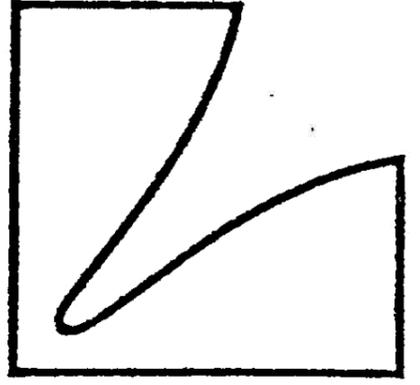
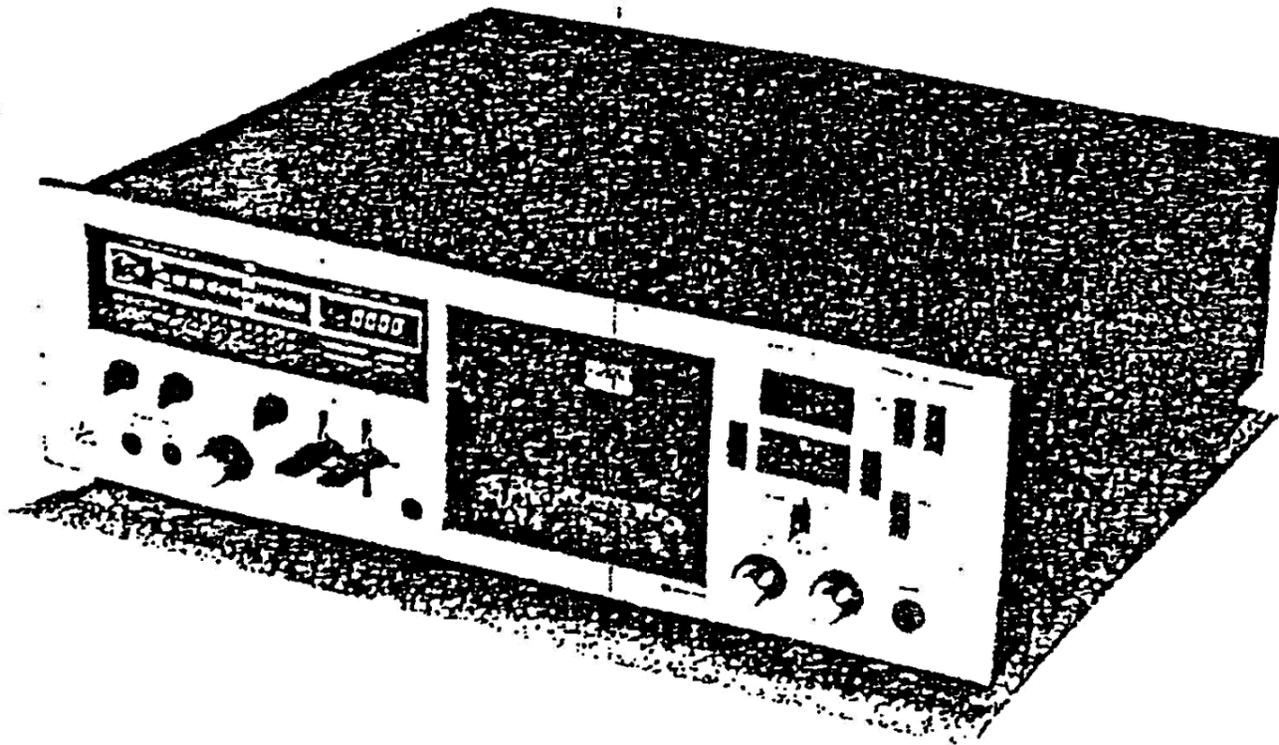


SERVICE MANUAL



LUXMAN STEREO CASSETTE DECK |

5K50M



ALIGNMENT PROCEDUREHEADS HEIGHT ADJUSTMENT & AZIMUTH ADJUSTMENT

1. Load the test tape and check the tape transport mechanism
 - (A) At 'Play' position, check that tape is not curled by two tape guides fitted with Erase & Playback Heads.
 - (B) Adjust heads' height to eliminate shift of tape to make tape horizontal by repetition of 'Play' and 'Stop' actions.
 - (C) Provisionally adjust azimuth and tilt of Playback head to obtain the highest level of output of both 333Hz and 10KHz signal recorded in the tape.
2. Load the test tape, MTT-150(400Hz 200nW/m), and adjust Playback Head to obtain the max. level of output, and at the same time, adjust to make waveforms of L & R channels in phase.
3. Load test tape MTT-114(10KHz -10dB), and check that the output level is at max, and that the waveforms of L and R channels are in phase. Set the other side of the tape up, and adjust azimuth and tilt alternately so that both max. output level and waveforms in phase between L and R channels can be obtained.
4. After the above adjustment, check to get proper tape transport adjusted as a final step by the 1st test tape.

P/B AMP DC BALANCE ADJ.

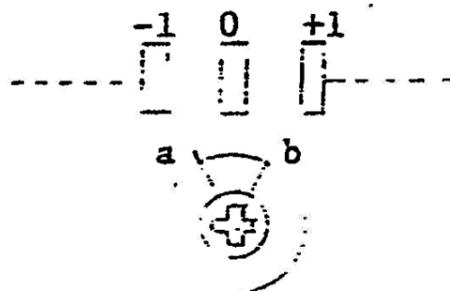
Connect either of the oscilloscope, DC VTVM and multimeter to the test points, H Tp1 C Tp2 for L ch., H Tp4 C Tp3 for R ch. on P/B AMP PC Board, and adjust the semifixed resistors, RT01a, RT01b to obtain drift within $\pm 50\text{mV}$ from the centre of meterneedle. Remember that the final DC balance adjustment is required after all the above-mentioned adjustments.

P/B EQ AMP LEVEL ADJ. (TAPE POSITIONS)

Load the test tape MTT-150(400Hz 200nW/m), and adjust the semifixed resistors, RT03a, RT03b on the P/B AMP PCB, to obtain 575mV at Dolby PC board terminal 8(7) for L ch. and 4(3) for R ch. respectively, while setting at 'Tape Monitor' position. Also check that the output level is at approximately 517mV while making the above adjustment.

METER ADJ.

After PB level adjustment, adjust the semifixed resistors RT01a, RT01b on the SW PC board to obtain 0dB display at the bar-graph peak level meter: Turn RT01a, RT01b first to A position to obtain -1dB display, and then at the B position to obtain +1dB display, and finally turn both RT01a, RT01b in the midway between A and B positions to obtain the precise 0dB display.

P/B EQ FREQUENCY ADJ.

Load the test tape, MTT-216(3180mS + 120uS), and adjust the semifixed resistors, RT02a, RT02b on the P/B PC board to obtain frequency response in the range of 31.5Hz - 14KHz within $\pm 3\text{dB}$. Moreover, adjust the variable resistors to reach the deviation within 0 \pm 1dB at 10KHz, and within $\pm 1\sim\pm 2\text{dB}$ at 14KHz.

P/B DOLBY LEVER ADJ.

Load the test tape, MTT-150(400Hz 200mW/m), and adjust RT01a, RT01b on the Dolby PC board to minimize the difference of the output levels within $\pm 0.05\text{dB}$ between Dolby Sw-on and Sw-off. At the same time, Check to obtain the output levels of 580mV at the check points a(L ch.), b(R ch.) respectively.

CUE REV

Load the test tape, MTT-150(400Hz 200nW/m), and confirm the output level is at around 580mV ($-5\text{dB} \sim +3\text{dB}$) with CUE or REVIES mode.

'P/B MUTE' CHECK

Confirm that no hissing noise is generated from the LINE OUT when 'Play' is changed into 'Stop' mode.

'P/B HUM' CHECK

Load quality bland tape (unrecorded), and check hum level at the output filtered off by means of 'CCIR' rule and without this filter respectively with 'Play' mode.

LINE SOURCE MONITOR LEVEL(SOURCE POSITION)

Setting Monitor SW to Source position, apply to LINE INPUT signal source of 400Hz with output impedance of 600 ohms, and fix INPUT LEVEL by means of attenuator to obtain output of 577mV at terminal 22(21) for L ch., and 15(14) for R ch. on Dolby PC board respectively. Confirm that input level is at 100mV $\pm 20\text{mV}$, and at the same time output level is at about 517mV, while bargraph's indicating 0dB. When the above adjustment is carried out, confirm that LINE VOL. OUTPUT VOL. are both at Max. positions, and that Dolby is switched-on. Also confirm that MIC VOL is at Min. position, and that the channel balance is within $\pm 0.5\text{dB}$.

REC DOLBY LEVEL ADJ.

