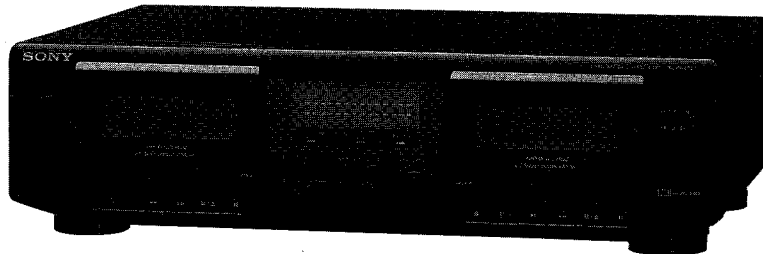



# TC-WE305

## SERVICE MANUAL

US Model  
Canadian Model  
AEP Model  
E Model  
Australian Model  
PX Model



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

Model Name Using Similar Mechanism		NEW
Tape Transport Mechanism Type	DECK A	TCM-YS47CZ-19
	DECK B	TCM-YS47CZ-18

### SPECIFICATIONS

#### System

#### Recording system

4-track 2-channel stereo

#### Fast-winding time (approx.)

120 sec. (with Sony C-60 cassette)

#### Bias

AC bias

#### Signal-to-noise ratio (at peak level and weighted with Dolby NR off)

Type I tape, Sony Type I (NORMAL):  
55 dB

Type II tape, Sony Type II (HIGH):  
57 dB

Type IV tape, Sony Type IV (METAL):  
58 dB

#### S/N ratio improvement (approximate values)

With Dolby NR on: 5 dB at 1 kHz,  
10 dB at 5 kHz

#### Harmonic distortion

0.4% (with Type I tape, Sony Type I  
(NORMAL): 160 nWb/m 315 Hz, 3rd  
H.D.)

1.8% (with Type IV tape, Sony Type  
IV (METAL): 250 nWb/m 315 Hz, 3rd  
H.D.)

#### Frequency response (Dolby NR off)

Type I tape, Sony Type I (NORMAL):  
30 - 14,000 Hz ( $\pm 3$  dB, IEC)  
20 - 15,000 Hz ( $\pm 6$  dB)

Type II tape, Sony Type II (HIGH):  
30 - 15,000 Hz ( $\pm 3$  dB, IEC)  
20 - 16,000 Hz ( $\pm 6$  dB)

Type IV tape, Sony Type IV (METAL):  
30 - 15,000 Hz ( $\pm 3$  dB, IEC)  
20 - 16,000 Hz ( $\pm 6$  dB)  
30 - 13,000 Hz ( $\pm 3$  dB, -4 dB  
recording)

#### Wow and flutter

$\pm 0.21\%$  W. Peak (IEC)

0.15% W. RMS (NAB)

$\pm 0.3\%$  W. Peak (DIN)

— Continued on page 2 —



STEREO CASSETTE DECK  
**SONY**<sup>®</sup>

## SECTION 3 ADJUSTMENTS

### 3-1. MECHANICAL ADJUSTMENTS

#### PRECAUTION

1. Clean the following parts with a denatured alcohol-moistened swab:
 

record/playback/erase head	pinch roller
rubber belts	capstan
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustment.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

#### • Torque Measurement

Torque	Torque meter	Meter reading
Forward	CQ-102C	30 to 70g • cm (0.42 to 0.97 oz • inch)
Forward back tension	CQ-102C	DECK-A : 1.5 to 5.5g • cm (0.020 to 0.076 oz • inch) DECK-B : 1.5 to 7g • cm (0.020 to 0.096 oz • inch)
FF/REW	CQ-201B	60g•cm or more (0.83 oz•inch or more)

