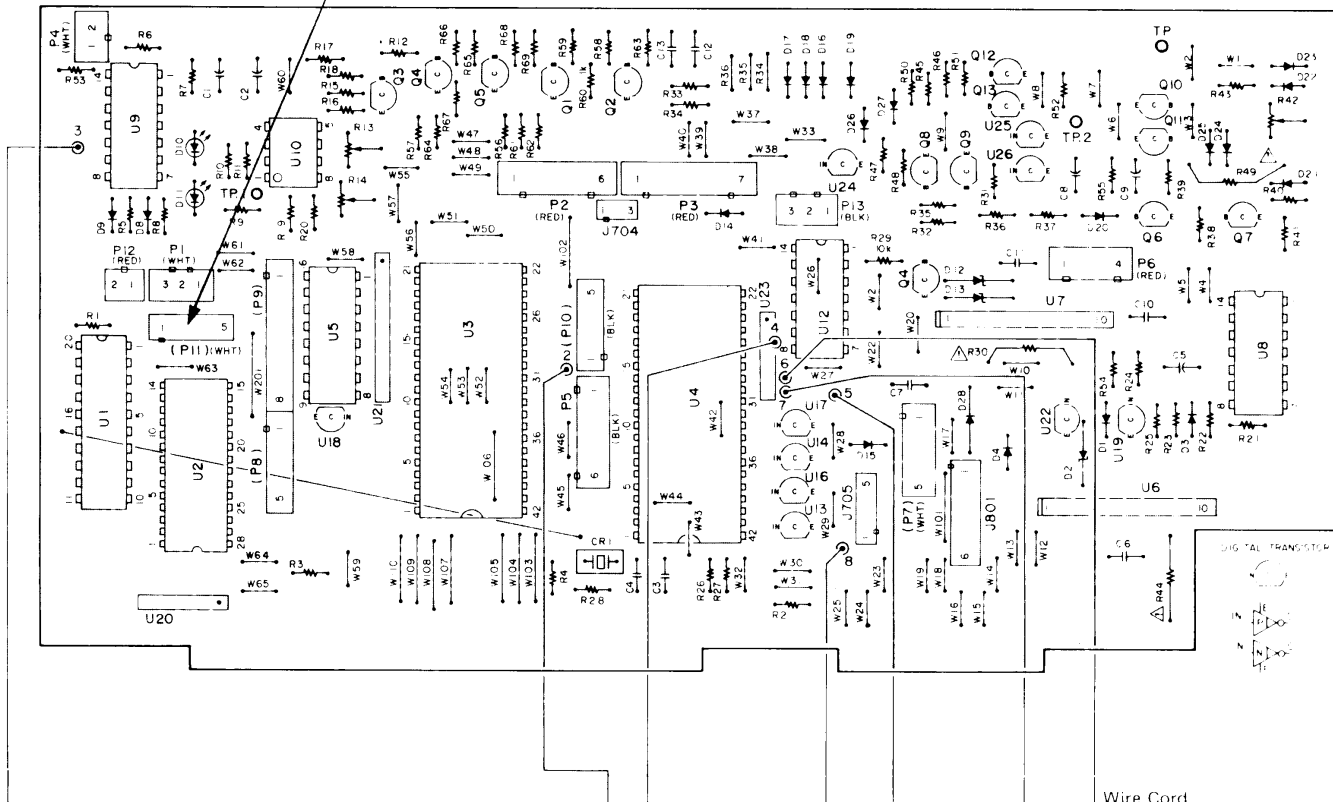
但しREMOTE PCBの品番5210190701の基板についてはシルを通りマウントするだけで済みます。

3. ワイヤーの接続

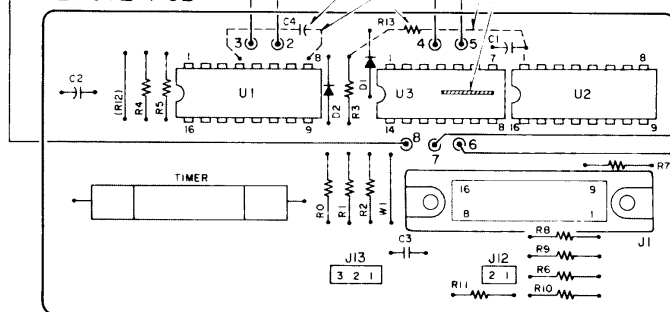
マウントしたREMOTE PCBとCONTROL PCBを次のようにワイヤー(長さ500mm、7本)で接続します。

CONTROL PCB

P11 Soldered Joints to the SW. PCB (see page 10)



REMOTE PCB



COMPONENTS ALREADY MOUNTED

R6	: 1.5k Ω (2%)
R7	: 430 Ω (2%)
R8	: 510 Ω (2%)
R9	: 620 Ω (2%)
R10	: 750 Ω (2%)
R11	: 910 Ω (2%)
C3	: 0.01 μ F, 50V(CE)
J1	: 16P: Remote connector socket

J12	: 2P: P12, connection to the control PCB
J13	: 3P: P13, connection to the control PCB
W1	: JUMPER WIRE
JAPAN ONLY	
U1	: BA6251
R0, R1	: 3.3M Ω (2%)
R2	: 10k Ω
TIMER	: TM3L

TALLY CIRCUIT OPTIONAL PARTS

U1 (EXCEPT JAPAN)	: BA6251
U2	: BA6251
U3	: μ P04011BC
D1, D2	: 1SS133T
R3, R4, R5	: 10k Ω
R13	: 100 Ω
C1, C2	: 100 μ F 16V
C4	: 1 μ F 50V
(R12)	: JUMPER WIRE

