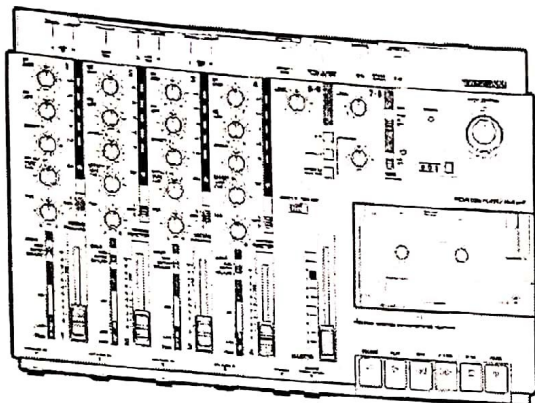




TASCAM

TEAC Professional Division

SERVICE MANUAL

414MKII

PORTASTUDIO

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INSTRUCTIONS FOR SERVICE PERSONNEL

BEFORE RETURNING APPLIANCE TO THE CUSTOMER, MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT.

1. SPECIFICATIONS

仕 様

MECHANICAL CHARACTERISTICS

Type: Compact cassette (C-60 to C-90), High-Bias (CrO2)
Track Format: 4-track/4-channel
Head Configuration:
 4-channel record/play head (permalloy) x 1
 4-channel erase head (ferrite) x 1
Motor: DC servo motor x 1
Tape Speed: 9.5 cm/sec. (3-3/4 ips)
Pitch Control: $\pm 10\%$ (approx.)
Wow and Flutter: 0.2% WRMS or less
Fast Winding Time: 115 sec. (approx.) with C-60

ELECTRICAL CHARACTERISTICS

Mixer Section

MIC/LINE INPUT, Ch. 1-4: (1/4" phone jack x 4)

Input Impedance: 50 kohms
Nominal Input Level:
 -50 dBV (3 mV) at Trim Max.
 -10 dBV (0.3 V) at Trim Min.
Maximum Input Level: +5 dBV (1.8 V) at Trim Min.

BAL MIC INPUT (XLR TYPE x 2)

Input Impedance: 5 kohms
Nominal Input Level:
 -60 dBV (1 mV) at Trim Max.
 -20 dBV (0.1 V) at Trim Min.
Maximum Input Level: -5 dBV (0.56 V) at Trim min.

GUITAR INPUT (1/4" phone jack x 1)

Input Impedance: 1 Mohms
Nominal Input Level:
 -50 dBV (3 mV) at Trim Max.
 -10 dBV (0.3 V) at Trim Min.
Maximum Input Level: 0 dBV (1 V) at Trim Min.

STEREO INPUT, Ch. 5-6/7-8: (1/4" stereo phone jack x 2)

Input Impedance:
 10 kohms
 5 kohms (L/MONO)
Nominal Input Level: -10 dBV (0.3 V)
Maximum Input Level: +5 dBV (1.8 V)

SUB INPUT (RCA jack x 2):

Input Impedance: 10 kohms
Nominal Input Level: -10 dBV (0.3 V)
Maximum Input Level: +5 dBV (1.8 V)

LINE OUTPUT (RCA jack x 2):

Output Impedance: 100 ohms
Nominal Output Level: -10 dBV (0.3 V)
Maximum Output Level: +5 dBV (1.8 V)

<機構部>

使用テープ: C-60~C-90カセットテープ
 CrO2専用
トラック形式: 4トラック4チャンネル
ヘッド構成: 4チャンネル録音/再生ヘッド
 (パーマロイ×1)
 4チャンネル消去ヘッド
 (フェライト×1)
モーター構成: DCサーボモーター×1
テープ速度: 9.5cm/sec.
ピッチコントロール: 約 $\pm 10\%$
ワウフラッター: 0.2%WRMS以内
早巻き時間: 約115秒 (C-60テープ)

<電気部>

ミキサー部

MIC/LINE IN [CH1~CH4] (6φホンジャック×4)

入力インピーダンス: 50k Ω
規定入力レベル: -50dBV (3mV)/TRIM最大時
 -10dBV (0.3V)/TRIM最小時
最大入力レベル: +5 dBV (1.8V)/TRIM最小時

INPUT L, R (XLRタイプコネクター×2)

入力インピーダンス: 5k Ω
規定入力レベル: -60dBV (1mV)/TRIM最大時
 -20dBV (0.1V)/TRIM最小時
最大入力レベル: -5 dBV (0.56V)/TRIM最小時

GUITAR IN (6φホンジャック×1)

入力インピーダンス: 1M Ω
規定入力レベル: -50dBV (3mV)/TRIM最大時
 -10dBV (0.3V)/TRIM最小時
最大入力レベル: 0 dBV (1V)/TRIM最小時

STEREO INPUTS [CH5-6, CH7-8] (6φステレオホンジャック×2)

入力インピーダンス: 10k Ω
 5k Ω (L/MONO)
規定入力レベル: -10dBV (0.3V)
最大入力レベル: +5 dBV (1.8V)

SUB IN (RCAピンジャック×2)

入力インピーダンス: 10k Ω
規定入力レベル: -10dBV (0.3V)
最大入力レベル: +5 dBV (1.8V)

LINE OUT (RCAピンジャック×2)

出力インピーダンス: 100 Ω
規定出力レベル: -10dBV (0.3V)
最大出力レベル: +5dBV (1.8V)

EFFECT 1 SEND (1/4" phone jack x 1):

Output Impedance: 100 ohms
 Nominal Output Level: -10 dBV (0.3 V)
 Maximum Output Level: +5 dBV (1.8 V)

EFFECT 2 SEND/TAPE CUE OUT (1/4" phone jack x 1):

Output Impedance: 100 ohms
 Nominal Output Level: -10 dBV (0.3 V)
 Maximum Output Level: +5 dBV (1.8 V)

SYNC OUT (RCA jack x 1):

Output Impedance: 100 ohms
 Nominal Output Level: -10 dBV (0.3 V)

MON OUT (RCA jack x 2):

Output Impedance: 1 kohms
 Nominal Output Level: -10 dBV (0.3 V)
 Maximum Output Level: +5 dBV (1.8 V)

PHONES (1/4" stereo phone jack x 1):

Nominal Load Impedance: 30 ohms
 Maximum Output Level: 60 mW + 60 mW

Equalizer

HIGH (Shelving): 10 kHz, ± 10 dB
 LOW (Shelving): 100 Hz, ± 10 dB

Frequency Response:

MIC IN to LINE OUT: 20 Hz to 20 kHz, ± 3 dB
 LINE IN to LINE OUT: 20 Hz to 20 kHz, ± 2 dB
 LINE IN to MONITOR OUT: 20 Hz to 20 kHz, ± 2 dB
 LINE IN to EFFECT SEND: 20 Hz to 20 kHz, ± 2 dB
 LINE IN to PHONES: 40 Hz to 20 kHz, ± 3 dB

Signal-to-Noise Ratio (20 Hz to 20 kHz, B.P.F. inserted):

- 1 MIC IN to LINE OUT:
65 dB (at a nominal input level of -60 dBV)
- 4 MIC INs to LINE OUT:
60 dB (at a nominal input level of -60 dBV)
- 1 LINE IN to LINE OUT:
75 dB (at a nominal input level of -10 dBV)
- 4 LINE INs to LINE OUT:
70 dB (at a nominal input level of -10 dBV)

Distortion

- 1 MIC IN to LINE OUT: 0.05 %
(at 1 kHz, 15 dB above nominal input level with 30 kHz low-pass filter inserted)
- 1 LINE IN to LINE OUT: 0.03 %
(at 1 kHz, nominal input level with 30 kHz low-pass filter inserted)

Crosstalk: 60 dB

(at 1 kHz, nominal input level with 1 kHz band pass filter inserted)

EFFECT 1 SEND (6φホンジャック)

出力インピーダンス: 100Ω
 規定出力レベル: -10dBV (0.3V)
 最大出力レベル: +5dBV (1.8V)

EFFECT 2 SEND/TAPE CUE OUT (6φホンジャック)

出力インピーダンス: 100Ω
 規定出力レベル: -10dBV (0.3V)
 最大出力レベル: +5dBV (1.8V)

SYNC OUT (RCAピンジャック)

出力インピーダンス: 100Ω
 規定出力レベル: -10dBV (0.3V)

MON OUT (RCAピンジャック×2)

出力インピーダンス: 1kΩ
 規定出力レベル: -10dBV (0.3V)
 最大出力レベル: +5dBV (1.8V)

PHONES出力 (6φステレオホンジャック×1)

規定負荷インピーダンス: 30Ω
 最大出力レベル: 60mW + 60mW

イコライザー

HIGH (シェルビング)
 基準周波数: 10kHz
 可変範囲: ± 10 dB
 LOW (シェルビング)
 基準周波数: 100Hz
 可変範囲: ± 10 dB

周波数特性

MIC入力~LINE出力: 20Hz~20kHz ± 3 dB
 LINE入力~LINE出力: 20Hz~20kHz ± 2 dB
 LINE入力~MONITOR出力: 20Hz~20kHz ± 2 dB
 LINE入力~EFFECT出力: 20Hz~20kHz ± 2 dB
 LINE入力~PHONES出力: 40Hz~20kHz ± 3 dB

S/N比 (20~20kHz B. P. F.使用時)

1MIC入力~LINE出力: 65dB (-60dBV規定入力レベル位置)
 4MIC入力~LINE出力: 60dB (-60dBV規定入力レベル位置)
 1LINE入力~LINE出力: 75dB (-10dBV規定入力レベル位置)
 4LINE入力~LINE出力: 70dB (-10dBV規定入力レベル位置)

歪み率

1MIC入力~LINE出力: 0.05 %
 (1kHz, 規定入力より 15dB 高いレベルを入力し 30kHz LPF を使用して測定)
 1LINE入力~LINE出力: 0.03 %
 (1kHz, 規定入力レベルで 30kHz LPF を使用して測定)

クロストーク:

60dB
 (1kHz, 規定入力レベルで 1kHz BPF を使用して測定)

Recorder Section

Record channel: 4-track single direction

Noise Reduction: dbx Type II

Overall Frequency Response:

40 Hz to 10 kHz, ± 3 dB (without dbx)

Overall Signal-to-Noise Ratio: 85 dB

(at 1 kHz, ref. to 3 % THD, "A" weighted, with dbx)

Total Harmonic Distortion (THD): 2.0 %

(at 1 kHz, nominal input level, with dbx)

Channel Separation: 40 dB

(at 1 kHz, nominal input level, with dbx)

Erase: 65 dB or greater (at 1 kHz, B.P.F. inserted)

OTHERS

Power Requirements:

USA/CANADA: 120 V AC, 60 Hz

U.K./EUROPE: 230 V AC, 50 Hz

AUSTRALIA: 240 V AC, 50 Hz

Power Consumption:

11W, via the supplied PS-P414 AC adaptor

Dimensions (W x H x D):

367 x 100 x 247 mm (14-7/16" x 3-15/16" x 9-3/4")

Weight: 2.1 kg (4-10/16 lbs.)

- In these specifications, 0 dBV is referenced to 1 Volt. Actual voltage levels are also given in parentheses (0.316 V for -10 dBV rounded off to 0.3 V).
- Changes in specifications and features may be made without notice or obligation.
- dbx is a registered trademark of dbx Incorporated.

レコーダー部

録音チャンネル： 4 片道4トラック

ノイズリダクション： dBx TYPE II

総合周波数特性： 40Hz～10kHz ± 3 dB (dbx OUT)

総合S/N比： 85dB以上
(1kHz, 3%歪みレベルに対して
IHF-A, dbx IN)

歪み率： 2.0%以下
(1kHz, 規定入力レベル, dbx IN)

チャンネルセパレーション： 40dB以上
(1kHz, 規定入力レベル, dbx IN)

消去率： 65dB以上
(1kHz, B.P.F.を使用して測定)

<その他>

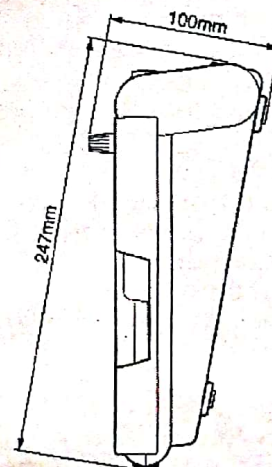
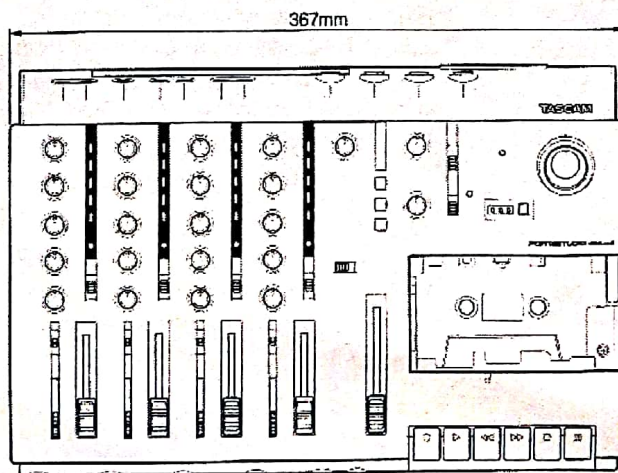
使用電圧： AC 100V 50-60Hz/DC 12V 650mA
専用ACアダプター PS-P414使用

消費電力： 11W

外形寸法： 367mm (幅) × 100mm (高さ)
× 247mm (奥行)

質量： 2.1kg

- * 0dBV=1V, -10dBV=0.316Vを0.3Vに略して表記しています。
- *仕様および外観は、改善のため予告なく変更することがあります。
- *dbxおよびdbxマークはdbxインコーポレーテッドの登録商標です。
- *dbxシステムはdbxインコーポレーテッドの実施権に基づいて製造されています。



2. MECHANICAL CHECKS AND ADJUSTMENTS

機構部の確認と調整

2-1. Wow and flutter

1. Connect the wow and flutter meter to SYNC OUT.
2. The wow and flutter value when the test tape MXT-111 is played back should be within the standard given below:
Standard : 0.2 % or less (WRMS)