Load tape under Rec mode, and adjust semifixed resistors RT02a, RT02b to obtain output level of 580mV $\pm 0.2\text{dB}$ at check points, a(Lch), b(Rch) on the Dolby PC board by means of VTVM and/or oscilloscope, with the input level adjusted for the above-mentioned MONITOR LEVEL. Note that the Dolby switch has to be turned on.

MPX FILTER ADJ.

While constant input level with 19.00KHz is applied to the LINE INPUT, adjust to obtain min. level at the terminals NO.18 & 11 on the Dolby PCB. by turning the coils (red sides), LPFa, LPFb.

- Level should be more than -30dB at 400Hz
- Dolby Sw is set to MPX ON position

MIC MONITOR LEVEL(SOURCE POSITION)

Set Monitor Sw to Source position, and apply signal source of 400Hz with output impedance of 600 ohms to LINE INPUT. And adjust INPUT LEVEL by means of attenuator to obtain output level of 577mV at the check points of the terminals Nos. 22(21) for L ch., Nos. 15(14) for R ch. on the Dolby PC board. Set the input level at $0.25\text{mV} \pm 0.05\text{mV}$. In this case, MIC VOL, OUTPUT VOL are both at max. position, and LINE VOL is at min. position. Also, the channel balance should be with $\pm 1\text{dB}$.

SOURCE MONITOR FREQUENCY

Check the following frequencies are obtained for L and R channels respectively:

LIN 10 - 50kHz ± 3 dB
 MIC 30 - 20kHz ± 3 dB

- Capacitance of shielded cord used to hook up deck and measuring equipment, is within 100pF
- Output level is at 517mV

MIX LOSS

Confirm that output level fluctuates only between ± 1 dB, when MIC VOL is turned from one end to the other, applying signal source to LINE INPUT, and vice versa when LINE VOL is turned from one end to the other, applying signal source to MIC INPUT.

LEAD PHONE LEVEL

Confirm that when LINE OUTPUT LEVEL is at 517mV, headphone level is at 90mV-9mV under 8-ohm loads.

- Signal source is of 400Hz and Frequency response ranges 20-30KHz ± 3 dB.

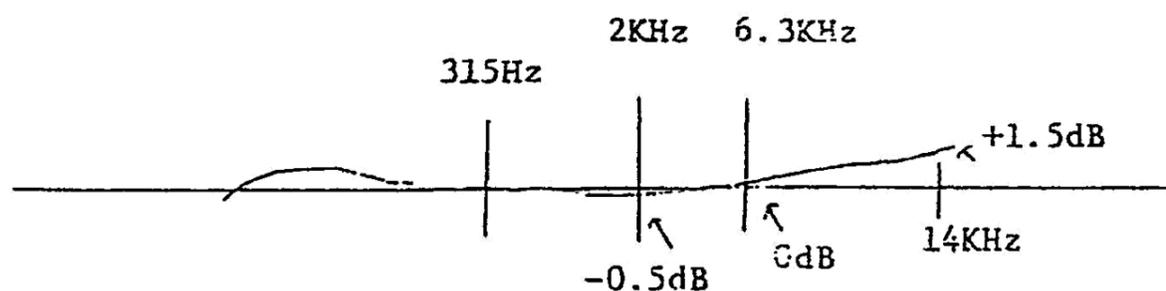
PB Equalizer Frequency adjustment

1. First, set the test tape MTT216(3180mS+120 μ S), and adjust the RT02a and RT02b so that 6.3KHz against 315Hz is obtained at +0.5dB and -0dB. At this time, ensure that the 14KHz is set at between +1dB and +2dB. If it does not satisfy its limit, control it by parallel connection of C01a and C01b condensers.

Please note that the value of Adjustment condensor is approx. 120pF.

2. Then, after 1, set the test tape MTT114, and ensure the output difference between the normal and Cr02 positions of the Equalizer switch is set within 3.5dB to 5.5dB. If the difference of the output level is set out of its limit, its re-adjustment of the tape touch or the replacing of the P-head is necessary.

Ideal PB frequency response:-

Bias current adjustment

1. Set the bias switch at the normal position and the bias volume at the center position. Moreover, connect the VTVM to the test point of the REC-PCB(L-ch H-TP2.C-TP1, R-ch H-TP4.C-TP3), then adjust the RT01a and RT01b of the PCB so that the bias current is 180mV. Please note that the test tape AC221 is indispensable and its test should be done in the actual tape running.

2. Set the bias switch to EX position and bias volume to the center position. Then, according to the above-mentioned method, adjust the RT02a and RT02b of the bias PCB so that the bias current is 290mV. Moreover, ensure that the bias current wave shows correct sine wave when the bias volume is turned to the maximum level.

If the wave shows following shape or so, reduce bias current by RT02a and RT02b slightly, but the bias current should not be less than 270mV at the center position of bias volume.

3. As to the L and R channel balance adjustment, first, set the both channels to the peak bias point and then, reduce the higher bias current to meet the lower level.

CAUTION

The VTVM should be connected only to the test point and the other parts including of the body itself must be isolated from others. Also, use the shielded wire of lowest possible capacitance and inductance.

Moreover, ensure the bias frequency is set within the limit of $105\text{KHz} \pm 3\text{KHz}$.

Bias Current	Normal	180mV
Bias Current	Ex	270mV - 290mV

Ref. Level adjustment

Fix the source level so that the 22 and 15 terminals of the dolby PCB is set at 577mV, and set the indicated test tape and adjust at dolby off and tape monitor position at recording mode.

On each tape, obtain peak bias point, and adjust the variable resistors of the REC.PCB so that the output of the source and tape is set at the same level.

	<u>Tape</u>	<u>VR</u>	<u>frequency</u>
Normal	AC221	RT05a/RT05b	400Hz
Cr02	AC511	RT04a/RT04b	"
Metal	AC701	RT06a/PT06b	"

Rec.equalizer adjustment

1. By connecting the C09a and C09b in parallel with the indicated pins (L-ch: across AD1 and AD2, R-ch: across AD3 and AD4), adjust the peaking frequency to $23\text{KHz} \pm 1\text{KHz}$. The value of the C09 is about 1300pF which deviates according to the inductance of the recording head.

As to the measuring level, the output level should be set to 52mV at 400KHz and the test point is to be set at H-TP5.C-TP6 for the L-ch and at H-TP7.C-TP8 for the R-ch, which please note.

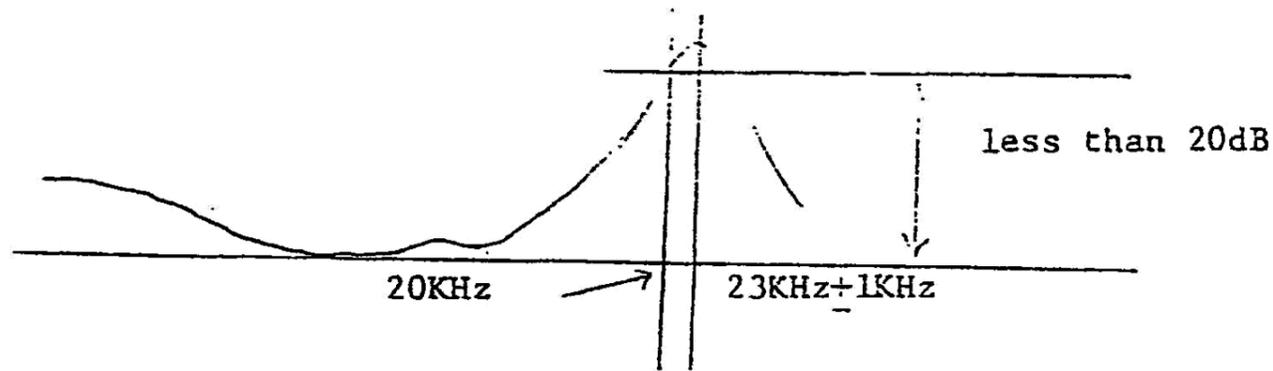
CAUTION

The VTVM should be connected only to the test point and all other parts including the body itself should be insulated from other surroundings.

2. On each test tape, set the output level to 52mV at 400Hz, and adjust the trimmer pot so that the level of 10KHz is obtained within the limit of +1dB and -0dB. At this time, ensure that the bias is set to the peak point at 400Hz and the azimuth is adjusted correctly.

