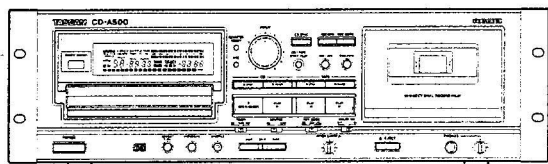


TASCAM

TEAC Professional Division



SERVICE MANUAL

CD-A500

COMPACT
disc
DIGITAL AUDIO

Compact Disc Player/Reverse Cassette Deck

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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]: U. S. A. [C]: CANADA [GE]: GENERAL EXPORT
[K]: KOREA [E]: EUROPE [UK]: U. K. [A]: AUSTRALIA

注意

- プリント基板図は部品面が示されています。
- *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及び品番のない部品は供給しません。
- 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。
交換する時は必ずティアック指定の部品を使用してください。
- 仕向先
[J]: JAPAN [US]: U. S. A. [C]: CANADA [GE]: GENERAL EXPORT
[K]: KOREA [E]: EUROPE [UK]: U. K. [A]: AUSTRALIA

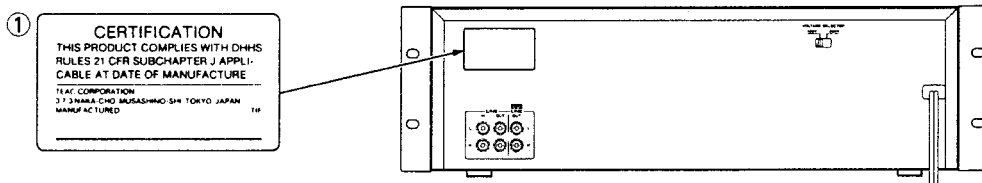
1 SAFETY INFORMATION

SAFETY INFORMATION

This product has been designed and manufactured according to FDA regulations "title 21, CFR, chapter 1, subchapter J, based on the Radiation Control for Health and Safety Act of 1968", and is classified as class 1 laser product. There is not hazardous invisible laser radiation during operation because invisible laser radiation emitted inside of this product is completely confined in the protective housings. The label required in this regulation is shown ①.

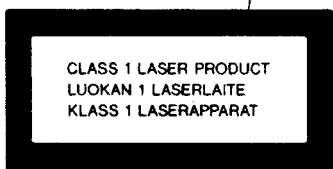
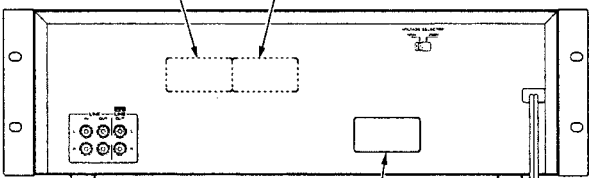
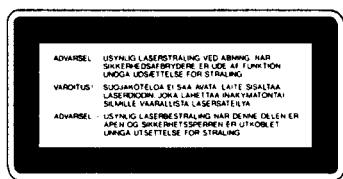
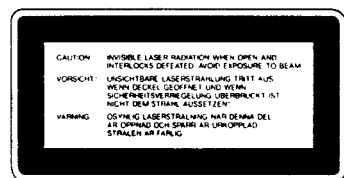
CAUTION

USE OF CONTROLS OR ADJUSTMENT OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.



Optical pickup: Type : KSS-212B
 Manufacturer : SONY Corporation
 Laser output : Less than 0.4 mW on the objective lens
 Wavelength : 760 - 800 nm

• CAUTION • ACHTUNG • OBSERVERA • ADVARSEL



① THIS LABEL IS ATTACHED TO THE PLACE AS ILLUSTRATED TO INFORM THAT THE APPARATUS CONTAINS A LASER COMPONENT.

① DIESE AUFKLEBEMARKE IST AN DEM IN DER ABBILDUNG GEZEIGTEN ORT ANGEBRACHT UM DARAUF HINZUWEISEN, DASS IM INNERN DES GERÄTS EINE LASER-KOMPONENTE BEFINDET.

① PÅSKRIFTEN SITTER PÅ APPARATEN SOM VISAS SOM UPPMANING OM ATT APPARATEN OMFATTAR EN INBYGGD LASERKOMPONENT.

① DETTE MÆRKAT ER ANBRAGT SOM VIST I ILLUSTRATIONEN FOR AT ADVARE BRUGEREN OM AT APPARATET INDEHOLDER EN LASERKOMPONENT.

② DETTE MÆRKAT ER SOM VIST PÅ ILLUSTRATIONEN ANBRAGT PÅ INDERSIDEN AF TOPDÆKSLET FOR AT ADVARE BRUGEREN OM AT YDERLIGERE FREMTRÆNGEN VIL VÆRE FORBUNDET MED FARE FOR AT UDSÆTTE SIG FOR LASERSTRÅLING.

ADVARSEL - BETJENING AF ANDRE KONTROLLER OG REGULATORER ELLER BENYTTELSE AF ANDRE FREMGANGSMÅDER END BESKREVET HERI ER FORBUNDET MED FARE FOR UDSÆTTELSE FOR LASERSTRÅLING.

VARNING: APPARATEN INNEHÅLLER LASER KOMPONENT MED STRÅLNING ÖVERSTIGANDE KLASSE 1

"ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING."

"VAROITUS! SUOJAKOTELOA EI SAA AVATA, LAITE SISÄLTÄÄ LASERDIODIN, JOKA LÄHETTÄÄ (NAKYMÄTÖNTÄ) SILMILLE VAARALLISTA LASERSÄTEILYÄ."

ADVARSEL: USYNLIG LASERBESTRÅLING NÅR DENNE DELEN ER ÅPEN OG SIKKERHETSPERREN ER UTFØKLET UNNGÅ UTSETTELSE FOR STRÅLING.

2 SPECIFICATIONS

仕様

CD SECTION

AUDIO

Number of Channels: 2
Frequency Response: 10 - 20,000Hz \pm 0.5dB
Signal to Noise Ratio: 90dB
Dynamic Range: 90dB
Total Harmonic Distortion: 0.02% (1kHz)
Wow and Flutter: Unmeasurable (Quartz accuracy)
Channel Separation: 75dB
Output: 2Vrms
Digital Filter: 4-times oversampling
Analog Filter: 3rd order

PICK UP

Type: Optical 3-Beam laser pickup
Objective Lens: 2-dimensional parallel drive
Laser Type: GaAlAs type semiconductor laser
Wave Length: 780nm

SIGNAL FORMAT

Sampling Frequency: 44.1kHz
Quantization Bit: 16-bit linear/channel
Channel Bit Rate: 4.3218Mb/sec.
Channel Modulation Code: EFM
Error Correction: CIRC

CASSETTE SECTION

Track System: 4-track 2-channel stereo
Heads: Record/playback \times 1 (Rotary reverse), Erase \times 1
Type of Tape: Cassette tape C-60, C-90
Tape Speed: 4.76cm/sec.
Motor: DC servo motor \times 1
Wow and Flutter: 0.08% (W. RMS)
Frequency response (Overall):
 50-15,000Hz \pm 3dB, Metal tape
 50-15,000Hz \pm 3dB, CrO₂ tape
 50-14,000Hz \pm 3dB, Normal tape
Signal - to - Noise Ratio (Overall):
 59dB (DOLBY NR off, 3% THD Level, Weighted),
 69dB (DOLBY NR on, over 5kHz)
Fast Winding Time: Approx. 120 sec. with C-60
Input: Line; 87mV (Input impedance of 50k ohms or more)
Outputs: Line; 0.46V
 (Load impedance of 50k ohms or more)
 Headphones; 1mW/8ohms

CD部

〈オーディオ〉
 オーディオチャンネル数 2チャンネル
 周波数特性 10~20,000Hz \pm 0.5dB
 SN比 90dB
 ダイナミックレンジ 90dB
 高調波歪率 0.02% (1kHz)
 ワウ・フラッター 測定限界値以下(水晶発振精度)
 チャンネルセパレーション 75dB
 出力 2Vrms
 デジタルフィルター 4倍オーバーサンプリング
 デジタルフィルター
 アナログフィルター 3次アナログフィルター

〈ピックアップ〉

方式 光学式3ビーム
 対物レンズ駆動方式 2次元平行駆動
 光源 半導体レーザー
 波長 780nm

〈信号フォーマット〉

標準化周波数 44.1kHz
 量子化ビット数 16ビット・リニア/チャンネル
 伝送レート 4.3218Mb/sec
 変調方式 EFM
 エラー訂正方式 CIRC

カセット部

トラック形式 4トラック2チャンネル ステレオ
 ヘッド構成 録音/再生ヘッド \times 1 (回転リバース式), 消去ヘッド \times 1
 使用テープ C-60, C-90タイプ カセットテープ
 テープ速度 4.76cm/sec
 モーター DCサーボモーター \times 1
 ワウ・フラッター 0.08% (W. RMS)
 周波数特性(総合) メタル: 50~15,000Hz \pm 3dB
 クローム: 50~15,000Hz \pm 3dB
 ノーマル: 50~14,000Hz \pm 3dB
 SN比(総合) 59dB (ドルビーOUT, 3% THDレベル
 WTD)
 69dB (ドルビーIN, 5kHz以上)
 早巻時間 約120秒 (C-60テープ)
 入力 ライン: 87mV
 (入力インピーダンス 50k Ω 以上)
 出力 ライン: 0.46V
 (負荷インピーダンス 50k Ω 以上)
 ヘッドホン: 1mW/8 Ω

GENERAL

Power Requirements:

120/230V AC, 50-60Hz
 (U.S.A./Canada/General Export model)
 230V AC, 50Hz (Europe/U.K. model)
 240V AC, 50Hz (Australia model)

Power Consumption: 14W

Dimensions (W × H × D):

483 × 133 × 270mm
 (19" × 5-1/4" × 10-5/8")

Weight: 6.4kg (14.1 lbs.)

Standard Accessories:

Remote control unit (RC-A500) × 1,
 Battery (SUM-3, "AA", "R6" type) × 2,
 Rack mounting screw kit


●Improvements may result in specification or feature changing without notice.

一般


電源	100V AC, 50-60Hz
消費電力	14W
外形寸法	483 × 133 × 270mm (W × H × D)
質量	6.4kg
付属品	●リモコン(RC-A500) × 1 ●乾電池(単3) × 2 ●ラックマウントビスキット

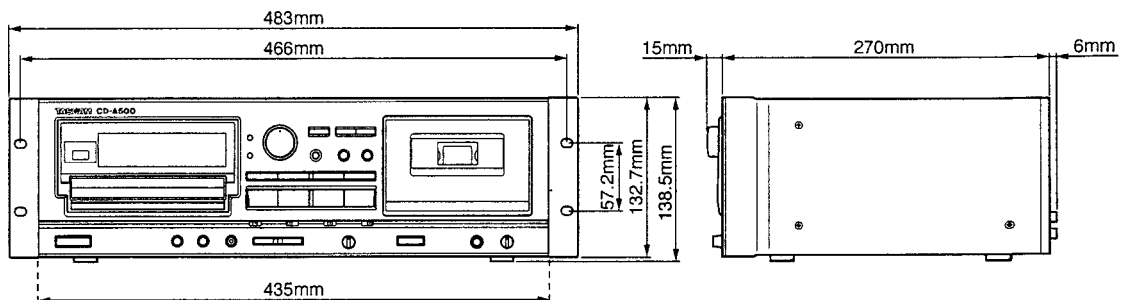
●仕様および外観は、改善のため予告なく変更することがあります。

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

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

ドルビーノイズリダクションはドルビーラボラトリーライセンスニングコーポレーションからの実施権に基づき製造されています。

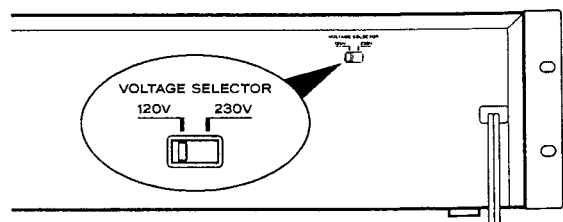
ドルビー、DOLBY及びダブルD記号  はドルビーラボラトリーライセンスニングコーポレーションの登録商標です。



Voltage Conversion

Be sure to remove the power cord from the AC outlet before repositioning the voltage converter switch.

1. Locate the voltage selector on the rear panel.
2. Using a flat-bladed screwdriver, set to the appropriate 230 V or 120 V position according to your area.



3 ADJUSTMENT AND CHECKS (CD SECTION)

調整と確認 (CD 部)

1. Handling the pickup assembly

- Before servicing the pickup assembly be sure to prevent electrostatic-inducer destruction by grounding not only test equipment in use but also yourself.
* Electrostatic charge drastically shortens the operating life of the laser diode or possibly results in its destruction.
- Hold the slide base when handling the pick-up. (Fig. 3-1)
- LD terminals are factory-strapped before shipment to protect LD from electrostatic discharges during transportation. (Fig. 3-2) After connector insertion, unstrap the LD terminal with a soldering iron. The temperature of the soldering iron tip must be 320°C or below (30W) and the unstrapping should be performed quickly.
- Don't disassemble the pickup ass'y.
- Don't apply shock to the pickup ass'y.
- Don't place the assembly in a place subject to excessive dust, heat or moisture.
- The LD chip is manufactured from GaAs and GaAlAs, which contains toxic As (Arsenic). Parts removed in servicing should be disposed of with due care.

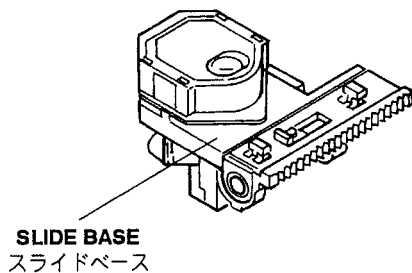


Fig. 3-1

1. ピックアップ ASSY の取扱

- ピックアップ ASSY を取り扱う場合は、測定器などに確実なアースを取ると共に、人体アースを行ない、静電破壊を十分防止してください。
* レーザーダイオードは、静電気が加わると寿命が著しく低下したり、または破損しますので十分注意してください。
- ピックアップ ASSY の取り扱いは、スライドベースを持って行ってください。(Fig. 3-1)
- LD の端子は、出荷時に輸送による静電破壊防止のためショートされています。(Fig. 3-2) ショート部の解放はコネクターを差し込んだ後、半田ゴテで行なってください。半田ゴテは、コテ先温度が320°C以下(30W)のものを使用し、すみやかに行ってください。
- ピックアップ ASSY 本体の調整および分解などはしないでください。
- ピックアップ ASSY に落下・衝撃は加えないでください。
- ゴミ・ホコリなどの発生する場所、高温・多湿の場所は避けてください。
- LD のチップは GaAs + GaAlAs で有毒な As を含んでいます。サービスパーツの不良品は指定の方法で廃棄処理をしてください。

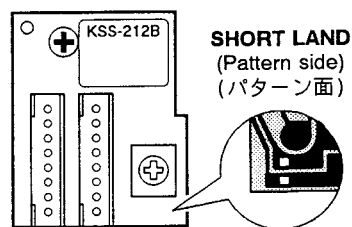


Fig. 3-2

2. Objective

- Never look directly into the LD or observe the laser beam through another lens or mirror.
- Don't touch the objective with fingers.
- If objective becomes dirty, playback will deteriorate. To clean the objective, moisten a good cleaning tissue, such as made by KODAK, in isopropyl alcohol and wipe the objective gently. Wipe off and excess fluid with a dry cleaning tissue.