2-1. ワウフラッタ

1. SYNC OUTにワウフラッターメータを接続する。
2. テストテープ MXT-111を再生したときのワウフラッタ値は下記規格内であること。
規格 : 0.2 %以下 (WRMS)

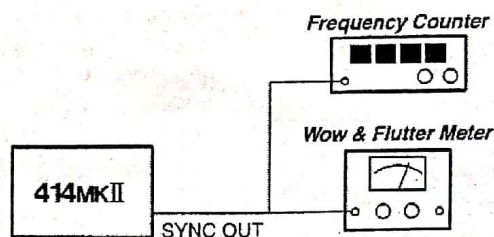


Fig. 2-1

2-2. Tape speed

1. Connect the frequency counter to SYNC OUT.
2. Set the PITCH CONTROL knob to the center position.
3. Turn the POWER switch ON, then play back the test tape. Leave the tape in this state for at least one minute, in order to let the capstan motor rotate and warm up.
4. Play back the middle portion of the test tape MXT-111, then adjust trimmer resistor R622 (Fig. 3-1) on the BOTTOM PCB till a frequency counter reading of 3000 Hz $\pm$ 5 Hz is reached.
5. After adjustment, check the following at both the beginning and the end of tape.
Frequency reading : 3000 Hz $\pm$ 60 Hz

2-2. テープスピード

1. SYNC OUTに周波数カウンタを接続する。
2. PITCH CONTROLノブをセンターにセットする。
3. キャプスタンモータを回転させウォーミングアップさせるために、テストテープを装着し再生状態にして少なくとも1分間そのままにしておく。
4. テストテープ MXT-111の中間部を再生したとき、周波数カウンタの値が 3000Hz $\pm$ 5HzになるようにBOTTOM PCBの半固定抵抗 R622 (図 3-1) を調整する。
5. 調整後、テープの巻始めと巻終わりで、次の値が得られるかを確認する。
速度偏差 : 3000 Hz $\pm$ 60 Hz

2-3. Pitch control

After the tape speed has been adjusted, play back the test tape MXT-111, turn the PITCH CONTROL knob to the maximum and minimum positions so that the tape speed variations are as follows:

Standard : ± 10 % or more (2700 Hz or less, 3300 Hz or more)

2-3. ピッチコントロール

テープスピード調整後、テストテープ MXT-111を再生し、PITCH CONTROLノブを最大、最小に回したときのテープスピード可変幅は次の通りであること。

規格 : ± 10 %以上 (2700 Hz以下、3300 Hz以上)

2-4. Reel torque

1. Take-up torque/back tension torque
The torque values when the test tape MTT-8111 for measuring torques is played back should be as follows:
Take-up torque (right reel) : 30 to 65 g·cm
Back tension torque (left reel) : 2 to 6 g·cm
2. FF/REW torque
Load the test tape MTT-8242 for measuring torques, then measure the starting torque when the unit is in FF and REW operation. The standard values are as follows:
Torque in FF mode (right reel) : 55 to 140 g·cm
Torque in REW mode (left reel) : 55 to 140 g·cm

2-5. R/P head azimuth

1. Refer to Figure 2-2 and connect the channel 1 TAPE OUT to the vertical input of an oscilloscope, and connect the channel 4 TAPE OUT to the horizontal input of the scope.
2. Play the 315 Hz and 6.3 kHz signals on test tape MXT-1161 and adjust azimuth adjustment screw for 0 degree phase shift between channels 1 and 4. (Refer to Figure 2-3)
3. Play the test tape MXT-112 and check for 45 degrees or less of phase shift between channel 1 and 2, channel 2 and 3, and channel 2 and 4.

Note) TAPE OUT (CH1) : P601-5 of BOTTOM PCB
TAPE OUT (CH2) : P601-6 of BOTTOM PCB
TAPE OUT (CH3) : P601-7 of BOTTOM PCB
TAPE OUT (CH4) : P601-8 of BOTTOM PCB

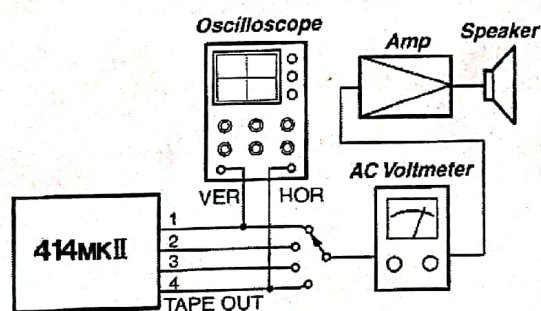


Fig. 2-2

2-4. リールトルク

1. テイクアップトルク/バックテンショントルク
トルク測定用テストテープ MTT-8111を再生したときのトルク値は下記の通りであること。
テイクアップトルク (右リール台) : 30~65 g·cm
バックテンショントルク (左リール台) : 2~6 g·cm
2. FF/REWトルク
トルク測定用テストテープ MTT-8242を装着し、FF動作およびREW動作の起動トルクをそれぞれ測定する。規格値は次の通り。
FFトルク (右リール台) : 55~140 g·cm
REWトルク (左リール台) : 55~140 g·cm

2-5. 録再ヘッドアジマス

1. 図2-2のようにCH1のTAPE OUTをオシロスコープのVER側に、CH4のTAPE OUTをHOR側に接続する。
2. テストテープ MXT-1161の315Hzおよび6.3kHzを再生して、CH1とCH4の位相が0° になるようにアジマス調整ネジを調整する。(図2-3)
3. テストテープ MXT-112を再生して、CH1-CH2、CH2-CH3、CH2-CH4の位相が45° 以内であることを確認する。

注) TAPE OUT (CH1) : BOTTOM PCBのP601-5
TAPE OUT (CH2) : BOTTOM PCBのP601-6
TAPE OUT (CH3) : BOTTOM PCBのP601-7
TAPE OUT (CH4) : BOTTOM PCBのP601-8

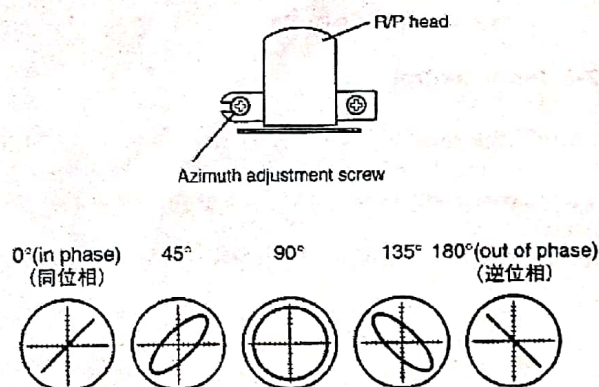
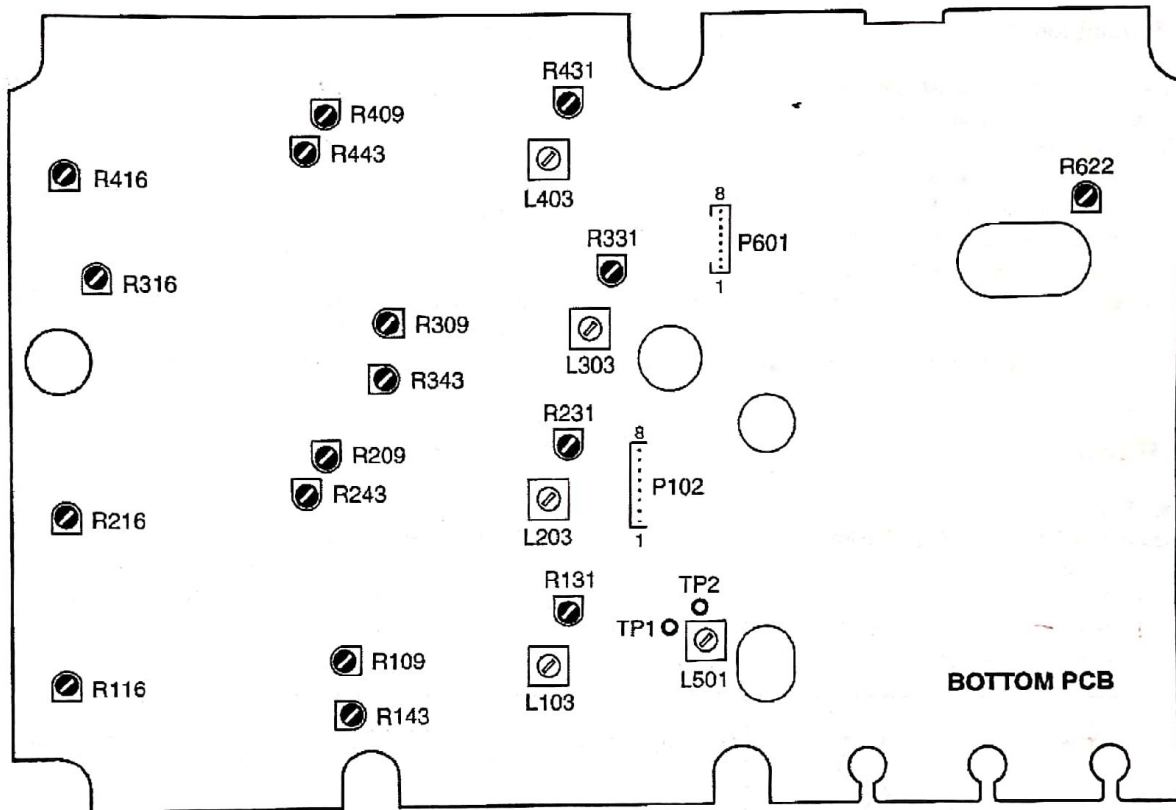


Fig. 2-3

3. AMPLIFIER CHECKS AND ADJUSTMENTS

録音／再生アンプの確認と調整



R109 ~ R409	Reproduce Reference Level	再生基準レベル
R116 ~ R416	dbx Timing	dbxタイミング
L501	Bias Oscillator Frequency	バイアス発振周波数
L103 ~ L403	Bias Amp (Erase)	バイアスアンプ (消去)
R131 ~ R431	Bias Set	バイアスセット
R143 ~ R443	Record Reference Level	録音基準レベル

Fig. 3-1

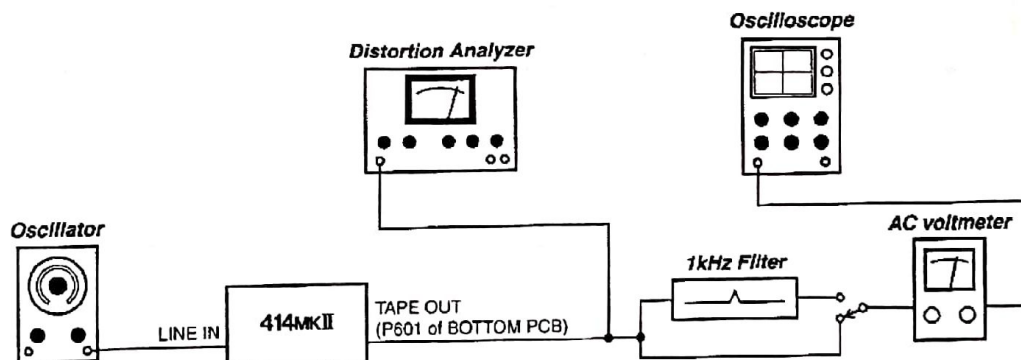


Fig. 3-2

3-1. Precaution

1. Before performing adjustments and checks clean and demagnetize the entire tape path.
2. The AC voltmeter used in the procedures must have an input impedance of 1 MΩ or more.
3. 0 dBV is referenced to 1.0 V.
4. For blank tape, use TEAC MTT-5563 or equivalent tapes.
5. Indication, for example, "R109 ~ R409" means that R109 is for channel 1, R209 for channel 2, R309 for channel 3 and so on.
6. Refer to Figure 3-1 for location of adjustment points.

3-2. Playback performance

Mode : PLAY

Measurement Point : TAPE OUT terminals

Note) TAPE OUT (CH1) : P601-5 of BOTTOM PCB
TAPE OUT (CH2) : P601-6 of BOTTOM PCB
TAPE OUT (CH3) : P601-7 of BOTTOM PCB
TAPE OUT (CH4) : P601-8 of BOTTOM PCB

3-1. 注意

1. アンプ部の調整・確認の前にヘッドやテープ走行系の消磁と清掃を行ってください。
2. 測定に使用するレベル計のインピーダンスは1MΩ以上のものを使用してください。
3. 0dBV=1.0Vで表示しています。
4. ブランクテープは、TEAC MTT-5563または相当品を使用してください。
5. R109~R409のように記されているボリュームの部番はCH1~CH4を示します。
6. 調整箇所は、図3-1を参照してください。

3-2. 再生系

モード : PLAY

測定箇所 : TAPE OUT端子

注) TAPE OUT (CH1) : BOTTOM PCBのP601-5
TAPE OUT (CH2) : BOTTOM PCBのP601-6
TAPE OUT (CH3) : BOTTOM PCBのP601-7
TAPE OUT (CH4) : BOTTOM PCBのP601-8

ITEM 項目	SETTING 設定	PLAYBACK SIGNAL 再生信号	ADJUSTMENT 調整箇所	MEASUREMENT METHOD, RESULT 測定方法・調整値
1. Reproduce reference level 再生基準レベル	Connection : Fig. 3-2	Test tape : MXT-112	R109 ~ R409	-10 dBV at output 出力が-10dBVになるように調整
2. Reproduce frequency response 再生周波数特性	Connection : Fig. 3-2	Test tape : MXT-1161	Check only	Specs : Fig. 3-3
3. Level difference between channels チャンネル間レベル差	Connection : Fig. 3-2	Test tape : MXT-1161	Check only	63 Hz ~ 6.3 kHz : within 3 dB 6.3 kHz ~ 10 kHz : within 4 dB
4. Level fluctuation レベル変動	Connection : Fig. 3-2	Test tape : MXT-1161	Check only	63 Hz ~ 6.3 kHz : within 2 dB 6.3 kHz ~ 12 kHz : within 3 dB
5. Reproduce SN ratio 再生SN比	Connection : Fig. 3-2 DIN AUDIO	Test tape : MXT-112 Playback the leader tape portion リーダーテープ部を再生	Check only	Ratio of reference level to noise level 基準レベルとノイズレベルの比 47 dB or more