#### • Tape Tension Measurement

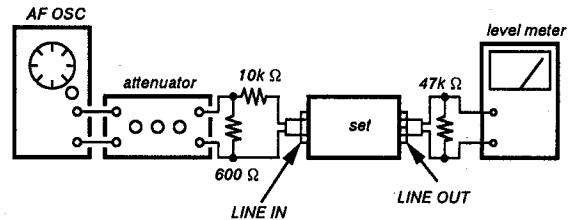
Mode	Tension meter	Meter reading
FWD	CQ-403A	more than 100g (3.53 oz)

### 3-2. ELECTRICAL ADJUSTMENTS

#### PRECAUTION

1. The adjustment should be performed in the publication.  
(Be sure to make playback adjustment at first.)
2. The adjustments and measurement should be performed for both L-CH and R-CH.
  - Switch position  
DOLBY NR switch : OFF  
TAPE TYPE switch : TYPE I (NORMAL)  
REC level : min
  - Standard record position :  
Deliver the standard input signal level to input jack and set the REC LEVEL control to obtain the standard output signal level as follows.

— Record Mode —



#### Standard Input Level

Input terminal	LINE IN
source impedance	10k Ω
input signal level	0.5V ( - 3.8dB)

#### Standard Output Level

Output terminal	LINE OUT
load impedance	47k Ω
output signal level	0.5V ( - 3.8dB)

#### Test Tape

Tape	Contents	Use
P-4-A100	10kHz, - 10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	PB Level Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

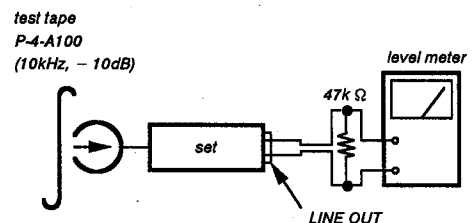
0dB=0.775V

#### Record/Playback Head Azimuth Adjustment

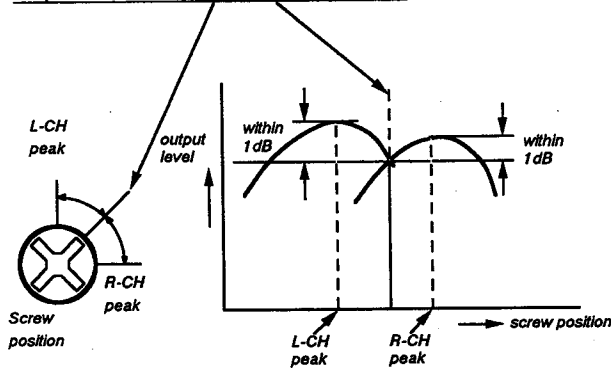
**DECK-A**   **DECK-B**

#### Procedure :

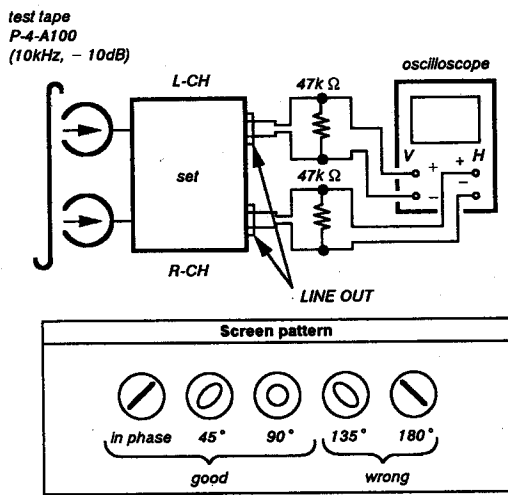
1. Forward playback Mode



- Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.

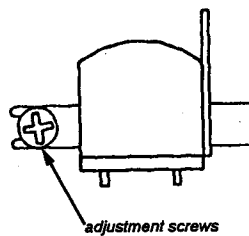


### 3. Playback Mode



- Change the reverse playback mode and repeat the steps 1 to 3.
- After the adjustment, lock the adjustment screws with suitable locking compound.

