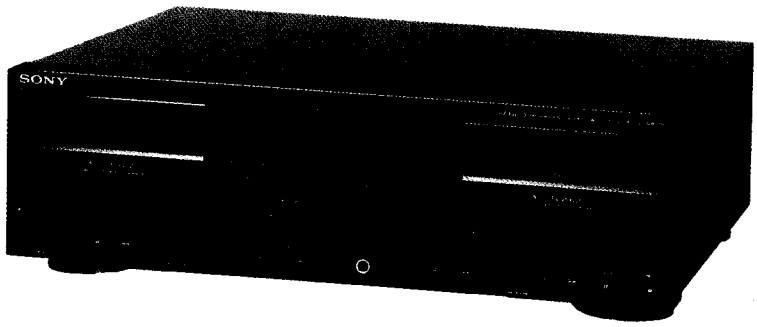
TC-WR770/WR875

SERVICE MANUAL

US Model
TC-WR875

AEP Model
UK Model
TC-WR770



This photo is TC-WR875.

Model Name Using Similar Mechanism	TC-WR97ES/WR870
Tape Transport Mechanism Type	TCM-200R5

SPECIFICATIONS

Recording system 4-track 2-channel stereo
Fast winding time Approx. 90 sec. (with Sony C-60 cassette)
Bias AC bias
Signal-to-noise ratio (at peak level)

Dolby NR switch / Cassette	OFF	B-Type ON	C-Type ON
Type IV (Sony METAL-S)	58 dB	66 dB	73 dB
Type II (Sony UX-S)	57 dB	65 dB	72 dB
Type I (Sony HF-S)	55 dB	63 dB	70 dB

Total harmonic distortion 1.0% (with Sony METAL-S cassettes)

Frequency response (DOLBY NR OFF)

Type IV cassette (Sony METAL-S)	30 - 18,000 Hz (±3 dB,IEC) 30 - 14,000 Hz [±3 dB 0VU(–4dB) recording]
Type II cassette (Sony UX-S)	30 - 17,000 Hz (±3 dB,IEC)
Type I cassette (Sony HF-S)	30 - 15,000 Hz (±3 dB,IEC)

Wow and flutter ±0.09% W.Peak (IEC)
0.06% WRMS (NAB)
±0.16% W.Peak (DIN)

Inputs

Line inputs (phono jacks)	Sensitivity	77.5 mV
	Input impedance	47 k ohms

Outputs

Line outputs (phono jacks)	Rated output level	0.32 V at a load impedance of 47 k ohms
	Load impedance	Over 10 k ohms
Headphones (stereo phone jack)	Output level	0 - 1.25 mW at a load impedance of 32 ohms

General

Power requirements
US model:
120V AC, 60Hz
AEP, Germany model:
220—230V AC, 50/60Hz
UK model:
240V AC, 50/60Hz

Power consumption 29 W
Dimensions Approx. 430 × 135 × 355 mm (w/h/d)
(17 × 5⅜ × 14 inches)
including projecting parts and controls
Weight Approx. 6.3 kg (13 lbs 15 oz)

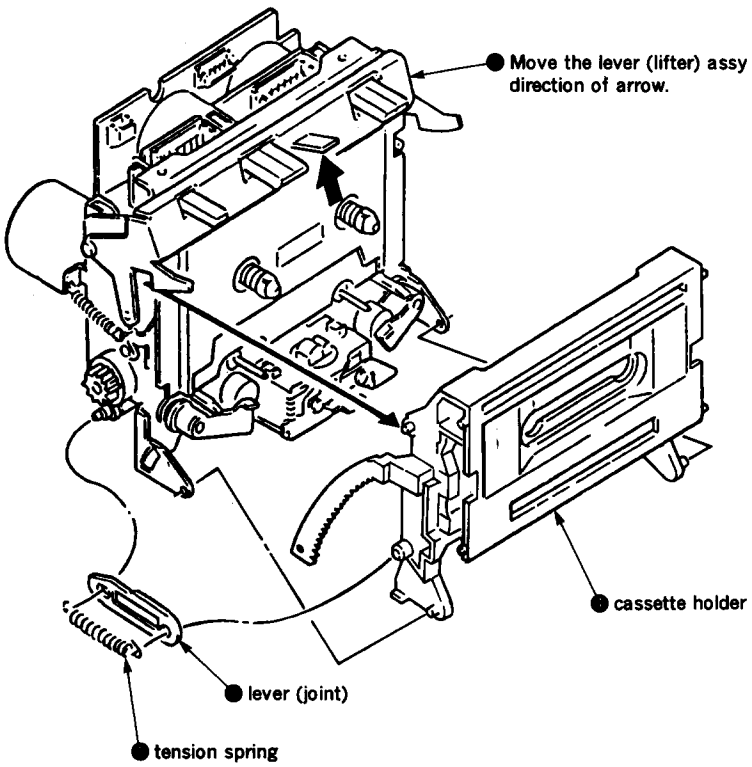
Supplied accessory Audio connecting cords (2)

Design and specifications subject to change without notice.

