

APR-5000 Alignment

F BARR/BNC M

- 1 Clean
- 2 Demag
- 3 Brake Tension      Supply      CCW 360 gr +/- 80 gr  
pg 6-14 + 6-15      CW 80 GR +/- 40 GR  
Take-up      CCW 80 gr +/- 40 gr  
CW 360 gr +/- 80 gr
- 4 Hours meter      rotate connector CNJ-464 180 degrees
- 5 Shield      clean and adjust dash-pot if necessary
- 6 Tape Tach Sensor (TTS)      pg 6-19 IC Dip Clip to IC13 on TIB board fig 6-9  
**Scope ground to TP1**, pos to **pin 8** of IC13 adj RV1 on TTS to 50% duty cycle  
place scope pos to **pin 10** adj RV2 for 50% duty cycle
- 7 Supply Reel Motor Tach (RTS) Sensor      scope pos to **pin 2** adj RV1 on supply RTS  
for 50% duty cycle. Scope pos to **pin 4** adjust RV2 for a 50% duty cycle.
- 8 Take-up Reel Motor Tach (RTS) Sensor      Oscope pos to **pin 6** adj RV1 on take-up  
RTS for 50% duty cycle. Scope pos to **pin 12** adj RV2 for a 50% duty cycle.
- 9 DC Offset      Back door, Reel Motor Drive (RMD) board fig 6-12. Block EOT sensor  
hit Edit, volt meter across R22 ground to outside, adj Rv2 for -1 millivolt, across  
R44 adj RV4 for -1 millivolts
- 10 Tension      Load tape, Tentelometer between timer roller and headstack, adj RV1 for  
70 grams +/- 5 gr. Tent between puck and take-up reel, adj RV3 for 120  
Grams +/- 5 gr
- 11 Flutter Dampener      Locate Hall Effect Sensor (HES) board under dancer arm. Connect  
Voltmeter neg to TP1 on TIB board, pos to TPA on HES board. Move dancer  
arm to extreme right minimum reading should be +5vDC, move arm to the  
extreme left, reading should be -5vDC. If lower check bar magnet, IC1 and IC2.  
Values should be complementary +/- whatever, if not physically move the HES  
board and recheck until symmetrical readings occur.  
pos to TPB note reading from left to right extremes if not 10vDC +/- .25v adj RV1  
load tape and play, arm should ride in center of travel if not adj spring and  
stopper as per pg 6-31

- 12 End of Tape (EOT) adj. RV2 under keyboard
- 13 Vari Speed Check MRL 1 KHz check output for 1KHz  
Press vari key (light flashes) press 5,0,0 and vari again (light on)  
MRL 1 kHz check for 1.5 kHz  
Press vari twice (flashes) press +/- key once, display = -50.0 press  
vari (on) MRL 1 kHz check for 500 Hz
- 14 Vari Speed Adjustment voltmeter neg to TP1 on TIB board, pos to TP3 on TIB, adj  
RV1 for -10.24vDc  
See pg 6-39 Power down, remove jumper block JU-1 on TIB, power up  
Press stop key =TIB test mode #1, 14 pin dip clip to IC 24 see fig 6-21  
Frequency counter to pin #17 adj RV2 for 14.4 kHz.  
Press stop key again for TIB test mode #2 adj RV3 for 28.8 kHz at pin 7  
Replace JU-1.  
Re-do # 13 Vari Speed Check procedure.

### ***BIAS and ERASE CLOCK ADJUSTMENT***

- 15 CNL card on extender, pin 30B should read 8.5v p-p for glass D25 (7-13 or 14) or 11.5 for silver epoxy D25. Adjust **RV1(right hand) on MST** card
- 16 load blank tape, scope to output Cal. (Time/div = 5msec, volt/div = 50mV) record ready channel one, punch in and out, adjust **RV4 on CNL** for minimum low frequency artifact repeat for channel two.
- 17 Record 1 kHz at +10 dB on channels 1+2, rewind and place channel 2 to input mode (no signal) and out of record ready. Hit record on cnl 1 adjust **RV1 on MST** card for 75 dB or more down. Check channel # 2
- 18 Repeat # 16 and recheck # 15.(low freq artifact =/less than 75 mV)
- 19 **BIAS AND ERASE ENVELOPE RAMP SYMMETRY**  
CNL card on extender, work tape, record ready, scope to 6A of extender (1v/div + 20 mSec/div).  
Punch in and out of record the ramp on and off waveform and duration should be equal. Adj **RV4 on CNL** card for on/off symmetry. Scope to pin 5A (bias) adjust **RV5 on CNL** card for equal waveform and symmetry. Repeat for channel 2.
- 20 **CNL OFFSET VOLTAGE**  
Channel card on extender, Analog meter to output, hit shield on and off (dim + undim modes) adjust **RV1 on CNL** (hole through heatsink plate) for minimum meter deflection.
- 21 **HEAD WRAP (rearmost screw) and AZIMUTH (left screw) ADJUSTMENTS**  
Analog meter to CAL OUT connector and press ALL key on ALN panel then peak adj 1kHz. course and 10kHz fine \ repro and sync \ wrap and azimuth