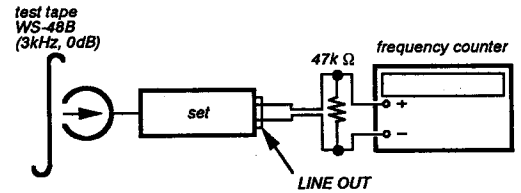
**Adjustment Location :** – record/playback head –



### Tape Speed Adjustment DECK-A DECK-B

#### Procedure :

- Perform high speed adjustment before normal speed adjustment.
- Mode : FWD playback



#### Specifications :

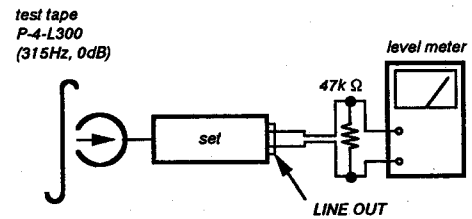
	Adjustment part	CNP506	Frequency counter
High speed	Deck A	RV501	SHORT
	Deck B	RV503	
Normal speed	Deck A	RV502	OPEN
	Deck B	RV504	

**Adjustment Location :** MAIN board (see page 9)

### Playback Level Adjustment DECK-A DECK-B

#### Procedure :

Mode : FWD playback



DECK A is RV101 (L-CH) and RV201 (R-CH),  
DECK B is RV102 (L-CH) and RV202 (R-CH)  
so that adjustment within the following adjustment level.

#### Adjustment Level :

LINE OUT level :  $-7.7 \pm 0.5\text{dB}$  (0.30 to 0.34V)  
Level difference between channels : within 0.5dB

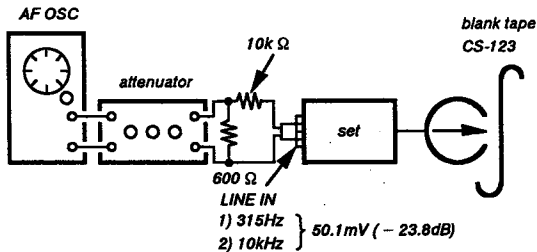
### Record Bias Adjustment **DECK-B**

#### Setting :

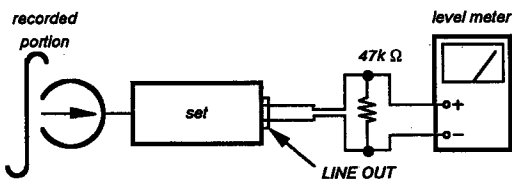
TAPE SELECT : TYPE -I (DECK-B)

#### Procedure :

1. Record Mode



2. Playback Mode



Confirm that the 10kHz playback output is  $0 \pm 0.5\text{dB}$  relative to the 315Hz output. If necessary, adjust RV105 (L-CH), RV205 (R-CH) and repeat the steps given above.

Adjustment Location : MAIN board (see page 9)

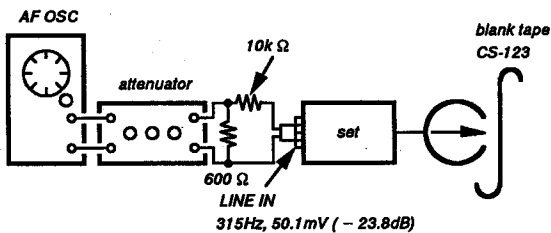
### Record Level Adjustment **DECK-B**

#### Setting :

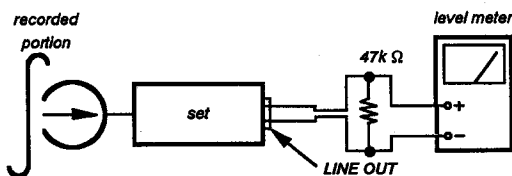
TAPE SELECT : TYPE -I (DECK-B)

#### Procedure :

1. Record Mode



2. Playback Mode



Confirm playback the tape recorded become adjustment level as follows.