3-3. Recording performance

Mode : REC/PLAY

Measurement Point : TAPE OUT terminals

(unless otherwise specified)

3-3. 録音系

モード : REC/PLAY

測定箇所 : TAPE OUT端子

(特に指示のある場合を除く)

ITEM 項目	SETTING 設定	INPUT SIGNAL 入力信号	ADJUSTMENT 調整箇所	MEASUREMENT METHOD, RESULT 測定方法・調整値
1. dbx timing dbx タイミング	Connect the DC voltmeter between the pin 1 of R116 (R216 ~ R416) and GND.	No signal	R116 ~ R416	A voltage reading of 18.4 ± 1 mV 電圧値が 18.4 ± 1 mVになるように調整
2. Bias oscillator frequency バイアス発振周波数	Connect the frequency counter between TP1 (GND) and TP2. ; REC FUNCTION sw.: ON for all channels	No signal	L501	$85 \text{ kHz} \pm 5 \text{ kHz}$ as read on frequency counter 周波数カウンタの値が 85 ± 5 kHzになるように調整
3. Bias Amp. (Erase) バイアスアンプ (消去)	Connect the oscilloscope between pin 1 (3, 5, 7) of P102 and GND. ; REC FUNCTION sw.: ON for all channels	No signal	L103 ~ L403	Maximum output as read on the scope connected between the specified terminas of P102 下記の端子間の出力が最大になるように調整 Ch.1 : pin 1 of P102 and GND Ch.2 : pin 3 of P102 and GND Ch.3 : pin 5 of P102 and GND Ch.4 : pin 7 of P102 and GND
4. Bias set バイアスセット	Connection : Fig. 3-2 ; dbx NR : IN	1 kHz / 10 kHz, -30 dBV	R131 ~ R431	Nearly equal level at both frequencies 両周波数の録再出力が同レベルになるように調整
5. Record reference level 録音基準レベル	Connection : Fig. 3-2 ; dbx NR : IN	1 kHz, -10 dBV	R143 ~ R443	-10 dBV at output 出力が-10 dBVになるように調整
6. Total harmonic distortion 総合歪率	Connection : Fig. 3-2 ; dbx NR : OUT	1 kHz, -10 dBV	Check only	2.0 % or less
7. Overall frequency response 録再周波数特性	Connection : Fig. 3-2 ; dbx NR : IN/OUT	63 Hz ~ 14 kHz, -30 dBV	Check only	Specs : Fig. 3-4
8. Level difference between channels チャンネル間レベル差	Connection : Fig. 3-2 ; dbx NR : OUT	40 Hz ~ 10 kHz, -30 dBV	Check only	40 Hz ~ 6.3 kHz : within 3 dB 6.3 kHz ~ 10 kHz : within 4 dB
9. Level fluctuation レベル変動	Connection : Fig. 3-2 ; dbx NR : OUT	40 Hz ~ 10 kHz, -30 dBV	Check only	40 Hz ~ 10 kHz : within 3 dB
10. Crosstalk between tracks トラック間クロストーク	Connection : Fig. 3-2 ; dbx NR : OUT ; REC FUNCTION sw. : ON for Ch.1 and Ch.3	125 Hz, -10 dBV into Ch.1 and 3 ; No signal into Ch.2 and 4	Check only	Ratio of Ch.1 (Ch.3) to Ch.2 (Ch.4) Ch.1 (Ch.3)とCh.2 (Ch.4)の出力レベル比 35 dB min

ITEM 項目	SETTING 設定	INPUT SIGNAL 入力信号	ADJUSTMENT 調整箇所	MEASURING POINTS, RESULT 測定方法・調整値
11. Channel separation チャンネル セパレーション	Connection : Fig. 3-2 (1 kHz B.P.F. inserted) ; dbx NR : OUT ; REC FUNCTION sw. : ON for all channels	1 kHz, -10 dBV into Ch.1 and 3 ; No signal into Ch.2 and 4	Check only	Ratio of Ch.1 (Ch.3) to Ch.2 (Ch.4) Ch.1 (Ch.3)とCh.2 (Ch.4)の出力レベル比 40 dB min.
12. Erase efficiency 消去率	Connection : Fig. 3-2 (1 kHz B.P.F. inserted) ; dbx NR : OUT	1 kHz, 0 dBV	Check only	Ratio of the 1 kHz recorded portion to the erased portion 未消去部分と消去部分の比 65 dB min.
13. Overall SN ratio 総合SN比	Connection : Fig. 3-2 ; dbx NR : OUT ; DIN AUDIO	No signal	Check only	Ratio of reference level to noise level 基準出力レベルとノイズレベルの比 45 dB min.

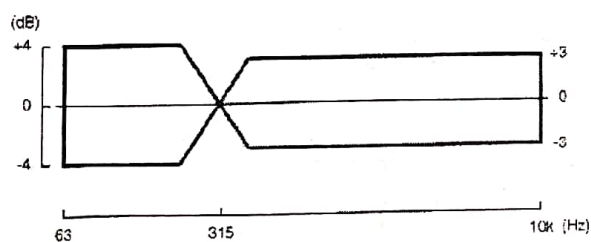


Fig. 3-3 Playback frequency response
再生周波数特性

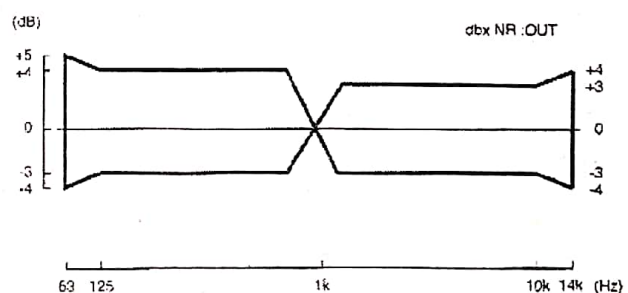
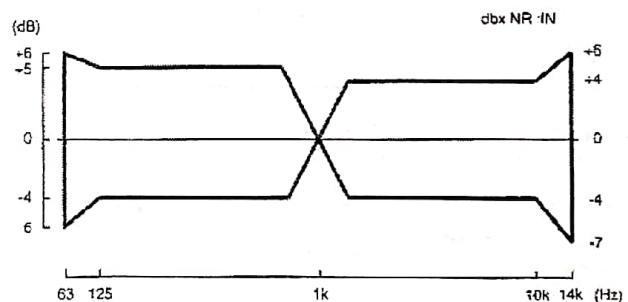


Fig. 3-4 Overall frequency response
録再周波数特性

PARTS LIST SECTION

NOTES

- PC boards shown are viewed from parts side.
- Parts marked with * require longer delivery time.
- The parts with no reference number or no parts number in the exploded views are not supplied.
- As regards the resistors and capacitors, refer to the circuit diagrams contained in this manual.
- △ Parts marked with this sign are safety critical components. They must be replaced with identical components - refer to the appropriate parts list and ensure exact replacement.
- Parts of [] mark can be used only with the version designated.
[J]: JAPAN [US/C]: U.S.A./CANADA [E]: EUROPE [UK]: U.K.
[A]: AUSTRALIA

注 意

- プリント基板図は部品面を示しています。
- *印の部品は納期が若干かかります。
あらかじめご了承ください。
- 分解図に部番のない部品および品番のない部品は供給できません。
- 標準の抵抗、コンデンサーは省略してあります。
回路図を参照してください。
- △印は安全重要部品です。
交換する時は必ず指定の部品を使用してください。
- 仕向先
[J]: JAPAN [US/C]: U.S.A./CANADA [E]: EUROPE [UK]: U.K.
[A]: AUSTRALIA

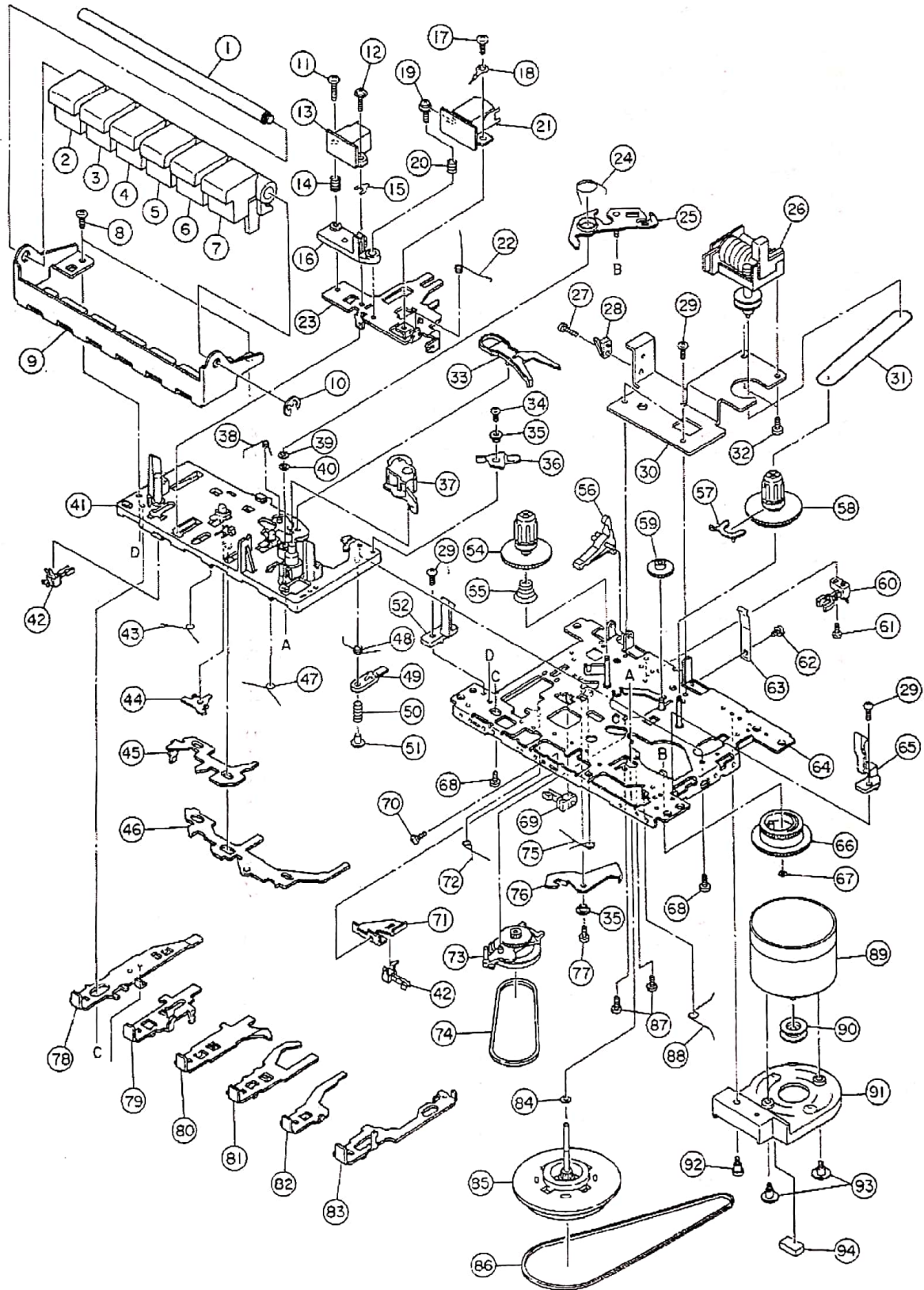
EXPLODED VIEW-1

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1- 1	3M0069400A	R-VR KNOB, N61/B10	
1- 2	3M0069600A	R-VR KNOB, N61/G06	
1- 3	3M0069700A	R-VR KNOB, N61/N64	
1- 4	3M0073100A	KNOB FADER N61/Y17	
1- 5	* 3M0079700A	CAB TOP [J]	
	* 3M0079710A	CAB TOP [EXCEPT J]	
1- 6	3M0073110A	KNOB FADER N61/R21	
1- 7	* 3M0080600A	WINDOW METER	
1- 8	3M0069800A	R-VR KNOB, N61/Y17	
1- 9	* 3M0080400A	COVER CASSETTE [J]	
	* 3M0080410A	COVER CASSETTE [EXCEPT J]	
1-10	* 3M0083900A	CUSHION	
1-11	3M0062400A	PLATE, REFLECT	
1-12	3M0073000A	KNOB PITCH N61	
1-13	* 9260271101	BADGE, TASCAM SILVER	
1-14	* 3M0080700A	COVER SPRING	
1-15	* 3M0080900A	LENS LED	
1-16	* 3M0080800A	BLIND S-VR	
1-17	* 3M0081600A	SHIELD SHEET MXR	
1-18	3M0072900A	KNOB SLIDE LG	
1-19	3M0080200A	KNOB SLIDE	
1-20	3M0080300A	KNOB TRIM	
1-21	3M0082800A	BUTTON COVER	
1-22	* 3M0080000A	BLIND PIN JACK	
1-23	* 3E9520900B	PCB ASSY, GATHER(A)	
1-24	* 3M0090600A	SPACER PCB	
1-25	* 3M0079900A	BRACKET JACK	
1-26	* 3E011630	MOUNT PLATE JACK	
1-27	* 3E9521600A	PCB ASSY, BALMIC	
1-28	* 3M0081700B	SHIELD ASSY	
1-29	* 3M0015000A	WIRE CLAMP	
1-30	* 3M9521500A	PCB ASSY, BOTTOM	
1-31	* 3M0081200A	JOINT	
1-32	5801503800	BUTTON, EJECT (P-N15-A)	
1-33	* 3M0081500A	SHIELD SHEET R/P	
1-34	* 3M0079800A	CAB BOTTOM [J]	
	* 3M0079810A	CAB BOTTOM [EXCEPT J]	
1-35	3M0066910A	FOOT	
1-41	* 3B0004810A	SCREW, BPP M3X10 (BLK)	
1-42	* 3B0004808A	SCREW, BPP M3X8 (BLK)	
1-43	* 3B0007010A	SCREW, FPP M3X10	
1-44	* 3B0004708A	SCREW, BPP M2.6X8 (BLK)	
1-45	* 3B0007120A	SCREW, BPP M3X20	