2. 対物レンズについて

- 動作中の LD を直視したり、あるいは他のレンズやミラーを介して光束を観察すると危険ですから絶対に行なわないでください。
- レンズには手を触れないでください。
- レンズに汚れが付くと再生能力が低下しますので、次のように清掃してください。
レンズクリーニングペーパー (KODAK 社製など) に、イソプロピルアルコール (I.P.A) を浸して清掃をし、液が残らないように必ず拭きとってください。

3-1 SERVO ADJUSTMENT

TEST DISC: MCD-111

3-1 サーボ調整

テストディスク: MCD-111

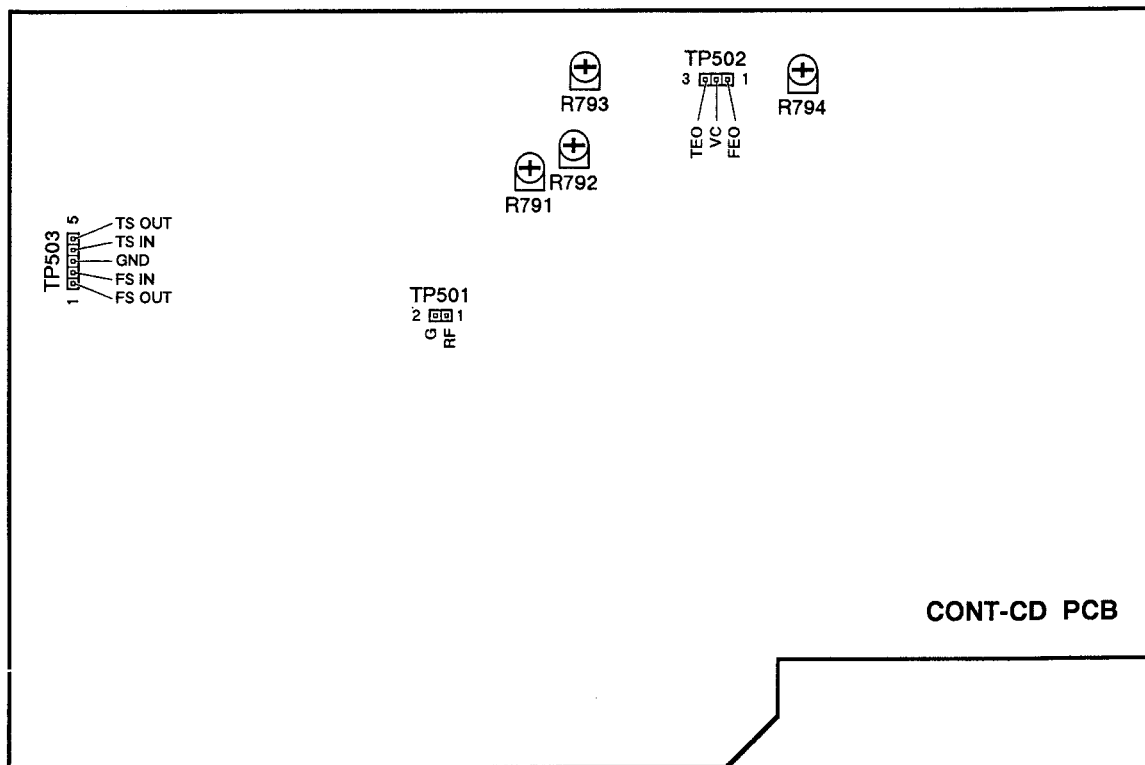


Fig. 3-3

3-1-1 Checking the pickup actuator operation

Before loading the disc, turn the power ON and check that the pickup actuator moves up and down three times. (If the pickup is not at inside on the disc, perform the above operation after moving the pickup to the inside.)

3-1-1 ピックアップアクチュエーター動作チェック

電源ON時ピックアップアクチュエーターが3回上下動すること。(ピックアップが最内周にないときは、最内周に移動後上記動作すること。) ディスクは装着しない。

3-1-2 Tracking balance adjustment

1. Connect the oscilloscope between TP502 pin 3 (TEO) and TP503 pin 3 (GND), and press and hold the SKIP button (◀◀ or ▶▶) button. (Oscilloscope: AC range)
2. Adjust R792 (TR BAL) so that the upper and lower amplitudes of the tracking error signal waveform become equal above and below 0V.

3-1-2 トラッキングバランス調整

1. TP502の3番ピン(TEO)とTP503の3番ピン(GND)間にオシロスコープを接続し、SKIPボタン(◀◀または▶▶)を押し続ける。(オシロスコープ: ACレンジ)
2. トラッキングエラー信号の波形が0Vを中心に振れるようR792 (TR BAL)を調整する。

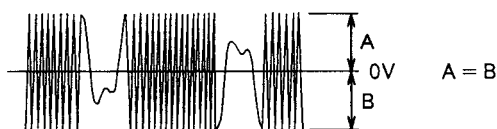


Fig. 3-4

3-1-3 Focus balance adjustment

1. Connect the oscilloscope between TP501 pin 1 (RF) and pin 2 (G). (AC range)
 2. In the play mode, and adjust R791 (FC BAL) so that the waveform on the oscilloscope becomes maximum.
 3. After the adjustment, check the voltage between TP502 pin 1 (FEO) and pin 2 (VC) to make sure the difference in voltage between Play mode and Stop mode is 80mV or less.
- If reading values are out of spec, adjust R791 again.

3-1-3 フォーカスバランス調整

1. TP501の1番ピン(RF)と2番ピン(G)間にオシロスコープを接続する。(ACレンジ)
2. PLAY状態でオシロスコープの波形が最大になるようにR791(FC BAL)を調整する。
3. 調整後、TP502の1番ピン(FEO)と2番ピン(VC)間の電圧を測定し、再生中と停止中の差が80mV以下であることを確認する。もし規格に入らない場合は再度R791を調整する。

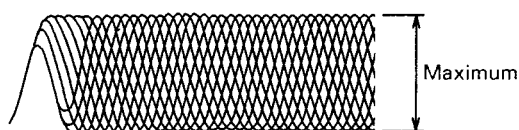


Fig. 3-5

3-1-4 Focus gain adjustment

1. Apply 1.3kHz/10Vp-p to TP503 pin 2 (FS IN) from an external OSC via 50kΩ resistor.
2. Play the track 4, and adjust R794 (FC GAIN) so that phase at TP503 pin 1 (FS OUT) is 90° with respect to that of the external OSC.

3-1-4 フォーカスゲイン調整

1. 外部OSCより50kΩの抵抗を介して1.3kHz/10Vp-pの信号をTP503の2番ピン(FS IN)に入力する。
2. 4曲目を再生し、TP503の1番ピン(FS OUT)と外部OSCとの位相が90°になるようにR794(FC GAIN)を調整する。

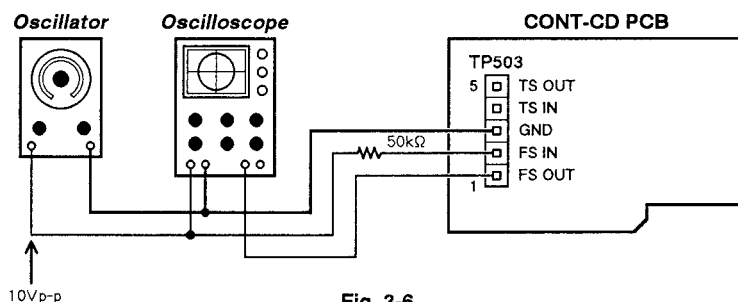


Fig. 3-6

3-1-5 Tracking gain adjustment

1. Apply 1.9kHz/10Vp-p to TP503 pin 4 (TS IN) from an external OSC via 50kΩ resistor.
2. Play the track 4, and adjust R793 (TR GAIN) so that phase at TP503 pin 5 (TS OUT) is 90° with respect to that of the external OSC.

3-1-5 トラッキングゲイン調整

1. 外部OSCより50kΩの抵抗を介して1.9kHz/10Vp-pの信号をTP503の4番ピン(TS IN)に入力する。
2. 4曲目を再生し、TP503の5番ピン(TS OUT)と外部OSCとの位相が90°になるようにR793(TR GAIN)を調整する。

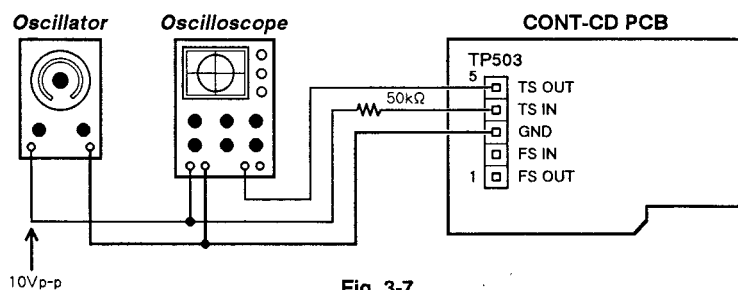


Fig. 3-7

3-2 AUDIO CHECK オーディオチェック

ITEM 項目	DISC: MCD-111		SPECIFICATIONS 規格	REMARKS 備考
	TRACK No.	FREQUENCY/LEVEL		
1. Output level 出力レベル	2	1kHz, 0dB	2 ± 0.5Vrms	CD LINE OUT
2. Channel level difference チャンネルレベル差	2	1kHz, 0dB	0.5dB or less	
3. Harmonic distortion 高調波歪率	2	1kHz, 0dB	0.03% or less	400Hz HPF in 20kHz LPF in
4. Frequency response 周波数特性	3~6	20Hz~20kHz, 0dB	Within ± 1.0dB	reference level: 1kHz
5. S/N ratio S/N比	7	-∞ dB	83dB or better	IHF-A
6. Channel separation チャンネルセパレーション	8, 10	1kHz, 0dB	70dB or better	IHF-A
7. Emphasis effect エンファシス効果	13	16kHz, -20dB	-20 ± 1.0dB	reference level: 1kHz

4 ADJUSTMENT AND CHECKS (CASSETTE SECTION)

調整と確認 (カセット部)

4-1 MECHANICAL ADJUSTMENT

4-1 機構部の調整

4-1-1 Wow and flutter (playback method)

4-1-1 ワウ・フラッタ (再生法)

1. Connect a wow-and-flutter meter to the deck as shown in Fig. 4-1.
2. Load and play a TEAC MTT-111N test tape.
3. In both FWD and REV play modes, check that the readings on the wow-and-flutter meter is within 0.19% (WRMS).

1. Fig. 4-1のようにワウ・フラッターメーターを接続する。
2. テストテープMTT-111Nを再生する。
3. FWD, REV両方向で、ワウ・フラッタ値が0.19% (WRMS) 以下であることを確認する。

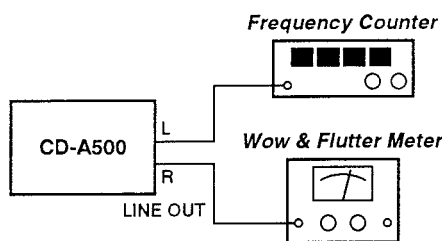


Fig. 4-1

4-1-2 Tape speed

4-1-2 テープスピード

1. Connect a frequency counter to the deck as shown in Fig. 4-1.
2. Load a TEAC MTT-111N test tape and play in FWD direction.
3. Adjust R190 (Fig. 4-2) on the TAPE PCB to get the adjustment value of 2,980 to 3,020Hz.
4. Play in REV direction and make sure the adjustment value is 2,925 to 3,075Hz.

1. Fig. 4-1のように周波数カウンターを接続する。
2. テストテープMTT-111NをFWD方向で再生する。
3. 周波数値が3,000 ± 20HzとなるようにTAPE PCBのR190 (Fig. 4-2)を調整する。
4. REV方向を再生し、周波数値が3,000 ± 75Hzであることを確認する。

Note:

Make sure the PITCH CONTROL knob is positioned at the center.

注意:

PITCH CONTROLつまみがセンターになっていること。

4-1-3 Pitch control variable range

4-1-3 ピッチコントロール可変幅

1. In 4-1-2, when the PITCH CONTROL knob is rotated to the - side, make sure the frequency becomes 2,700 Hz or lower, and make sure it becomes 3,300Hz or higher when the knob is rotated to the + side.

1. 4-1-2の状態、PITCH CONTROLつまみを-方向に回したとき、周波数が2,700Hz以下、+方向に回したとき、3,300Hz以上になることを確認する。

4-2 ELECTRICAL ADJUSTMENT

4-2-1 Precautions

- Before performing adjustments and checks clean and demagnetize the entire tape path.
- In general, adjustments and checks are made in the order of Lch then Rch. Double REF. Nos. indicate Lch /Rch. (Example ; R11/R21)
- 0dB is referenced to 0.775V.
- The AC voltmeter used in the procedures must have an input impedance of 1MΩ or more.
- Unless specified otherwise, adjustments and checks are made in FWD direction.