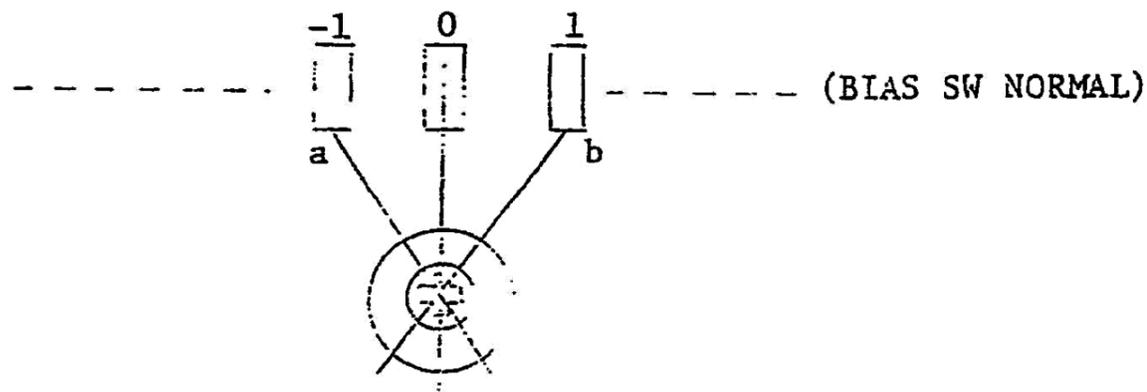
	<u>Tape</u>	<u>VR</u>	<u>Frequency</u>
Normal	AC221	RT02a/RT02b	$30\text{Hz} - 17\text{KHz} \pm 3\text{dB}$
Cr02	AC511	RT01a/RT01b	$30\text{Hz} - 18\text{KHz} \pm 3\text{dB}$
Metal	AC701	RT03a/RT03b	$30\text{Hz} - 20\text{KHz} \pm 3\text{dB}$

Moreover, ensure that the metal OVU (-3dB of the standard 160nWb/m level) frequency response is set to 30Hz-11KHz+3dB



Meter adjustment

1. After the adjustment of PB amplifier level, adjust the RT01a and RT01b of Switch PCB so that the meter indicates "0" dot.



Ensure that the "0" dot blinks at the "a" position of VR and "+1" blinks at the "b" position. Then, set the trimmer pot between "a" and "b" positions.

2. Ensure that the "-4" lights up when the bias switch is set at EX position. If not, put 470 ohms resistor in parallel with the 39K ohms resistor on the bias switch.

BIAS TRAP ADJ.

Load tape under REC mode, and adjust BIAS TRAP only after adjustment of BIAS itself.

- a) Adjust TRAP a, TRAP b on P/B AMP PC board to obtain min. level of BIAS leakage at the OUTPUT (better than 45dB).
 - b) Turn on Dolby, and adjust TRAP a, TRAP b on DOLBY PCB to obtain min. level of BIAS leakage at the output.
- In case the effect of BIAS TRAP adjustment can't be confirmed, disconnect BIAS TRAP circuit from P/B AMP, and adjust BIAS TRAP circuit alone. Then readjust BIAS TRAP after incorporating into the original circuit.

TEST TONE ADJ.

- a) Set TEST TONE SW. to PEAK BIAS position - - - 400Hz
As adjustment, turn RT002 on the REC PC board to obtain display of bargraph up to -8 position, when 'peak bias' is obtained at recording/playback. Confirm that when peak bias is applied, PEAK BIAS lamp comes on and continues to light during variation of output level within -0.25dB as compared with its maximum level.
- b) Set TEST TONE SW. to Azimuth position - - - 6KHz.
As adjustment, turn RT001 on the REC PCB to obtain display of bargraph up to -8 position, while optimum 'azimuth' is procured at recording/playback.

5K30M

- Tapes used: (normal) AC221, (CR02) SA511, (metal) AC701

c) REC CAL

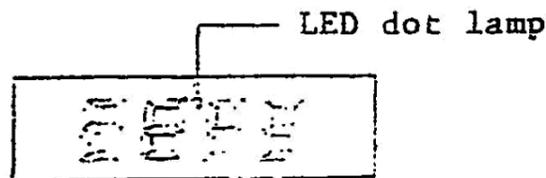
Get Rec. mode. Set test cone to 400Hz and MONITOR to "Source". Then adjust osc. level to obtain 577mV at the points, No. 22, 15 on the DOLBY PC board, while bargraph shows 0 position.

- Both LINE VOL and MIC VOL are turned to min. position, and Dolby is on.

COUNTER

a) When a regular tape is loaded:

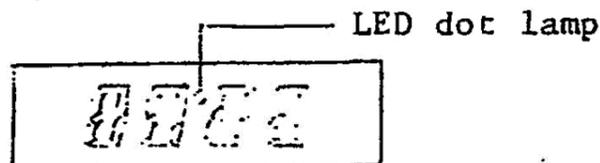
- 1) Confirm that the segments are reset to "0000", and that LED dot lamp is turned off just after loading tape into compartment.



- 2) At whichever position the mode may be, i.e., PLAY, Rec, FF or CUE, confirm that the counter counts upward under decimal system.
- 3) At REW, REVIEWS modes, confirm that the counter counts downward under decimal system.
- 4) In case Memory Sw. is on, confirm that Memory LED lamp comes on, and when changed to REW mode, confirm that deck will be automatically changed to STOP mode, when counter shows 9999-9997 after passing over 0000. However, confirm that mode is never changed to STOP while keeping depressing REW KEY.
- 5) Load a C60 tape, and operate FF mode from the beginning of take-up until AUTO STOP functions at the end of tape. Then confirm that the counter shows "0000"-10 when AUTO STOP is realized after rewinding of tape. Also check that the time required both for FF/REW for entire single side of C60 is 55-5 sec.

b) In case the Lux exclusive tape is loaded:

- 1) Confirm the LED dot is turned off just after the tape is put into the compartment. Next, confirm that the same lamp comes on at any mode of PLAY, FF, REW, CUE, REVIEW.



- 2) Connect DC synchroscope to the pin No. 40 on DISPLAY PC board, and confirm that the following neat, trim waveform exceeding 1V (peak to peak) can be obtained under PLAY mode. Take the same measurements under FF, REW modes, as well.



In case output is below 1V with trim waveform, add either of resistors, 470, 220, 120 ohms in parallel with R011(100 ohms) to obtain 1V peak to peak.

- 3) Under PLAY mode, confirm that the counter counts up in terms of minutes and seconds, Also, check that counting is made with an interval of one second.
- 4) Under FF, CUE modes, confirm that the counter counts up in terms of minutes and seconds.
- 5) Under REW, REVIEW modes, confirm that the counter counts down in terms of minutes and seconds.
- 6) When the MEMORY is switched on, confirm that mode is changed from REW to 'STOP' at display of 9959-9956 after passing over 0000. Confirm, however, that mode is never changed to STOP while REW KEY is kept depressed.
- 7) With MEMORY off, fast forward the C60 tape from the beginning of take-up. Then rewind it after AUTO STOP, and check that the counter shows 0010-9950 when AUTO STOP functions. Also check that the time required both for FF/REW for the entire single side of C60 is 55-5 sec.

PEAK BIAS

Set TEST TONE SW to BIAS & DOLBY CAL position, adjust EQSW according to the type of tape used. BIAS SW is at Normal position. Output terminals (pin jacks) are connected to VTVM/Oscilloscope.

- 1) At REC MODE, set MON. SW to Tape position, and turn BIAS VOL. to check that PEAK BIAS LED lamp comes on when max. output is obtained.
- 2) Turn BIAS VOL clockwise, to obtain the output level lower by 0.25dB as compared to the peak point, and at this point adjust the semifixed resistor RT-001 to put off the LED lamp.
- 3) Turn back BIAS VOL counter-clockwise, and confirm that LED comes on again, and is turned off at the point where the output is lower by 0.25dB on another side.

CHECK POINTS

- 1) DISPLAY PCB - The deck is regarded as normal when the output of about 5V can be obtained at the pin No. 1 on IC033(4558) on the Display PCB. When REC MUT is in operation, the output varies between 0-5 volts.
- 2) Following all-wave rectifying waveform must be observed at the pin No. 1 on IC032(4558).