22 INPUT LEVEL CALIBRATION

Connect test equipment as per **figure 6-22** (pg 6-41) **with operating load connected.**

Frequency generator to 1kHz +4 dB to cal input on rear panel.

Front fold down panel, press IND once (cnl # 1) and MON LVL, adj for +4dB on EXTERNAL volt meter, repeat for other channels.

23 METER CALIBRATION

Store above input levels, power down, cnl card on extender, adjust **RV3 on CNL** card for 0 VU on channel meter. Repeat for remaining channels.

24 RECORD Comp FEEDBACK (RCB) and FEEDFORWARD (RCF) settings:

30 ips 15 ips 7.5 ips

RCF C0 CB C4

RCB C2 C7 C4

Hold control key, press RCF (level) in rec section, display=RCF setting, adj for all speeds

Hold control key, press RCB (hi freq) key in rec section, display=RCB setting, adj for all speeds.

25 REPRO HEAD GAP (RGC) and SYNC HEAD GAP (SGC) COMPENSATION

30 ips 15 ips 7.5 ips

RGC C1 CA CA

SGC C1 CC CE

26 REPRO/SYNC LEVEL ADJ 1Khz (load beginning location 28 and end loc 29 and repeat)

27 REPRO/SYNC HIGH FREQ ADJ 10 kHz (load repeat)

28 RECORD and BIAS LEVEL generator to 10 kHz, -3, dB adj Bias Level to peak, then overbias 2 dB @ 15 and 7.5 ips (1.5 dB @ 30 ips).

Generator to 1 kHz +4 dB, adj rec level to 0 VU.

29 RECORD HIGH FREQ generator to 10 kHz, +4dB, adj H.Freq to 0 VU.

30 Low freq REPRO response A. Generator to 40 hz sweep gen for peak, record and adj low freq to 0.5 VU. B. Generator to 100 Hz record and adjust to 0 VU.

31 SYNC LOW FRQ REPRO, Gen to 40 Hz sweep slightly for peak, record 4 min. at 0 VU playback tone and adj low freq sync repro to 0 VU. Check at 100 Hz.