4-2 アンプ部の調整

4-2-1 注意

- アンプ部の調整・確認の前に、テープ走行系の消磁と清掃を行なってください。
- 特に指定のない限り、調整はLch, Rchの順序で行なってください。尚、R11/R21のように記されている回路番号はLch/Rchを示します。
- 0dB=0.775V
- 測定に使用するレベル計の入力インピーダンスは1MΩ以上のものを使用してください。
- 特に指定のない場合、調整および確認はFWD方向で行なってください。

4-2-2 Adjustment locations 調整箇所

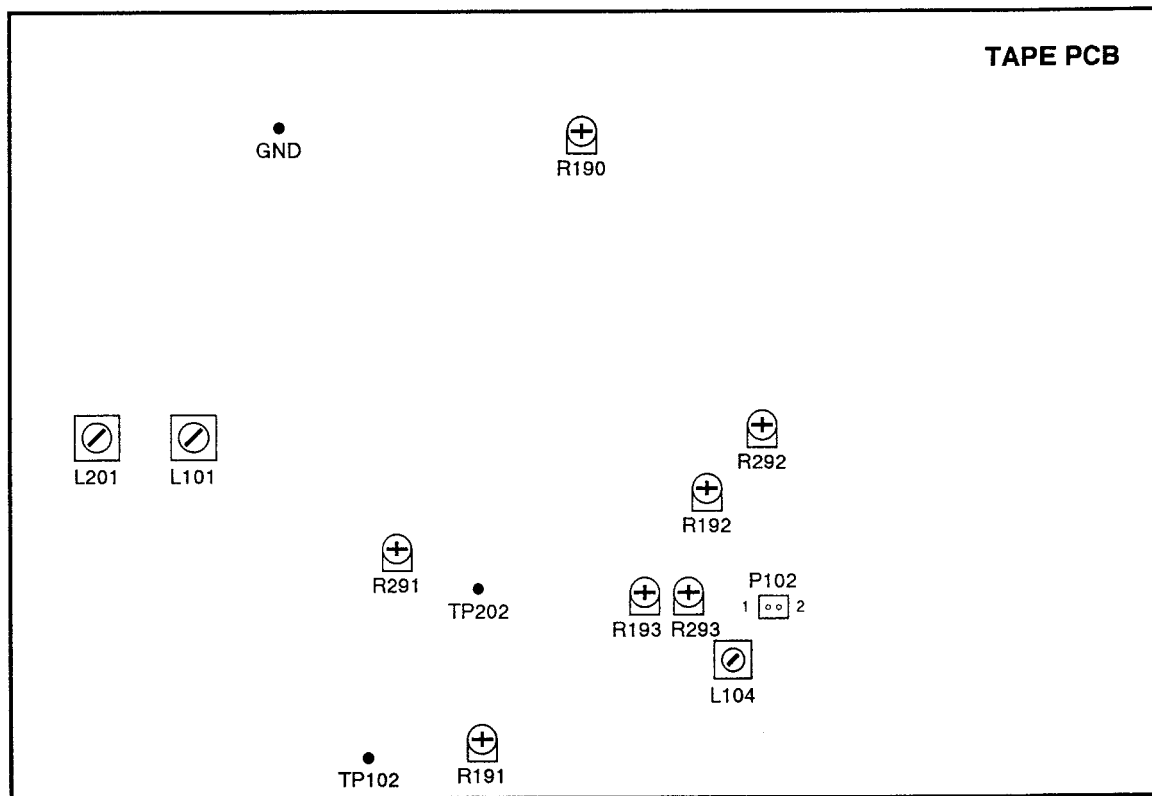


Fig. 4-2

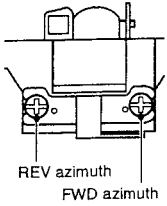
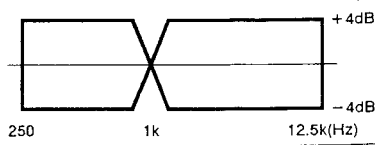
4-2-3 Playback performance 再生系

Deck settings:

Mode : PLAY
 DOLBY NR Switch : OFF
 PITCH CONTROL : Center

TEAC test tapes:

MTT-150C : For Dolby level calibration
 MTT-25702 : For playback frequency response check NORMAL tape
 MTT-5513 : For S/N check NORMAL tape

ITEM 項目	SETTING 設定	INPUT SIGNAL 入力信号	ADJUSTMENTS 調整箇所	MEASURING POINTS, RESULT 測定箇所・調整値	REMARKS 備考
1. Head azimuth adjustment アジマス調整	Connection : Fig. 4-4 Adjust in FWD, REV respectively FWD、REVそれぞれ調整	MTT-25702 (12.5kHz)	Azimuth screws アジマス調整ねじ	LINE OUT : Maximum output level at L & R-ch Phase : within 45° Lch、Rchとも出力最大位 相 : 45° 以内	
2. DOLBY level ドルビーレベル	Connection : Fig. 4-5	MTT-150C	R191/R291	TP102/TP202 : - 30dB (24.5mV)	
3. Playback output level 再生出力レベル	Connection : Fig. 4-3 FWD/REV PLAY	MTT-150C	Check	LINE OUT : - 4.5 ± 1.5dB (388mV~549mV)	Ref. output level 基準出力レベル
4. Meter level メーターレベル		MTT-150C	Check	Level meter : 0dB position + 0 / - 1 dot	
5. PHONES output level PHONES 出カレベル	Connection : Fig. 4-6 LEVEL control : MAX	MTT-150C	Check	PHONES : - 6 ± 3dB (275mV~549mV)	32 Ω load 32 Ω 負荷
6. Playback frequency response 再生周波数特性	Connection : Fig. 4-3 FWD/REV PLAY	MTT-25702	Check		
7. Playback S/N ratio 再生S/N比	Connection : Fig. 4-3 FWD/REV PLAY	MTT-5513 Playback the leader tape portion リーダーテープ部を再生	Check	46dB min.	Ratio of ref. level to noise 基準出力レベルとノイズの比

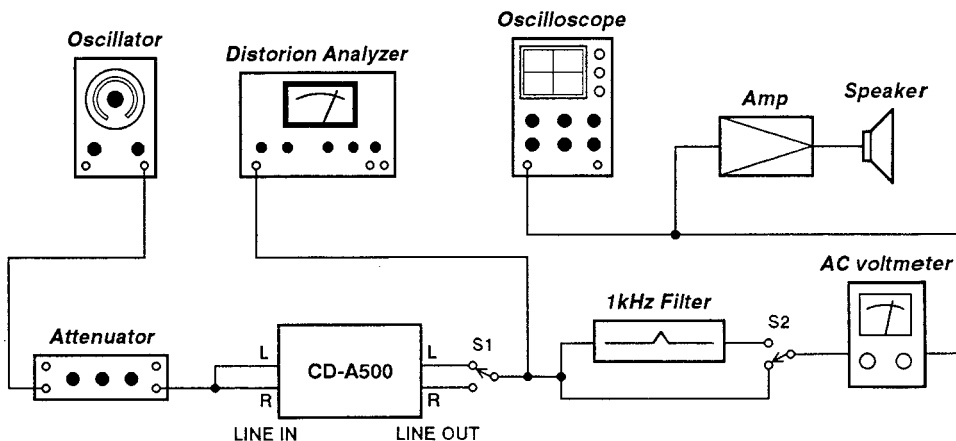


Fig. 4-3 Basic test setup

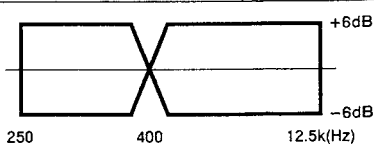
4-2-4 Recording performance 録音系

Deck settings:

Mode : REC/PLAY
 DOLBY NR Switch : OFF
 PITCH CONTROL : Center
 SOURCE Switch : LINE

TEAC recording test tapes:

MTT-5513 : For NORMAL
 MTT-5563 : For CrO₂
 MTT-5572 : For METAL

ITEM 項目	SETTING 設定	INPUT SIGNAL 入力信号	ADJUSTMENTS 調整箇所	MEASURING POINTS, RESULT 測定箇所・調整値	REMARKS 備考
8. Min. LINE input level ライン最小入力レベル	Connection : Fig. 4-3 INPUT control : Max. Mode : REC-PAUSE	LINE IN : 400Hz/- 19dB (87mV)	Check	LINE OUT : - 4.5 ± 3dB (327mV~652mV)	
9. Specified LINE input level ライン規定入力レベル	Connection : Fig. 4-3 Mode : REC-PAUSE	LINE IN : 400Hz/- 9dB (275mV)	INPUT control	LINE OUT : - 4.5dB (462mV)	After adjusting, do not move (Specific position) 調整後は動かさないこと(規定位置)
10. Bias osc frequency バイアス発振周波数	Connection : Fig. 4-7 TAPE : MTT-5513 Mode : REC-PAUSE	LINE IN : No signal 無信号	L104	P102 Pin 1 : 85kHz	
11. Record bias 録音バイアス	Connection : Fig. 4-3 TAPE : MTT-5513	LINE IN : 250Hz/10kHz - 34dB (15.5mV)	R193/R293	LINE OUT : Nearly equal level at both frequencies 両周波数の録再出力が同レベル (± 0.5dB)	
12. MPX filter MPXフィルター	Connection : Fig. 4-3 TAPE : MTT-5513	LINE IN : 19kHz/- 12dB (195mV)	L101/L201	30dB min.	Ratio of ref. level to signal 基準出力レベルに対する比
13. Record level 録音レベル	Connection : Fig. 4-3 TAPE : MTT-5513	LINE IN : 400Hz/- 9dB (275mV)	R192/R292	LINE OUT : - 4.5 ± 1dB (411mV~518mV)	
	TAPE : MTT-5563 MTT-5572 FWD/REV direction		Check	- 4.5 ± 1.5dB (388mV~549mV)	
14. Total harmonic distortion 総合歪率	Connection : Fig. 4-3 TAPE : MTT-5513 MTT-5563 MTT-5572	LINE IN : 400Hz/- 12dB (195mV)	Check	NORMAL : 2.0 % or less CrO ₂ : 2.5 % or less METAL : 3.0 % or less	
15. Overall frequency response 録再周波数特性	Connection : Fig. 4-3 TAPE : MTT-5513 MTT-5563 MTT-5572 FWD/REV direction	LINE IN : 250Hz~12.5kHz - 34dB (15.5mV)	Check		
16. Overall S/N ratio 総合S/N比	Connection : Fig. 4-3 TAPE : MTT-5513 MTT-5563 MTT-5572 FWD/REV direction	LINE IN : No signal 無信号	Check	NORMAL : 45dB min. CrO ₂ : 46dB min. METAL : 46dB min.	Ratio of ref. level to noise 基準出力レベルとノイズの比

ITEM 項目	SETTING 設定	INPUT SIGNAL 入力信号	ADJUSTMENTS 調整箇所	MEASURING RESULT 調整値	REMARKS 備考
17. Erase efficiency 消去率	Connection : Fig. 4-3 TAPE : MTT-5572 1kHz B.P.F in FWD/REV direction	LINE IN : 1kHz/+ 1dB (870mV)	Check	65dB min.	Ratio of the 1kHz recorded portion to the erased portion. 未消去部分と消去部分の比
18. REC MUTE function REC MUTE 効果	Connection : Fig. 4-3 TAPE : MTT-5572 1kHz B.P.F in	LINE IN : 1kHz/+ 1dB (870mV)	Check	55dB min.	Ratio of the 1kHz recorded portion to the "REC MUTE" portion. 録音部分と"REC MUTE"部分の比
19. Channel seperation チャンネルセパレーション	Connection : Fig. 4-3 TAPE : MTT-5563 1kHz B.P.F in FWD/REV direction	LINE IN : Lch 1kHz/- 9dB (275mV) Rch No signal 無信号	Check	35dB min.	Ratio of Lch (1kHz) to Rch (no signal). Lch (1kHz)とRch (無信号)の比
20. Adjacent track crosstalk トラック間クロストーク	Connection : Fig. 4-3 TAPE : MTT-5572	LINE IN : Lch No signal 無信号 Rch 125Hz/- 9dB (275mV)	Check	40dB min.	Invert tape and play Rch track. Check leakage level against the output reference of previously recorded portion. テープを反転して再生した時のRch出力レベルの比
21. CD DUBBING function CD DUBBING 機能	Connection : Fig. 4-3 SOURCE switch : CD CD DUBBING sw : on TAPE : MTT-5513	MCD-111 Track 21 (1kHz/- 10dB)	Check	LINE OUT : - 7 ± 1.5dB (291mV~411mV)	