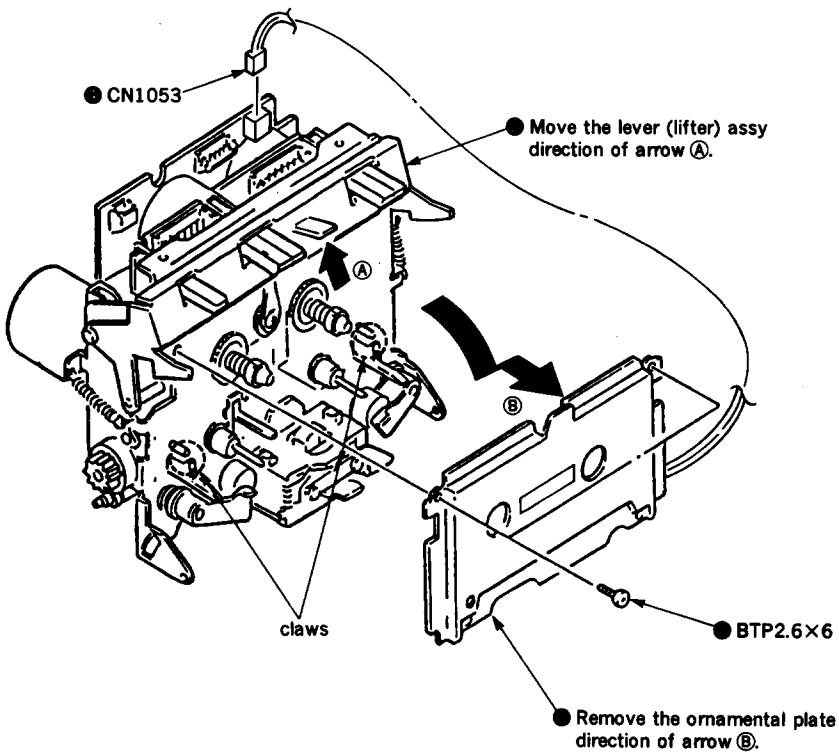
MICROFILM

STEREO CASSETTE DECK
SONY®

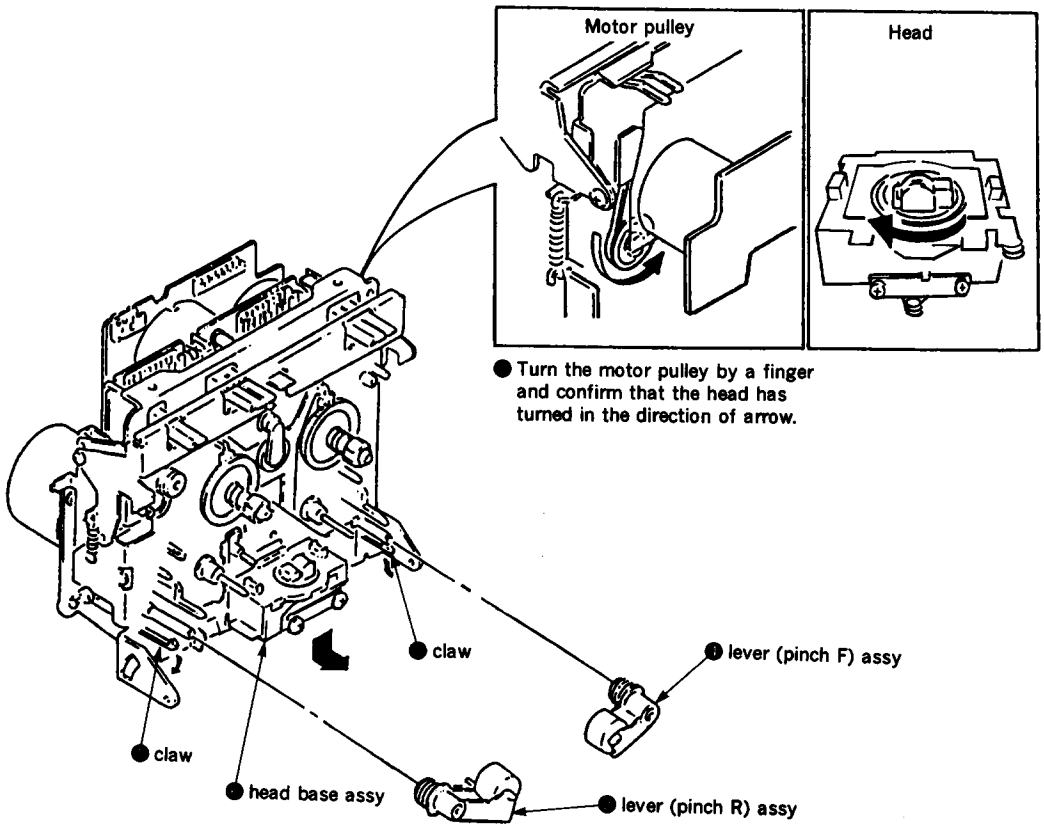
2-4. CASSETTE HOLDER



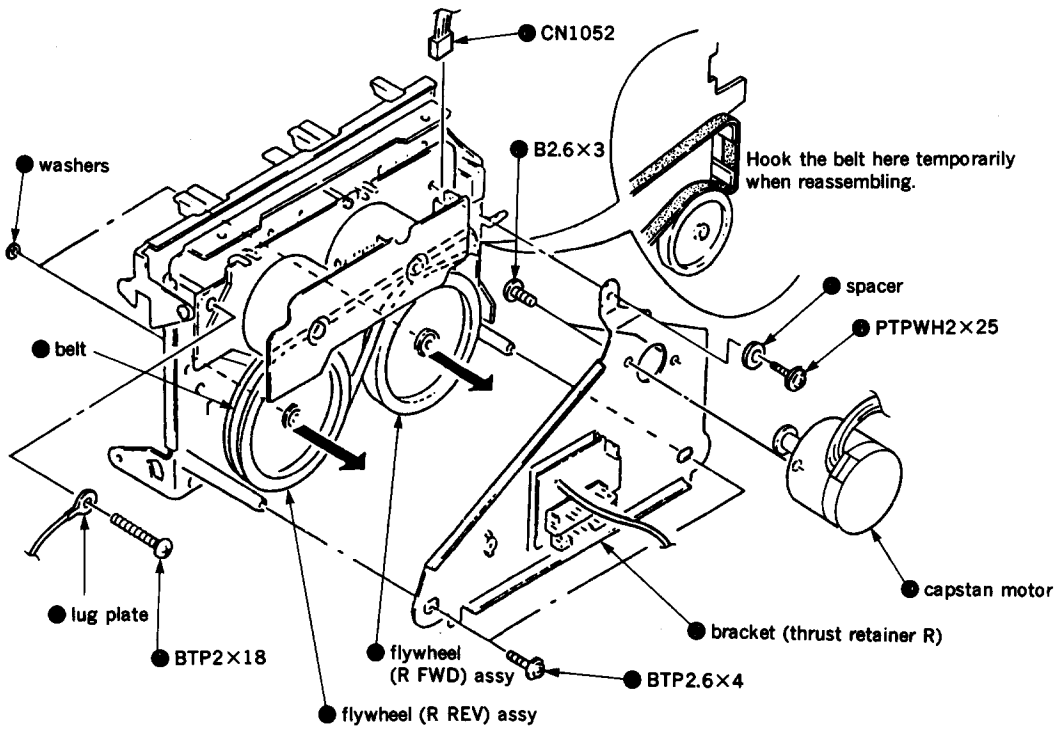
2-5. ORNAMENTAL PLATE



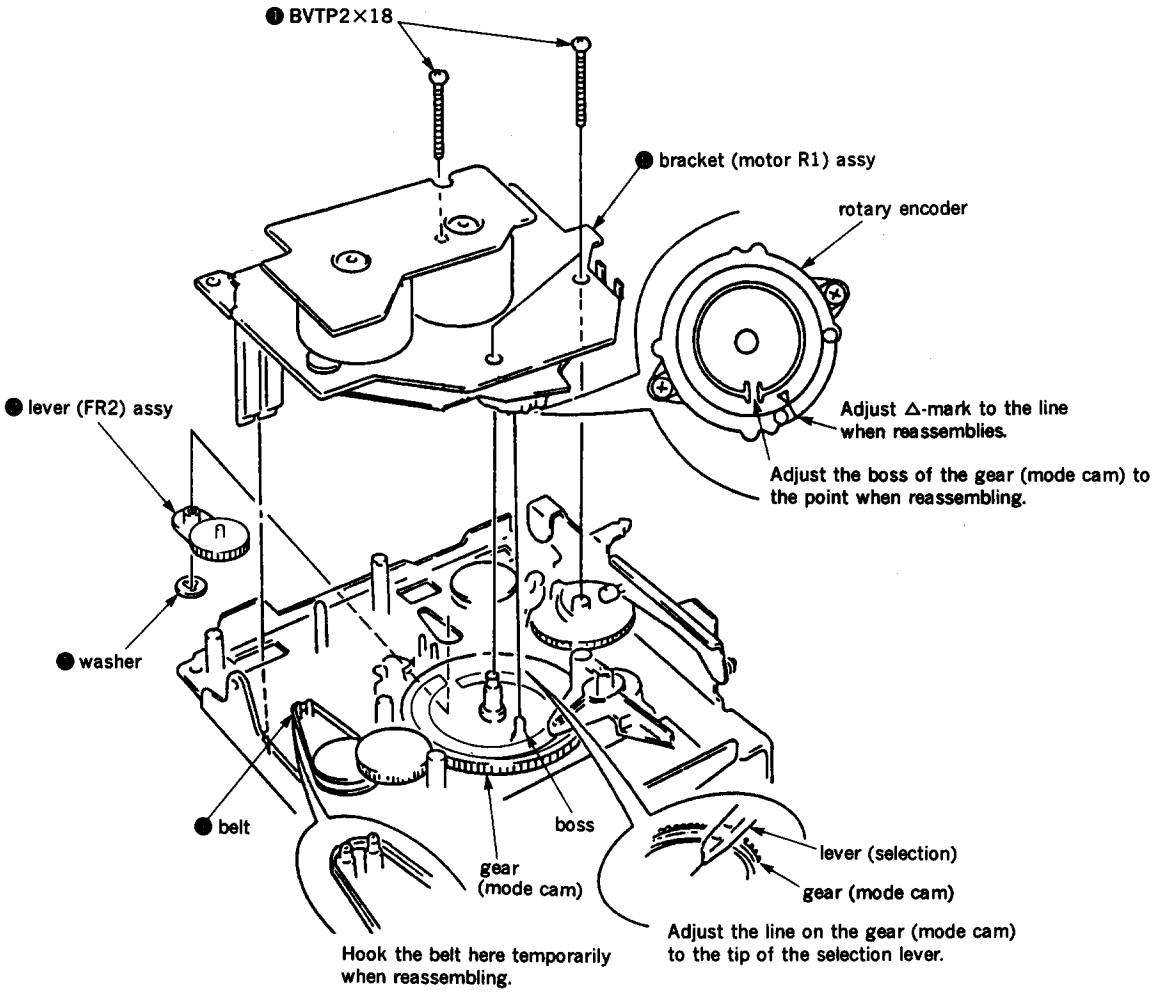
2-6. PINCH LEVER, HEAD



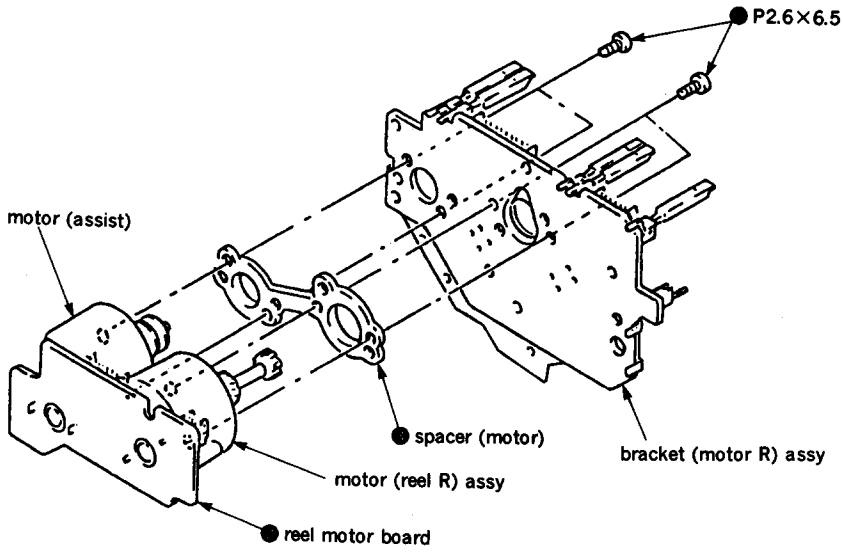
2-7. CAPSTAN MOTOR, FLYWHEEL



2-8. BRACKET (MOTOR R1) ASSY



2-9. REEL MOTOR BOARD



SECTION 3
MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:
   record/playback/erase head　　pinch roller
   capstan　　rubber belts
   idler
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be perfomed in the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
FWD	CQ-102C	30—60g•cm (0.42—0.83 oz•inch)
FWD back tension	CQ-102C	1—5g•cm (0.014—0.063 oz•inch)