 (all-wave)

AZIMUTH

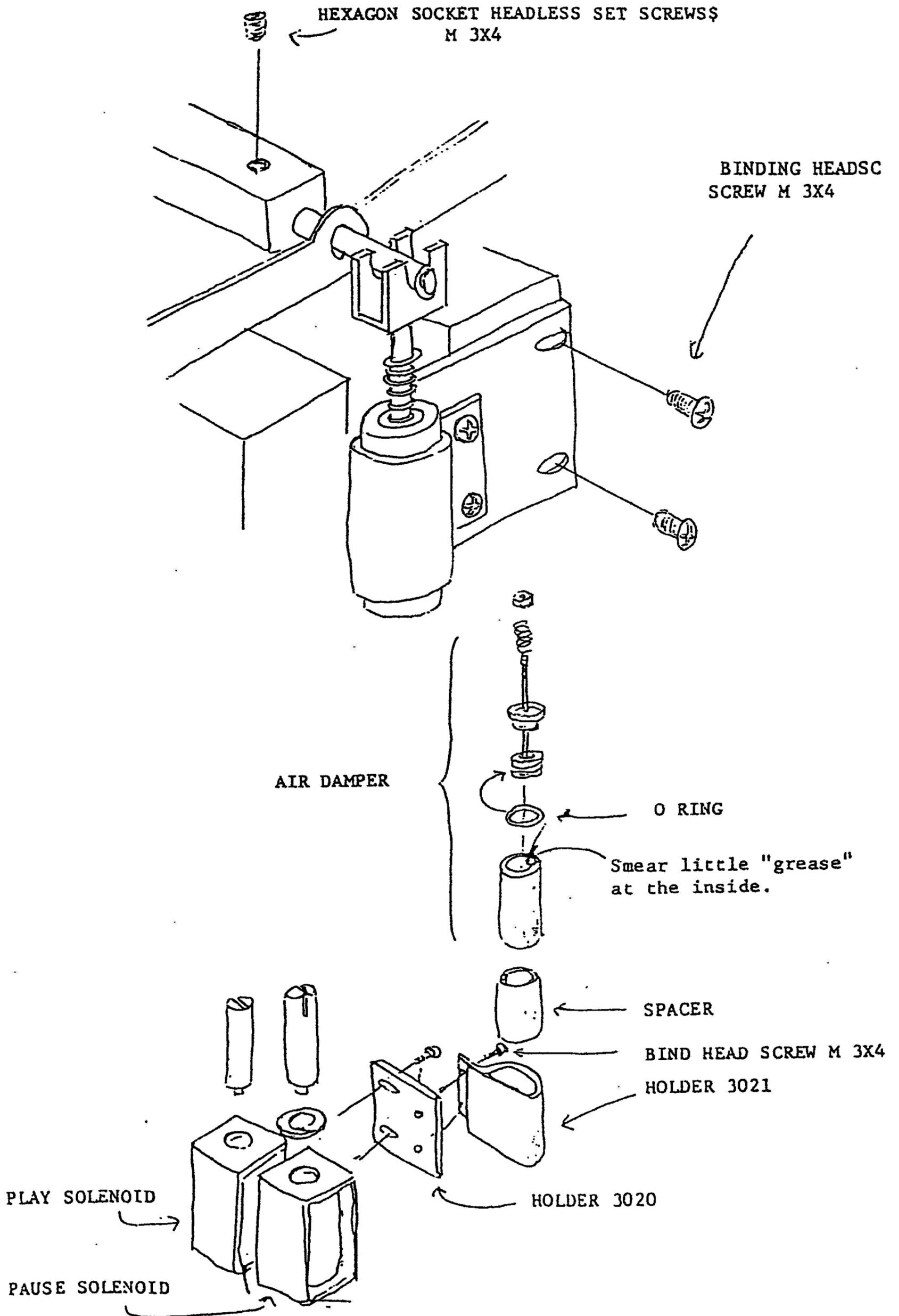
Set TEST TONE SW to AZIMUTH position, under REC mode. VTVM and oscilloscope should be connected to output terminals (Pin Jacks).

- 1) Monitoring VTVM/Oscilloscope, check that AZIMUTH LED lamps (2 pcs.) come on when the waveforms of L ch & R ch are in phase.
- 2) When out of phase, turn the screw for Azimuth Adjustment in the head housing, and confirm that by rotation in the direction of the unlighted lamp, this lamp comes on.

TIMER SW.

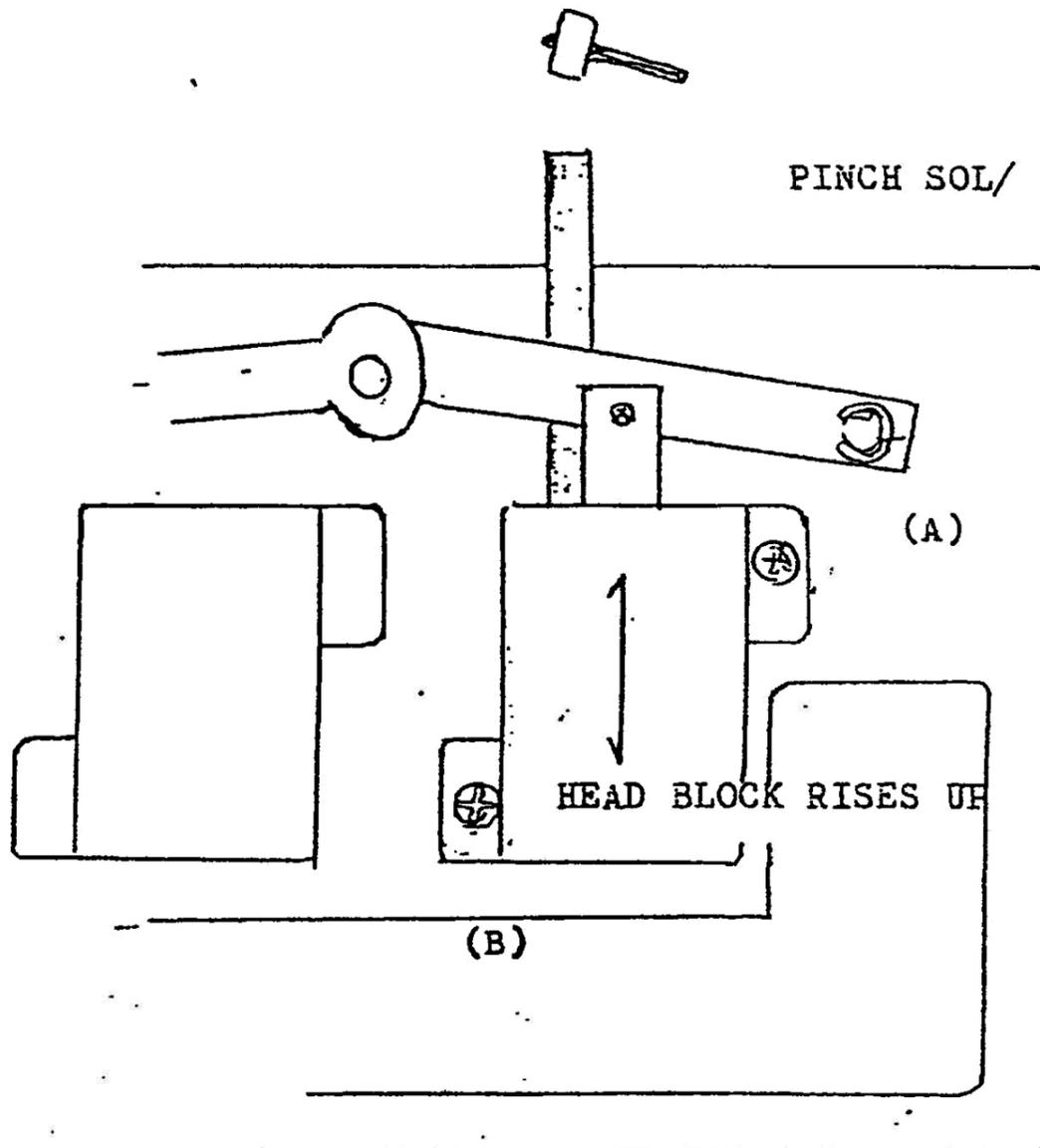
- 1) Load a tape, and set TIMER SW to REC position. Check that the REC mode is obtained in about 2 seconds after the power is switched on. Also check that the TIMER REC LED lights up.
- 2) Set TIMER SW to PLAY position, check that the deck is put into the PLAY mode when power is turned on.

1) DETACH AIR DAMPER



HEAD BLOCK STROKE ADJUSTMENT

LOOSEN THE FIXING SCREWS, A AND B OF PINCH SOL,
SLIGHTLY AND FASTEN THEM SLIGHTLY AGAIN.
AFTER THAT, PAT PINCH SOL,
SO THAT THE STROKE CAN BE ADJUSTED.



CAUTION SET AT PLAY MODE

WHEN HEAD BLOCK ADJUSTMENT IS COMPLETED, FASTEN
A AND B SCREWS TIGHTLY AND PUT BLUE ONTO THE HEADS OF
SCREWS. ((AS PINCH SOL, GOES UP (OR DOWN), HEAD BLOCK
GOES UP (OR DOWN) ACCORDINGLY. FIRST, AT THE CONDITION
THAT THE PINCH SOL, GOES UP (GOES DOWN), AS PER THE
ABOVE DRAWING, PUSH DOWN PINCH SOL AND SET THE HEAD
BLOCK (3.3mm IN CASE OF P. HEAD) AS PER THE INDICATION
SHOWN IN THE NEXT PAGE.