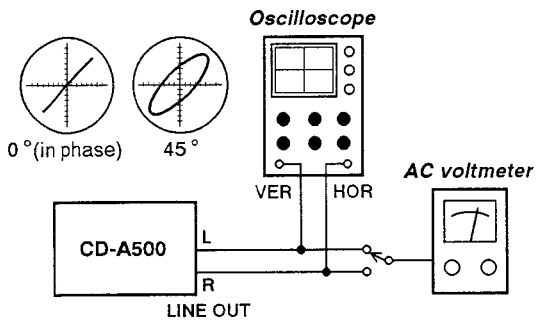


Fig. 4-4 Test setup for azimuth check

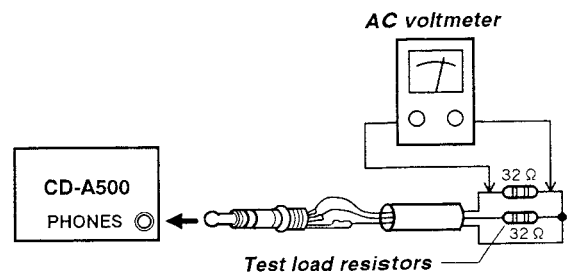


Fig. 4-6 Test setup for PHONES check

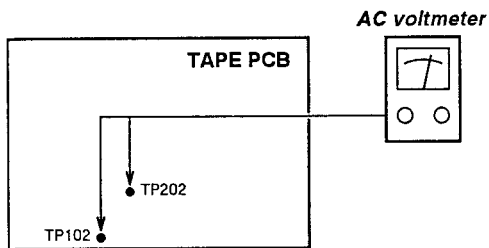


Fig. 4-5 Test setup for DOLBY level adjustment

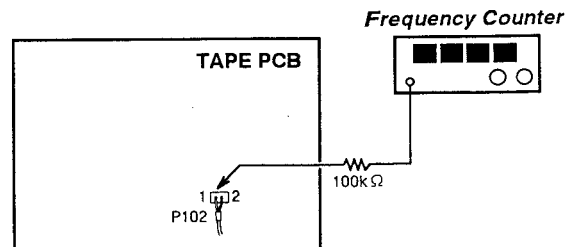
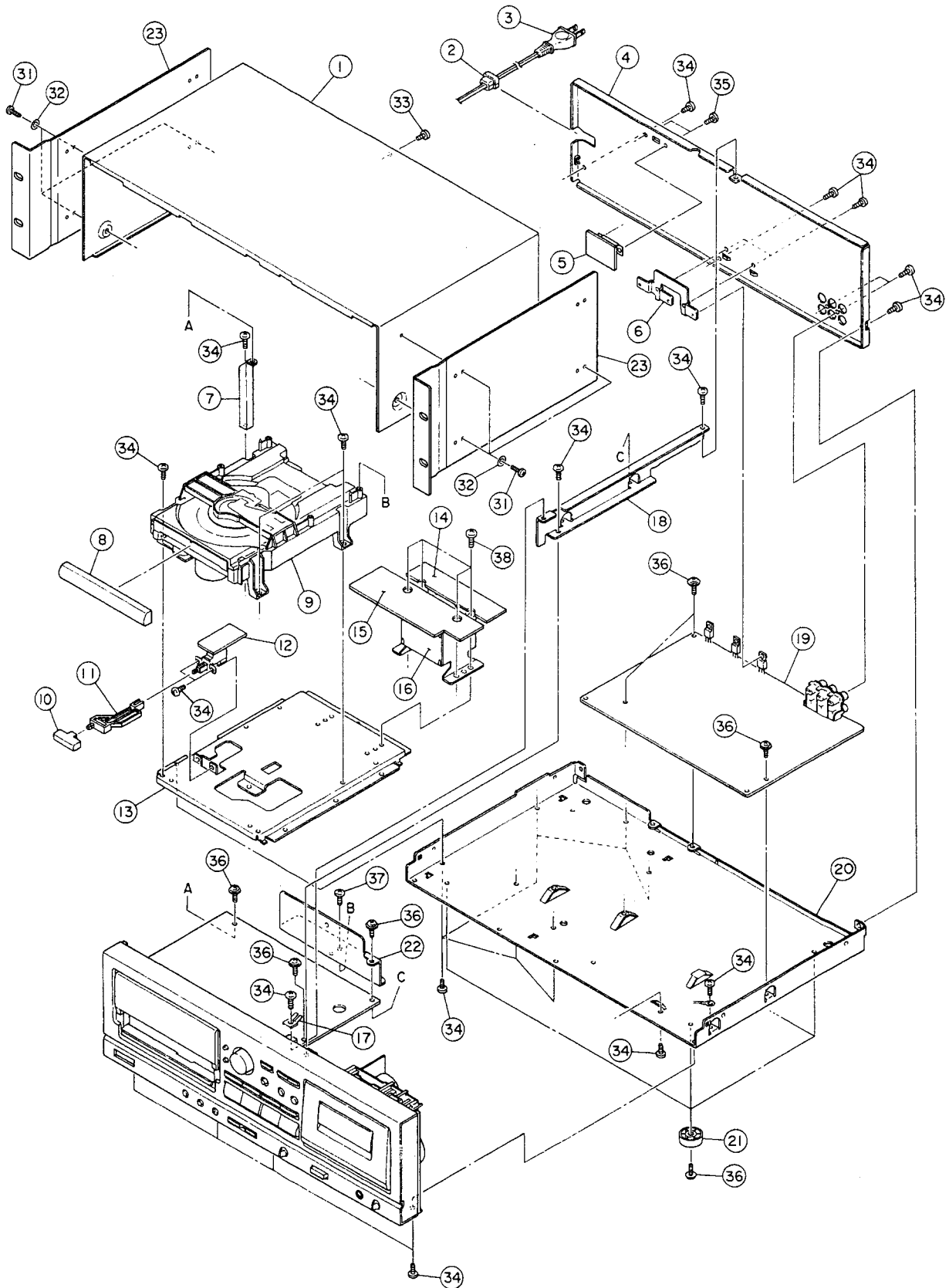


Fig. 4-7 Test setup for bias OSC adjustment

5 EXPLODED VIEWS AND PARTS LIST

分解図とパーツリスト

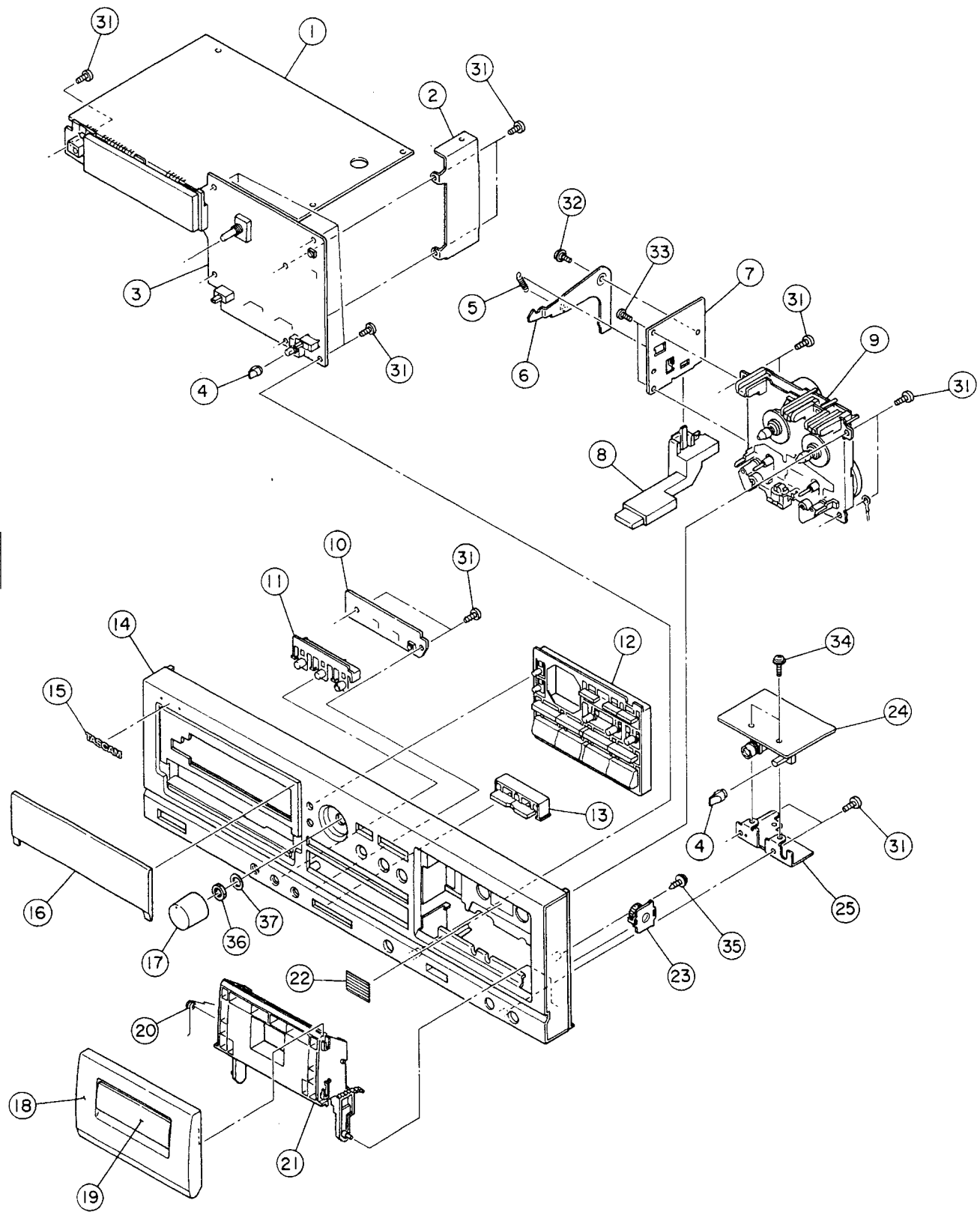
EXPLODED VIEW-1



EXPLODED VIEW-1

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1- 1	*3M0026000A	BONNET	
1- 2	△*3M000880	BUSHING, #2271	
1- 3	△*3E006330	POWER CORD [K]	
	△*3E000340	POWER CORD [E]	
	△*3E000350	POWER CORD [UK]	
	△*3E000360	POWER CORD [A]	
	△*3E002120	POWER CORD [J]	
	△*3E002970	POWER CORD, SPT-2 [US, C, GE]	
1- 4	*3M0025800B	REAR PANEL [J, K, E, UK, A]	
	*3M0025810B	REAR PANEL [US, C, GE]	
1- 5	*3E9506500A	PCB ASSY, SELECT SW [US, C, GE]	
1- 6	*3M0025900A	PLATE, IC	
1- 7	*3M0025500A	BRACKET, PCB (C)	
1- 8	*3M0024310A	PANEL, TRAY	
1- 9	*3M0027400A	CD MECHA ASSY, KSL-212BCM	
1-10	3M0030500B	BUTTON, POWER	
1-11	*3M0025000A	ROD, POWER SW	
1-12	*3E9506400B	PCB ASSY, POWER SW	
1-13	*3M0025700A	BASE, CD MECHA	
1-14	*3E9506200A	PCB ASSY, TRANS-B	
1-15	*3E9506100B	PCB ASSY, TRANS-A [J]	
	*3E9506110B	PCB ASSY, TRANS-A [US, C, GE]	
	*3E9506120B	PCB ASSY, TRANS-A [K, E, UK]	
	*3E9506130B	PCB ASSY, TRANS-A [A]	
1-16	△ 3E0041700A	TRANS, ALL S-1515	
1-17	*3M0030300A	PLATE, EARTH	
1-18	*3M0025300B	BRACKET, PCB (A)	
1-19	*3E9506600B	PCB ASSY, TAPE	
1-20	*3M0025200A	MAIN CHASSIS	
1-21	*3M001950	FOOT, 21MM	
1-22	*3M0030400B	SHIELD PLATE	
1-23	*3M0026600B	RACK MOUNTING	
1-31	*3B0001810A	SCREW, J, S M3X10 (BLK)	
1-32	*3M002020	WASHER, FIBER 3X8X0.3T (BLK)	
1-33	*3B0003808A	SCREW, VPC M3X8 (BLK)	
1-34	*3B0005708A	SCREW, BPB M3X8 (BLK)	
1-35	*3B0004408A	SCREW, BPS M3X8 (BLK) [US, C, GE]	
1-36	*3B0001306A	SCREW, J, S M3X6	
1-37	*3B0000808A	SCREW, BPP M3X8	
1-38	*3B0005408A	SCREW, BPB M4X8	

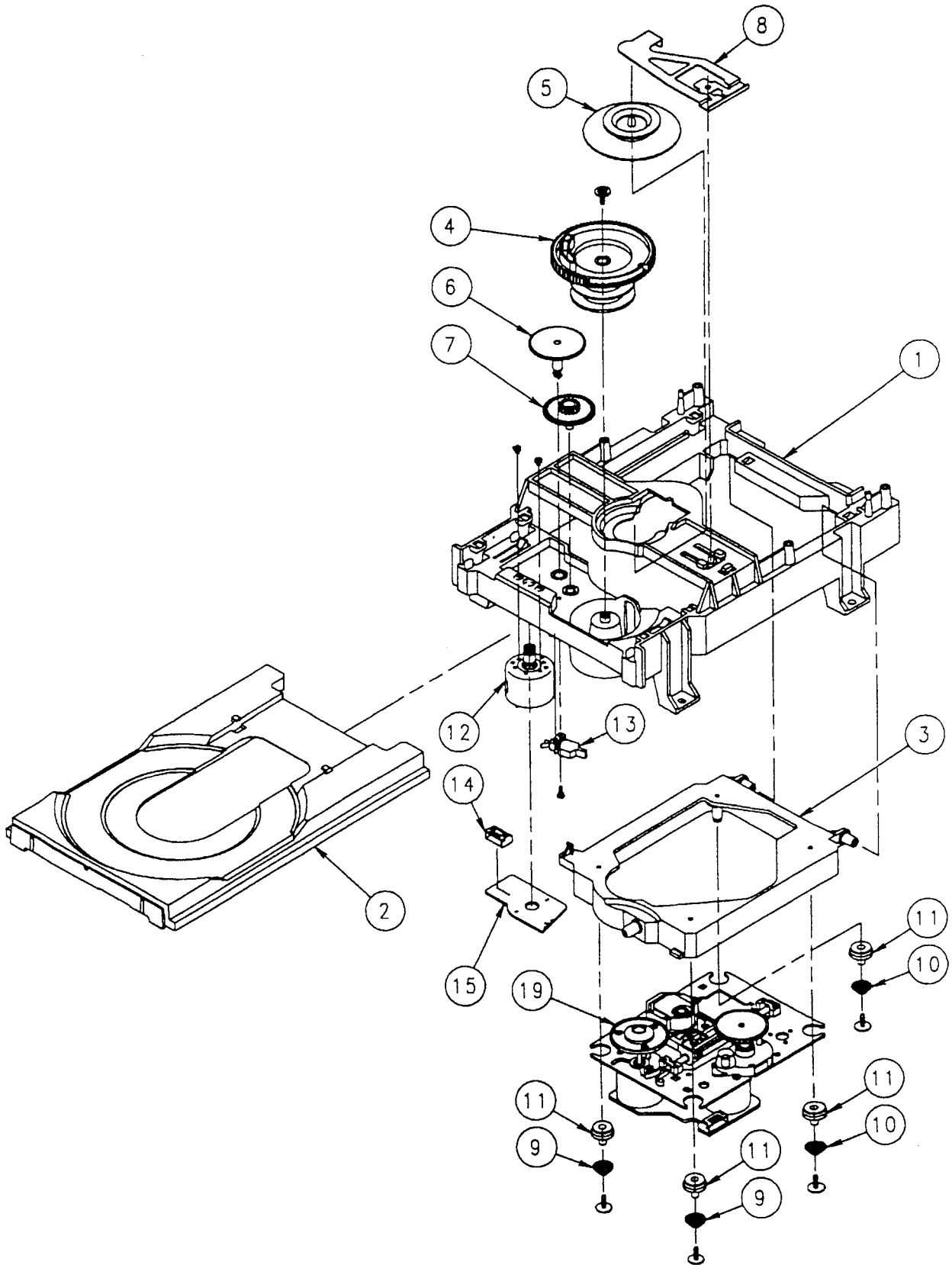
EXPLODED VIEW-2



EXPLODED VIEW-2

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
2- 1	*3E9505800B	PCB ASSY, CONT-CD	
2- 2	*3M0025400A	BRACKET, PCB (B)	
2- 3	*3E9505900B	PCB ASSY, FRONT	
2- 4	3M0024800A	KNOB, PHONE VOLUME	
2- 5	*3M0010600A	TORSION SPRING, EJECT	
2- 6	*3M0030000A	HOOK, EJECT B	
2- 7	*3M0030100A	BRACKET, EJECT B	
2- 8	3M0025100A	BUTTON, EJECT	
2- 9	*3M0010200A	MECH ASSY, R/P CMAL2Z063A	
2-10	*3E9506300B	PCB ASSY, KEY A	
2-11	3M0024400A	BUTTON, DIA 6.5	
2-12	3M0024210A	BUTTON, MAIN	
2-13	3M0024500A	BUTTON, SKIP	
2-14	*3M0024110A	FRONT PANEL	
2-15	*5720254101	NAME PLATE, TASCAM	
2-16	*3M0024910A	WINDOW, FL DISPLAY	
2-17	3M0024610A	KNOB, REC VOLUME	
2-18	3M0026410A	LID, DOOR	
2-19	3M0026500A	WINDOW, LID	
2-20	*3M0010500B	TORSION SPRING, CASE II	
2-21	3M0011100A	CASE, LEAD	
2-22	*9260205700	PLATE, REFLECT	
2-23	*9260077301	DAMPER (SD-385)	
2-24	*3E9510600A	PCB ASSY, PHONE	
2-25	*3M0025600A	BRACKET, PHONE	
2-31	*3B0000808A	SCREW, BPP M3X8	
2-32	*3M0010700A	SCREW, 4X1.3S	
2-33	*3B0000004A	SCREW, BPS M2.6X4	
2-34	*3B0001306A	SCREW, J, S M3X6	
2-35	*3B0002308A	SCREW, J P M3X8 (BLK)	
2-36	*3M001340	NUT, VR M9	
2-37	*3M001350	PLAIN WASHER, VR M9.1	