INCLUDED ACCESSORIES

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	* 3D0028000A	OWNER'S MANUAL, JAPANESE [J]	
	* 3D0028100A	OWNER'S MANUAL, ENGLISH [EXCEPT J]	
	* 3D0028200A	OWNER'S MANUAL, FRENCH/GERMAN [E]	
	* 3E0114300A	AC ADAPTOR, PS-P414 [J]	
	* 3E0114311A	AC ADAPTOR, PS-P414 [US/C]	
	* 3E0114340A	AC ADAPTOR, PS-P414 [E]	
	* 3E0114350A	AC ADAPTOR, PS-P414 [UK]	
	* 3E0114360A	AC ADAPTOR, PS-P414 [A]	

EXPLODED VIEW-2



EXPLODED VIEW-2

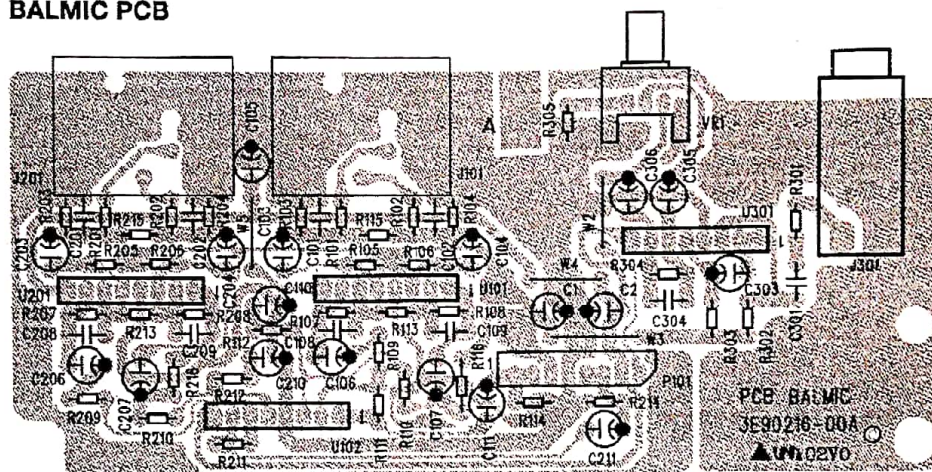
REF. NO.	PARTS NO.	DESCRIPTION
2- 1	* 3M0083400A	LEVER SHAFT, 1821-31-03
2- 2	3M0082000A	BUTTON (REC)
2- 3	3M0082100A	BUTTON (PLAY)
2- 4	3M0082200A	BUTTON (REW)
2- 5	3M0082300A	BUTTON (FF)
2- 6	3M0082400A	BUTTON (STOP)
2- 7	3M0082500A	BUTTON (PAUSE)
2- 8	* 3M0083200A	SCREW, M2X8
2- 9	* 3M0083300A	B FRAME (H)
2-10	* 3M0083500A	ERING, 3.2
2-11	* 3M0083800A	SCREW, M2X9
2-12	* 3M0083100A	CAP SCREW, M2X8
2-13	5378602100	ERASE HEAD 4-4
2-14	9278197900	E. H. SPRING
2-15	* 9A08312900	Y WASHER PB) 0.1T
2-16	* 9278305200	HEAD BASE
2-17	* 9278303100	SCREW, BIND M2X3
2-18	* 9A08312800	B3 LUG PLATE
2-19	9278305900	AZIMUTH SCREW, M2X7
2-20	9278198400	AZIMUTH SPRING
2-21	5378602000	R/P HEAD
2-22	* 9278360700	PANEL P SPRING
2-23	* 9278303800	HEAD PANEL
2-24	9278268900	GEAR PLATE SPRING
2-25	9278361100	GEAR PLATE ASSY
2-26	M00467400A	COUNTER, MK394S-008
2-27	* 380005106A	SCREW, BPS M2X6
2-28	* 3E011660	SW, PUSH 1-1 (SPPB2A0101)
2-29	* 380005106A	SCREW, BPS M2X6
2-30	* 3M0080500A	BRACKET, COUNTER
2-31	3M0081400A	COUNTER BELT
2-32	* 380004706A	SCREW, BPP M2.6X6 (BLK)
2-33	9278307300	SENSING LEVER
2-34	* 9278363300	SCREW, PS-TITE M2X3
2-35	9278292200	P ARM COLLAR
2-36	* 9278363100	P ARM
2-37	9278306800	PINCH ROLLER ARM ASSY
2-38	9278268600	M CONTROL SPRING
2-39	9278362500	P WASHER CUT 1.45X3.2X0.5
2-40	* 9278362700	P WASHER 2.1X4X0.13
2-41	9278360200	BASE ASSY
2-42	9278304200	LEAF SWITCH, MSW-1541T
2-43	9278267300	BUTTON LEVER SPRING (A)
2-44	* 9278267800	PR STOPPER
2-45	* 9278304700	SWITCH ACTUATOR
2-46	9278266201	PUSH BUTTON ACTUATOR
2-47	9278268000	BUTTON LEVER SPRING (B)
2-48	9278306400	P CONTROL SPRING
2-49	9278306500	PAUSE LEVER
2-50	9278267100	PAUSE LEVER SPRING

REF. NO.	PARTS NO.	DESCRIPTION
2-51	9278267200	PAUSE STOPPER
2-52	* 3M0095100A	CASSETTE GUIDE (L)
2-54	9278304800	SUPPLY REEL ASSY
2-55	* 9278361400	BACK TENSION SPRING
2-56	* 9278200300	RECORD SAFETY LEVER
2-57	9278306900	SENSOR
2-58	9278306600	TAKE UP REEL ASSY
2-59	9278199900	FF GEAR
2-60	9278304300	LEAF SWITCH, MSW-1275
2-61	* 9278304600	TAPPING SCREW C-TITE M2X5
2-62	* 9278362000	DEL TITE SCREW M2X3
2-63	* 9278305100	PACK SPRING
2-64	* 9278360400	CHASSIS ASSY
2-65	* 3M0095200A	CASSETTE GUIDE (R)
2-66	9278289100	CAM GEAR
2-67	9278291400	P WASHER CUT 1.2X3.8X0.3
2-68	* 9278202200	SCREW, P TAPPING BIND M2X5
2-69	9278292500	LEAF SW, MSW-17820-MVDO
2-70	* 9278369100	CAMERA SCREW, M2X5
2-71	* 9278369000	SW BRACKET
2-72	9278267600	P.S. LEVER SPRING
2-73	9278361200	RF CLUTCH ASSY
2-74	9278289300	RF BELT
2-75	9278267900	REC BUTTON LEVER SPRING
2-76	* 9278363000	REC ARM
2-77	* 9278202100	C TAPPING SCREW M2X4
2-78	9278266300	REC BUTTON LEVER
2-79	9278266400	PLAY BUTTON LEVER
2-80	* 9278360300	REW BUTTON LEVER
2-81	9278266600	FF BUTTON LEVER
2-82	* 9278303700	STOP BUTTON LEVER
2-83	9278306300	PAUSE BUTTON LEVER
2-84	9278308400	P WASHER 2X3.5X0.4
2-85	9278361300	FLYWHEEL ASSY
2-86	9278361600	MAIN BELT
2-87	9278291000	SCREW, TAPPING M2X4.5
2-88	9278267500	E ACTUATOR SPRING
2-89	9278361800	CAPSTAN MOTOR, EG-530KD-2F
2-90	* 9278361500	MOTOR PULLY
2-91	9278304900	MOTOR BRACKET
2-92	9278290400	MB SCREW
2-93	9278290100	MOTOR COLLAR SCREW
2-94	* 9278361700	ANTI VIBRATION FELT MAT

5. PC BOARDS AND PARTS LIST

基板図とパーツリスト

BALMIC PCB



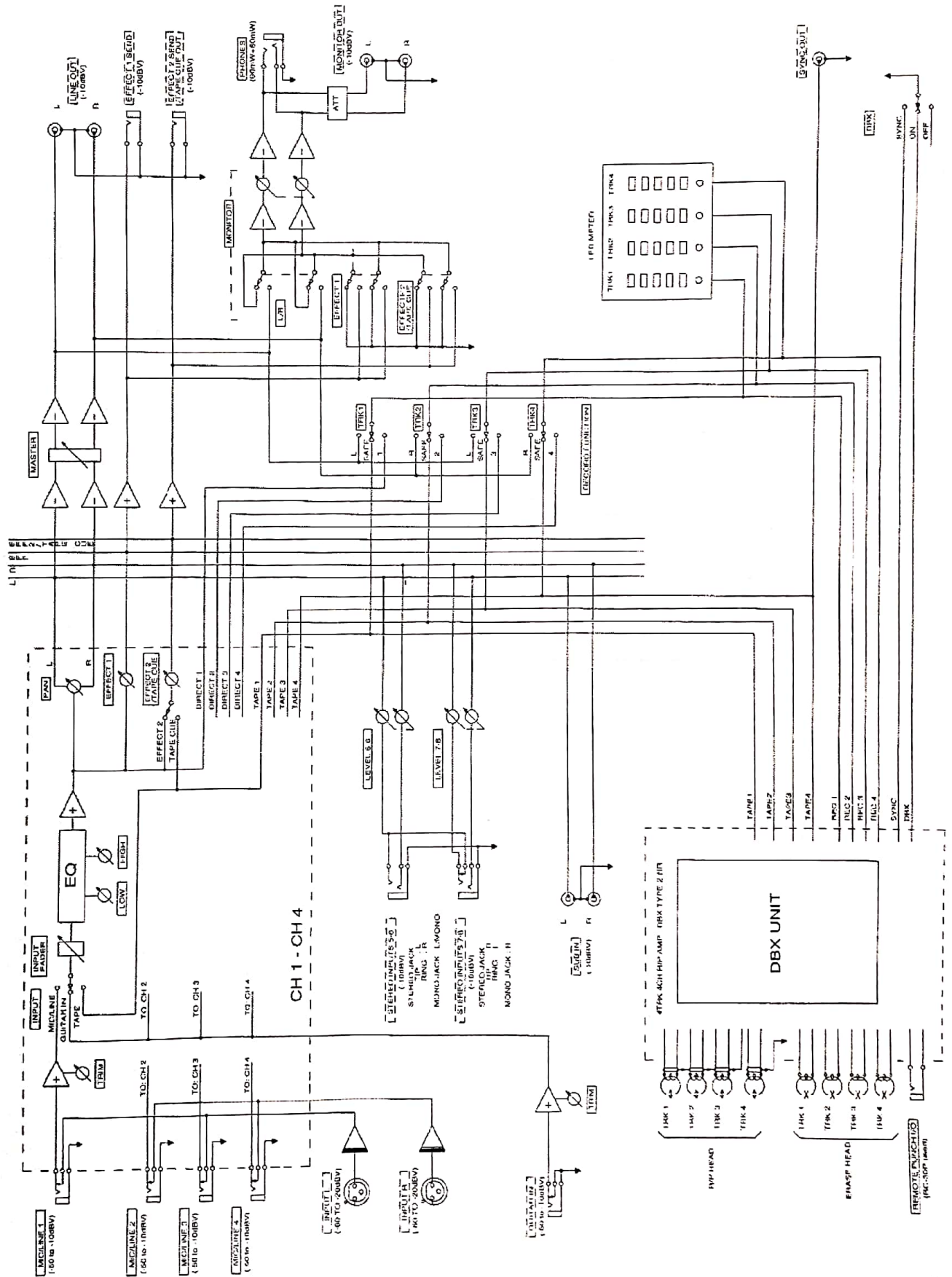
BALMIC PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	* 3E9521600A	PCB ASSY, BALMIC
	* 3E9021600A	PCB, BALMIC
	3M0015000A	WIRE CLAMP
J101, J201	3E010130	JACK, XLR NC3FAH-0
J301	3E010110	JACK, JY-6314-01-130

REF. NO.	PARTS NO.	DESCRIPTION
P101	3E008630	CONNECT PLUG, 8P 5267-08A-X
U101, 201	3S002400	IC, NJM2068LD
U102	3S001940	IC, NJM4565LD
U301	3S002580	IC, NJM062L
VR1	3R005480	VR, RK09K111-10KRD