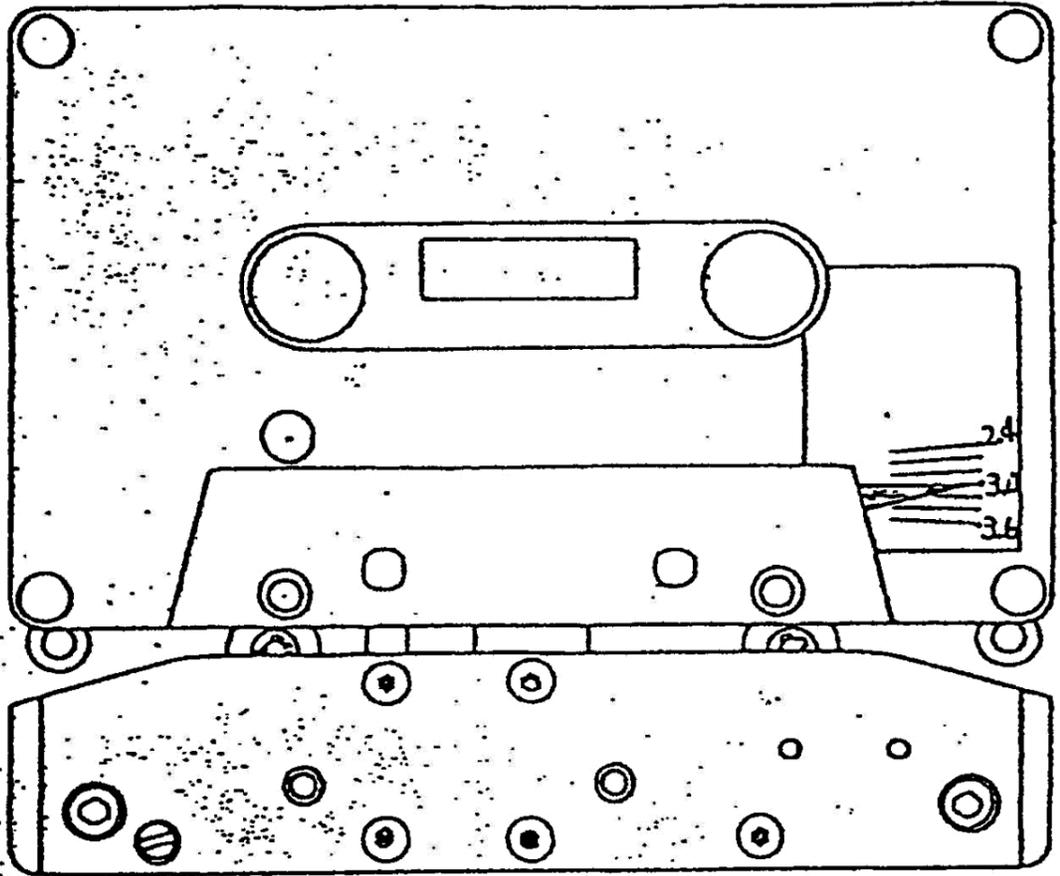
2. E. HEAD

STROKE

ADJUST 30

MILLIMETER

(3.0 g/cm)



HEAD BLOCK

STROKE ADJ.

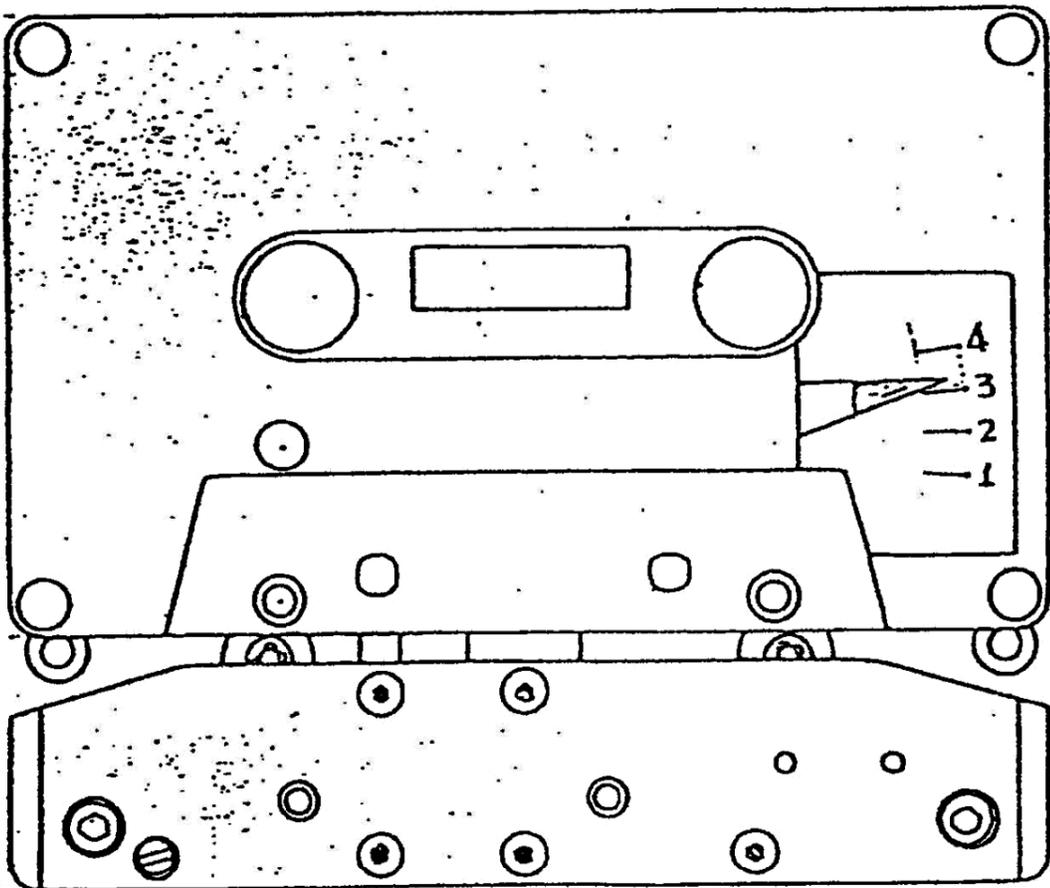
1. PLAY HEAD

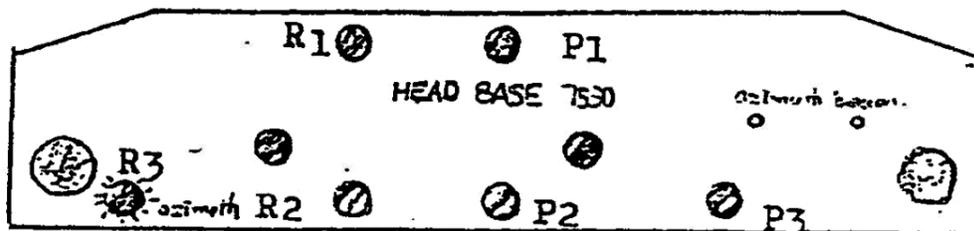
STROKE

ADJUST 3.3

MILLIMETER

(3.3 g/cm)





(HEAD BASE 7530)

- P1 FOR HEIGHT ADJUSTMENT OF P, HEAD
- P2 FOR TILT ADJUSTMENT OF P, HEAD
- P3 FOR AZIMUTH ADJUSTMENT OF P, HEAD

- R1 FOR HEIGHT ADJUSTMENT OF R, HEAD
- R2 FOR TILT ADJUSTMENT OF R, HEAD
- R3 FOR AZIMUTH ADJUSTMENT OF R, HEAD

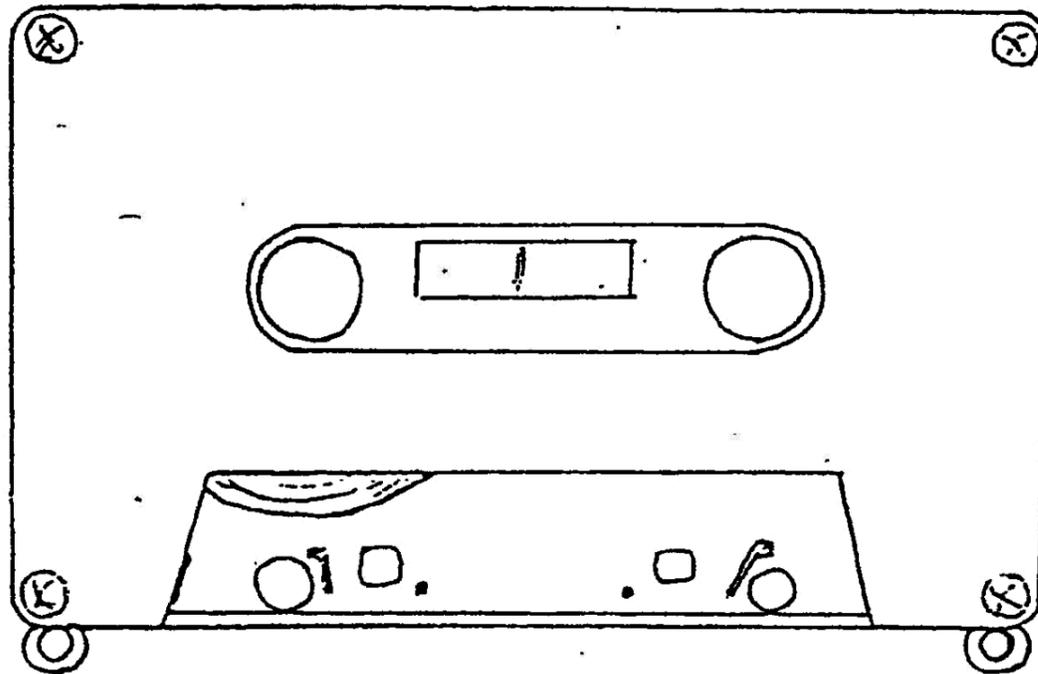
R, HEAD ADJUSTMENT

CHECK THE TAPE RUNNING WITH TC TAPE.
IF THE TAPE RUNNING IS NOT STABLE, ADJUST THE SCREWS
OF HEAD BLOCK, R1, R2, R3.