REV	CQ-102RC	30—60g•cm (0.42—0.83 oz•inch)
REV back tension	CQ-102RC	1—5g•cm (0.014—0.063 oz•inch)
FF, REW	CQ-201B	65—90g•cm (0.90—1.25 oz•inch)

SECTION 4
ELECTRICAL ADJUSTMENTS

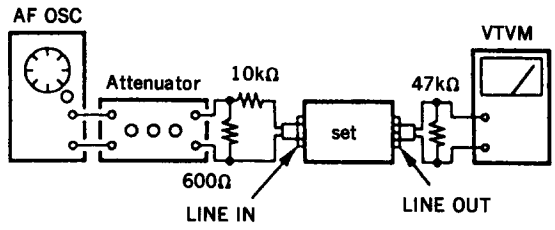
Note : The adjustment should be performed in the order given in the service manual. As a rule, adjustments about playback should be performed before those about recording. The adjustments should be performed for both L-CH and R-CH.

Switches and controls should be set as follows unless otherwise specified.

DD (dolby) switch : OFF
DIR MODE switch : ⇄
TIMER switch : OFF

Standard Record :
Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

—Record Mode—



0 dB=775mV

Standard Input Level

Input terminal	LINE IN
source impedance	10kΩ
input level	0.25V (−10dB)

Standard Output Level

Output terminal	LINE OUT
load impedance	47kΩ
output level	0.32V (−7.7dB)

Test tape

Type	Signal	Used for
P-4-A100	10kHz, −10dB	Azimuth Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment
P-4-L300	315Hz, 0dB	PB Level Adjustment

The set will get into TEST MODE by shorting the pins of TP801 (TEST) on main board before turning the power on, and TEST MODE functions as follows :

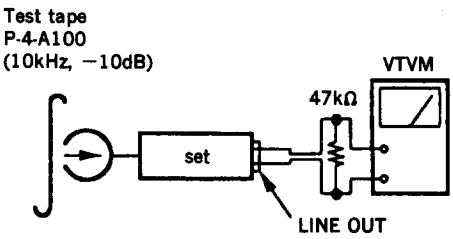
1. High speed playback
   Pushing HIGH SPEED DUBBING button while playback changes to high speed playback and another push of the button returns the set to normal speed playback.
2. Record memory stop
   When starting recording, tape counter is reset to zero and counter memory turned on.