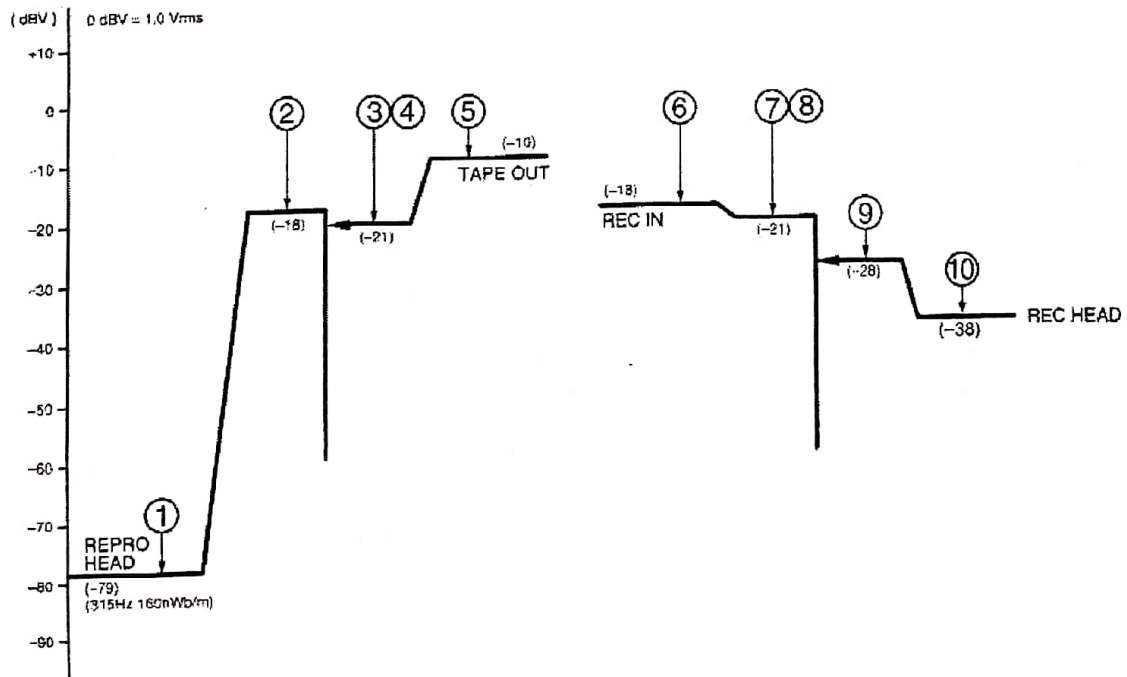
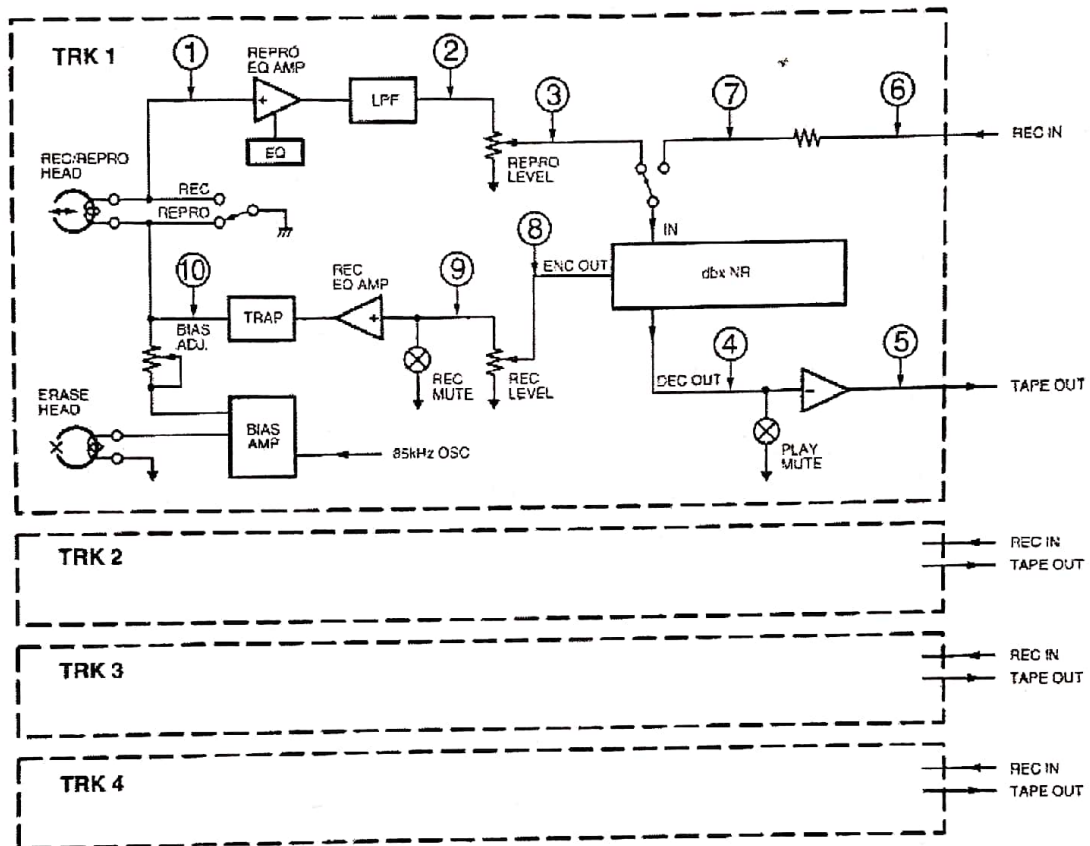
6. BLOCK DIAGRAM

ブロックダイアグラム



7. LEVEL DIAGRAM

レベルダイアグラム



GATHER (A) PCB ASSY

REF.NO.	PARTS NO.	DESCRIPTION
	*3E9521200B	PCB ASSY, GATHER (A)
	*3E9021200B	PCB, GATHER (A)
		PCB ASSY, MIXER
		PCB, MIXER
D60	3S000195	LED, LI2041/F191 RED 6.4MM
D185-485	3S000195	LED, LI2041/F191 RED 6.4MM
D186-486	3S000195	LED, LI2041/F191 RED 6.4MM
D187-487	3S000195	LED, LI2041/F191 RED 6.4MM
D188-488	3S000205	LED, LY2041/F191 YEL 6.4MM
D189-489	3S000205	LED, LY2041/F191 YEL 6.4MM
D190-490	3S000195	LED, LI2041/F191 RED 6.4MM
D501	3S000195	LED, LI2041/F191 RED 6.4MM
D601, 602	3S000241	DIODE, 1SS133 T-77
J101-401	3E010110	JACK, JY-6314-01-130
J151-153	3E010230	JACK, RCA 2P
J154	3E011050	JACK, JY-6314-11-030 (RED)
J155-157	3E010100	JACK, JY-6314-01-020
J158	3E011070	JACK, RCA 1P RJ-1081-01
J501	3E010260	JACK, JY-6314-01-030
J701	3E011170	JACK, JY-6314-01-340
Q50	3S000301	TR, DTA124ES TP
Q51	3S000291	TR, DTC124ES TP
Q151-154	3S002000	TR, DTC314TS
Q171, 271	3S002000	TR, DTC314TS
R50	3R005450	RD, 1W 15 OHM J NON-F H
R105-405	3R005370	VAR RES, RS20111-10KRD
R107-407	3R005380	VAR RES, RS45111-10KA
R111-411	3R004910	VAR RES, RK09D113-100KB
R114-414	3R004910	VAR RES, RK09D113-100KB
R118-418	3R004920	VAR RES, RK09D113-10KB
R121-421	3R004930	VAR RES, RK09D113-10KA
R123-423	3R004930	VAR RES, RK09D113-10KA

REF.NO.	PARTS NO.	DESCRIPTION
R152	3R004990	VAR RES, RS60112-10KAX2
R172	3R005420	VAR RES, RK12L12C-10KAX2
R501, 701	3R005420	VAR RES, RK12L12C-10KAX2
S101-401	3E009130	SW, SLIDE SSSU013NB2 9MM
S102	3E009090	SW, SLIDE SSSU042NB2 9MM
S152-154	3E011040	SW, PS009-PA022BAT-PA5.5
S161-461	3E009100	SW, SLIDE SSSU023NB2 9MM
S162	3E009130	SW, SLIDE SSSU013NB2 9MM
S163	3E011020	SW, SLIDE SSSU022NB3-TK
U101, 301	3S002400	IC, NJM2068LD
U102-402	3S001940	IC, NJM4565LD
U151, 251	3S001940	IC, NJM4565LD
U152	3S001940	IC, NJM4565LD
U153	3S002090	IC, LA6515
U185-485	3S002640	IC, LB1423N
		PCB ASSY, JUMP A
		PCB, JUMP A
J1-3	3E012020	CONNECTOR, 2000-1WR-05
J4	3E012030	CONNECTOR, 2000-1WR-06
		PCB ASSY, JUMP B
		PCB, JUMP B
J11	3E012020	CONNECTOR, 2000-1WR-05
J21, 31	3E012010	CONNECTOR, 2000-1WR-04
J51	3E012040	CONNECTOR, 2000-1WR-12

BOTTOM PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
D101	*3E9521500A	PCB ASSY, BOTTOM
	*3E9021500A	PCB, BOTTOM
	*3B0004808A	SCREW, BPP M3X8 (BLK)
	*3M0084000B	HEAT SINK, S21-047-02
	3S002610	DI, BARRIER RB-100A T-31
D102-402	3S000241	DIODE, 1SS133 T-77
D103-403	3S000241	DIODE, 1SS133 T-77
D104-404	3S000241	DIODE, 1SS133 T-77
D105-405	3S000241	DIODE, 1SS133 T-77
D106-406	3S000241	DIODE, 1SS133 T-77
D151-451	3S000241	DIODE, 1SS133 T-77
D605-608	3S000241	DIODE, 1SS133 T-77
D610, 611	3S000241	DIODE, 1SS133 T-77
D615-621	3S000241	DIODE, 1SS133 T-77
D630	3S000241	DIODE, 1SS133 T-77
D801	3S000241	DIODE, 1SS133 T-77
D802	3S002070	ZDI, MTZJ11B T-77
J601	3E011060	JACK, DC POWER (DJ-0702H)
L101-401	3E009470	COIL, 85KHZ
L102-402	3E009450	COIL, LPF
L103-403	3E009440	COIL, HX
L104-404	3E010140	COIL, 10UH EC36-100J
L105-405	3E009450	COIL, LPF
L106-406	3E010150	COIL, 36MH
L501	3E009460	COIL, OSC
L502	3E004411	COIL, 220UH EC36-221K-T5
P101	3E008580	CONNECT PLUG, 3P 5267-03A-X
P102	3E008630	CONNECT PLUG, 8P 5267-08A-X
P201	3E010200	CONNECT PLUG, 3P 5267 (RED)
P301	3E010210	CONNECT PLUG, 3P 5267 (BLK)
P401	3E010220	CONNECT PLUG, 3P 5267 (YEL)
P601	3E000720	CONNECT PLUG, 8P B8B-PH-K
P602	3E000770	CONNECT PLUG, 13P 89400-1310
P603	3E000780	CONNECT PLUG, 14P 89400-1410
P604	3E000680	CONNECT PLUG, 4P B4B-PH-K

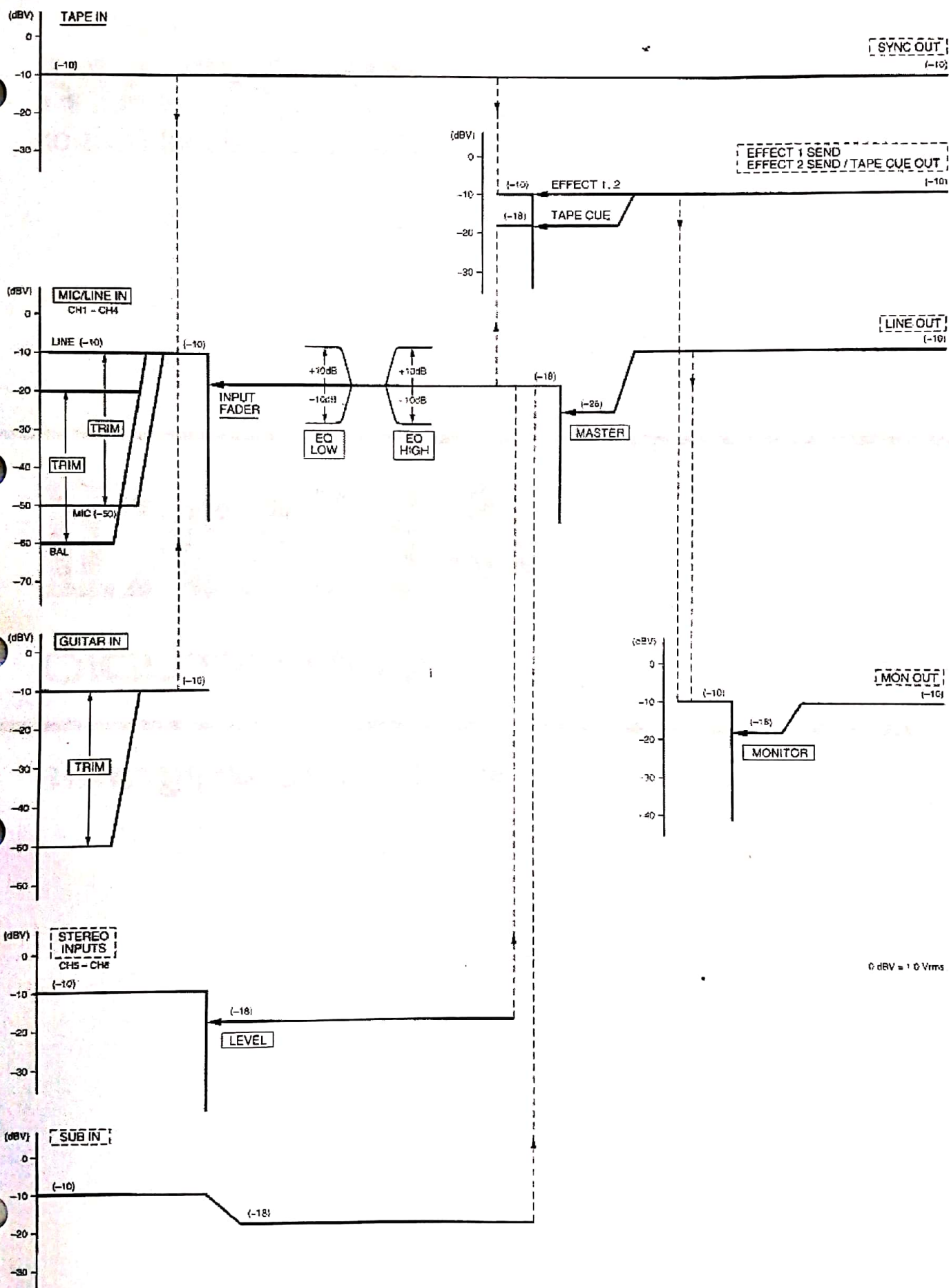
REF. NO.	PARTS NO.	DESCRIPTION
Q101-401	3S002030	TR, DTC363ES
Q102-402	3S001980	TR, 2SC2002L
Q104-404	3S002000	TR, DTC314TS
Q105-405	3S002000	TR, DTC314TS
Q106-406	3S000301	TR, DTA124ES TP
Q501	3S002371	TR, 2SC5395-T12-F
Q601	3S002620	FET, 2SK2890-12-D
Q602	3S000301	TR, DTA124ES TP
Q603	3S000291	TR, DTC124ES TP
Q604	3S000301	TR, DTA124ES TP
Q605	3S000291	TR, DTC124ES TP
Q606	3S002670	TR, DTD123TS
Q610	3S000291	TR, DTC124ES TP
Q701	3S000291	TR, DTC124ES TP
Q702	3S000301	TR, DTA124ES TP
Q711-741	3S002020	TR, DTB143ES
Q801	3S000000	TR, 2SC1815GR
Q802	3S000301	TR, DTA124ES TP
R109-409	3R005080	VR, SEMI-FIXED 637A 10K
R112-412	3R0054300A	RES ARRAY, EXBZ5L045G DBX
R115-415	3R0054400A	RES ARRAY, EXBZ13L046G DBX
R116-416	3R005070	VR, SEMI-FIXED 637A 4.7K
R131-431	3R005120	VR, SEMI-FIXED 637A 220K
R143-443	3R005080	VR, SEMI-FIXED 637A 10K
R620	3R005460	RD, 2W 10 OHM J NON-F H
R622	3R005050	VR, SEMI-FIXED 637A 1K
R623	3R005390	VAR RES, RK11K113A-1.5KB
S601	3E011030	SW, PUSH SPUNI92600
U101-401	3S000990	IC, BA7755A
U102-402	3S002400	IC, NJM2068LD
U103, 303	3S000430	IC, BU4066BC
U104-404	3S001920	IC, AN7367K
U105-405	3S001940	IC, NJM4565LD
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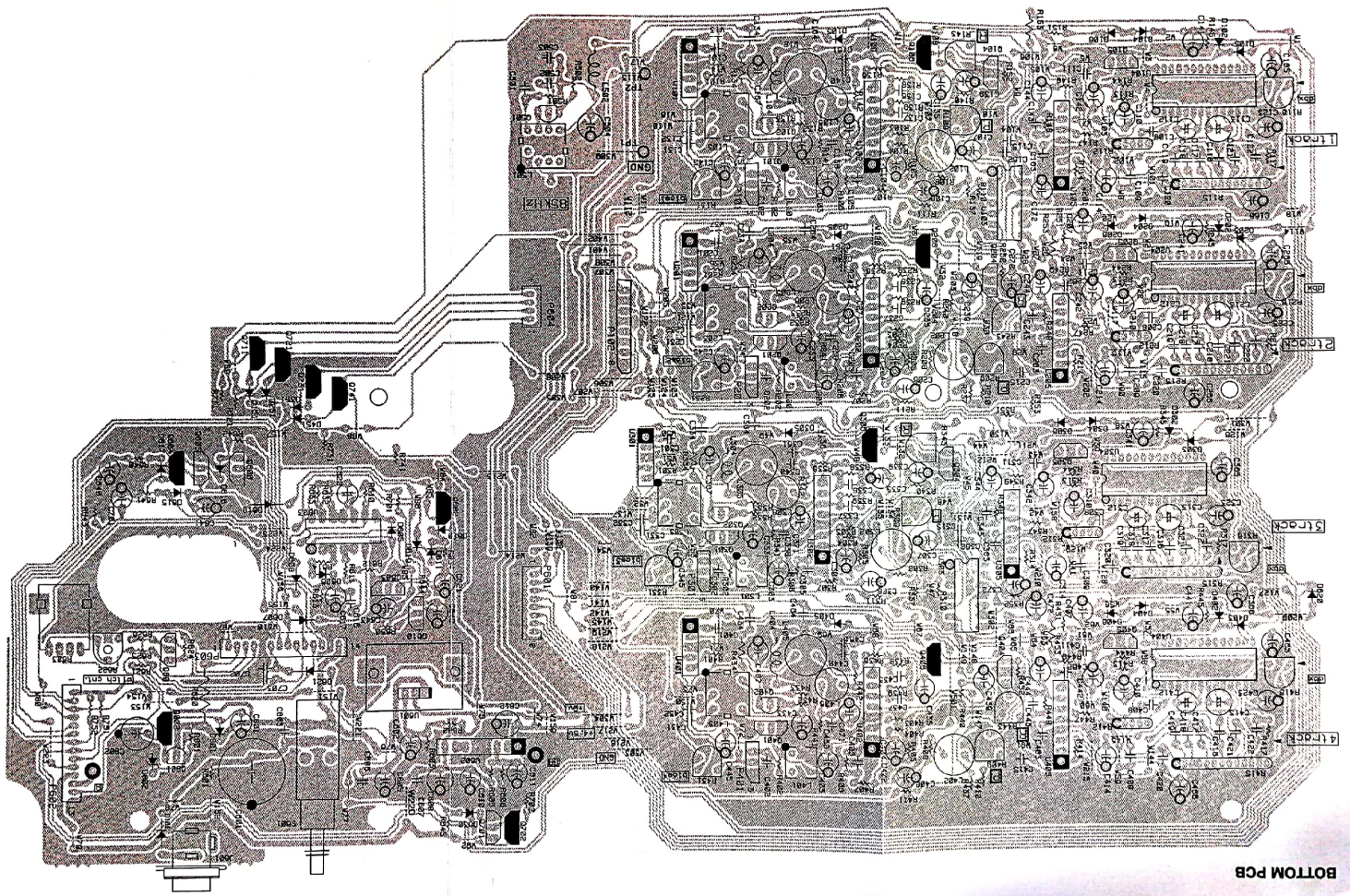
TASCAM
TEAC Professional Division