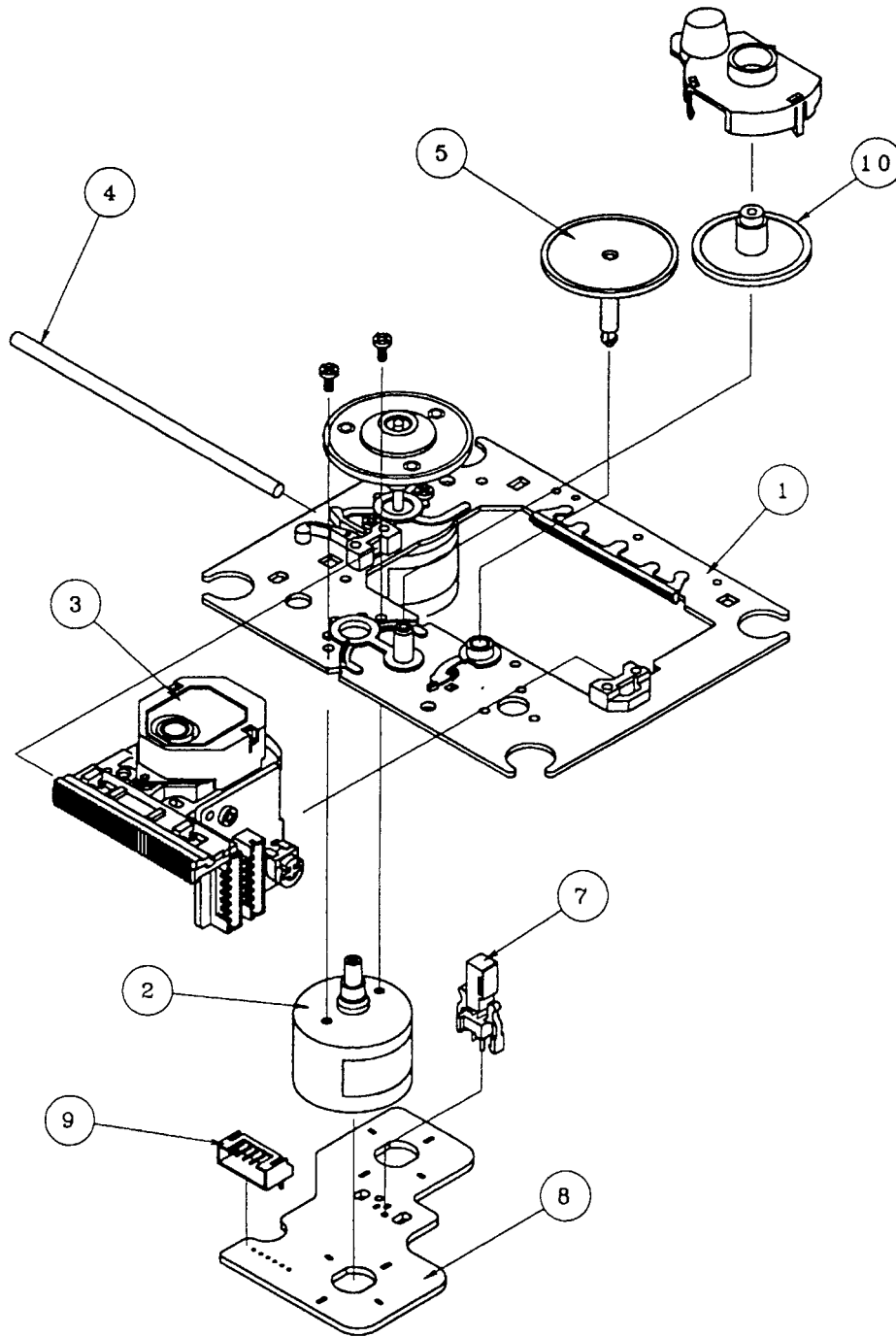
EXPLODED VIEW-3



EXPLODED VIEW-3 (KSL-212BCM)

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
3- 1	*9A06688400	LU CHASSIS	
3- 2	9A06688500	TRAY	
3- 3	*9A06688600	SUB CHASSIS AS	
3- 4	9A06688700	CAM GEAR	
3- 5	9A06688800	CHUCKING PULLY	
3- 6	9A06688900	GEAR (X)	
3- 7	9A06689000	GEAR (Y)	
3- 8	*9A06689100	CHUCKING SPRING	
3- 9	*9A06689200	COIL SPRING (FRONT)	
3-10	*9A06689300	COIL SPRING (BACK)	
3-11	9A06689400	INSULATOR	
3-12	9A06689500	LOADING MOTOR ASSY	
3-13	9A06689600	LEAF SWITCH	
3-14	*9A06689700	CONNECTOR PIN (SUPER SMALL SIZE)	
3-15	*9A06689900	LOADING MOTOR PWB	
3-19	-----	DRIVE UNIT, KSM-212BCM	

EXPLODED VIEW-4

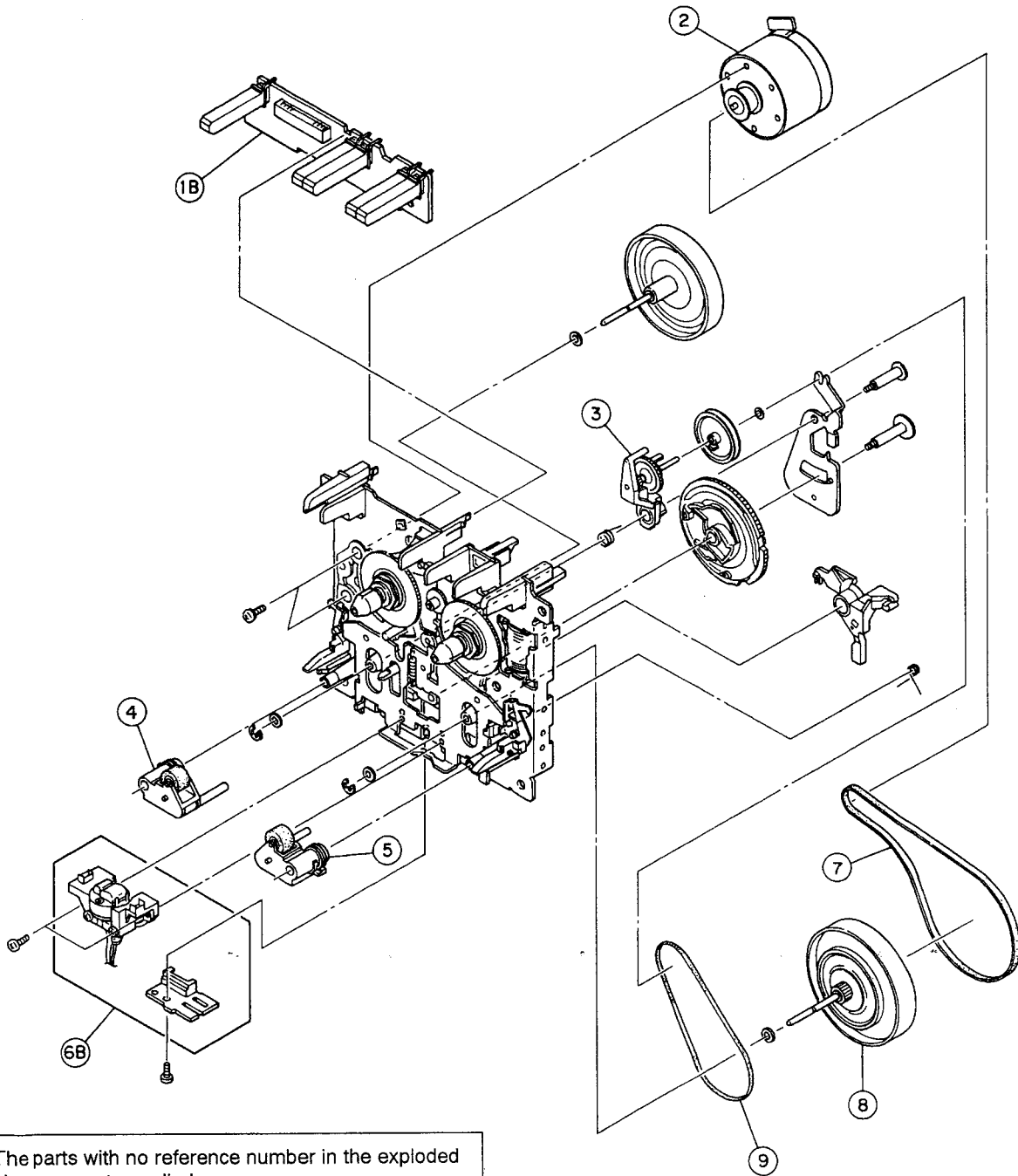


EXPLODED VIEW-4 (KSM-212BCM)

REF. NO.	PARTS NO.	DESCRIPTION
4- 1	*9A06690300	MOTOR CHASSIS ASSY, MBRP
4- 2	9A06690400	MOTOR GEAR ASSY
4- 3	9A06690500	OPTICAL DEVICE, KSS-212B(RP)
4- 4	*9A06690600	SLED SHAFT(S)
4- 5	9A06690700	GEAR(A) (S)

REF. NO.	PARTS NO.	DESCRIPTION
4- 7	9A06690900	LEAF SWITCH
4- 8	*9A06691000	MOTOR(6P) (S)PCB
4- 9	*9A06691100	CONNECTOR PIN 6P
4-10	9A06691200	GEAR(B) (RP)

EXPLODED VIEW-5



- The parts with no reference number in the exploded views are not supplied.
- 分解図に部番のない部品は供給できません。

EXPLODED VIEW-5 (CMAL2Z063A)

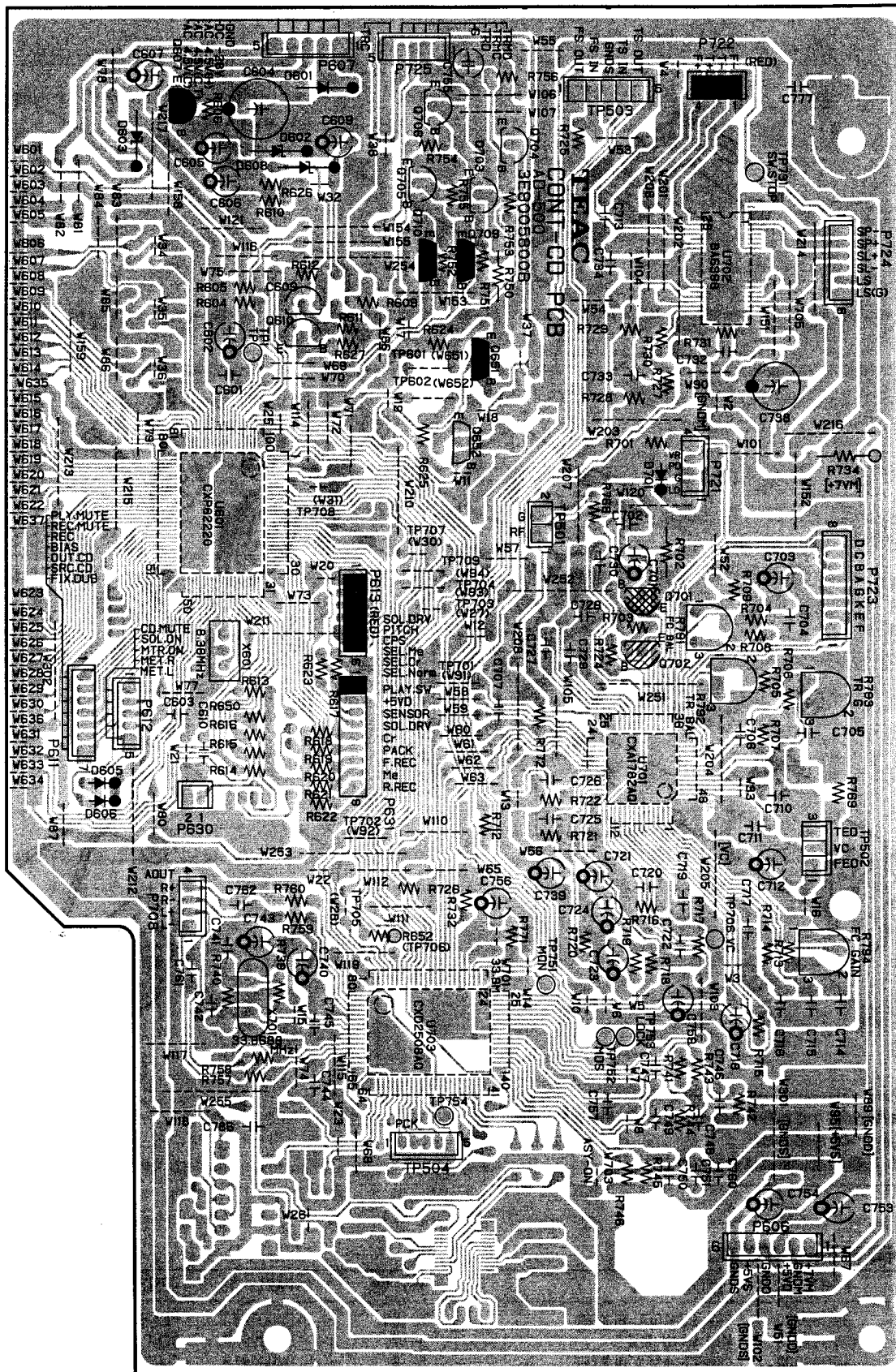
REF. NO.	PARTS NO.	DESCRIPTION
5- 1B	3M002890	PCB CONTROL BLK(B)
5- 2	3M002870	MTR MAIN BLK
5- 3	3M002900	CLUTCH ASSY BLK(A)
5- 4	3M002930	ROLLER PINCH BLK L
5- 5	3M002920	ROLLER PINCH BLK R

REF. NO.	PARTS NO.	DESCRIPTION
5- 6B	3M002860	PLATE HD BLK B
5- 7	3M002950	BELT MAIN
5- 8	3M002910	CLUTCH ASSY BLK(B)
5- 9	3M002940	F/R BELT