Record/Playback Head Azimuth Adjustment

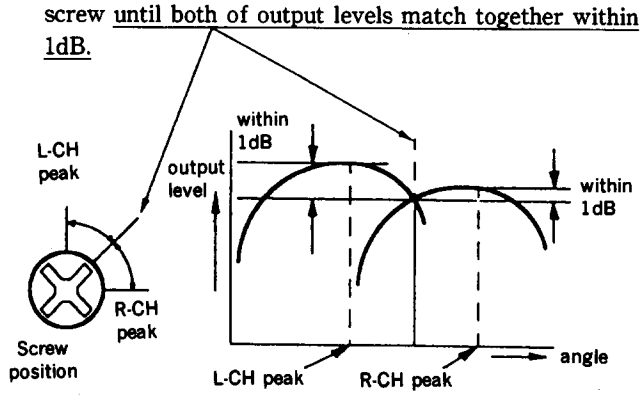
DECK A **DECK B**

Procedure :

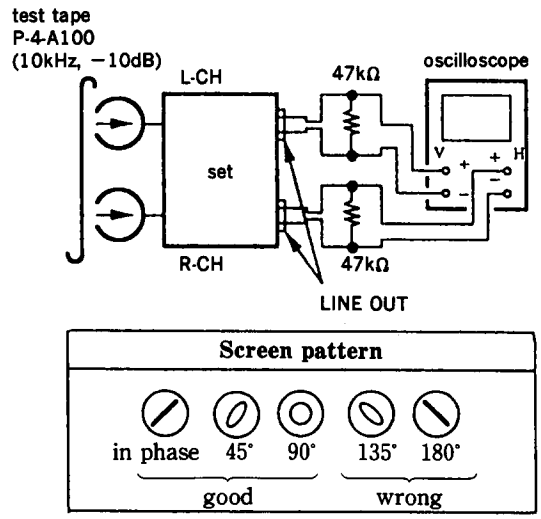
1. Mode : FWD playback



2. 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.

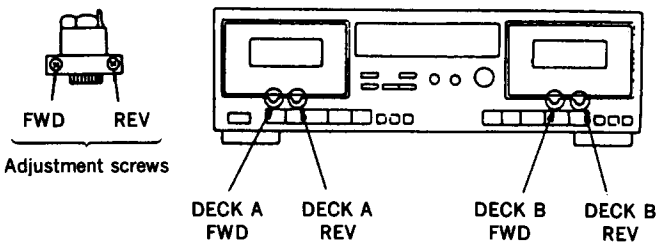


3. Phase Check
   Mode : playback



4. Set in the REV mode and repeat the steps 1-3.
5. After the adjustment, lock the screws with locking compound.

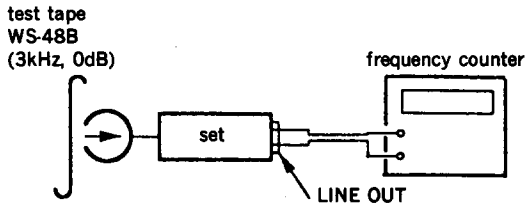
Adjustment Location : record/playback head



Tape Speed Adjustment DECK A DECK B

Procedure :

Mode : playback



(high speed adjustment)

1. Short test pin TP801 (TEST) on main board.
2. Set to FWD playback mode.
3. Push the HIGH SPEED DUBBING button.
4. Adjust RV871 (DECK A) and RV881 (DECK B) on main board so that the frequency counter reading becomes 6,000±30Hz.
5. After adjustment, disconnect TP801 shorted in step 1.

(normal speed adjustment)

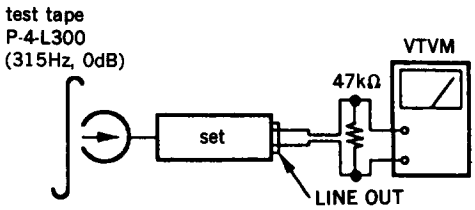
1. Set to FWD playback mode.
2. Adjust RV872 (DECK A) and RV882 (DECK B) on main board so that the frequency counter reading becomes 3,000±15Hz.

Frequency difference between the beginning and the end of the tape should be within 5%.
Frequency difference between deck A and deck B should be within 60Hz (high speed) or 30Hz (normal speed).

Adjustment Location : main board (See page 12.)

Playback Level Adjustment DECK A DECK B

Procedure :



Adjust RV131 (L-CH) and RV231 (R-CH) for DECK A and RV151 (L-CH) and RV251 (R-CH) for DECK B so that the reading on VTVM meets the adjustment limits next page.

Adjustment Limits :
LINE OUT level : −20±0.5dB (73.2−83.0mV)
Level difference between channels : less than 0.5dB
Check that the LINE OUT level does not change even if playback and stop operation is repeated several times.

Adjustment Location : main board (See page.12.)

Bias Current Adjustment

Procedure :
1. Set the RV121 (L-CH) and RV221 (R-CH) for DECK A and RV141 (L-CH) and RV214 (R-CH) for DECK B to mechanical center and turn the set recording mode.
2. Connect digital voltmeter as shown by the following table.
3. Adjust the following transformers for the minimum readings on the digital voltmeter.