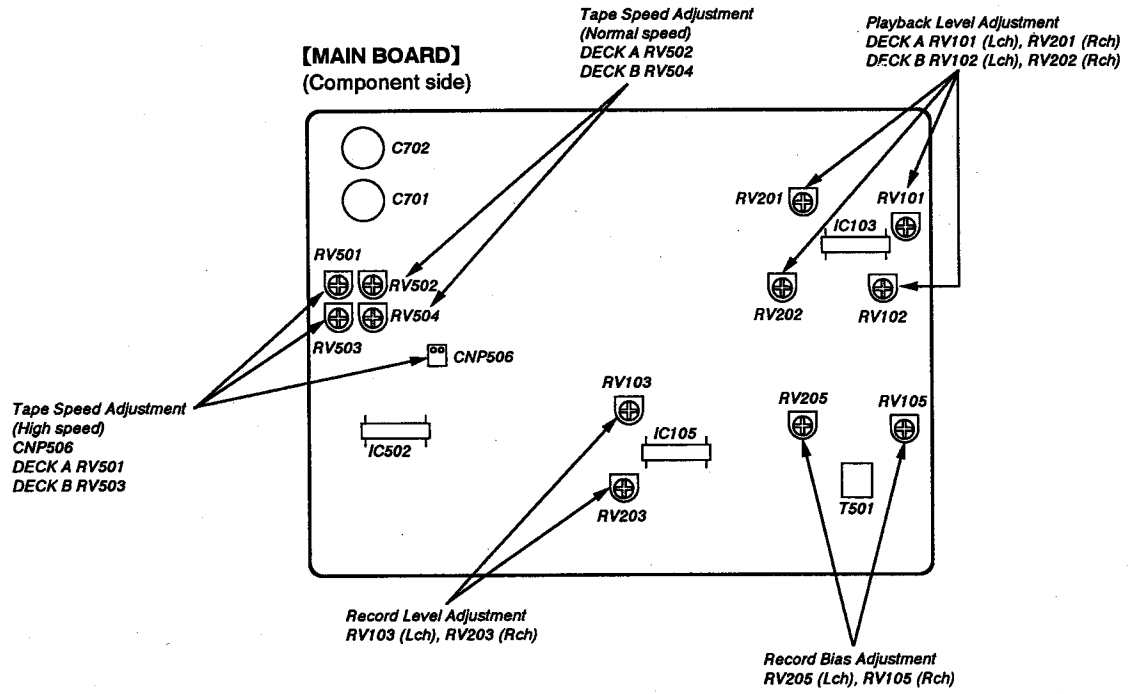
If necessary, adjust RV103 (L-CH), RV203 (R-CH) and repeat the steps 1 and 2.