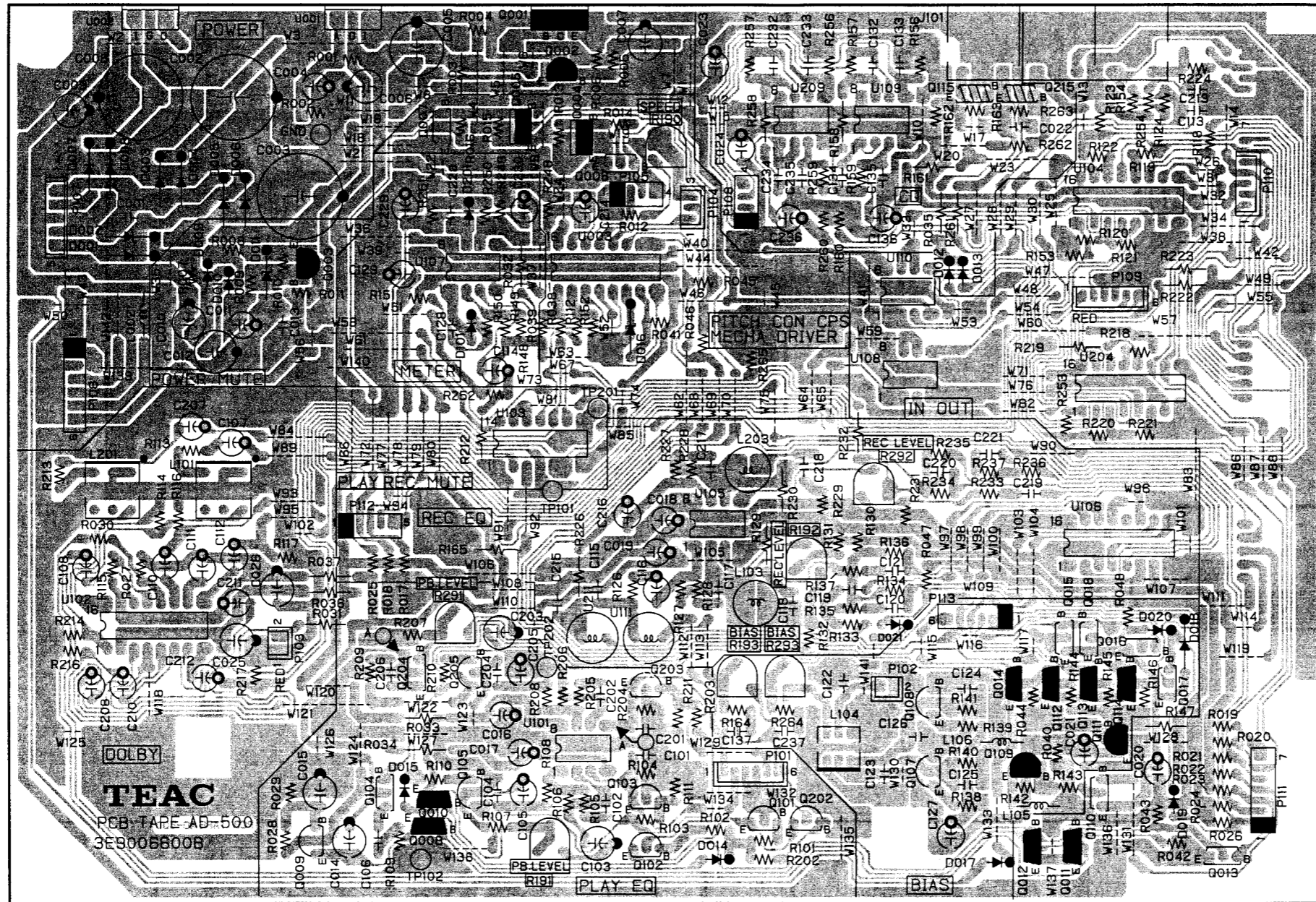
6 PC BOARDS AND PARTS LIST

基板図とパーツリスト

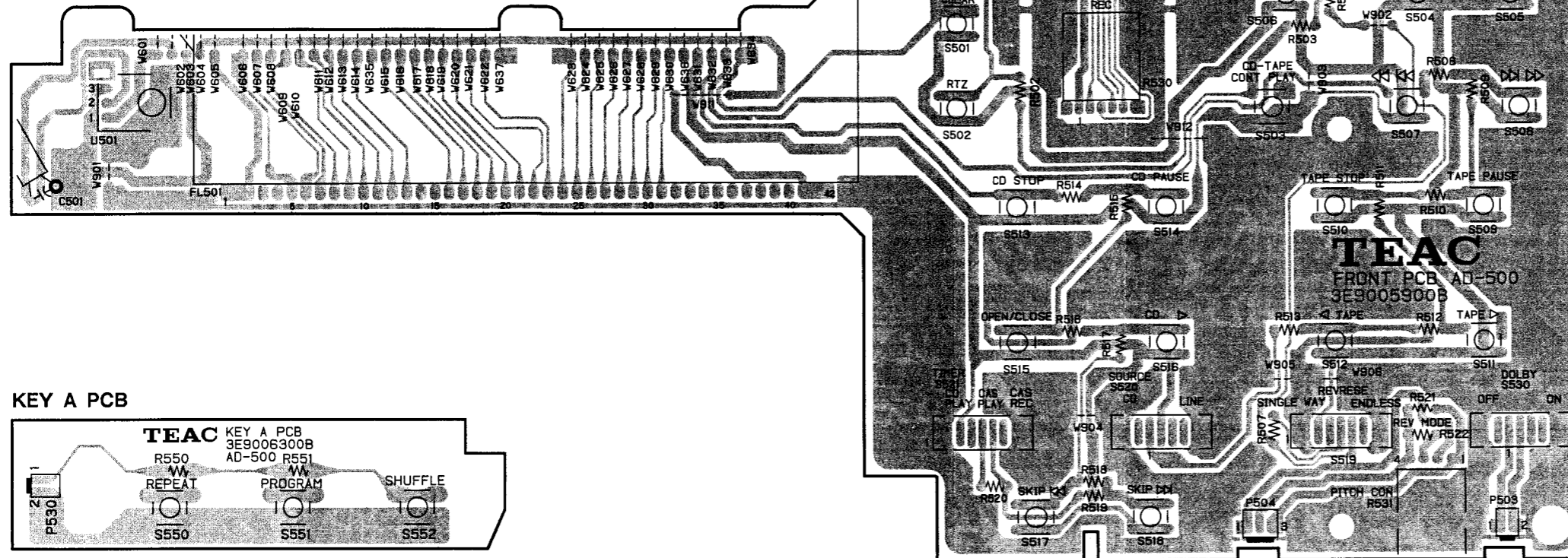
CONT-CD PCB



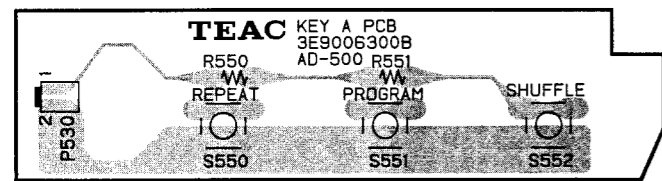
TAPE PCB



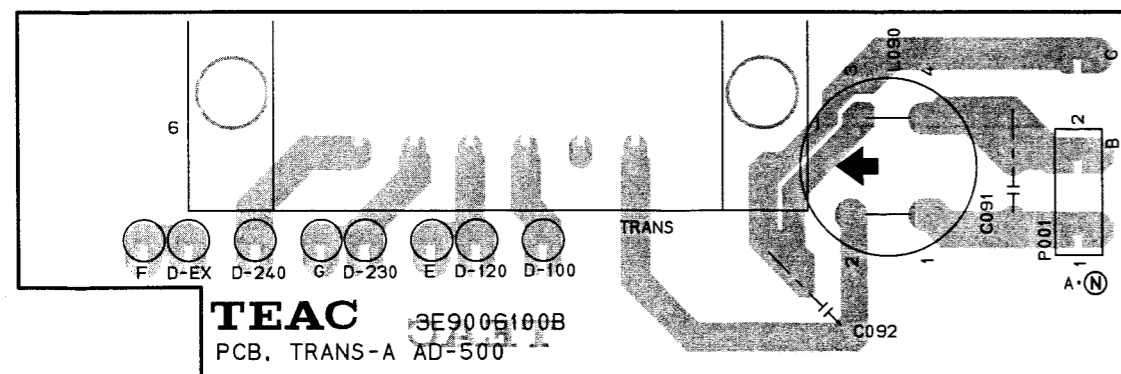
FRONT PCB



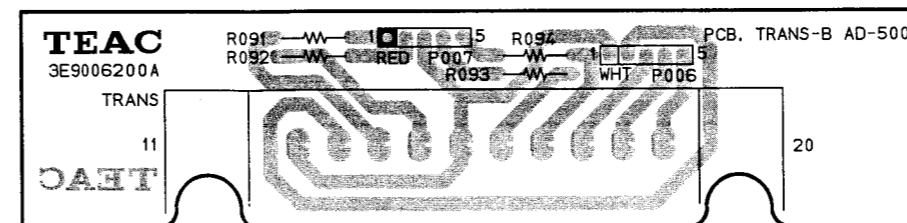
KEY A PCB



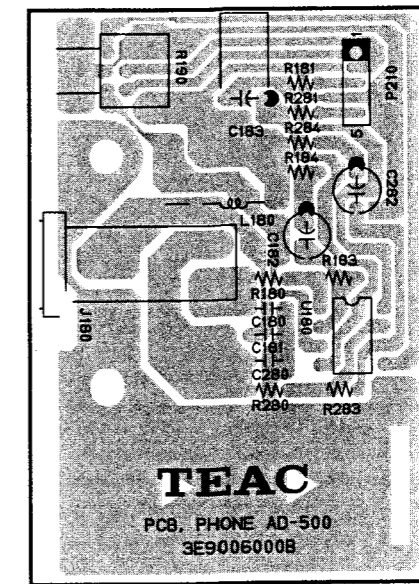
TRANS-A PCB



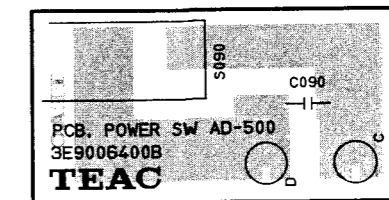
TRANS-B PCB



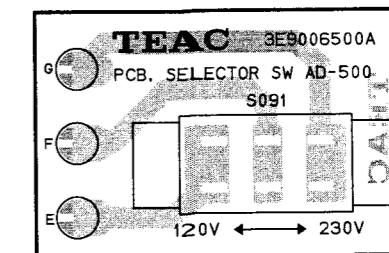
PHONE PCB



POWER SW PCB



SELECTOR SW PCB



CONT-CD PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	*3E9505800B	PCB ASSY, CONT-CD
	*3E9005800B	PCB, CONT-CD
C604	△ 3C000940	CE, 35V 470UF M
C607	△ 3C000560	CE, 35V 47UF M
D601	△ 3S000031	DIODE, 1N4003-TR
D602	△ 3S000691	ZENER DIODE, MTZJ 24B
D603	△ 3S000671	ZENER DIODE, MTZJ4. 3B
D605, 606	3S000241	DIODE, 1SS133
D608	3S000671	ZENER DIODE, MTZJ4. 3B
D701	3S000241	DIODE, 1SS133
P606	3E001180	CONNECTOR PLUG, 6P B6B-EH-A
P607	3E001170	CONNECTOR PLUG, 5P B5B-EH-A
P611	3E000710	CONNECTOR PLUG, 7P B7B-PH-K
P612, 725	3E000690	CONNECTOR PLUG, 5P B5B-PH-K
P613	3E003850	CONNECTOR PLUG, B6B-PH(RED)
P630	3E000660	CONNECTOR PLUG, 2P B2B-PH-K
P708, 721	3E000680	CONNECTOR PLUG, 4P B4B-PH-K
P722	3E003830	CONNECTOR PLUG, B4B-PH(RED)
P723	3E000720	CONNECTOR PLUG, 8P B8B-PH-K
P724	3E000700	CONNECTOR PLUG, 6P B6B-PH-K
Q607	△ 3S000020	TR, 2SA1015GR
Q609, 610	3S000000	TR, 2SC1815GR
Q651	3S000301	TR, DTA124ES
Q652	3S000291	TR, DTC124ES
Q701	3S000701	TR, 2SA854R
Q702	3S000000	TR, 2SC1815GR
Q703-706	3S000721	TR, 2SC1741R-SPT
Q709, 710	3S000301	TR, DTA124ES
R791	3R004600	VR, SEMI-FIXED RH0615-22K
R792	3R004630	VR, SEMI-FIXED RH0615-220K
R793	3R004610	VR, SEMI-FIXED RH0615-47K
R794	3R004600	VR, SEMI-FIXED RH0615-22K
TP501	3E003780	HEADER, 2PIN 87156-02
TP502	3E003790	HEADER, 3PIN 87156-03
TP503	3E003800	HEADER, 5PIN 87156-05
U601	3S0007500A	IC, CXP82220-1370
U701	3S000620	IC, CXA1782BQ
U702	3S000600	IC, BA6398FP
U703	3S000630	IC, CXD2508AQ
X601	3E003680	RESONATOR, CST8. 38MTW
X701	3E004340	X'TAL, 33. 8688MHZ

TAPE PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	*3E9506600B	PCB ASSY, TAPE
	*3E9006600B	PCB, TAPE
C002, 003	△ 3C001200	CE, 16V 3300UF M
C008	△ 3C001200	CE, 16V 3300UF M
C010	△ 3C000330	CE, 16V 10UF M
D001-008	△ 3S000031	DIODE, 1N4003-TR
D009, 010	△ 3S000241	DIODE, 1SS133
D011	3S000671	ZENER DIODE, MTZJ4. 3B
D012-015	3S000241	DIODE, 1SS133
D016	3S001521	ZENER DIODE, MTZ3. 9B