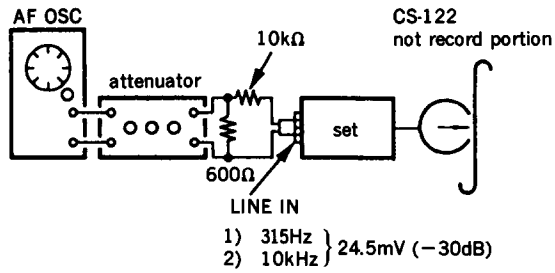
DECK		Mesurement point	Adjustment	Value
A	L	① and ②, TP521	T121	less than 140mV
	R	② and ③, TP521	T221	
B	L	① and ②, TP541	T141	
	R	② and ③, TP541	T241	

Adjustment Location : main board (See page 12.)

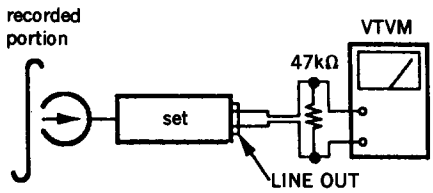
Record Bias Adjustment DECK A DECK B

Setting :
REC LEVEL control : Standard Record (See page 9.)
Test pin TP801 : short

Procedure :
1. Mode : record



2. Mode : playback



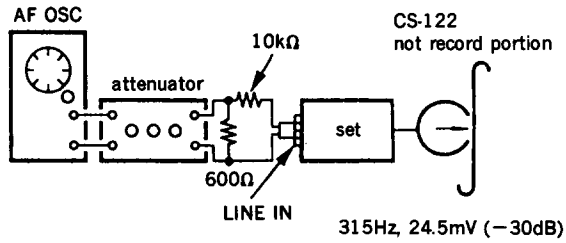
3. Playbck the signal recorded in step 1.
4. Confirm that the 10kHz playback output is 0±0.5dB relative to the 315Hz output. If necessary, adjust the RV121 (L-CH) and RV221 (R-CH) for DECK A and RV141 (L-CH) and RV241 (R-CH) for DECK B, and repeat the steps 1-2.

Adjustment Location : main board (See page 12.)

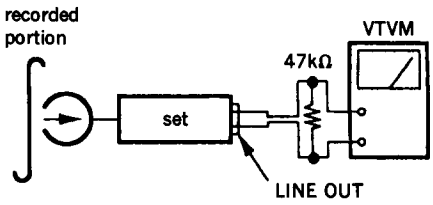
Record Level Adjustment DECK A DECK B

Setting :
REC LEVEL control : Standard Record (See page 9.)
Test pin TP801 : short

Procedure :
1. Mode : record



2. Mode : playback



3. Playback the signal recorded in step 1.
4. Confirm that the signal level is within the adjustment limits below. If necessary, adjust the RV301 (L-CH) and RV401 (R-CH) for DECK A and RV351 (L-CH) and RV451 (R-CH) for DECK B, and repeat the steps 1-2.

Adjustment Limits : −30 dB ±0.5dB (23.1−26.0mV)

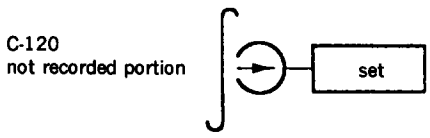
Adjustment Location : REC EQ board (See page 12.)

Quick Reverse Sensitivity Adjustment

DECK A DECK B

Setting :
DIR MODE switch : ⇄

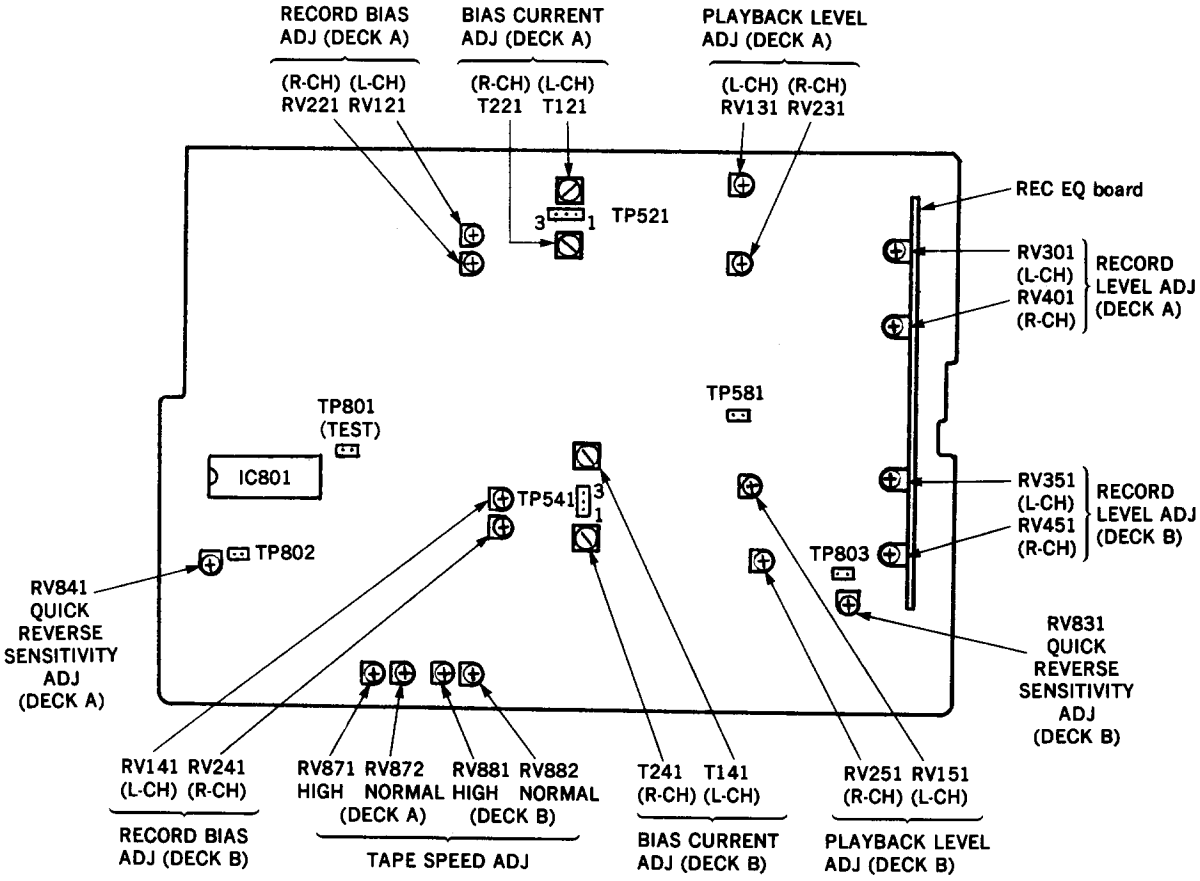
Adjustment procedure :