P, HEAD ADJUSTMENT

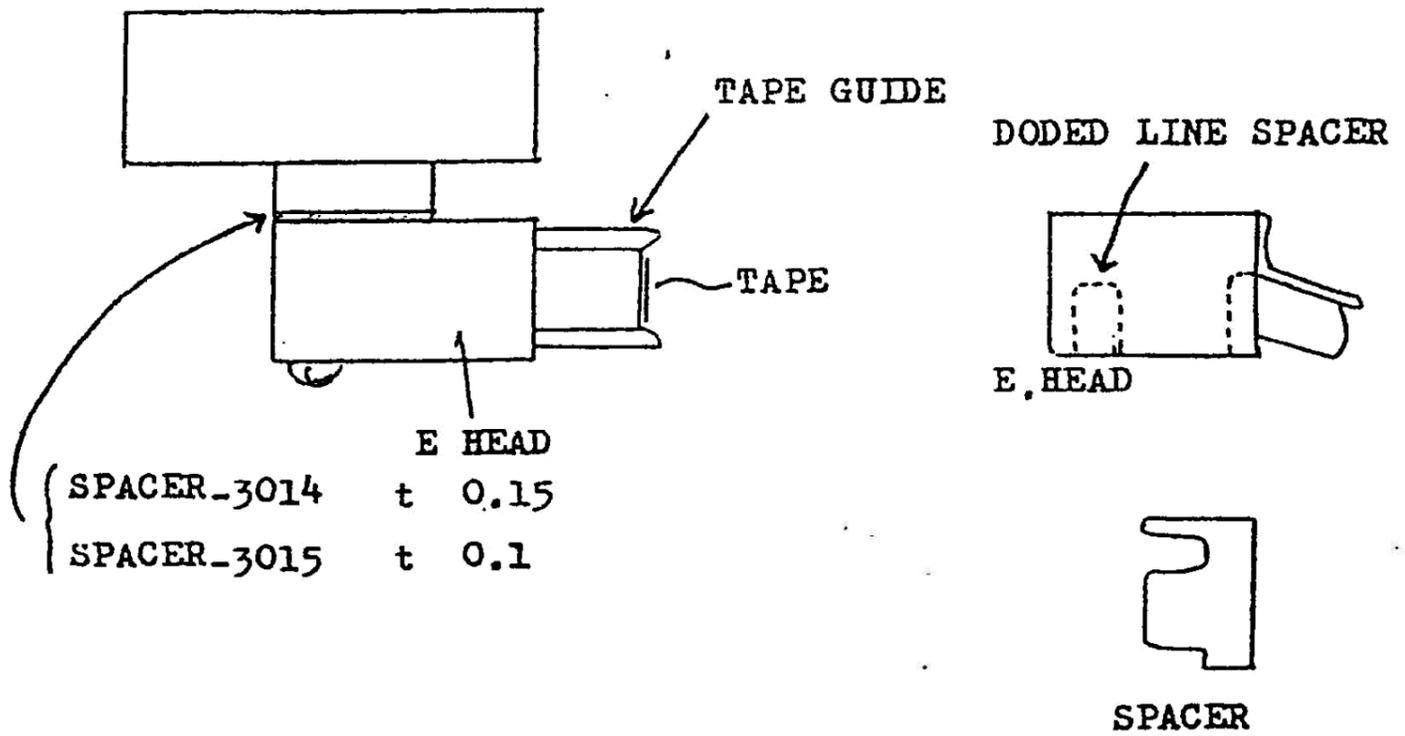
CHECK THE TAPE RUNNING WITH TC TAPE.
ENSURE THE TAPE IS NOT CURLED UP BY TAPE GUIDE.
IF CURLED UP, ADJUST THE SCREWS, P1, P2, P3.

HEAD BLOCK TENTATIVE ADJUSTMENT



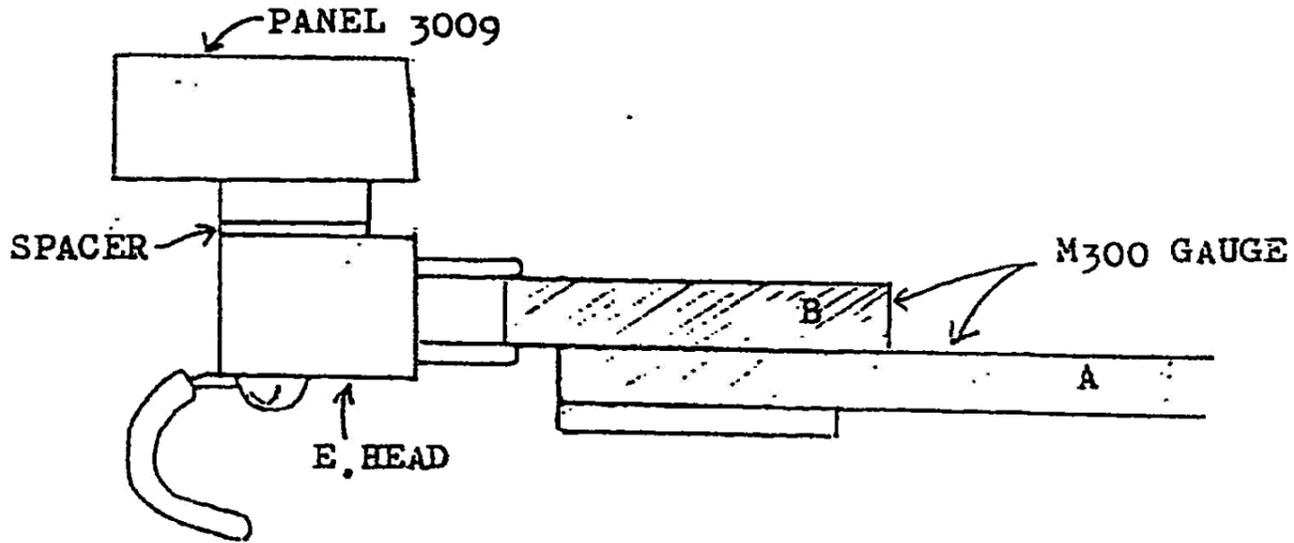
ADJUST TAPE RUNNING BY THE ABOVE MENTIONED TC CASSETTE TAPE.