414MKII

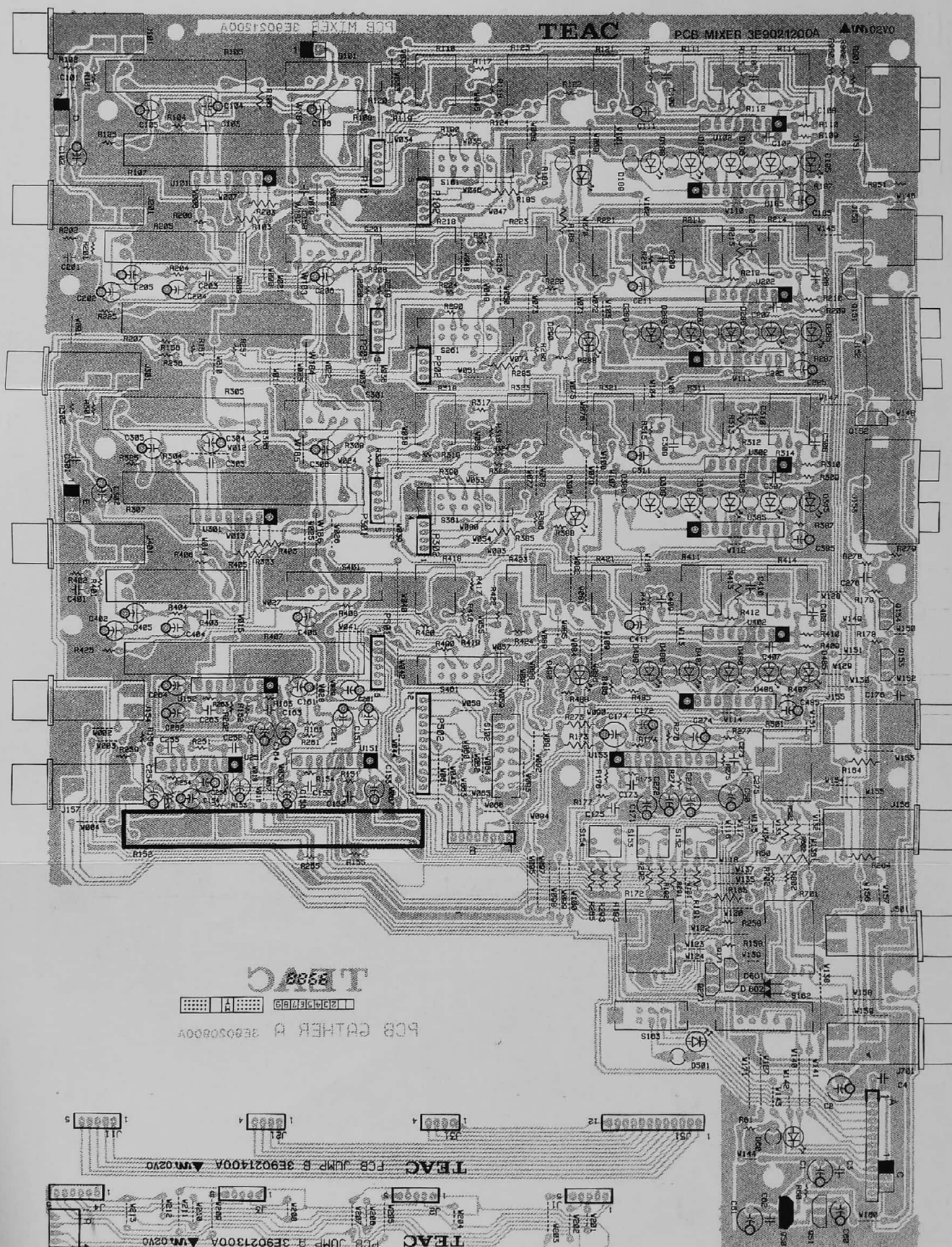
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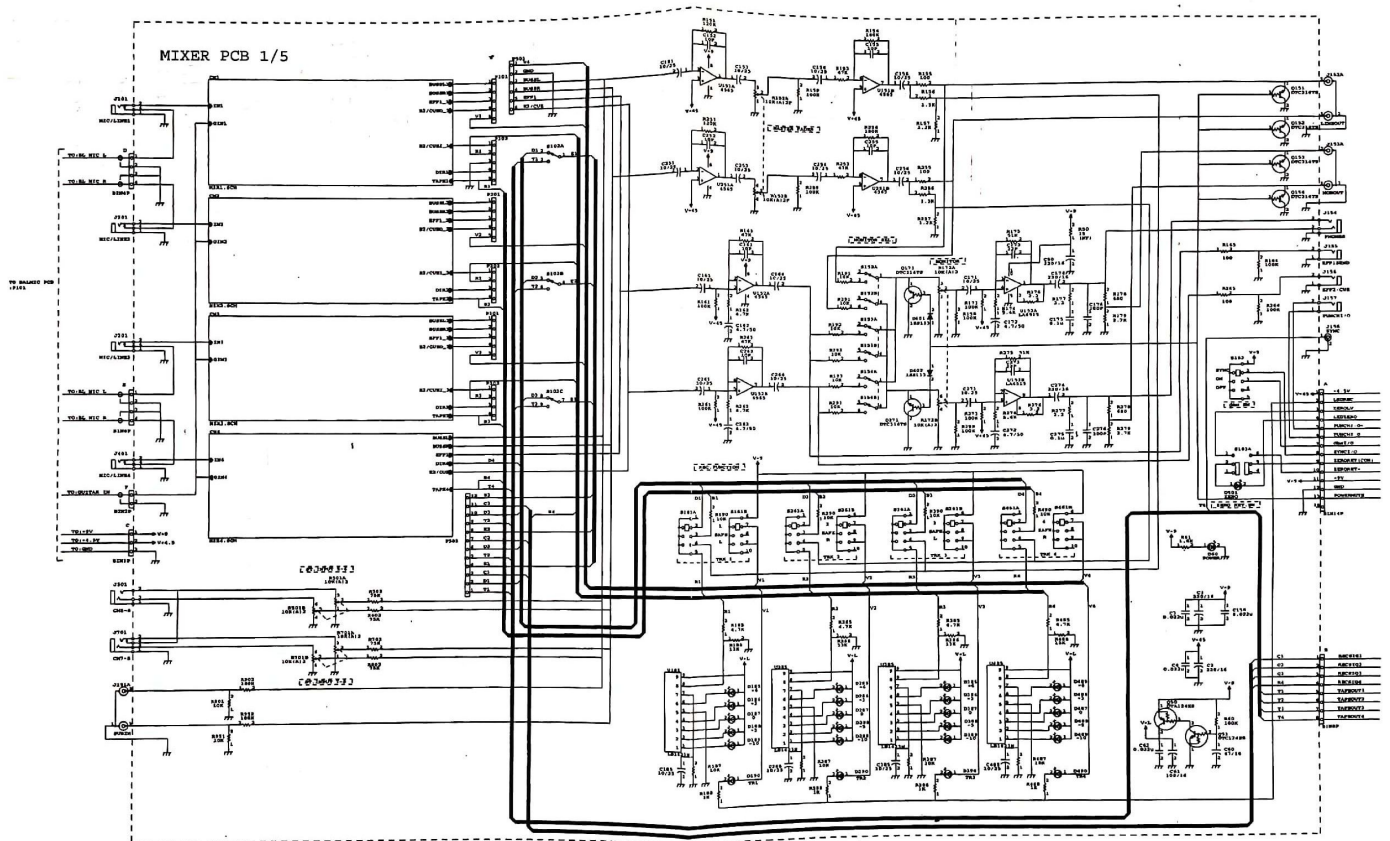
Schematic Diagrams