#### Adjustment Level :

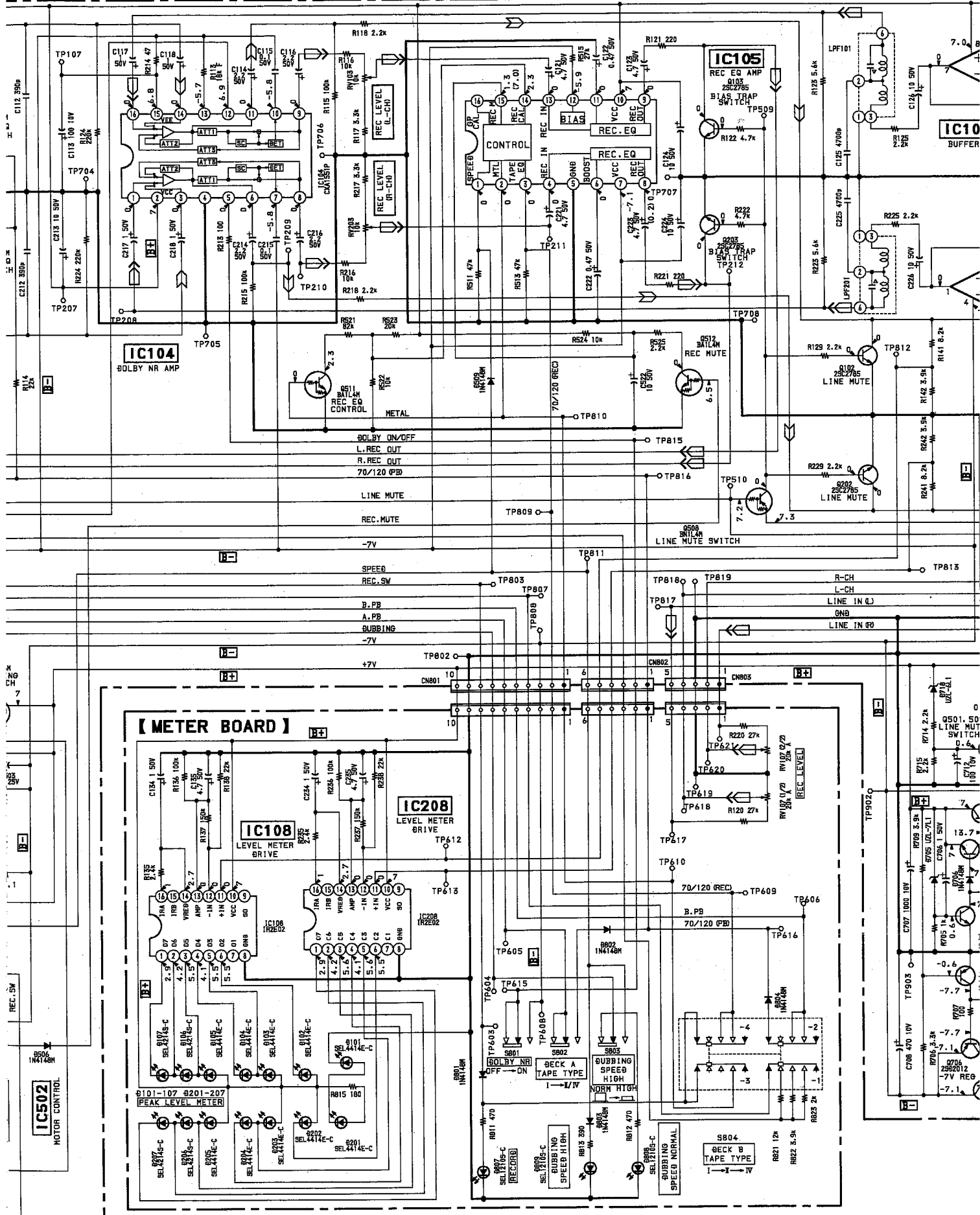
LINE OUT level :  $-23.8 \pm 0.5\text{dB}$  (47.2 to 53mV)