Fig. 2-3 Mounting of Electrical Components and Wirings

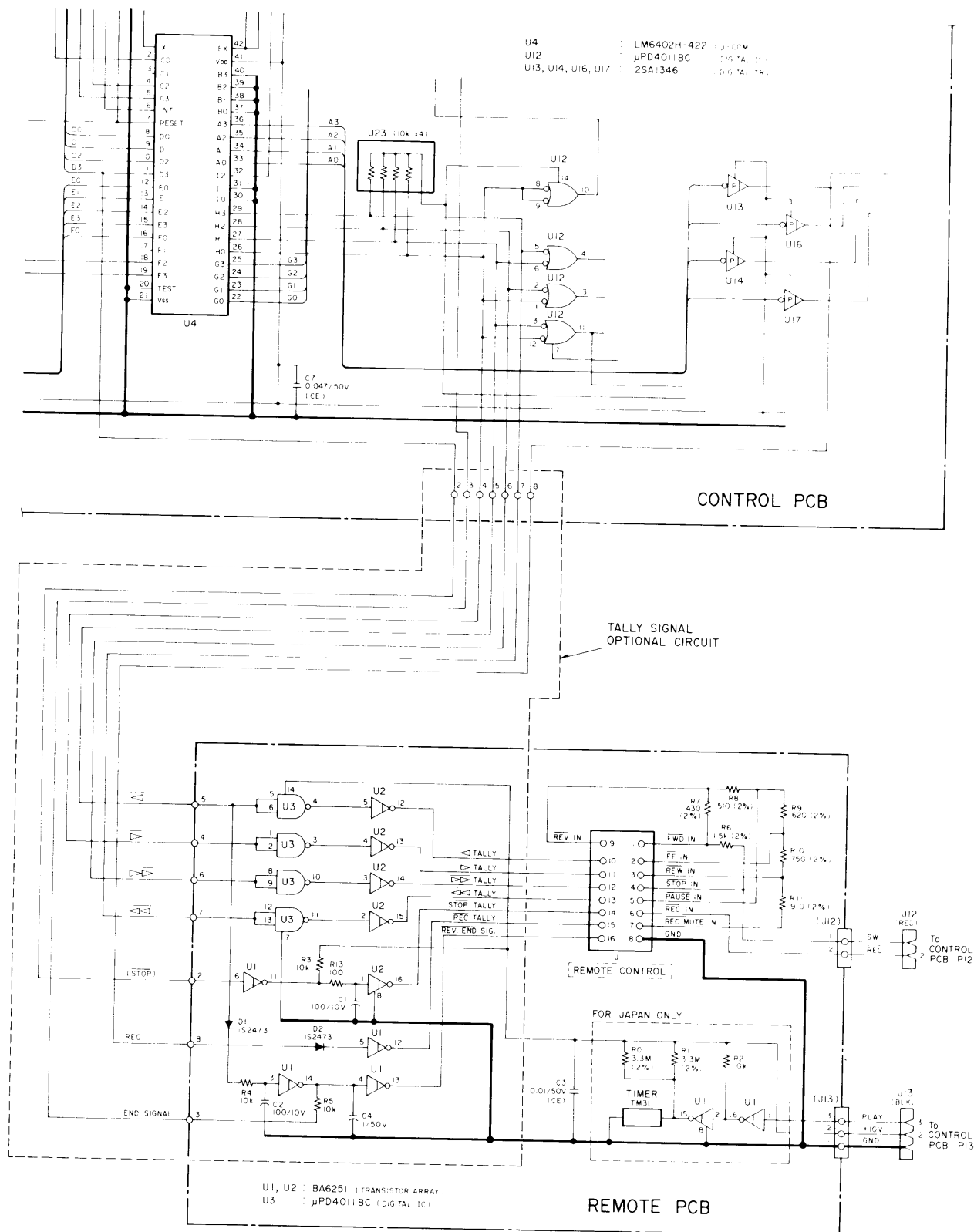
電気部品のマウントとワイヤー接続

4. Modified Circuits

Diagram below shows the circuits complete with the modifications.

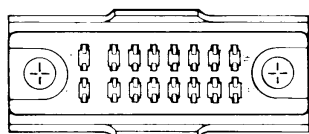
4.回路図

改造した回路図は次のようになります。



5. Pin Assignments of the REMOTE CONTROL Connector

マルチ・コネクタの入出力信号



HIROSE
SW-1616A
(On the deck's rear panel)

表 3

Pin #	IN(put) – OUT(put) signals	Function
1	$\overline{\text{FWD. PLAY}}$ IN	Inputs FWD. PLAY signal at L level.
2	$\overline{\text{F.FWD}}$ IN	Inputs F.FWD signal at L level.
3	$\overline{\text{REW}}$ IN	Inputs REW signal at L level.
4	$\overline{\text{STOP}}$ IN	Inputs STOP signal at L level.
5	$\overline{\text{PAUSE}}$ IN	Inputs PAUSE signal at L level.
6	$\overline{\text{REC}}$ IN	Inputs REC signal at L level.
7	$\overline{\text{REC MUTE}}$ IN	Inputs REC MUTE signal at L level.
8	GND	
9	$\overline{\text{REV. PLAY}}$ IN	Inputs REV. PLAY signal at L level.
10	$\overline{\text{REV. PLAY TALLY OUT}}$	Outputs open-collector signal (Low level during REV. PLAY mode.)
11	$\overline{\text{FWD. PLAY TALLY OUT}}$	Outputs open-collector signal (Low level during FWD. PLAY mode.)
12	$\overline{\text{F.FWD TALLY}}$ OUT	Outputs open-collector signal (Low level during F. FWD mode.)
13	$\overline{\text{REW TALLY}}$ OUT	Outputs open-collector signal (Low level during REW mode.)
14	$\overline{\text{STOP TALLY}}$ OUT	Outputs open-collector signal (Low level during STOP mode.)
15	$\overline{\text{REC TALLY}}$ OUT	Outputs open-collector signal (Low level during REC mode.)

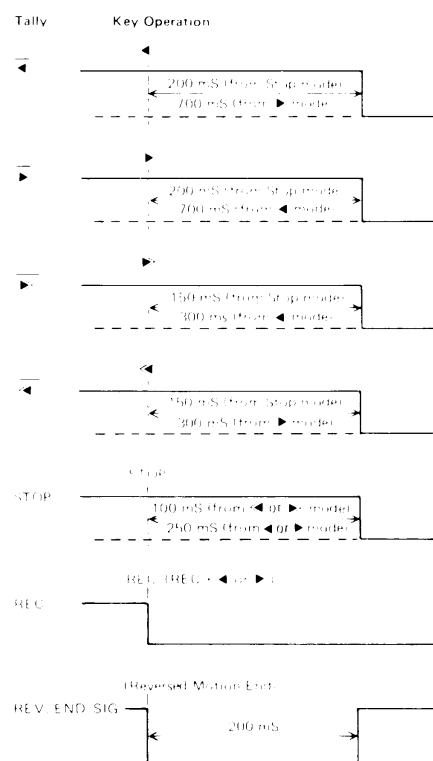
Pin #	IN(put) – OUT(put) signals	Function
16	$\overline{\text{REV. END}}$ OUT	Outputs open-collector signal (Low pulse at Reversed motion end.)

All inputs: low pulses of 25 msec. or more only effective.

All outputs: available only with circuitry modifications.

INPUT信号は25msec.以上.

TALLY SIG. Timing Chart



No effective REV. END pulse is available unless tape runs in ◀ mode for at least 15 seconds before reaching the splicing tape.

REV END SIGはスプライシング・テープ部の前から15s以上の◀状態が持続されなければならない。(15s以下では正常なハルスが出力されない。)