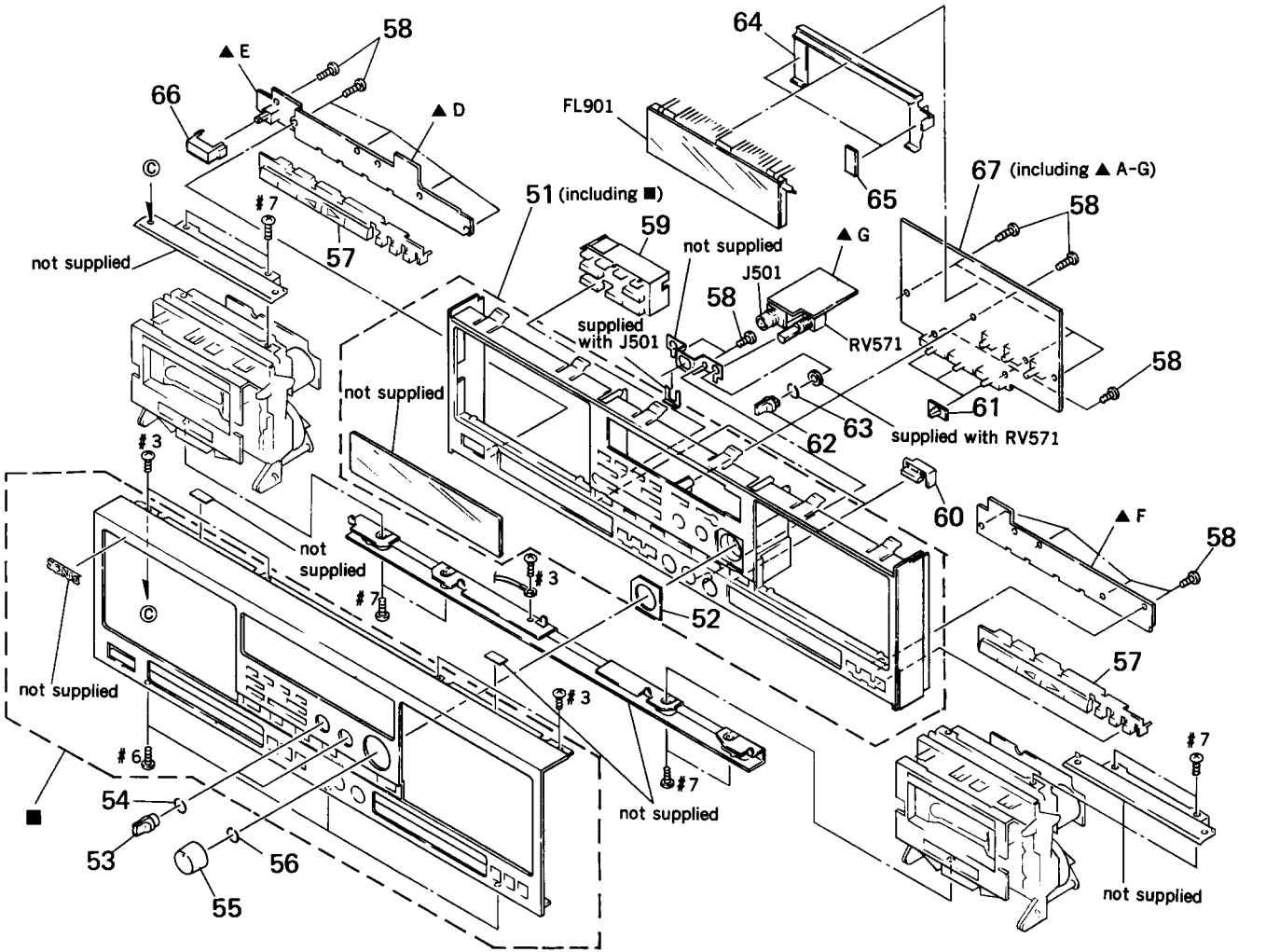
1. Connect the digital voltmeter to test point TP802 (DECK A) /TP803 (DECK B).
2. Load C-120 cassette tape and playback the leading portion in FWD mode.
3. Adjust the RV841 (DECK A) and RV831 (DECK B) for 4.5± 0.5V reading on the digital voltmeter.
4. Playback C-120 cassette tape in FWD mode again.
5. Confirm that the reading on the digital voltmeter is "L" level at the magnetic portion of the tape.
6. Confirm that the tape stop around the tape end (boder of the leading and the magnetic portions).