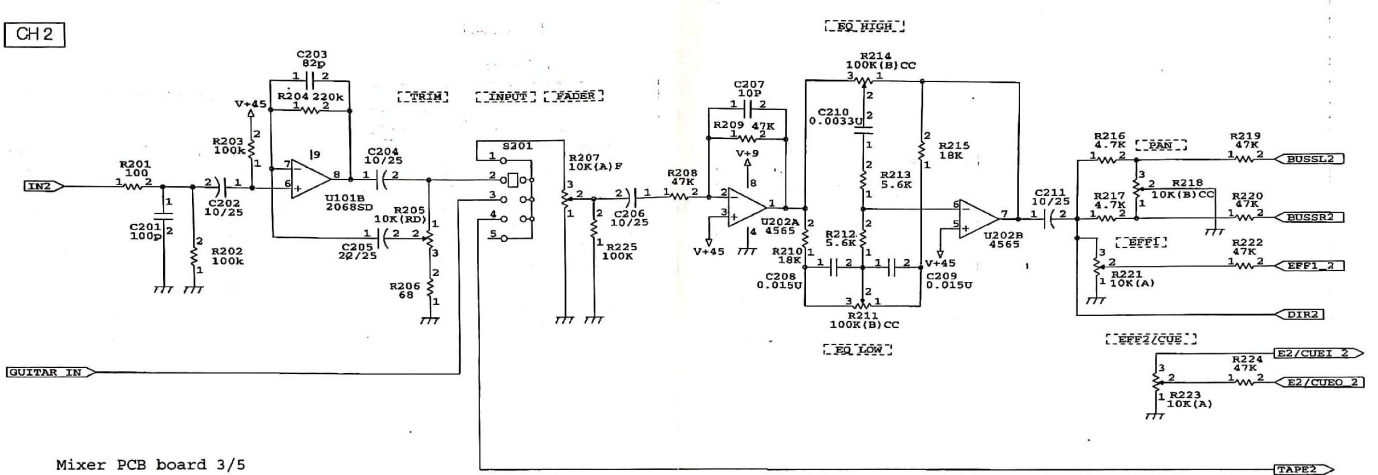


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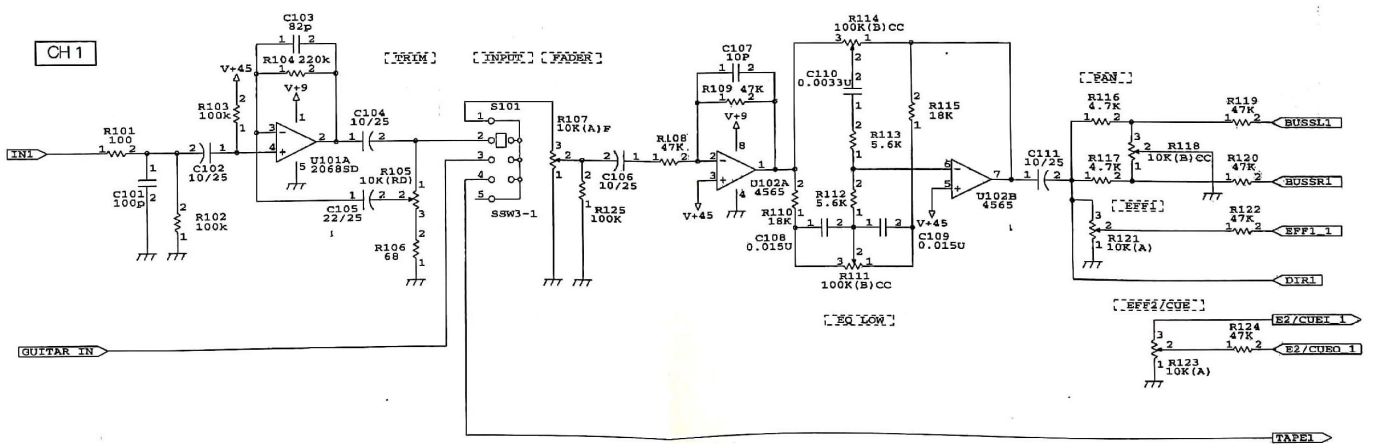


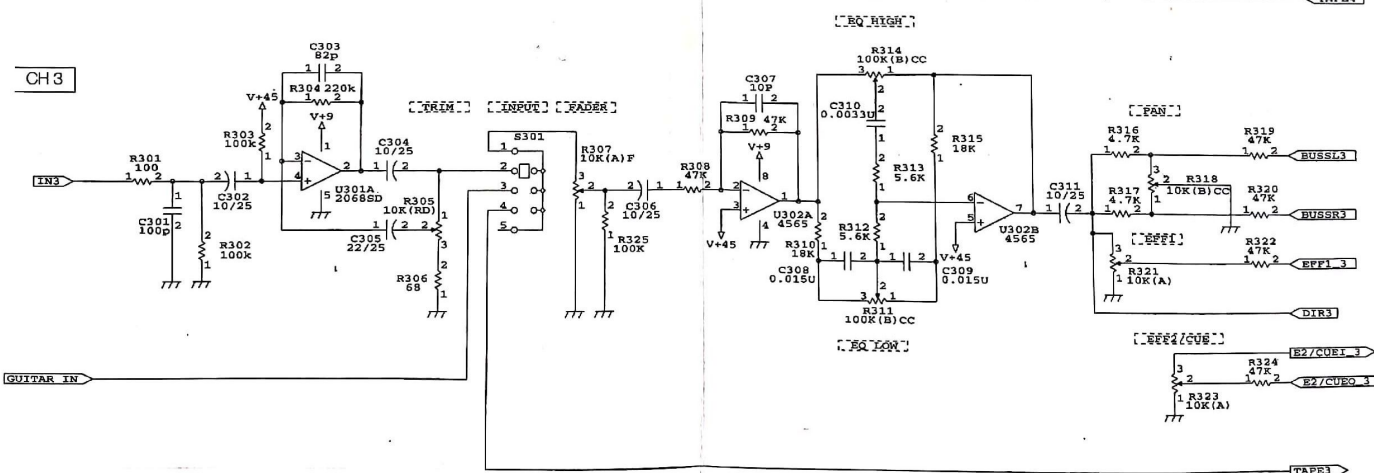
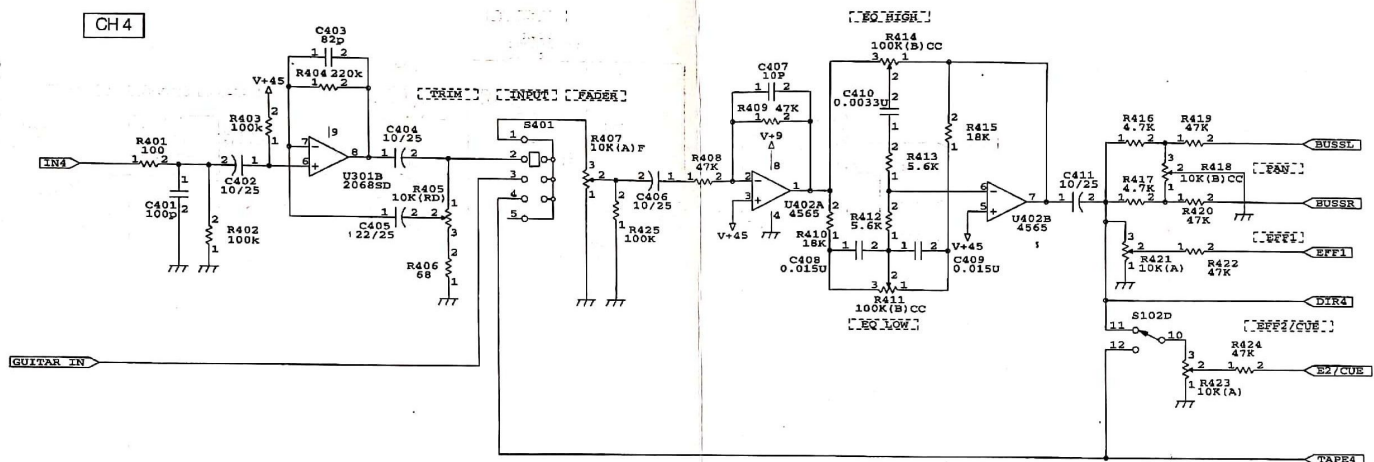