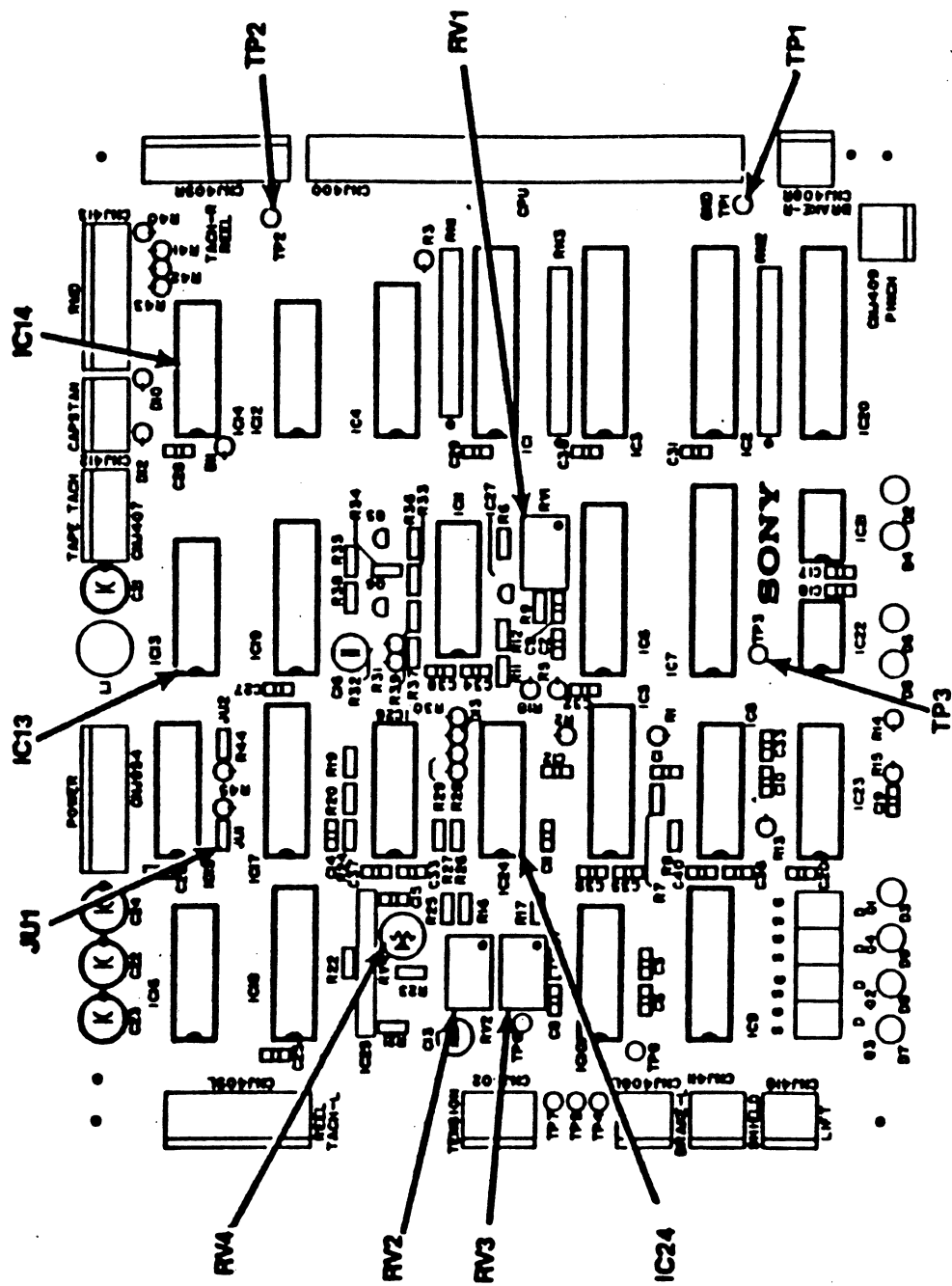
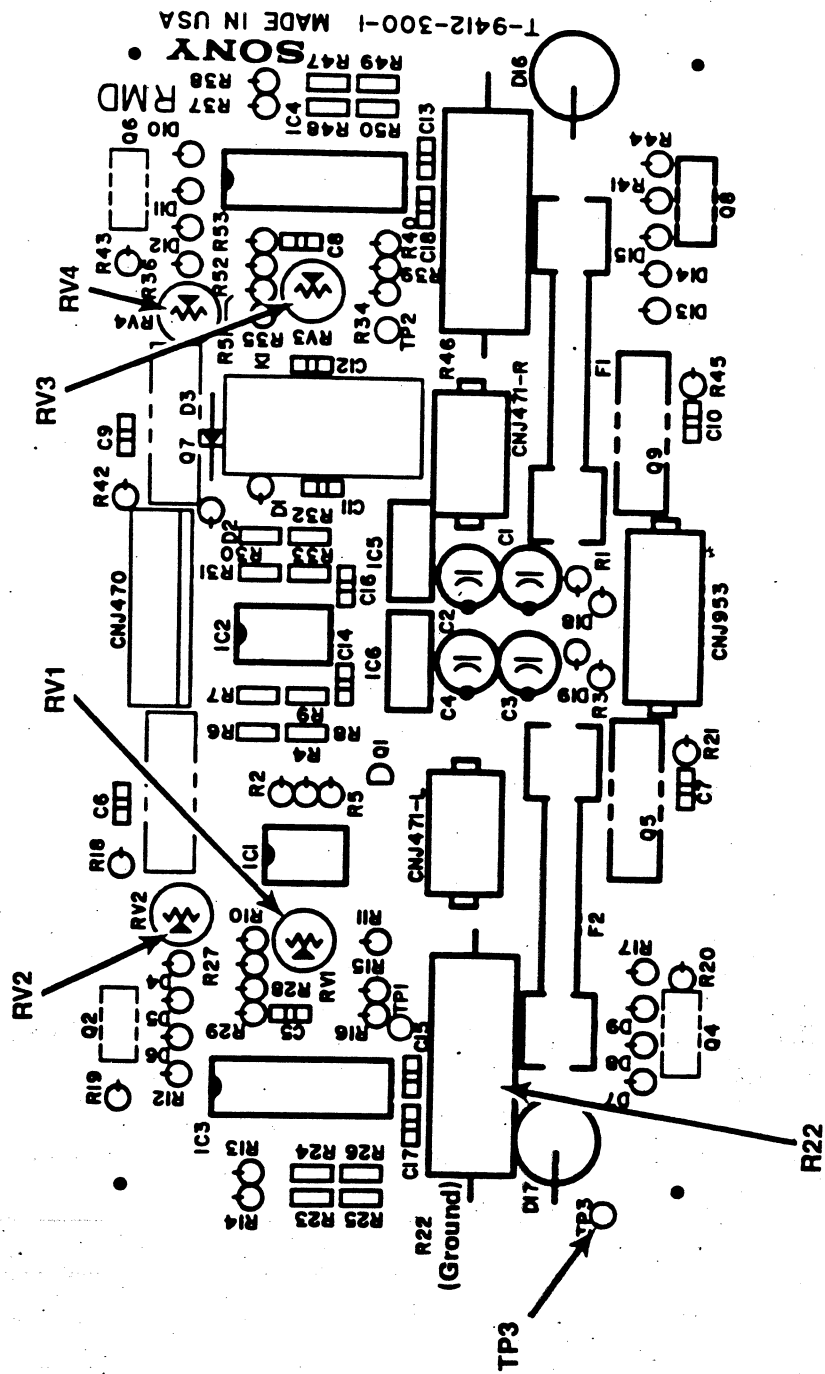