4. PARTS LOCATIONS

部品配置図

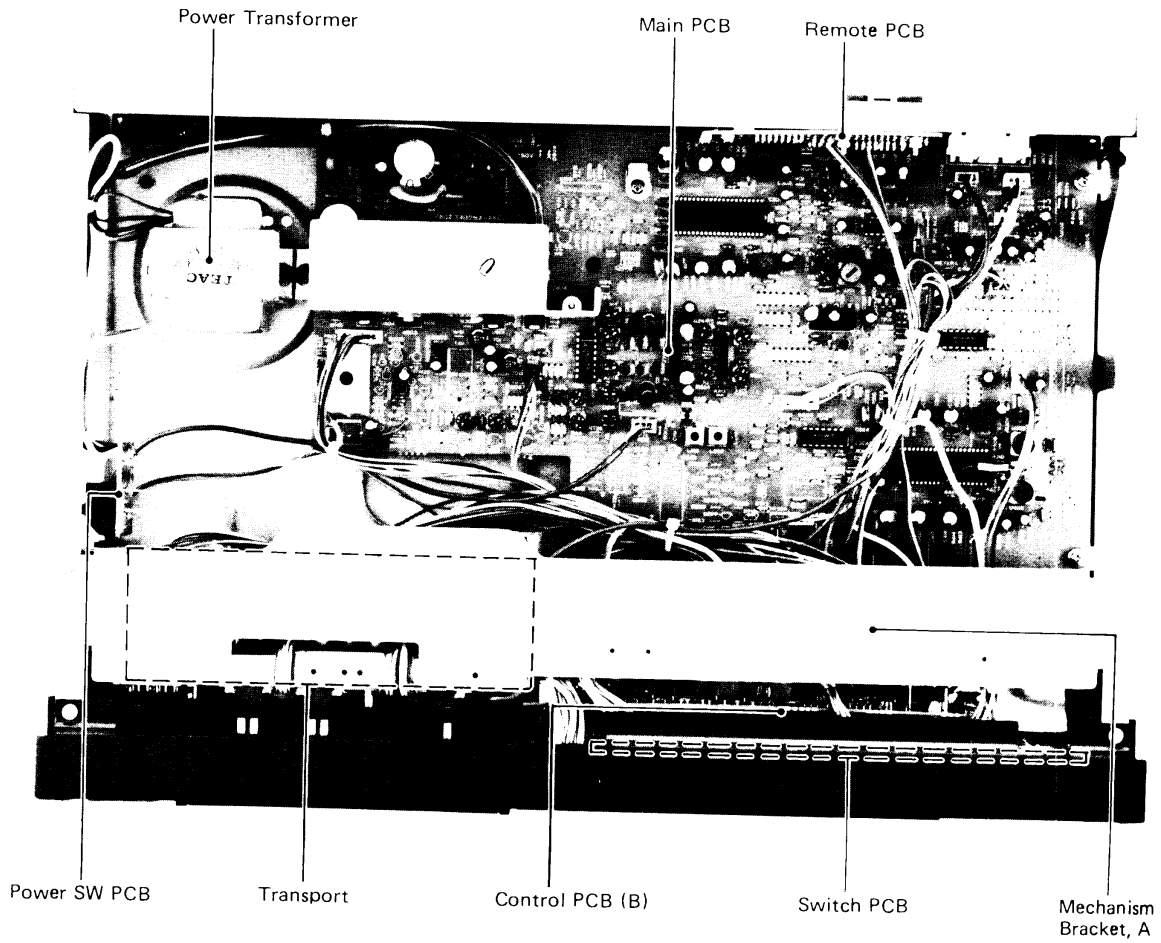


Fig. 4-1 Top View

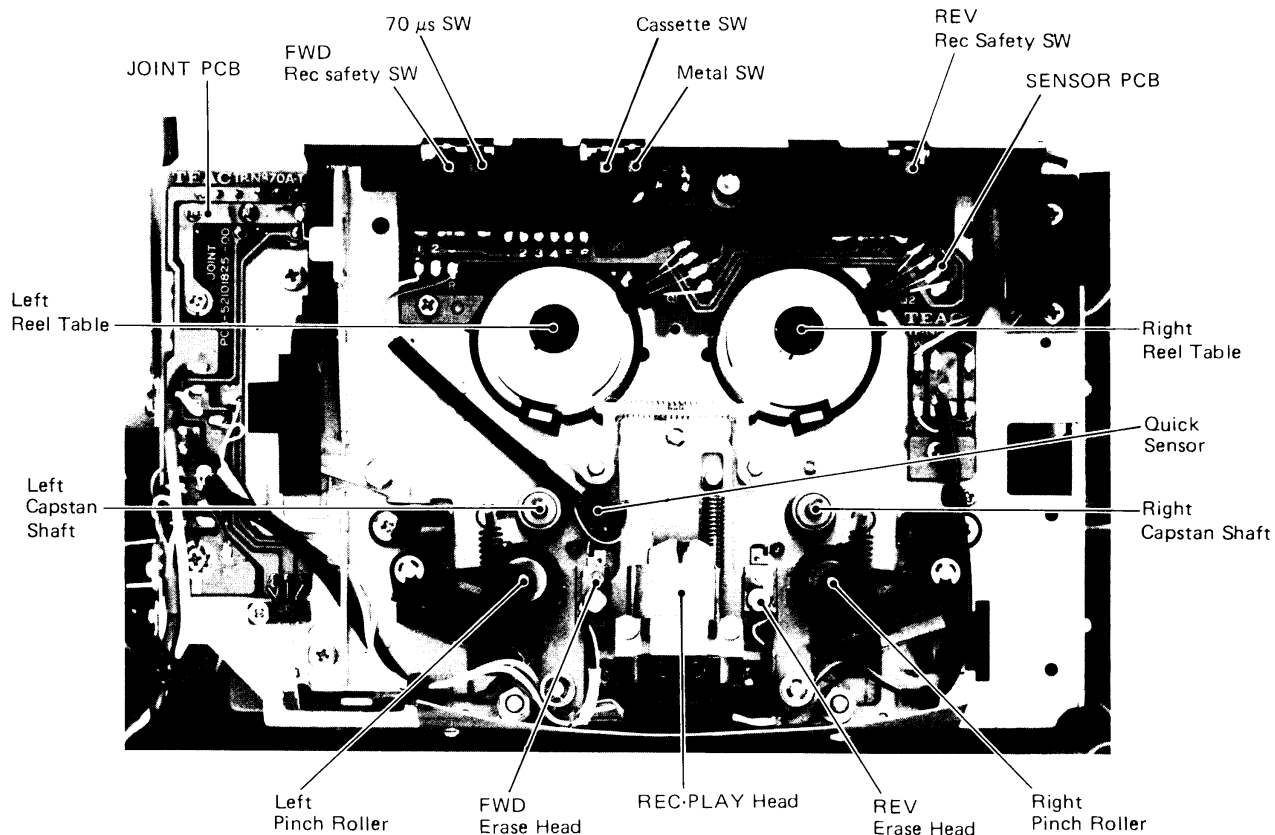


Fig. 4-2 Transport Front View

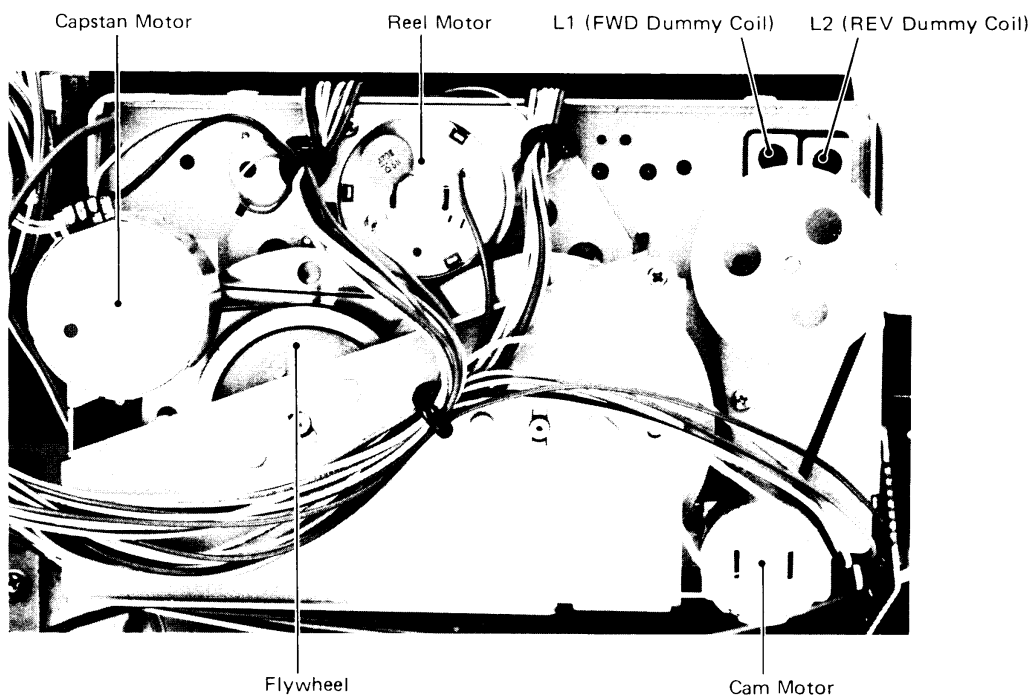
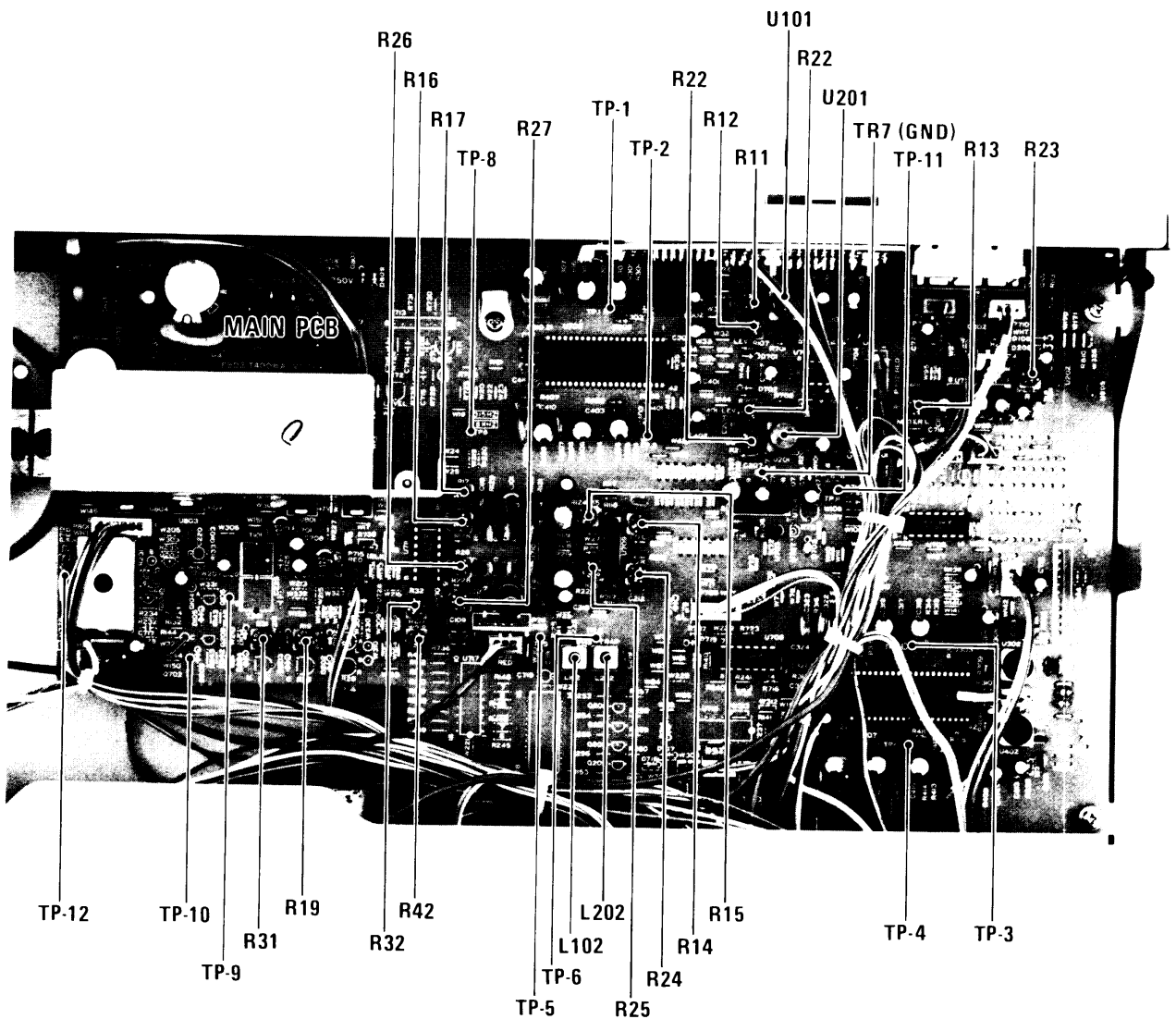


Fig. 4-3 Transport Rear View

8. ELECTRICAL CHECKS AND ADJUSTMENTS

録音再生アンプ部のチェックと調整



U101/U201	Bias trap (Repro)
L102/L202	Bias trap (Record)
R11/R21	Repro equalization
R12/R22	Repro output level
R13/R23	Meter level
R14/R24	Record equalization

R15/R25	Record level (NORMAL)
R16/R26	Record level (CrO ₂)
R17/R27	Record level (METAL)
R31	Record bias (NORMAL)
R19	Record bias (CrO ₂)
R32/R42	Record bias (METAL)

Fig. 8-1 Check/Adjustment Points on Main PCB

8-1. PLAYBACK PERFORMANCE 再生系

AUTO MONITOR defeat switch	REPRO
NR SYSTEM switch	OUT
OUTPUT control	MAX
REVERSE MODE switch	

Note: All other switches/controls have nothing to do with the following adjustments.