TAPE PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
D017	3S000241	DIODE, 1SS133
D018	3S000031	DIODE, 1N4003-TR
D019-021	3S000241	DIODE, 1SS133
D101, 201	3S000241	DIODE, 1SS133
J101	3E003750	JACK, RCA RJ-1074-09-0353A
J190	3R004720	VR, SEMI-FIXED TB067A-6. 8K
J191, 291	3R004530	VR, SEMI-FIXED RH0615-100
J192, 292	3R004590	VR, SEMI-FIXED RH0615-10K
J193, 293	3R004610	VR, SEMI-FIXED RH0615-47K
L002	3E003711	COIL, 10UH EC24-100K-T2
L101, 201	3E003730	FILTER, MPX LPF FXD2
L103, 203	3E003690	COIL, #7159 8. 2MH
L104	3E0042800A	TRANS, BIAS OSC 85KHZ
L105, 106	3E003711	COIL, 10UH EC24-100K-T2
P101	3E000700	CONNECTOR PLUG, 6P B6B-PH-K
P102	3E000660	CONNECTOR PLUG, 2P B2B-PH-K
P103	3E003810	CONNECTOR PLUG, B2B-PH(RED)
P104	3E000670	CONNECTOR PLUG, 3P B3B-PH-K
P107	3E001170	CONNECTOR PLUG, 5P B5B-EH-A
P109	3E003850	CONNECTOR PLUG, B6B-PH(RED)
P110	3E000690	CONNECTOR PLUG, 5P B5B-PH-K
Q001	△ 3S000820	TR, 2SB1655E
Q002, 003	△ 3S000020	TR, 2SA1015GR
Q004, 005	3S000320	TR, 2SA1237TV2Q
Q006, 007	3S000291	TR, DTC124ES
Q008, 010	3S000301	TR, DTA124ES
Q009	3S000000	TR, 2SC1815GR
Q011, 012	3S000301	TR, DTA124ES
Q013	3S000291	TR, DTC124ES
Q014	3S000301	TR, DTA124ES
Q015, 016	3S000291	TR, DTC124ES
Q017, 018	3S000291	TR, DTC124ES
Q101	3S000000	TR, 2SC1815GR
Q102, 202	3S000000	TR, 2SC1815GR
Q103, 203	3S000000	TR, 2SC1815GR
Q104, 204	3S000741	TR, DTC143TS
Q105, 205	3S000000	TR, 2SC1815GR
Q107, 108	3S000000	TR, 2SC1815GR
Q109, 111	3S000020	TR, 2SA1015GR
Q110	3S000291	TR, DTC124ES
Q112-114	3S000301	TR, DTA124ES
Q115, 215	3S000731	TR, 2SD2144S
U001	△ 3S000250	IC, NJM317F
U002	△ 3S000650	IC, NJM7805FA
U003	3S000810	IC, TC4053BP
U101	3S000280	IC, UPC4570C
U102	3S000040	IC, CXA1101P
U103	3S000430	IC, BU4066BC
U104, 204	3S000810	IC, TC4053BP
U105	3S000260	IC, NJM4558D
U106	3S000470	IC, TC4052BP
U107, 108	3S000260	IC, NJM4558D
U109, 209	3S000280	IC, UPC4570C
U110	3S000260	IC, NJM4558D
U111, 211	3E003740	FILTER, BIAS TRAP 85KHZ

FRONT PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	*3E9505900B	PCB ASSY, FRONT
	*3E9005900B	PCB, FRONT
	*3M0024700A	HOLDER, FL DISPLAY
FL501	3E0036400A	FL DISPLAY, VFD BJ484GK
R530	3R003910	VAR REG, 10KAX2 RK14K12D
R531	3R003980	VAR REG, 5KB RK11K113 CC
S501-518	3E002070	SW, TACT SKQSAB HMR-187
S519, 521	3E002210	SW, SLIDE 2X3 AAA-00231402
S520, 530	3E003760	SW, SLIDE 2X2 AAA-00221269
U501	3S000760	REMOCON. SENSOR, SBX1976-52

KEY A PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	*3E9506300B	PCB ASSY, KEY A
	*3E9006300B	PCB, KEY A
S550-552	3E002070	SW, TACT SKQSAB HMR-187

PHONE PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	*3E9510600A	PCB ASSY, PHONE
	*3E9006000B	PCB, PHONE
J180	3E002160	JACK, JY-6313-01-030
L180	3E003721	COIL, 100UH EC24-101K-T2
R190	3R003920	VAR REG, 50KAX2 RK09K12A
U180	3S000840	IC, BA4560

POWER SW PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	*3E9506400B	PCB ASSY, POWER SW
	*3E9006400B	PCB, POWER SW
C090	△ 3E004300	S. KILLER, CS12-F2GA472MYAS
S090	△ 3E003770	SW, POWER SDDL1-A2-F-1

TRANS-A PCB ASSY

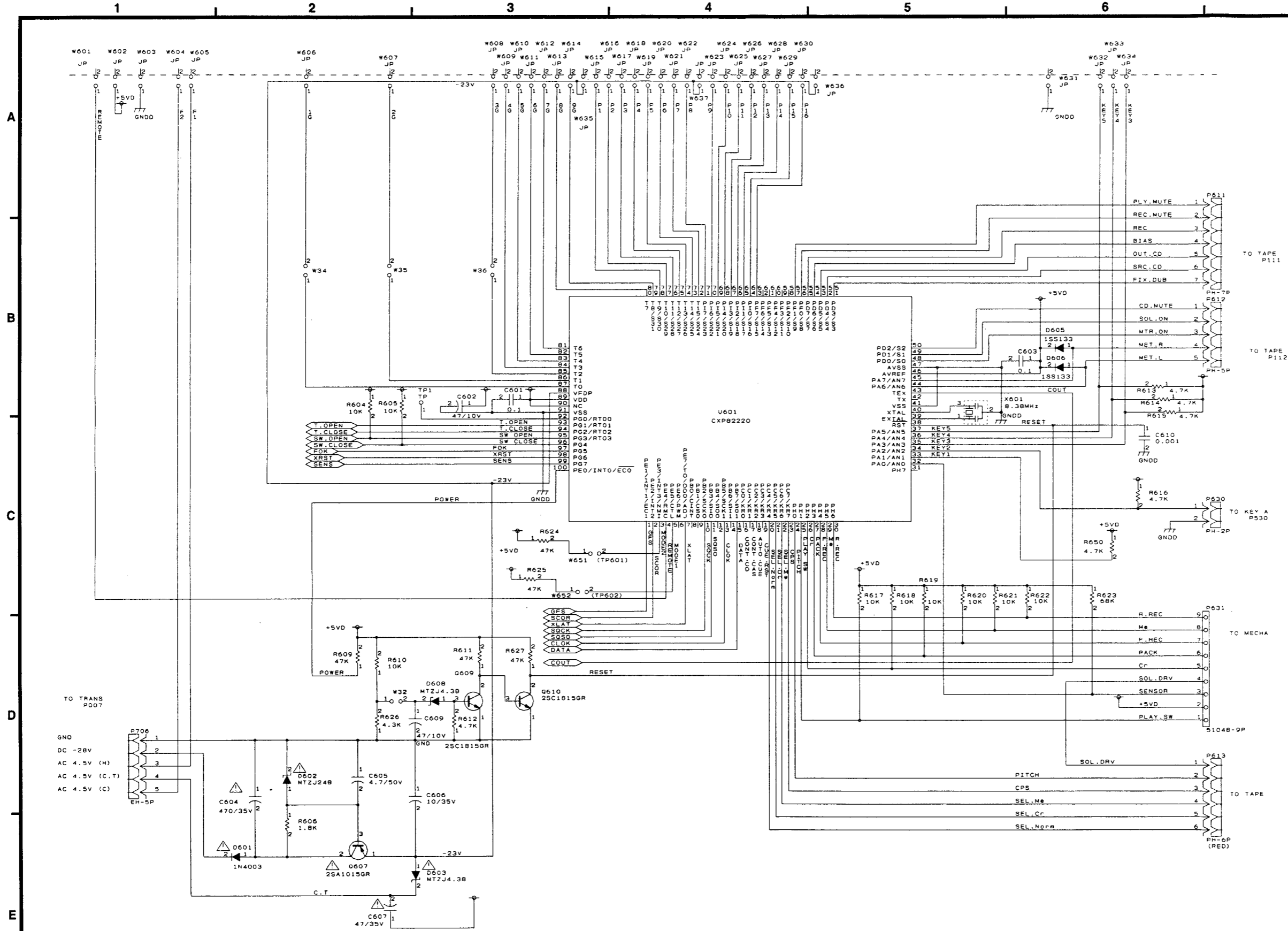
REF. NO.	PARTS NO.	DESCRIPTION
	*3E9506100B	PCB ASSY, TRANS-A [J]
	*3E9506110B	PCB ASSY, TRANS-A [US, C, GE]
	*3E9506120B	PCB ASSY, TRANS-A [K, E, UK]
	*3E9506130B	PCB ASSY, TRANS-A [A]
	*3E9006100B	PCB, TRANS-A
C091, 092	△ 3C007820	CO, 0.022UF ECQU2A223MN T1
L090	△ 3E004290	COIL, 1MH/1.5A FKOB160MH16
P001	3E002170	TERMINAL LAPPING, 2P[K, E, UK, A]

TRANS-B PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	*3E9506200A	PCB ASSY, TRANS-B
	*3E9006200A	PCB, TRANS-B

SELECTOR SW PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	*3E9506500A	PCB ASSY, SELECT SW [US, C, GE]
	*3E9006500A	PCB, SELECTOR SW
S091	△ 3E002110	SW, SLIDE SL13B-022



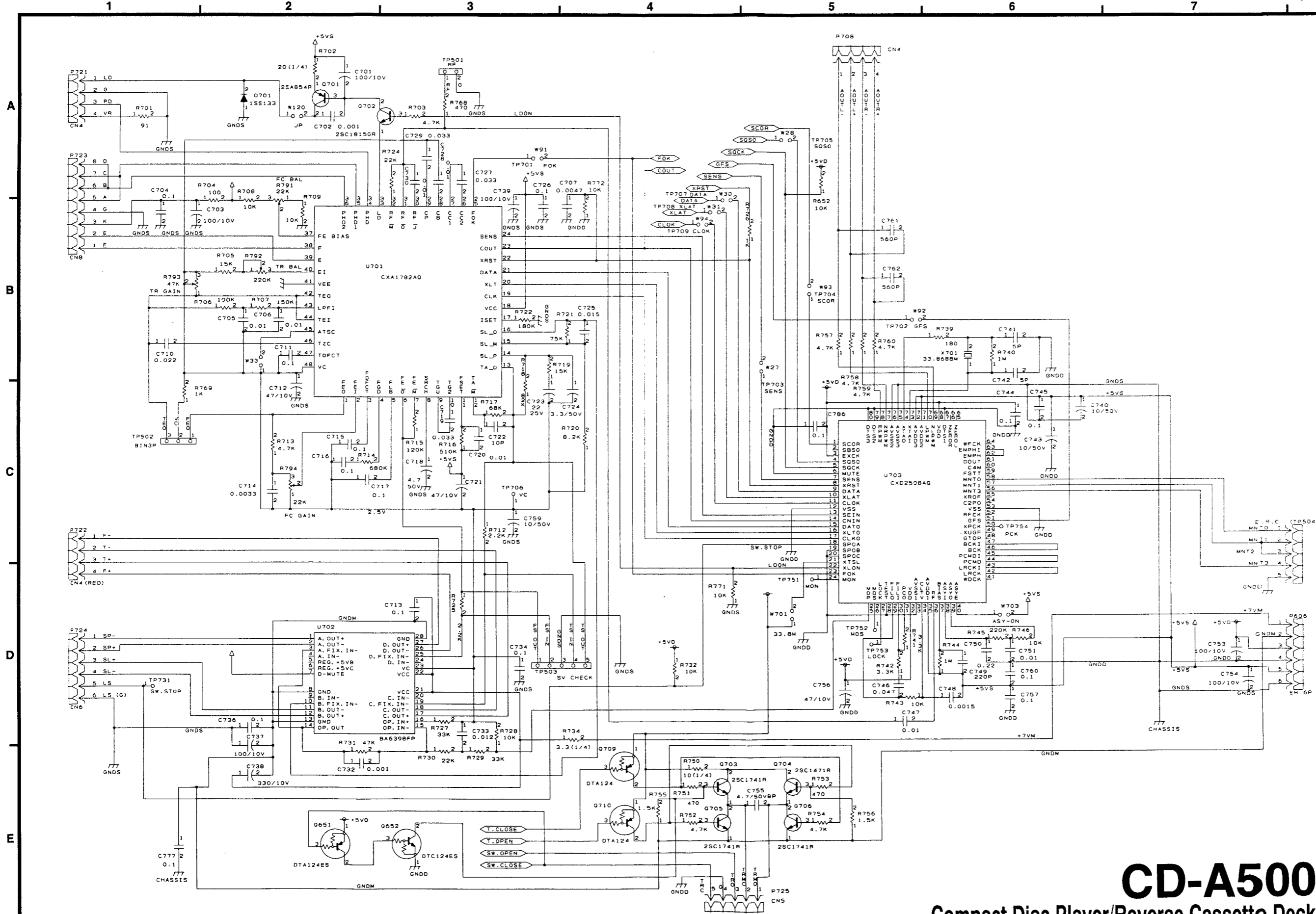
INSTRUCTIONS FOR SERVICE PERSONNEL
BEFORE RETURNING APPLIANCE TO THE CUSTOMER, MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT.

NOTES:
1. Resistor values are in ohms (k=kilo-ohms, M=megohms).
2. Capacitor values are in microfarads (p=picofarads).
3. △ Parts marked with this sign are safety critical components. They must always be replaced with identical components-refer to the appropriate parts list and ensure exact replacement.