Figure 6-9. TIB Board Layout



### Figure 6-18. RMD Adjustments

**OFFSET**

**open back door / block end of tape sensor / edit mode**

**R # 22 (ground to outside)  
adjust RV # 2 for 1 millivolt DC**

**R # 46**  
**Adjust RV # 4 for 1 millivolt DC**

# TENSION

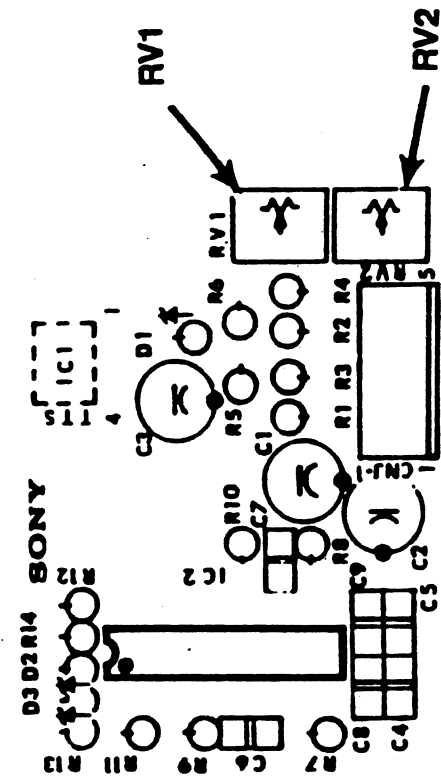
**out of edit mode / remove end of tape block / load tape and bring to center / play**

## SUPPLY

**RV # 1 to 75g +/- 5g w/ tentelometer between tach roller and headstach**

## TAKEUP

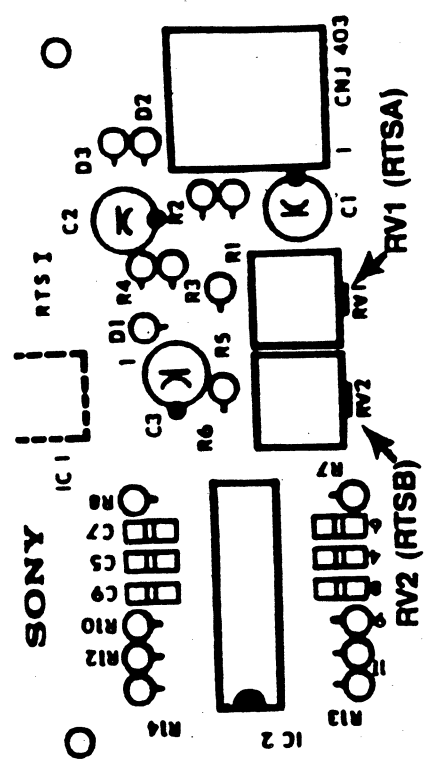
**RV # 3 to 120g +/- 5g w/tentelometer  
Between last guide and takeup reel**



TTS PC Board

TAPE TACH ( TTS )