注：表中に示されていないスイッチ つまみは本調整 チェックには関係ありません。

Table 1. Initial Settings for Playback Performance Test

再生系予備設定

Mode: PLAY (unless otherwise specified 特に指定してある場合を除く)

ITEM 調整項目	SETTING 設定	INPUT SIGNAL 入力信号	ADJUST: 調整箇所	MEASURING POINT, RESULT 測定箇所・調整値
1. Repro output level 再生出力レベル	Connection: Fig. 8-3; but with INPUT (L/R) disconnected. FWD direction. FWD 方向	MTT-150	R12/R22	Main PCB TP1/TP2: -12.2 dB (245 mV) (Refer to Fig. 8-1 for TP's)
	“ REV direction. REV 方向	“	Check	Main PCB TP1/TP2: -12.2 dBV ± 0.5 dB (Refer to Fig. 8-1 for TP's)
	Connection: Fig. 8-2; but with INPUT (L/R) disconnected. FWD direction. FWD 方向	“	OUTPUT cont*	OUTPUT (L): -7 dBV (447 mV)
	OUTPUT cont.: Nominal position 規定位置	“	Check	OUTPUT (R): -7 dBV ± 1.5 dB (376 mV ~ 531 mV)
2. Meter level setting メータ・レベル・ セット	Same as above 同上	“	R13/R23	PEAK LEVEL meter (L/R): 0 dB lit 点灯
3. Repro frequency response 再生周波数特性	Same as above 同上	MTT-256	R11/R21	OUTPUT (L/R): Level difference as slight as possible between for 315 Hz and 10 kHz signals. 315Hzと10kHzの出力がほぼ等しく なるように調整 Specs 規格: Fig. 8-5

* After adjusting, do not move (Nominal position)
調整後は動かさないこと (規定位置)