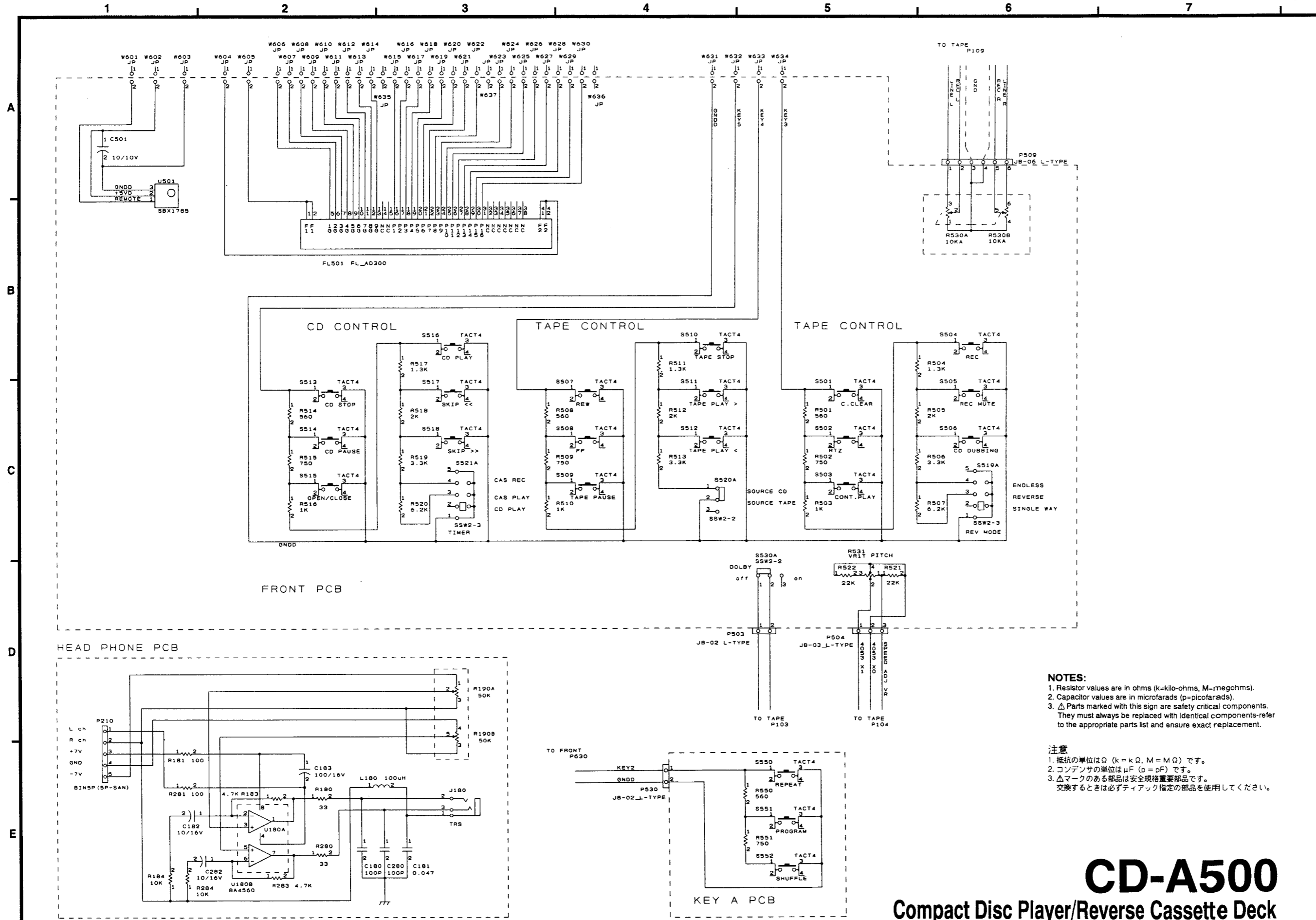
注意
1. 抵抗の単位はΩ (k = kΩ, M = MΩ) です。
2. コンデンサの単位はμF (p = pF) です。
3. △マークのある部品は安全規格重要部品です。交換するときは必ずディテック指定の部品を使用してください。

CD-A500

Compact Disc Player/Reverse Cassette Deck



CD-A500
Compact Disc Player/Reverse Cassette Deck

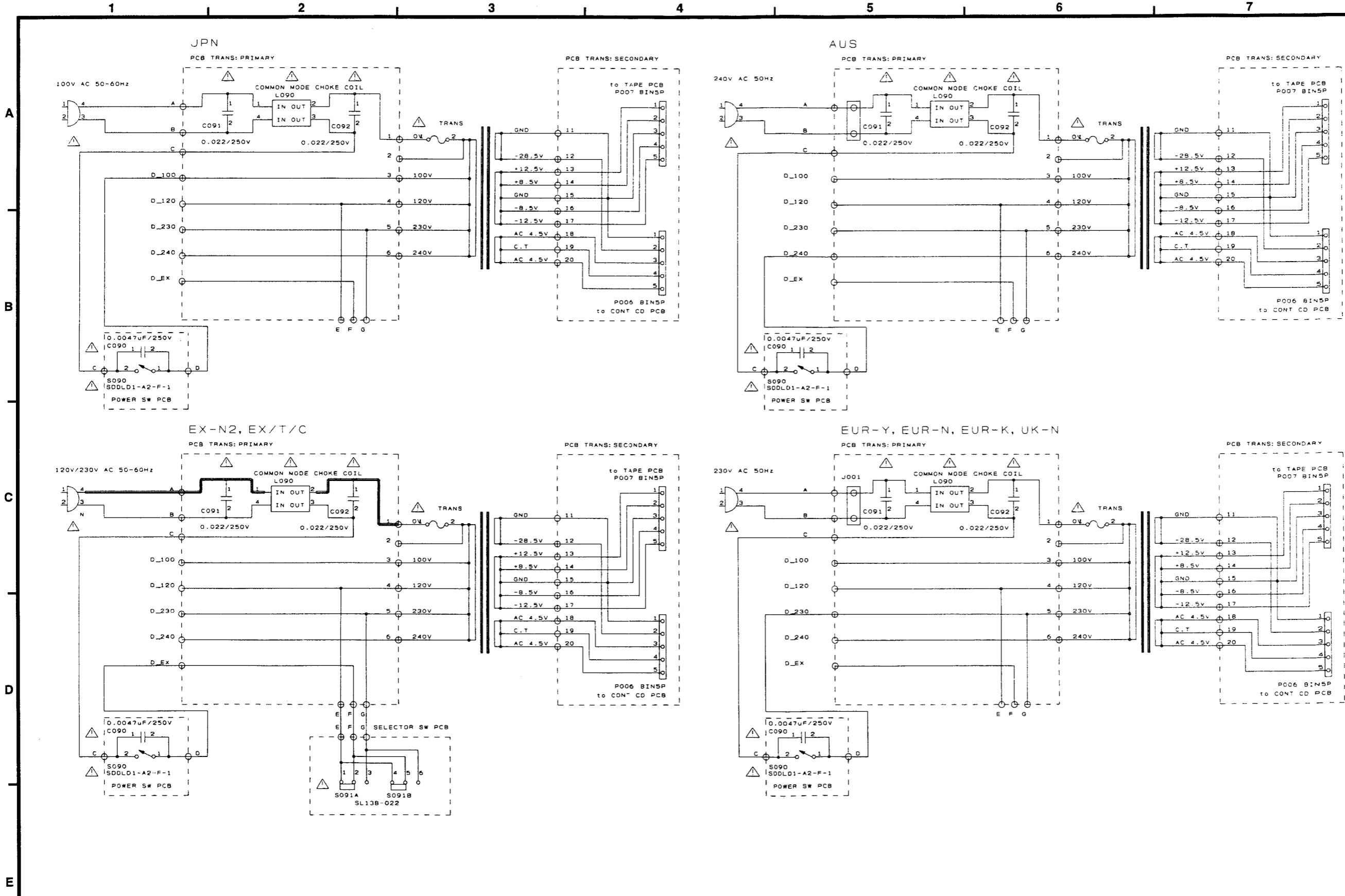


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CD-A500

Compact Disc Player/Reverse Cassette Deck



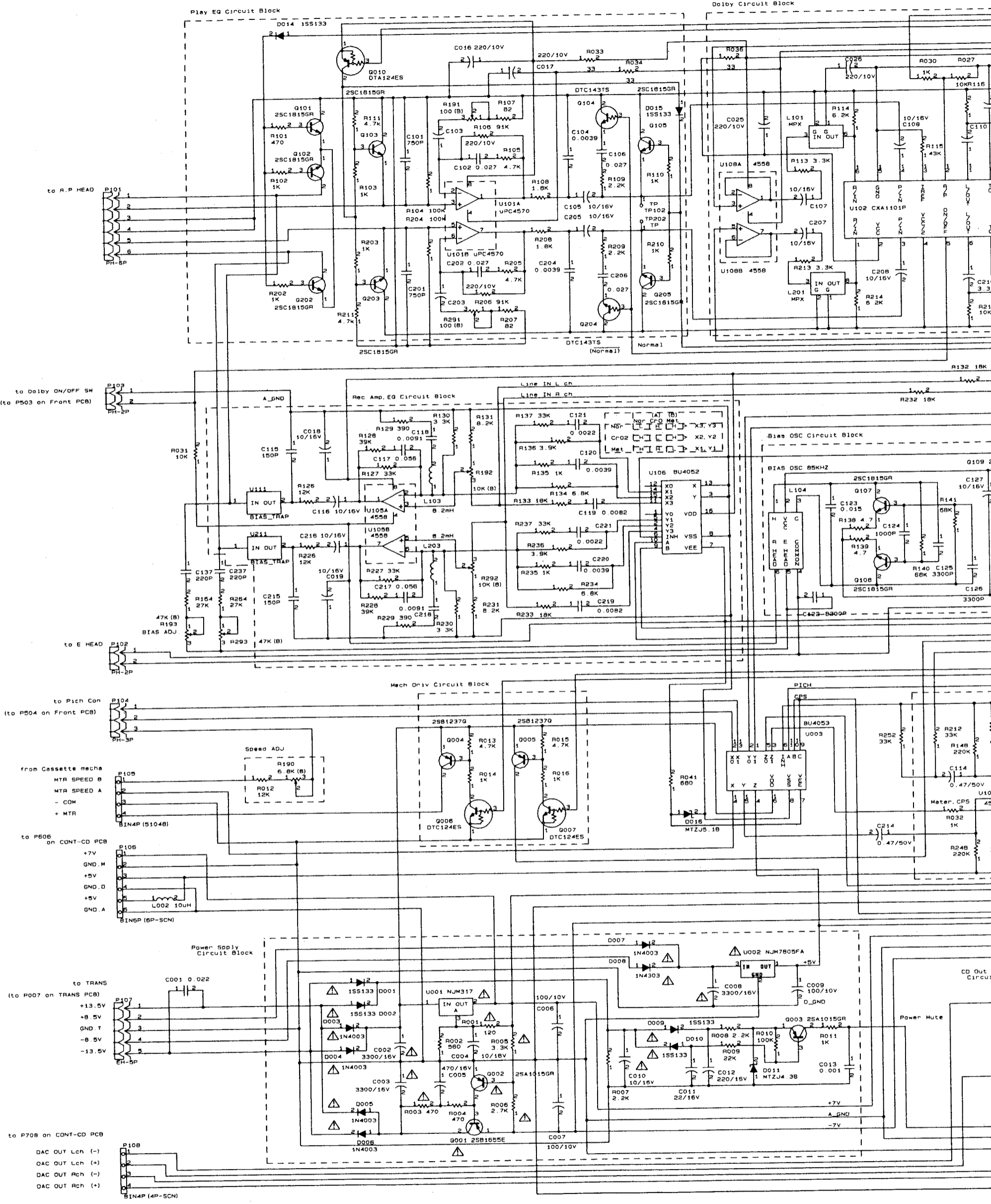
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CD-A500
Compact Disc Player/Reverse Cassette Deck

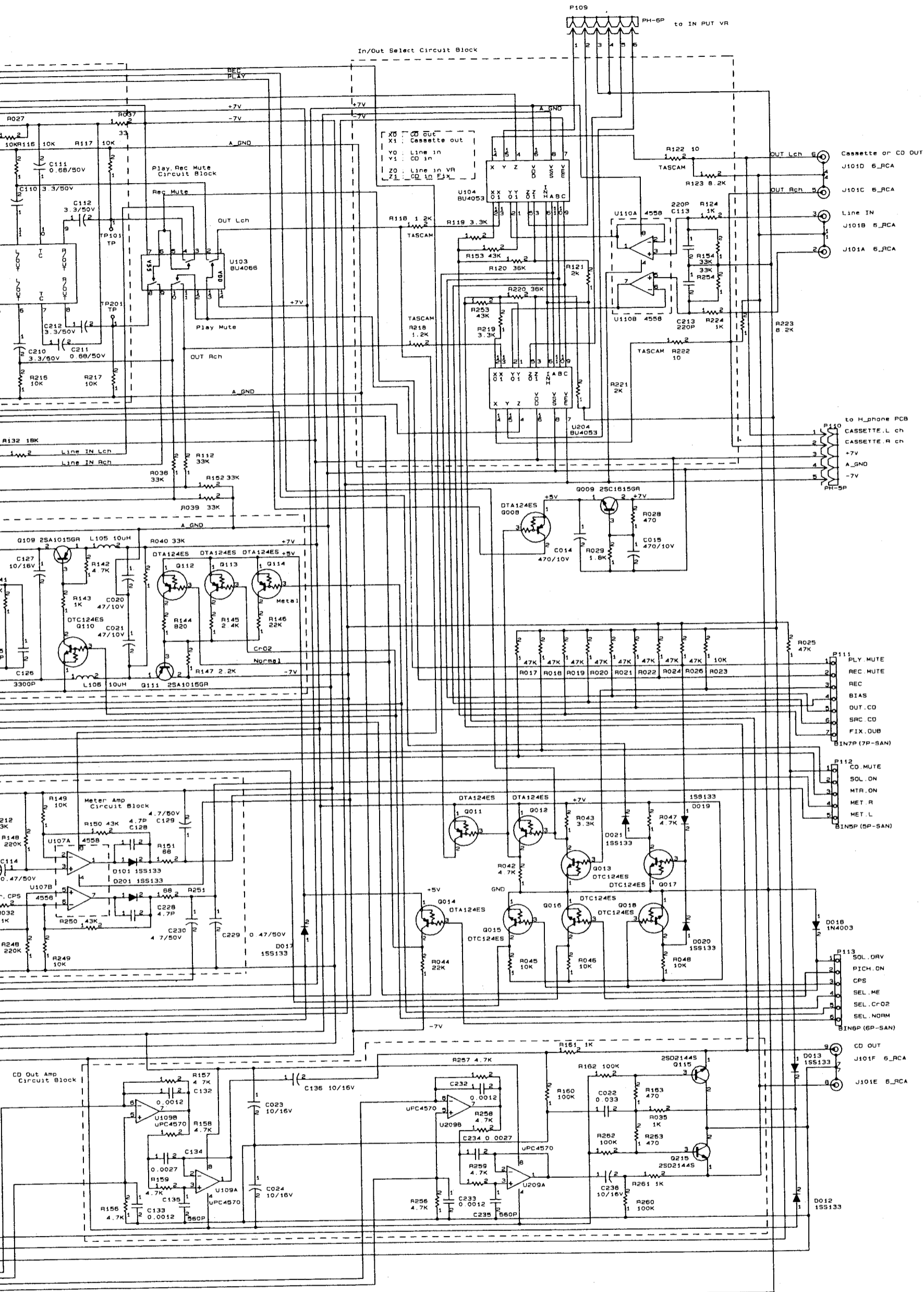
A
B
C
D
E
F
G
H



INSTRUCTIONS FOR SERVICE PERSONNEL
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CD-A500

Compact Disc Player/Reverse Cassette Deck

7 INCLUDED ACCESSORIES

付属品

INCLUDED ACCESSORIES

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	*3D0017000A	OWNER'S MANUAL, JAPANESE [J]	English, French, German, Italian, Spanish
	*3D0017100A	OWNER'S MANUAL, E/F/G/I/S [EXCEPT J]	
	*3E0063500A	REMOTE CONTROL UNIT, RC-A500	
	*3E003660	BATTERY, UM-3 (2P X ED)	
	*3M0028300A	RACK MOUNT SCREW KIT ASSY	