( IC 13 )		
pin #		
8	--	RV 1
10	--	RV 2

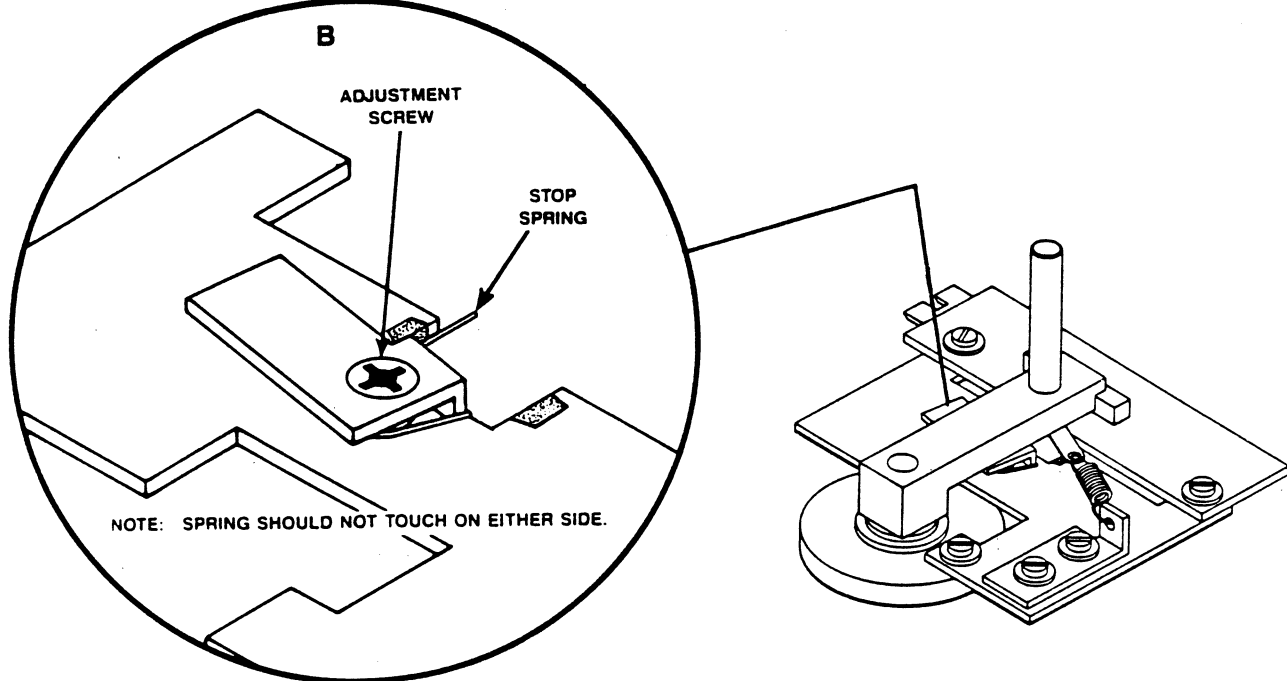


RTS PC Board

REEL TENSION

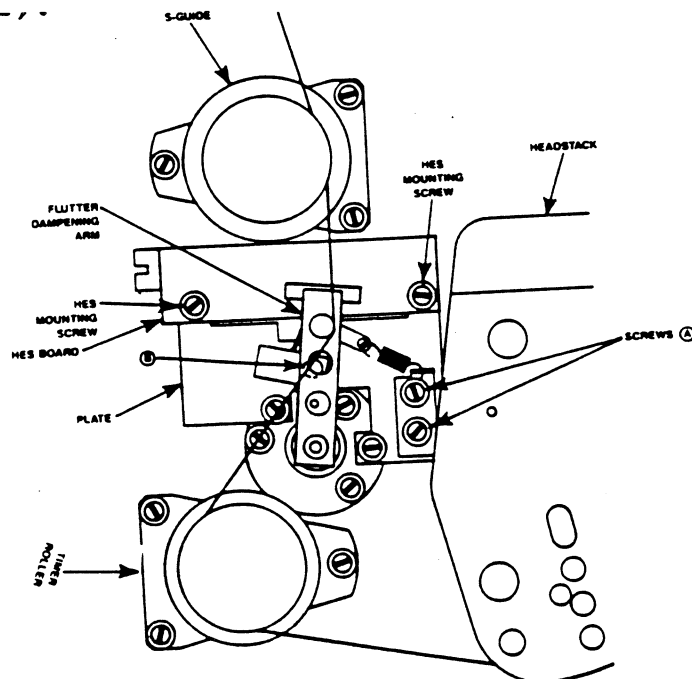
( IC 13 )		
pin #		
2	--	RV 1
4	--	RV 2

TAKE UP		
Pin #		
6	--	RV 1
12	--	RV 2



**Figure 6-17. Flutter Dampener Stopper Spring Assembly**

**6-31**



**Figure 6-16. Flutter Dampening Arm Assembly**

**6-30**