1

2

3

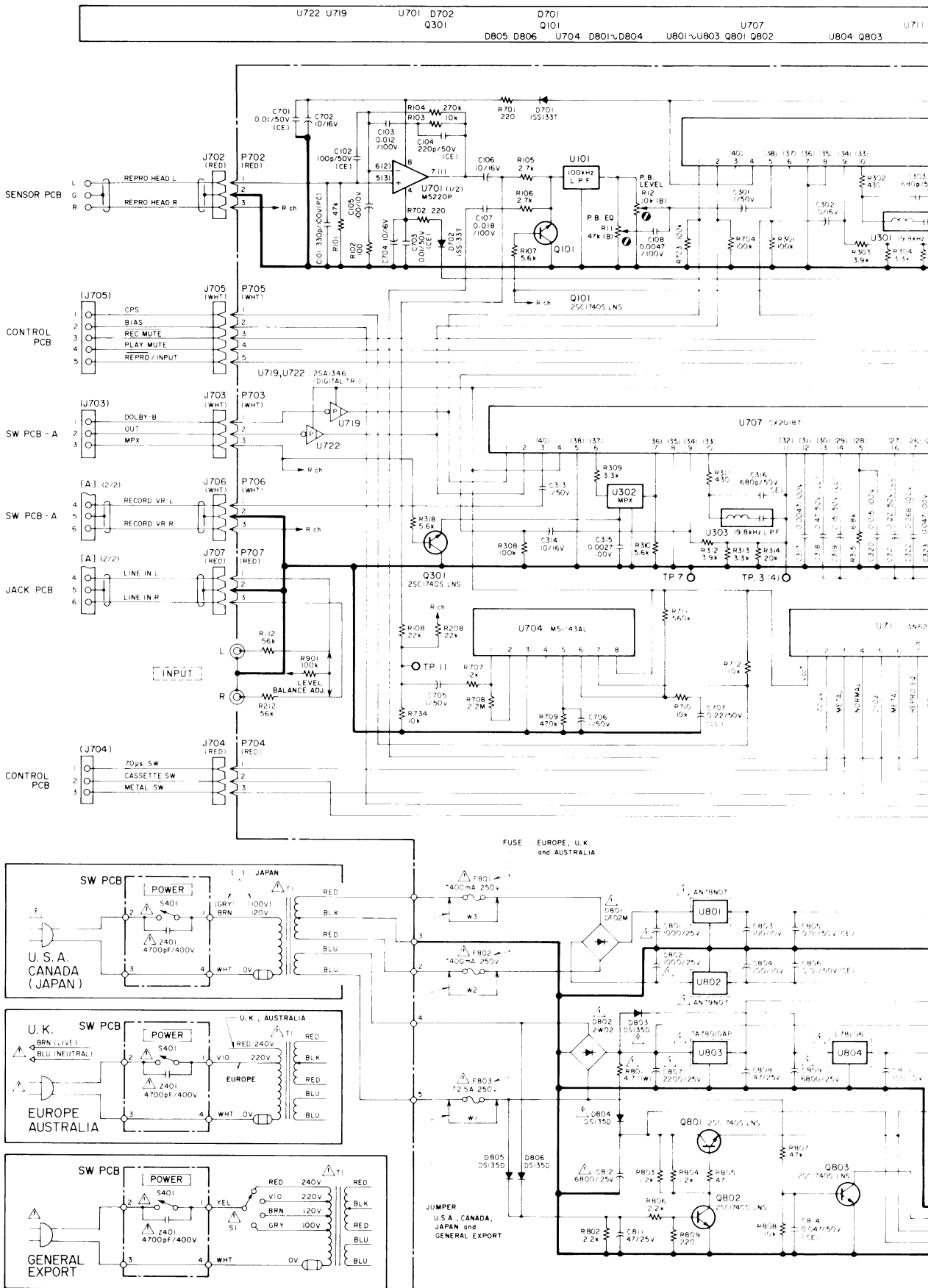
A

B

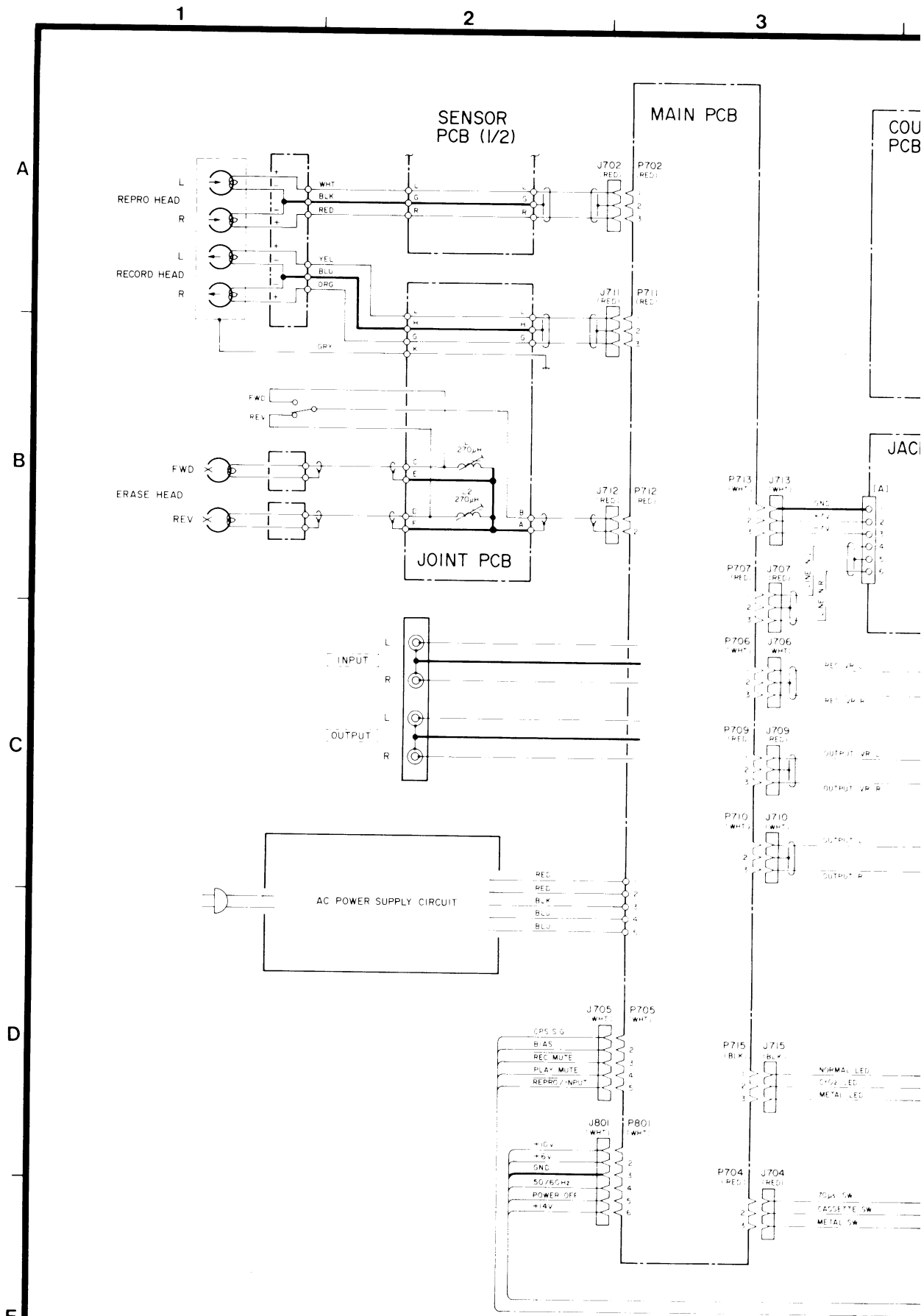
C

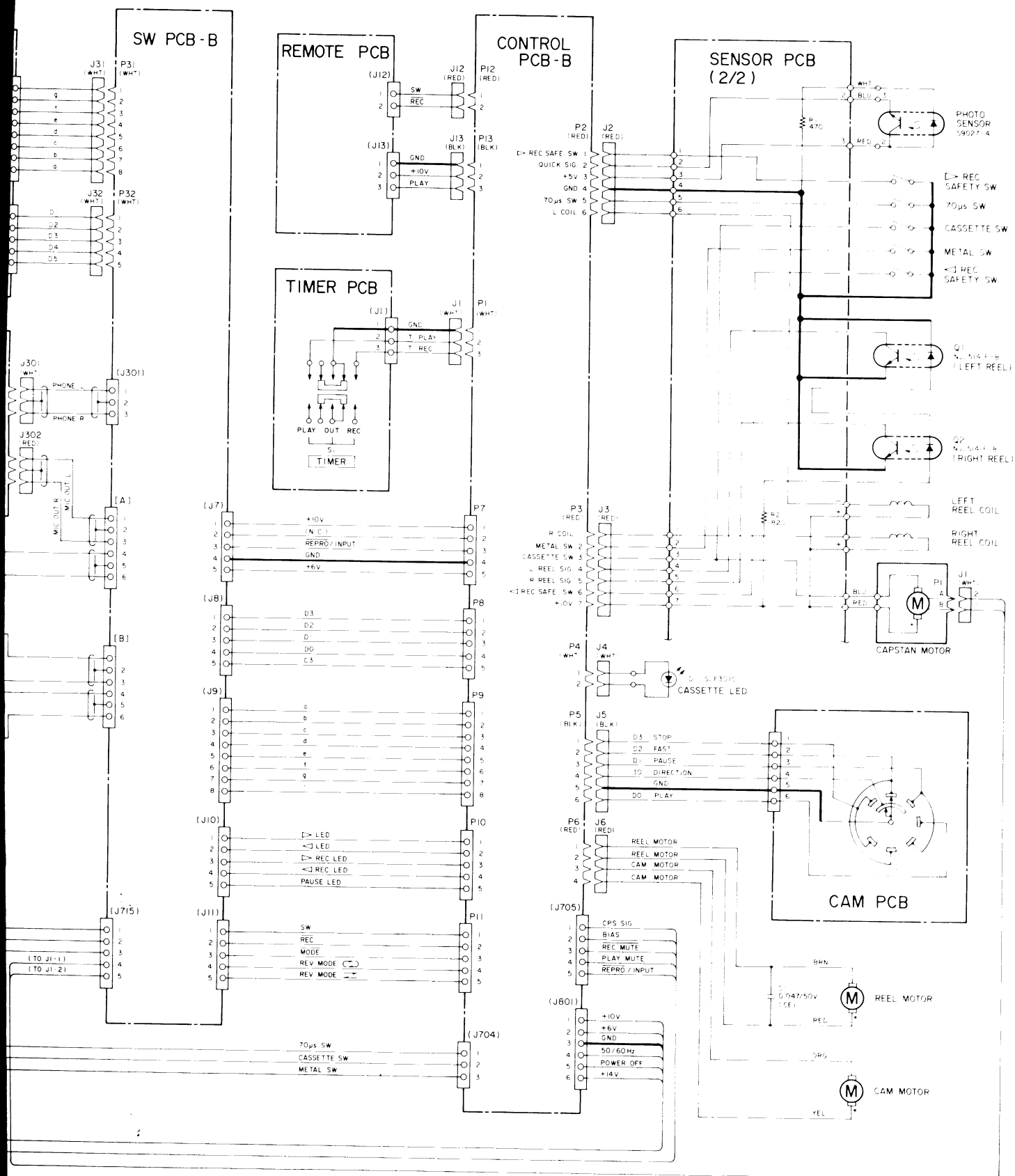
D