E. HEAD ADJUSTMENT



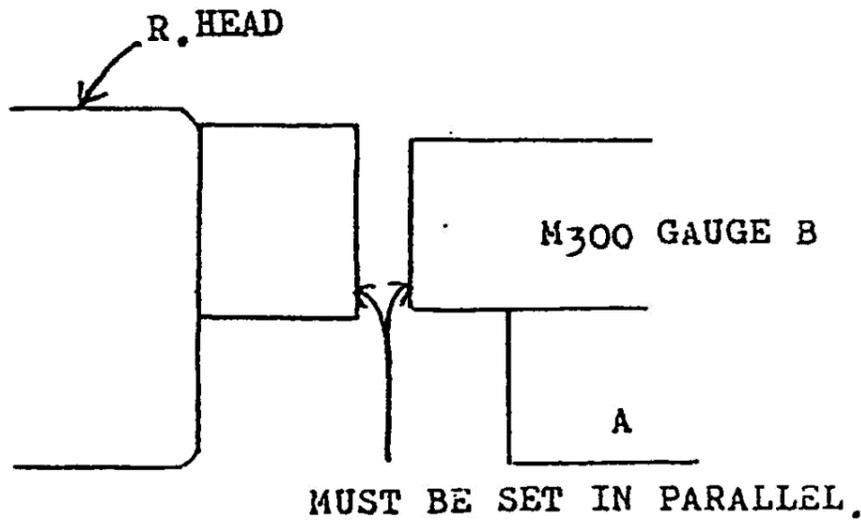
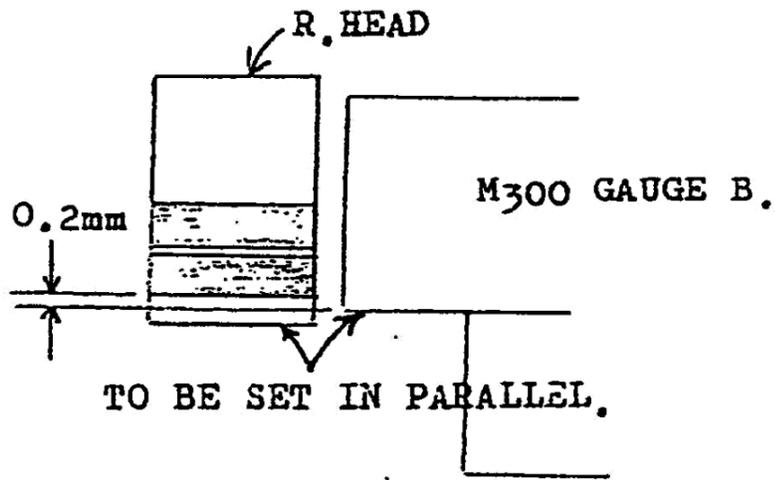
ENSURE THAT THE TAPE IS NOT BE CURLED UP BY THE E. HEAD. IF IT IS CURLED UP, RE ADJUST WITH THE SPACER.

ADJUSTMENT METHOD IN CASE OF USE OF M300 HEAD ADJUSTMENT GAUGE.



SET THE M300 GAUGE, AND CHECK IF THE M300 GAUGE CONTACTS/HITS THE E. HEAD TAPE GUIDE. IF SO, ADJUST IT BY UTILIZING SPACERS, 3015 AND/OR 3014.

R. HEAD ADJUSTMENT



AZIMUTH ADJUSTMENT

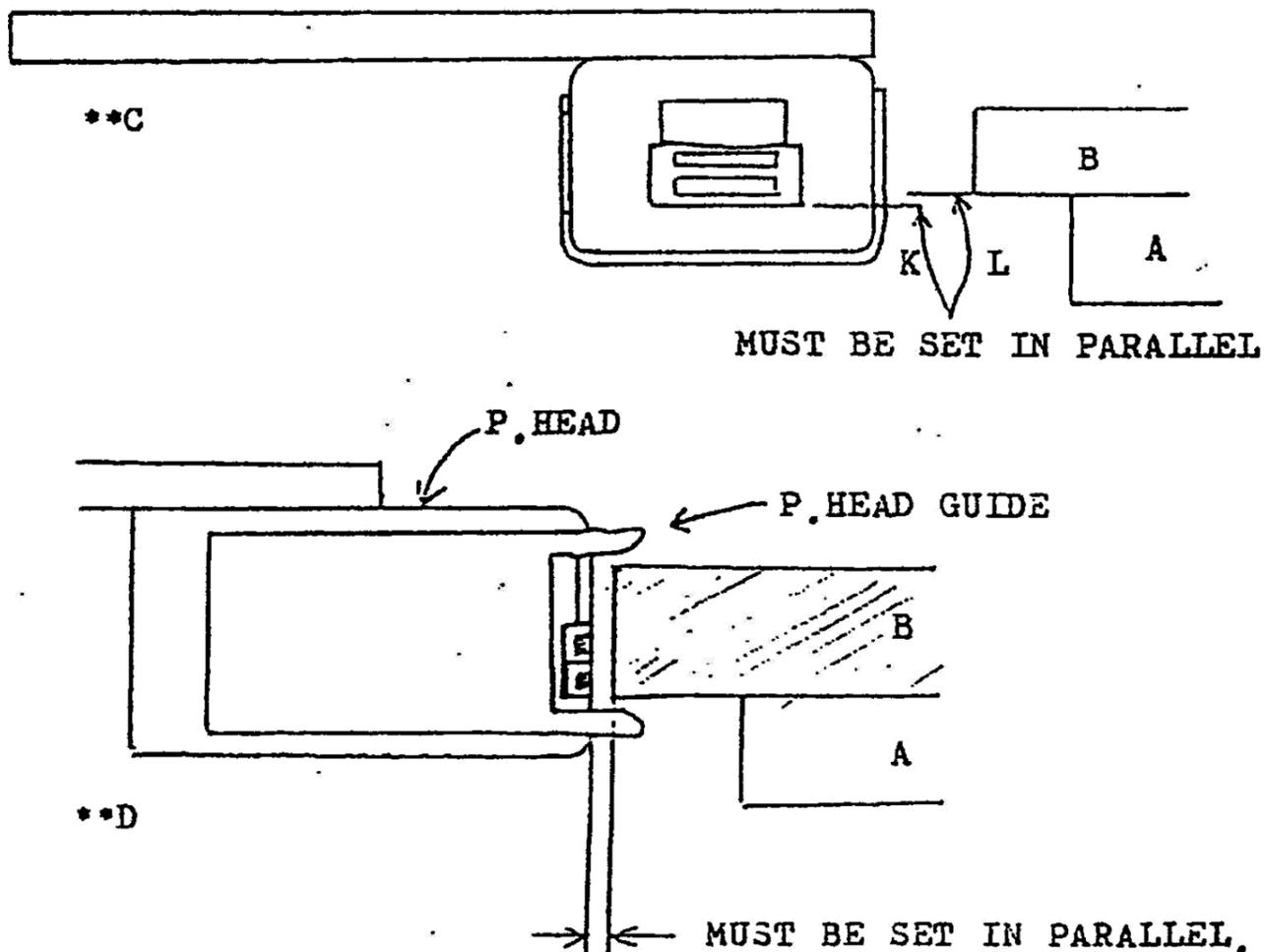
SET M₃₀₀ GAUGE AND ADJUST R₃ SCREW SO THAT THE GAUGE M₃₀₀ B AND THE R₃ HEAD TRUCKS IS SET IN PARALLEL.

TILT ADJUSTMENT

SET M₃₀₀ GAUGE AND ADJUST R₁ SCREW SO THAT THE FACES OF THE R₃ HEAD AND M₃₀₀ B IS SET IN PARALLEL AS PER THE ABOVE DRAWING.

TRUCK ADJUSTMENT

SET M₃₀₀ GAUGE AND LET THE M₃₀₀ GAUGE AND R₃ HEAD COME CLOSE TOGETHER AS PER THE DRAWING A, AND ADJUST THE SCREWS R₁, R₂ AND R₃ SO THAT THE DISTANCE BETWEEN THE M₃₀₀ GAUGE AND R₃ HEAD IS SET AT ABOUT 0.2mm.



AZIMUTH ADJUSTMENT

SET M₃₀₀ GAUGE, AND ADJUST THE SCREW P₃ SO THAT AS PER THE DRAWING C, LINES K AND L MUST BE SET IN PARALLEL.

TILT ADJUSTMENT

SET M₃₀₀ GAUGE AND ADJUST P₁ SCREW SO THAT THE TRACKS OF THE GAUGE B AND P₃ HEAD IS SET IN PARALLEL.

TRUCK ADJUSTMENT

SET M₃₀₀ GAUGE AND IT IS OK IF THE GAUGE B CAN PASS THRU THE P₃ HEAD TAPE GUIDE WITHOUT ANY CONTACT. BUT IF THEY CONTACT EACH OTHER, ADJUST THE SCREWS P₁, P₂, P₃.

HEAD MAIN ADJUSTMENT.

AFTER THE COMPLETION OF THE HEAD PRE-ADJUSTMENT, MAKE FINAL DELICATE ADJUSTMENT WITH THE ACTUAL TAPE RUNNING. IN THIS CASE, THE POP-UP-CASE (W/O. GLASS DOOR) IS ATTACHED.

NOTE THE FOLLOWING 3 TAPES ARE USED FOR ITS ADJUSTMENT.

1. MTT-114 (10KHz AZIMUTH TAPE) NORMAL
2. AC -511 (REC PLAY TAPE) CRO2
3. AC -701 (REC PLAY TAPE) METAL

1.

AT THE BEGINNING OF REWINDING OF THE MTT-114, MAKE P.HEAD AZIMUTH ADJUSTMENT WITH THE SCREW P3. (IT IS IDEAL THAT THE PHASES OF THE L AND R CHANNELS MEET EACH OTHER AT THE MAXIMUM OUTPUT LEVEL OF THE L AND R CHANNELS, BUT THE P.HEAD WHICH SHOWS THE WAVE OF FIG. 1 MUST BE REPLACED.