Adjustment Location : main board (See page 12.)

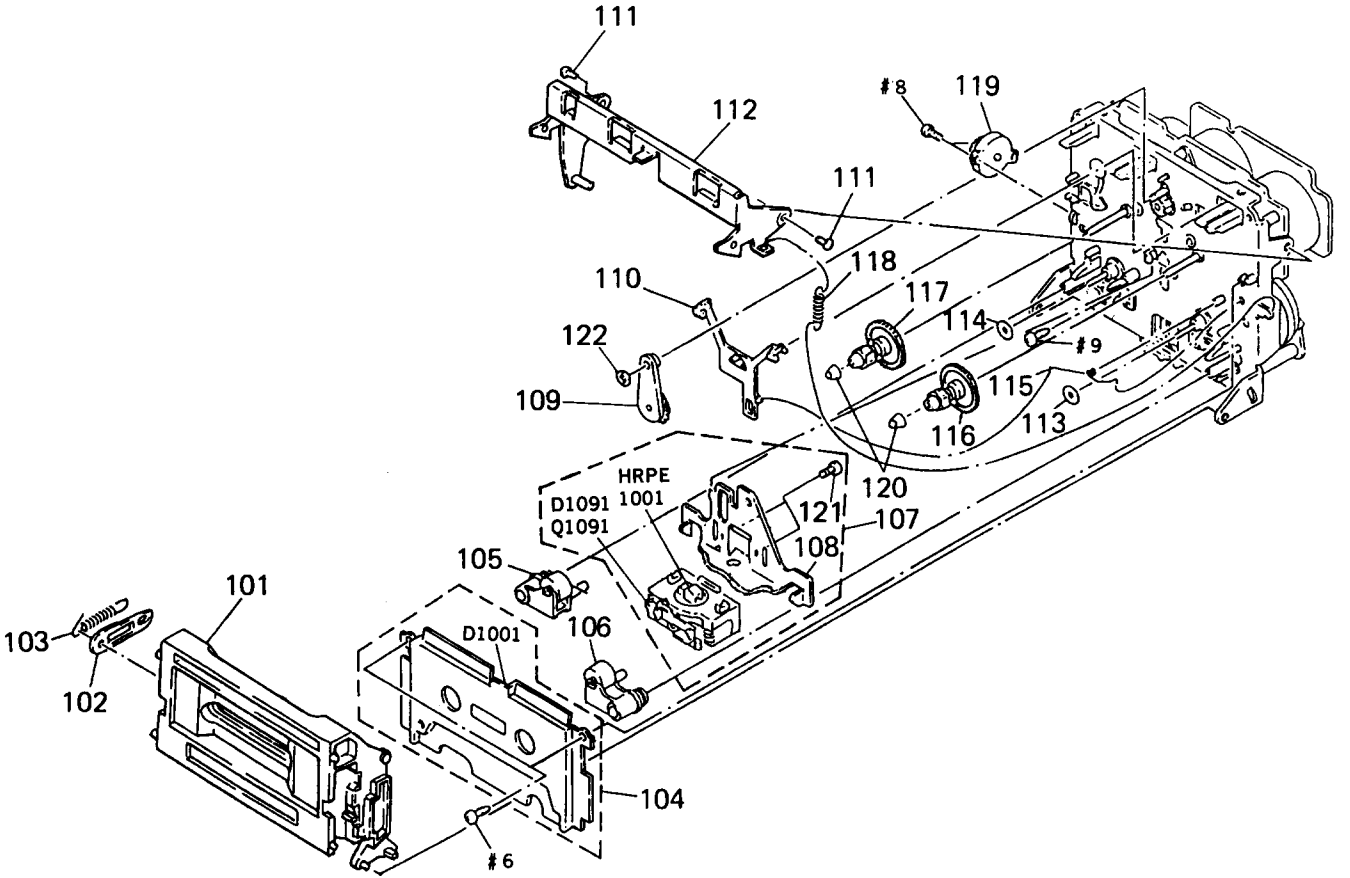
Adjustment Location : main board and REC EQ board
— main board (component side) —



6-2. FRONT PANEL SECTION



6-3. MECHANISM DECK SECTION 1 (TCM-200R5)



6-4. MECHANISM DECK SECTION 2 (TCM-200R5)