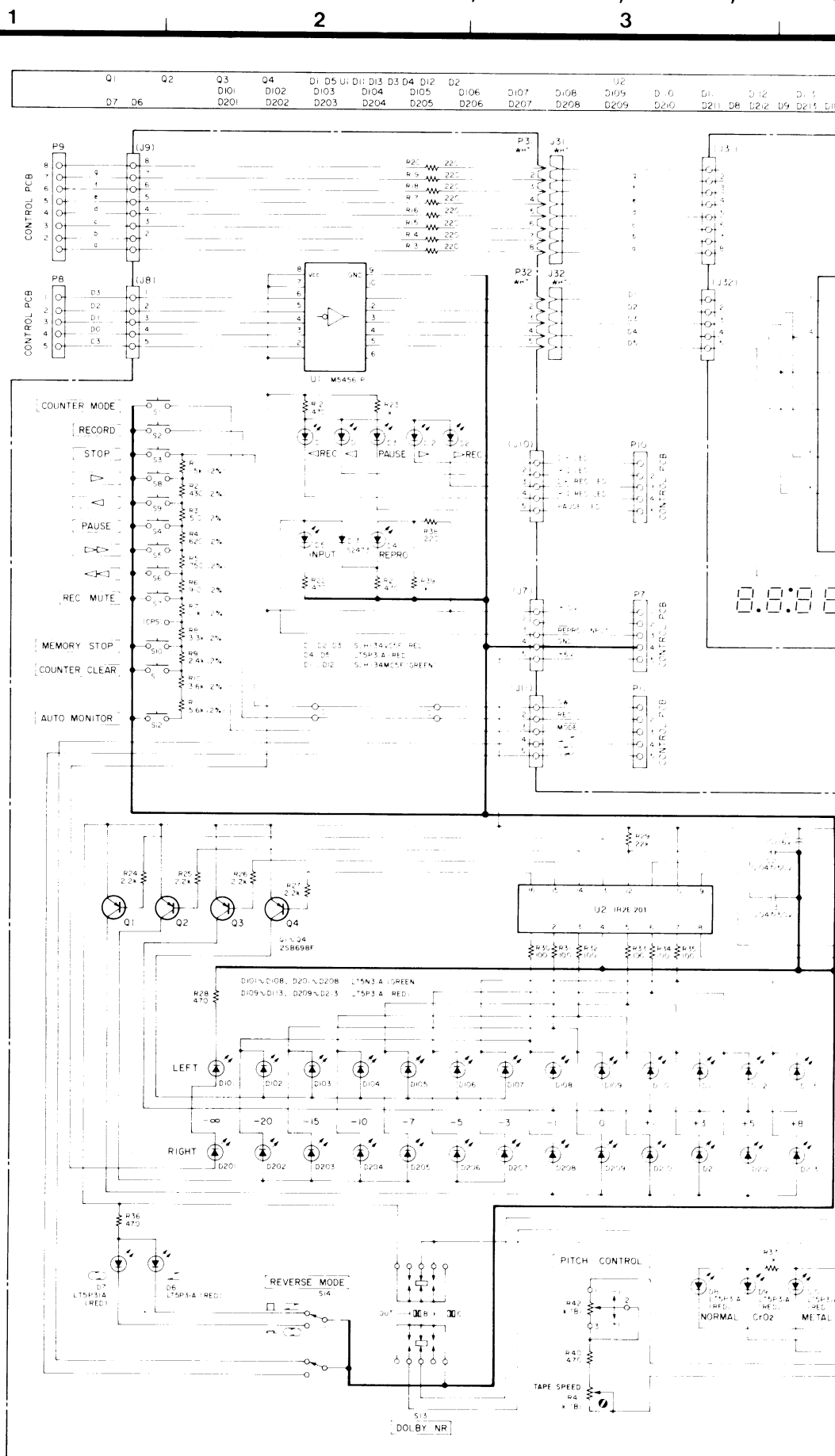
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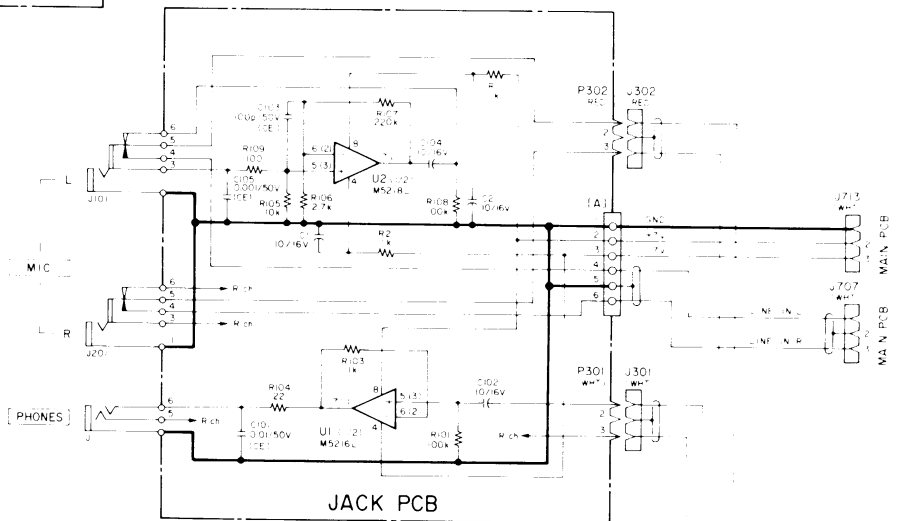
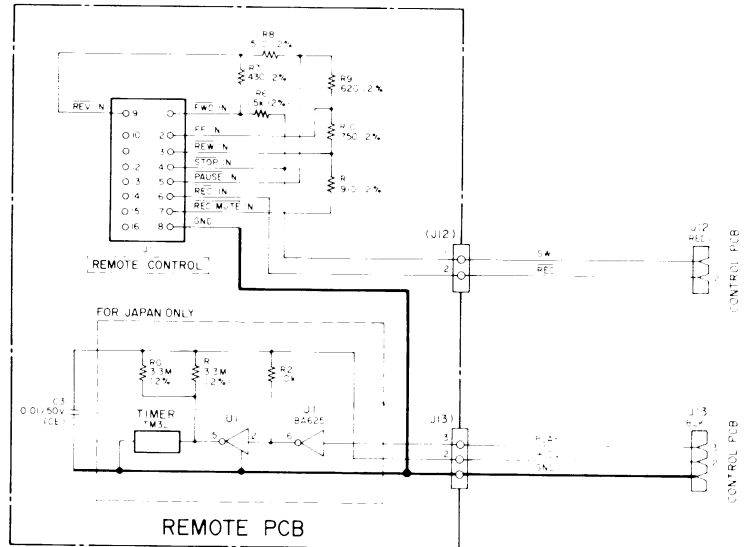