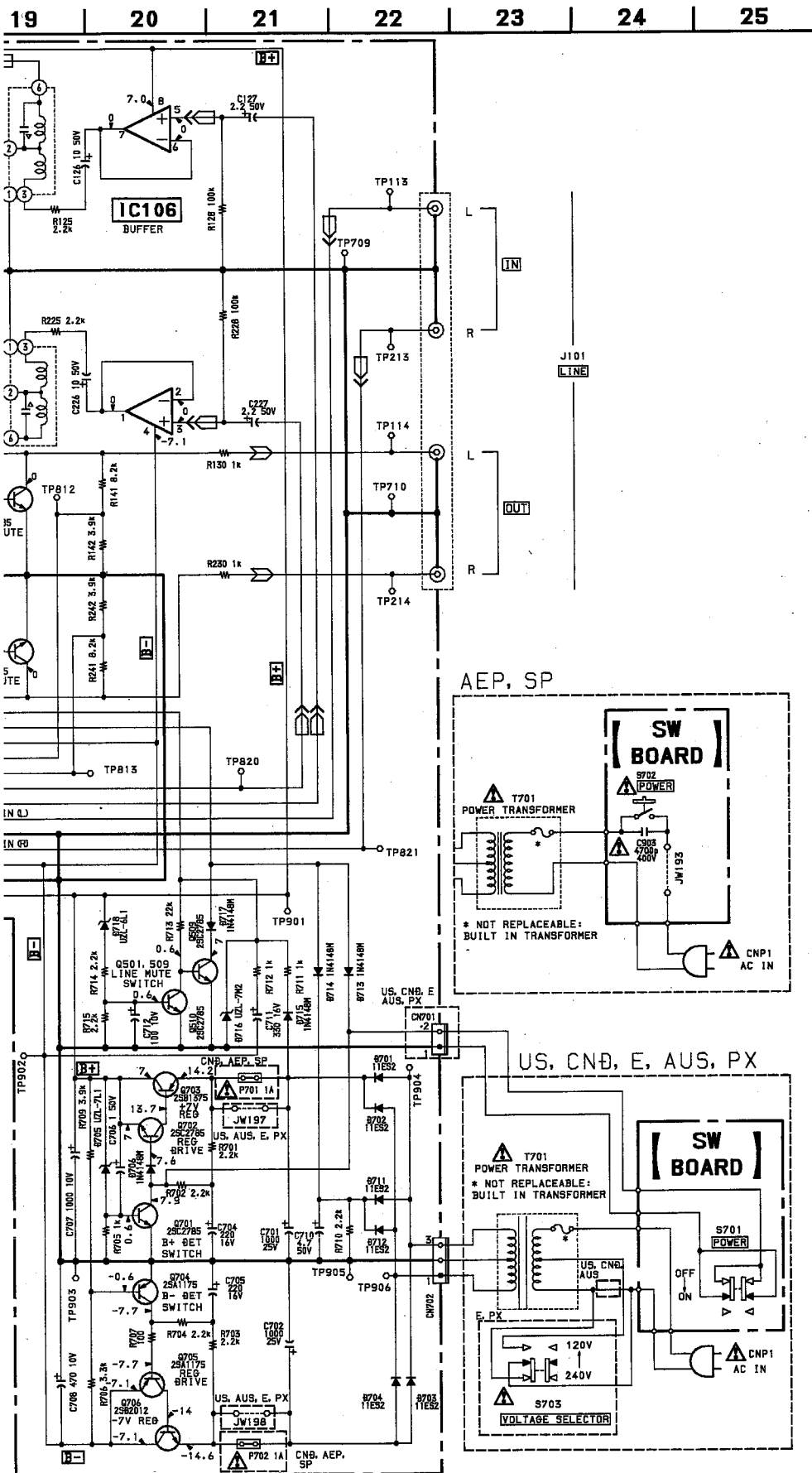
Adjustment Location : MAIN board (see page 9)

**Adjustment Location : MAIN board**









**Note :**

- All capacitors are in  $\mu$  F unless otherwise not 50WV or less are not indicated except for elec tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}W$  or less unless specified.
- % : indicates tolerance.
- $\Delta$  : internal component.
- $\text{---} \text{---} \text{---}$  : fusible resistor.
- $\square$  : panel designation.

**Note :**

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

**Note :**

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par la pièce portant le numéro spécifié.

- $\square$  B+ : B+ Line
- $\square$  B- : B - Line
- $\square$  : adjustment for repair.
- Voltage and waveforms are dc with respect to no-signal conditions.  
no mark : PLAY  
( ) : REC
- Voltages are taken with a VOM ( Input impedance )  
Voltage variations may be noted due to normal tolerances.
- Waveforms are taken with a oscilloscope.  
Voltage variations may be noted due to normal tolerances.
- Circled numbers refer to waveforms.
- Signal path.  
 $\Rightarrow$  : PB ( DECK A )  
 $\square$  : PB ( DECK B )  
 $\Rightarrow$  : REC ( DECK B )
- Abbreviations  
CND : Canadian  
SP : Singapore  
AUS : Australian