CH2

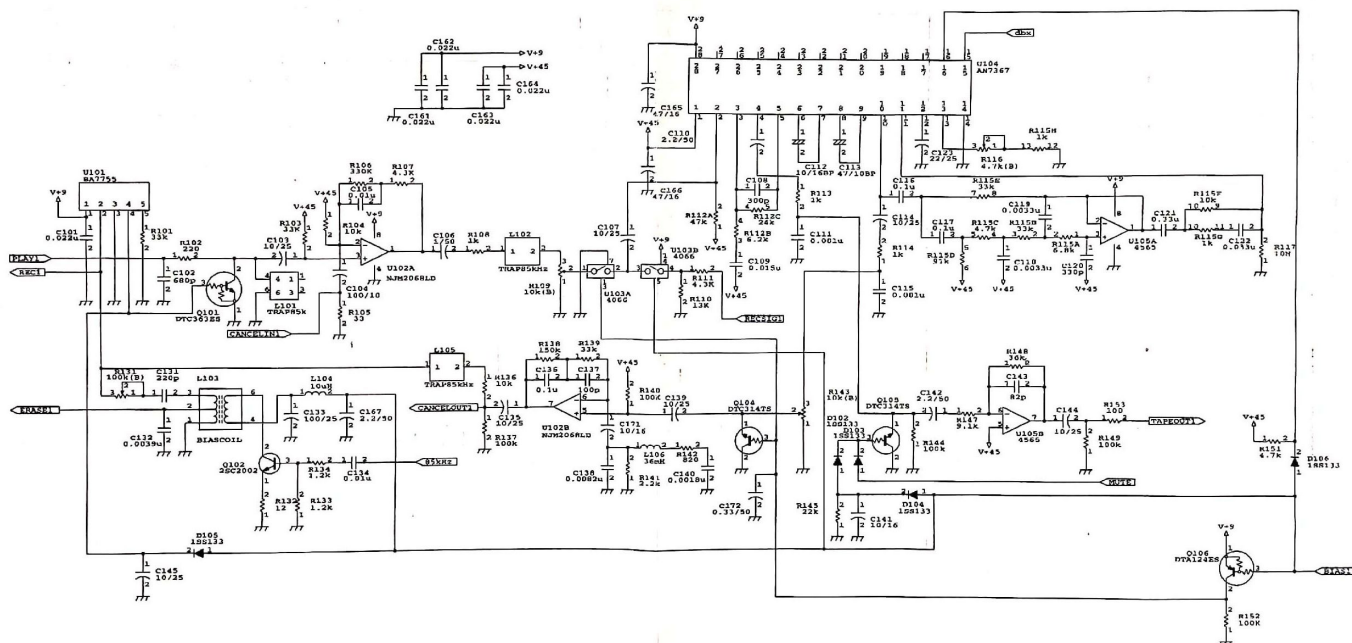


CH1

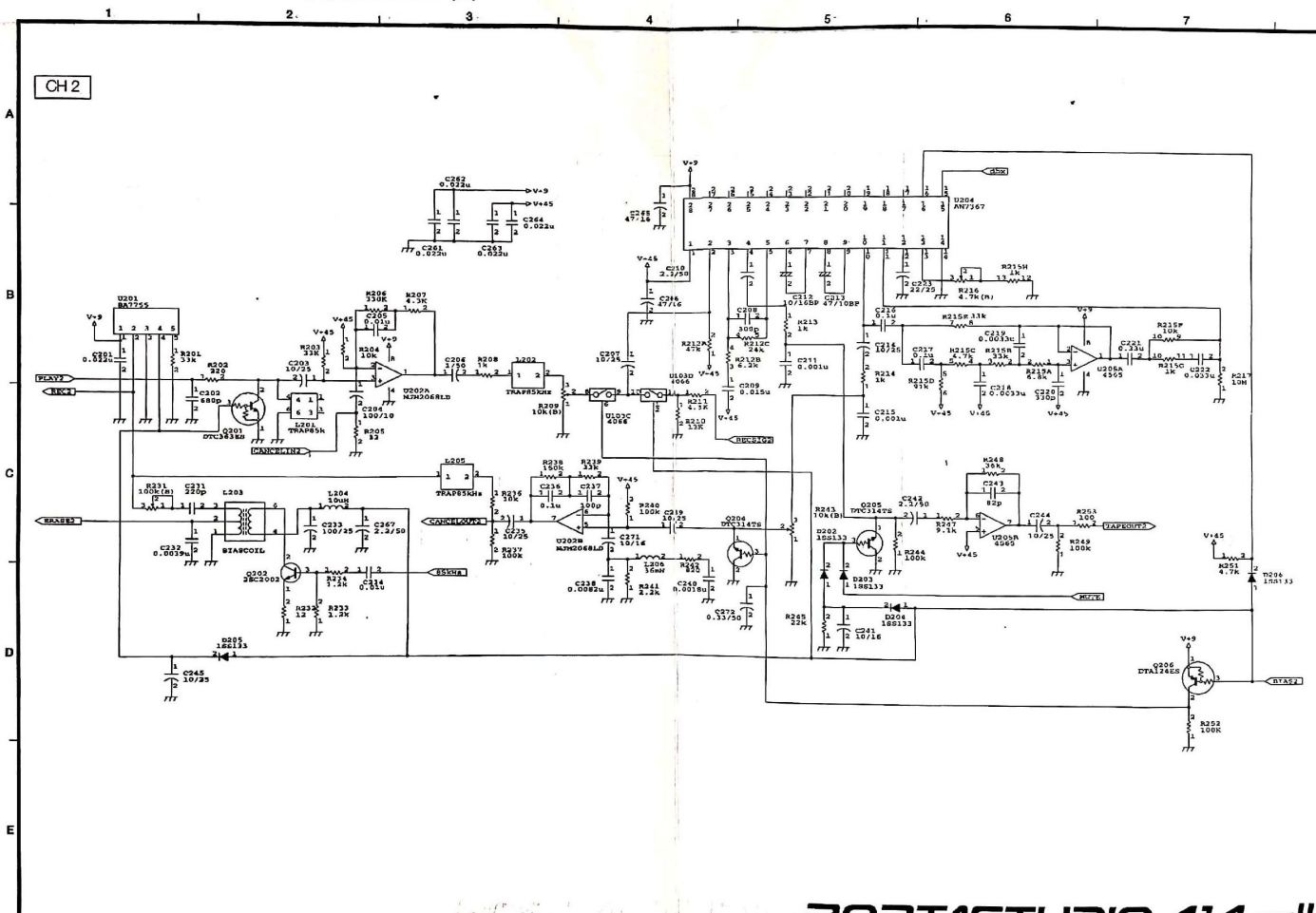


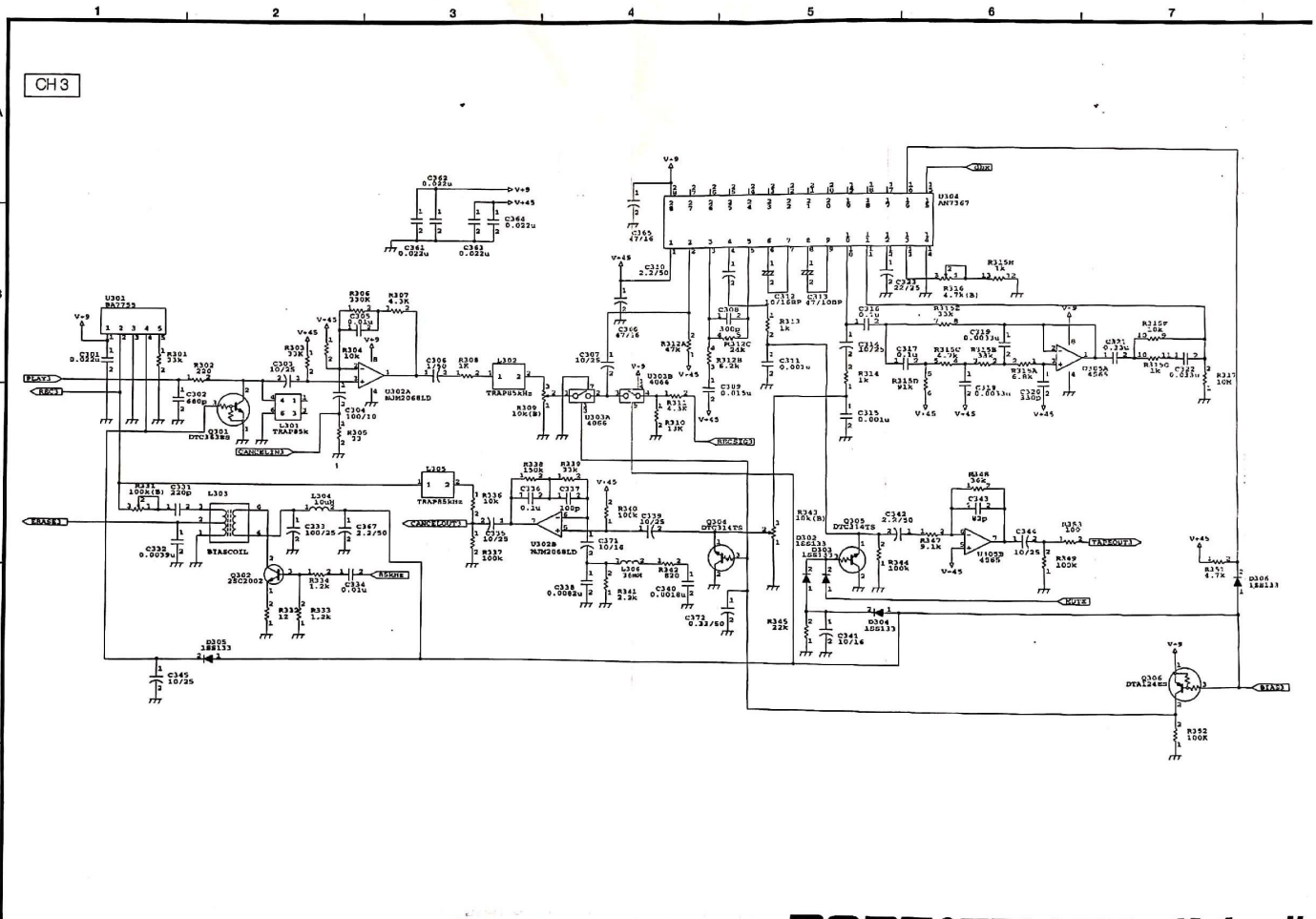


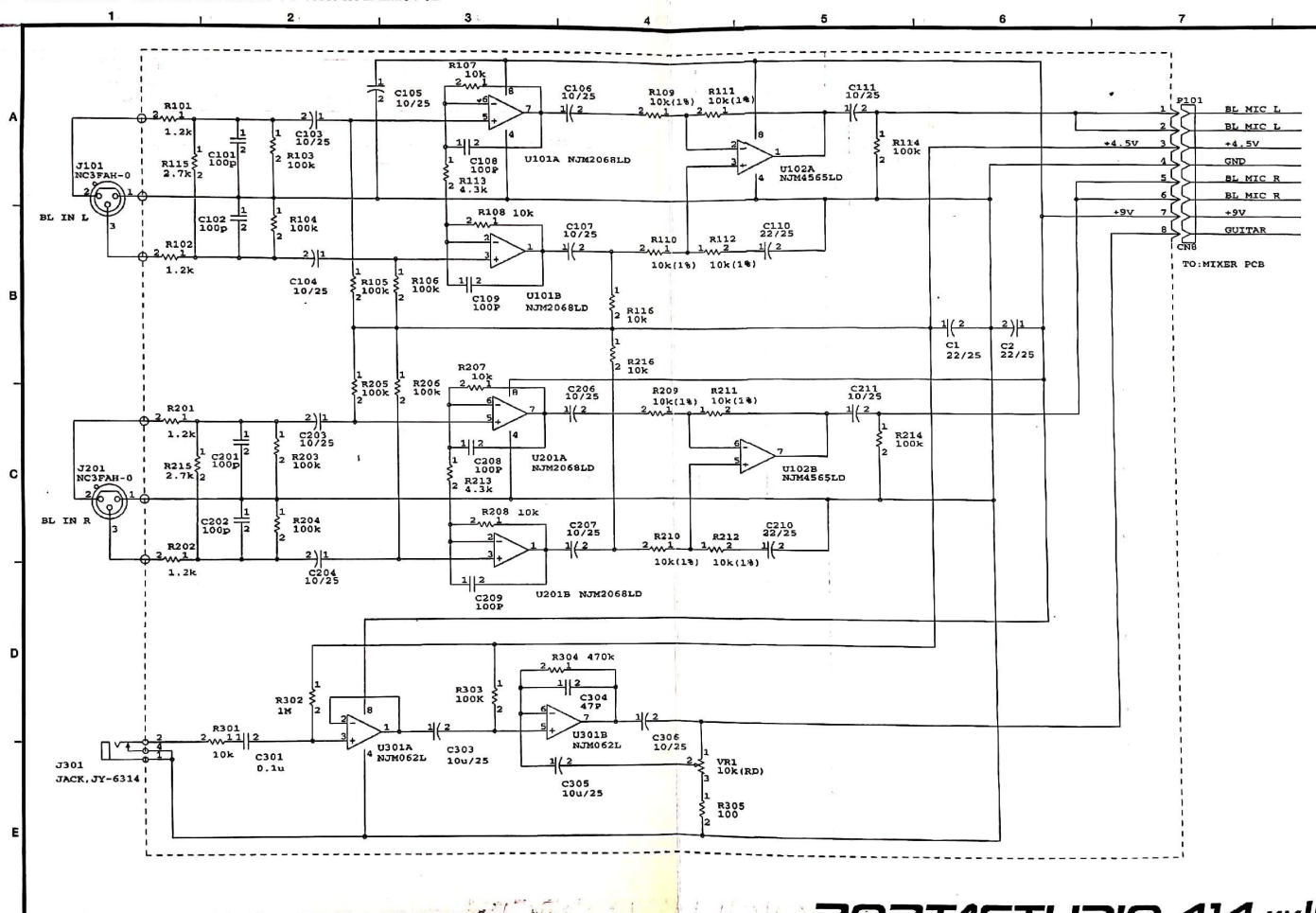
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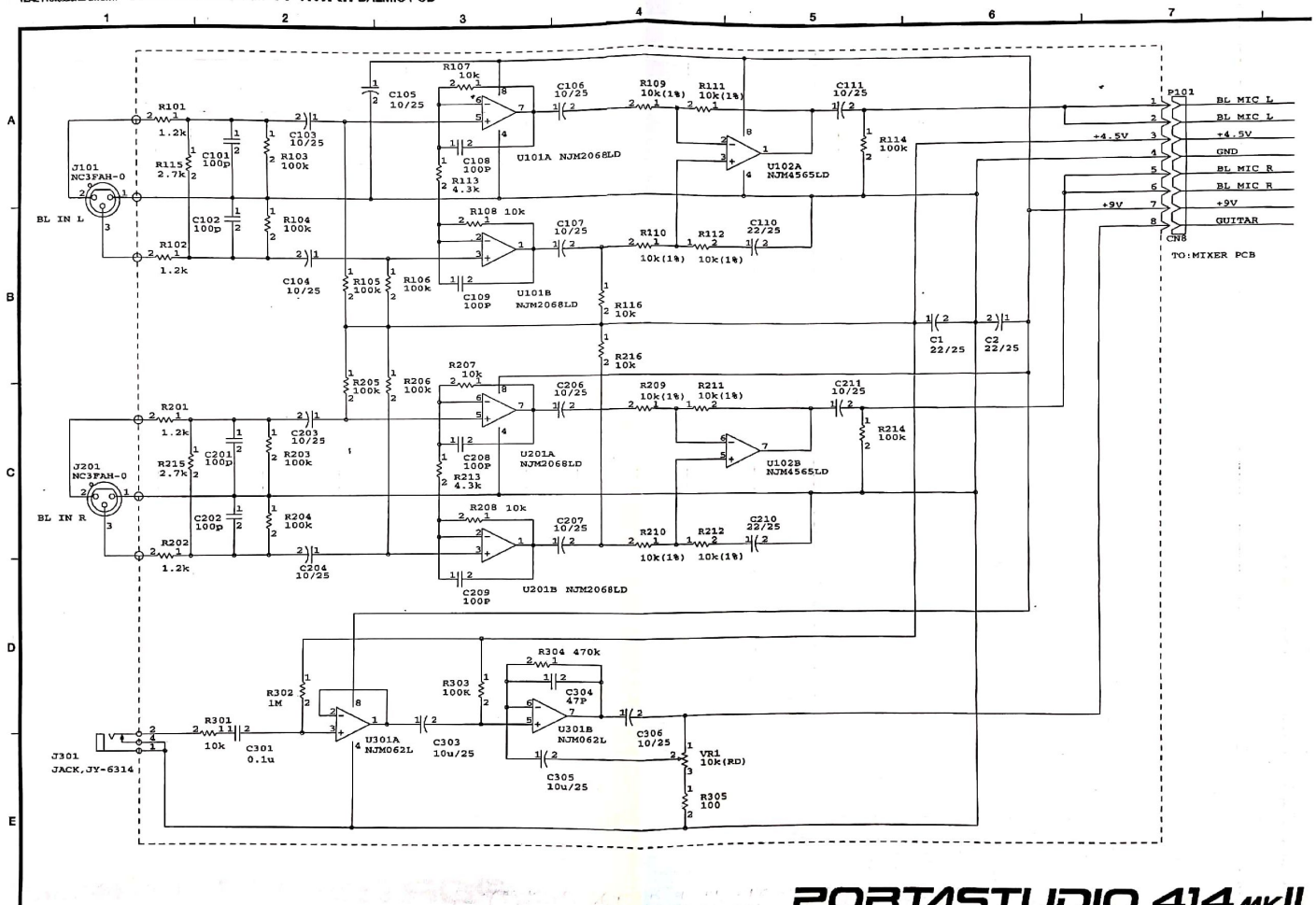


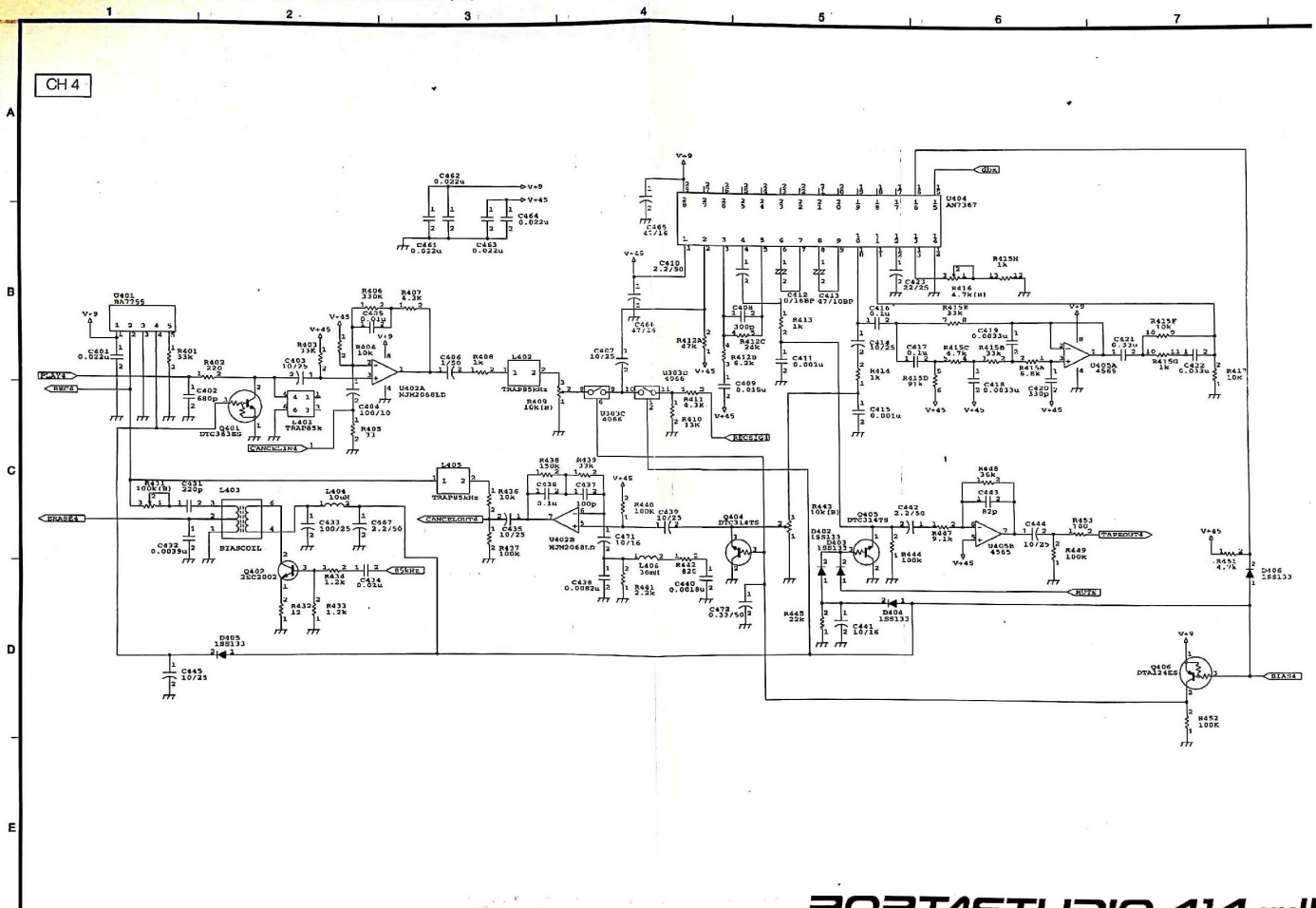












CH 4