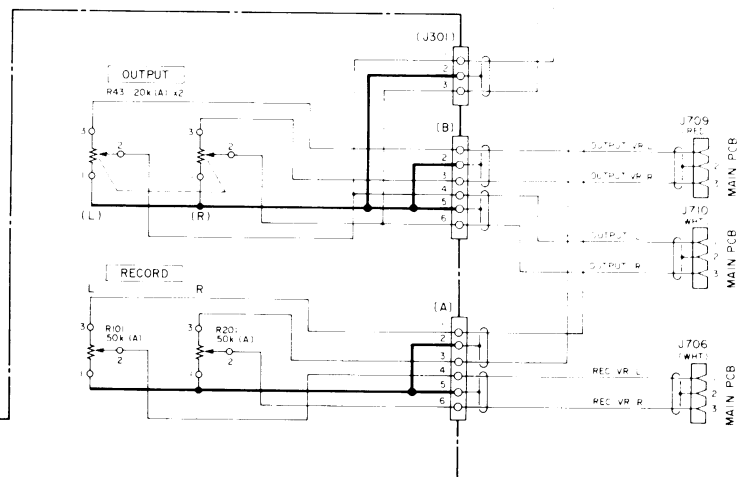
U1

J2
U1

COUNTER PCB - B



SW PCB - B



1

2

3

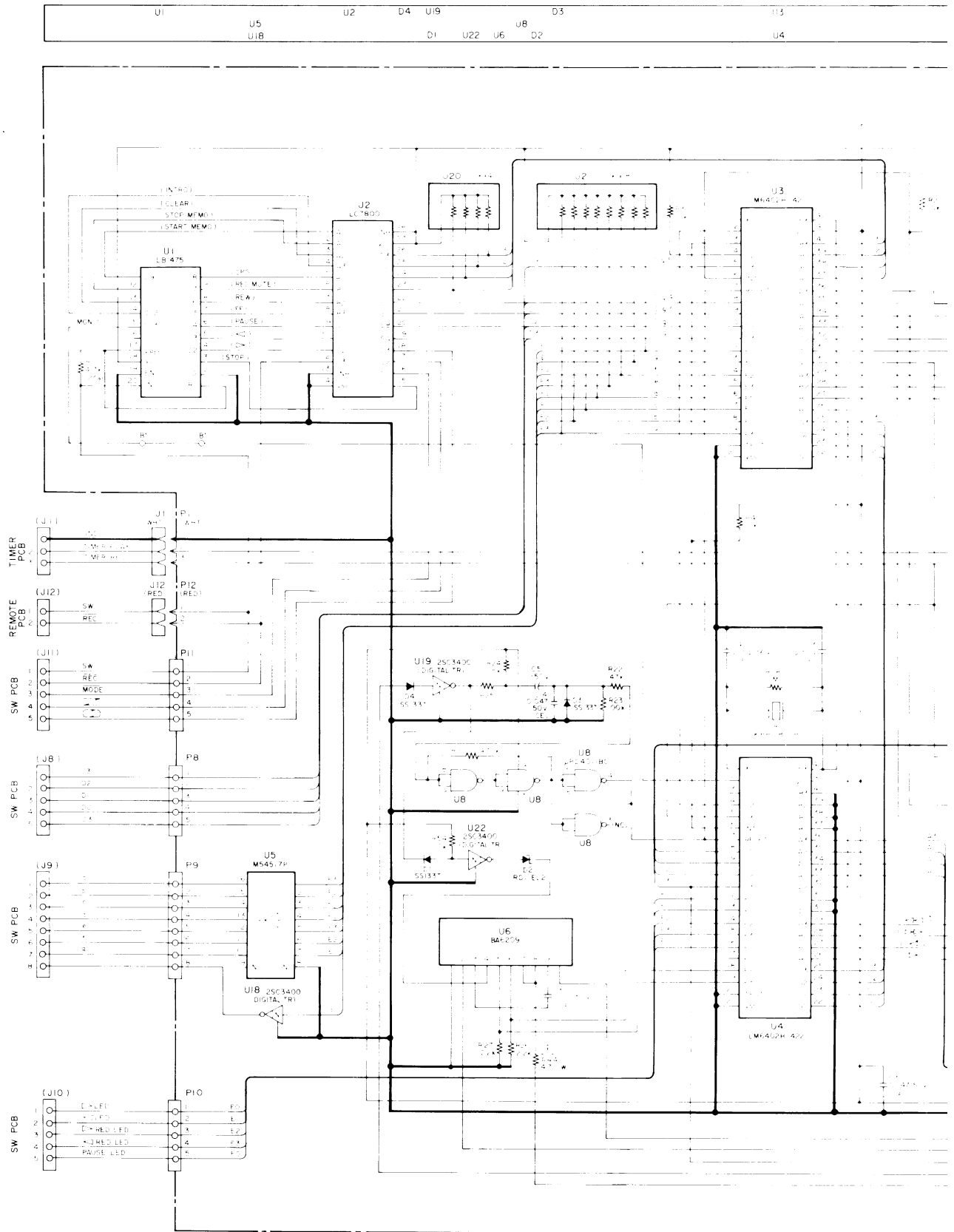
A

B

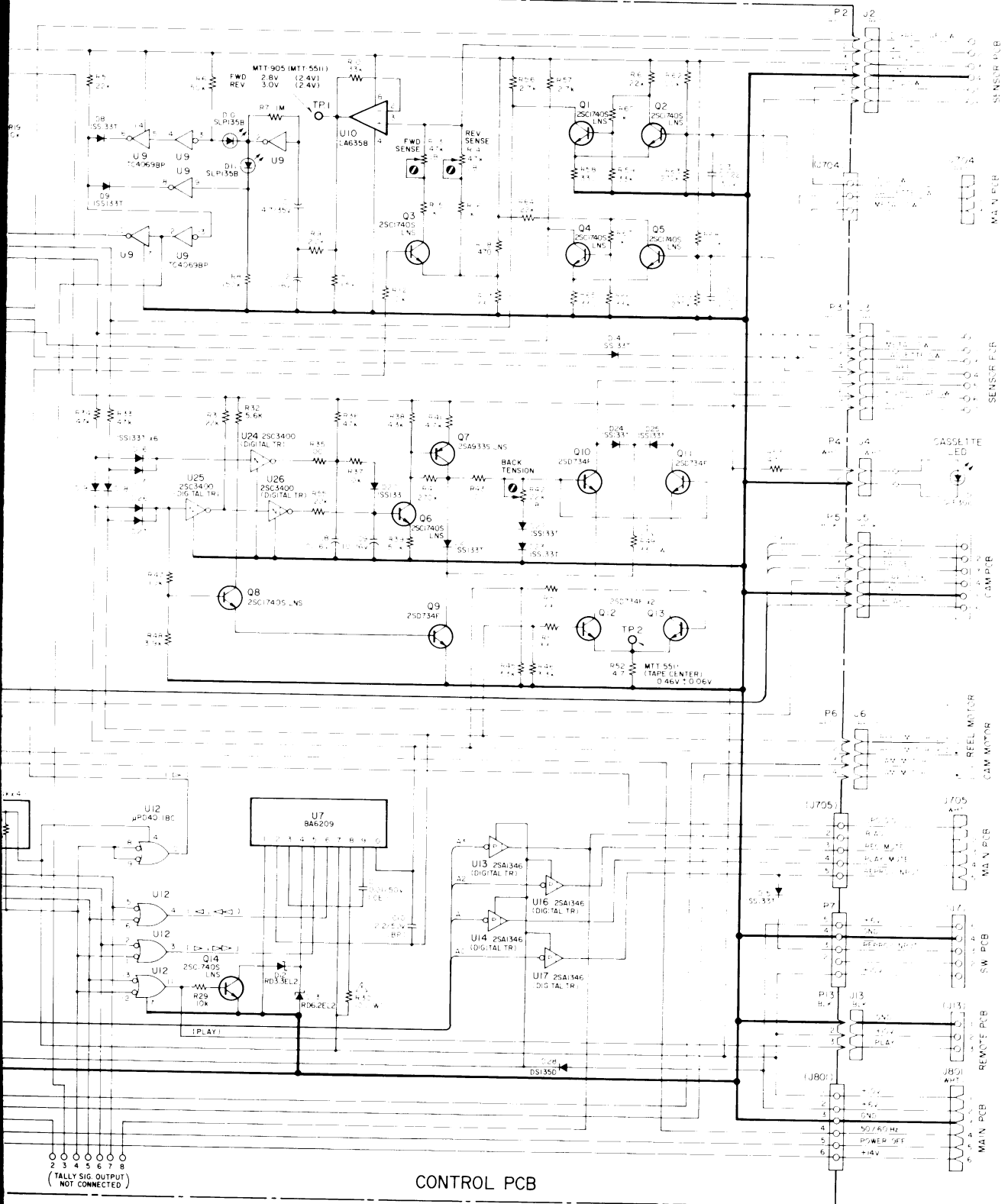
C

D

E



D8 D9 U9 D10 D11 U9 U10 Q3 Q1 Q4 D14 Q2 Q5
 D16 D19 D26 D27 U25 Q8 U24 U26 D22 D23 Q10 Q12 D24 D25 Q11 Q13
 U12 Q14 D12 D13 U7 D20 Q6 Q7 D21 Q9 U13 U14 U16 U17 D28 D15 D1



CONTROL PCB