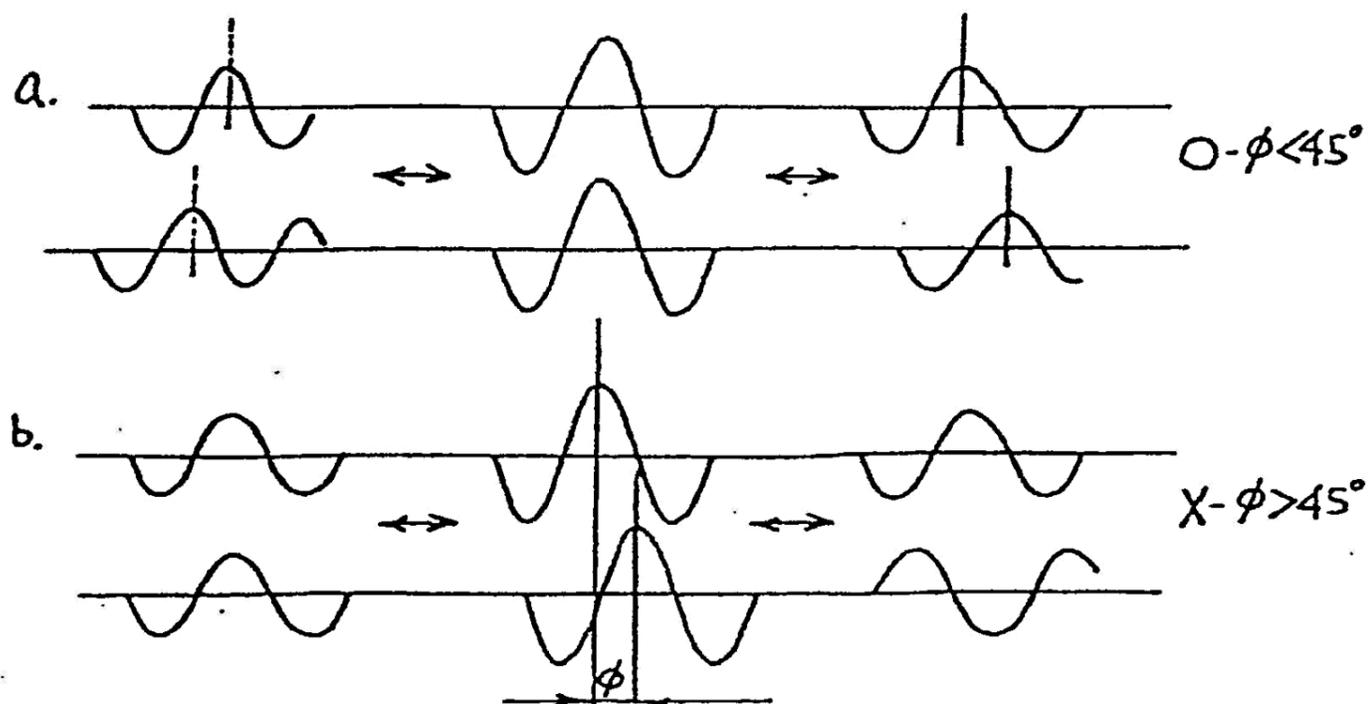


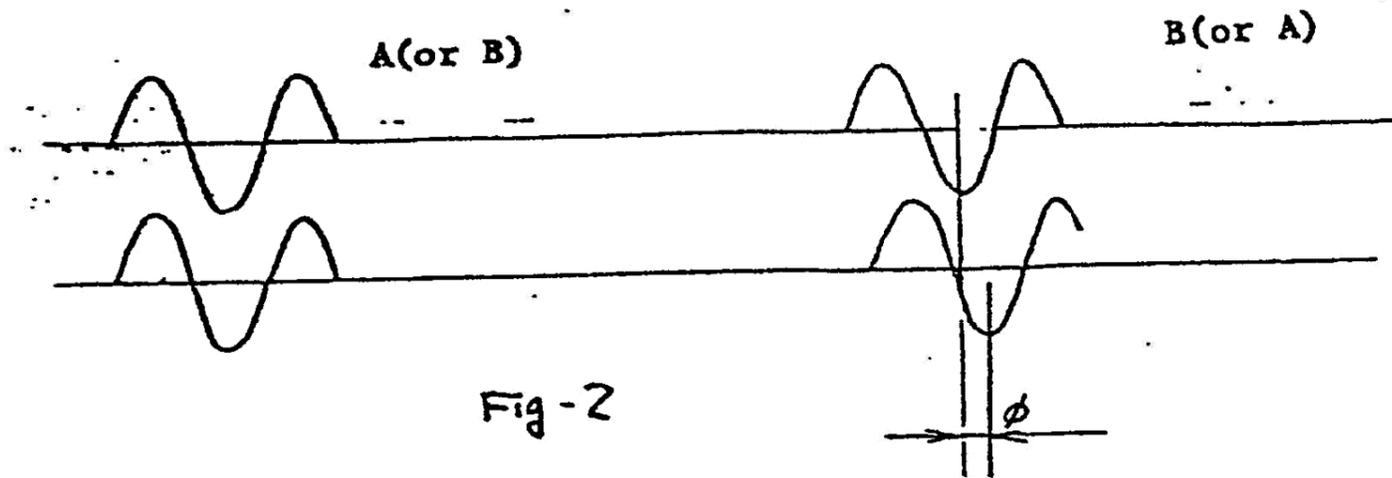
FIG. 1. a.- IDEAL ; b.- P.HEAD MUST BE REPLACED $\phi \geq 45^\circ$

2.

ENSURE RIGHT PHASE OF THE L AND R CHANNELS AT 10KHz BY USING THE REVERSE OF THE TAPE MTT-114.

IF THE RIGHT PHASE CAN NOT BE OBTAINED, CLOCKWISE OR COUNTER-CLOCKWISE THE SCREW P AND RE-ADJUST THE PHASE BY THE P3, AND RE-ADJUST RIGHT PHASE AT BOTH TAPE SIDES, A AND B BY THE SCREWS P2 AND P3.

AT THE CONDITION SHOWN IN THE FIG.2, JUDGE THAT THE PHASE IS ADJUSTED CORRECTLY IN CASE OF THE $\phi \leq 30^\circ$. THUS, CONTINUOUSLY ADJUST TO REALIZE ITS CONDITION.



3.

IF RIGHT PHASE AT BOTH TAPE SIDES CAN NOT BE OBTAINED EVENTUALLY, IT IS JUDGE THAT THE PRE-ADJUSTMENT IS IMPERFECTLY ALIGNED. RE-ADJUST THE HEIGHT OF THE P.HEAD BY P1 AND THE PHASE BY P2 AND P3.

(NOTE: IN CASE OF RE-ADJUSTMENT OF THE P.HEAD HEIGHT BY P1, CONFIRM IF USING THE T.C. TAPE - TRANSPORT CASSETTE TAPE, THE TAPE IS CURLED UP BY THE P.HEAD GUIDE DUE TO THE CONTACT OF THE TAPE TO THE P.HEAD GUIDE. IF SO, RE-ADJUST P1 SCREW.

THE ABOVE IS ALL FOR THE P.HEAD ADJUSTMENT.

4.

CHANGE THE TAPE FROM MTT-114 TO AC511. AT REC. PLAY POSITION, CHECK THE PEAK BIAS AND ADJUST THE R.HEAD.

5.

FIRST, PUT THE INPUT SIGNAL OF THE -20dB AT 10KHz, AND ADJUST THE AZIMUTH BY SCREW R3 AT MIDDLE PORTION OF THE TAPE(TAPE RUNNING).

6.

PUT THE SIGNAL OF THE 0dB AT 400HZ, MOVING THE R.HEAD IN PARALLEL BY THE SCREWS, R1, R2, R3, ADJUST SO AS TO OBTAIN THE MAXIMUM OUTPUT LEVEL OF THE BOTH CHANNELS.

7.

USING THE TAPE A SIDE, ADJUST THE AZIMUTH AT 10KHz AND ENSURE THAT THE DIFFERENCE OF THE AZIMUTH BETWEEN THE TAPE A AND B SIDES IS WITHIN 90° - RIGHT PHASE CONDITION IS IDEAL THOUGH. IF DIFFERENCE OF THE AZIMUTH BETWEEN THE TAPE A AND B SIDES EXCEEDS 90° , AS THE CASE OF THE P.HEAD, ADJUST THE TILT BY R2 AND THE PHASE BY THE R3.

8.

WHEN THE R.HEAD IS MOVED IN CASE OF R.HEAD ADJUSTMENT, IT IS PROVABLE THAT THE P.HEAD AZIMUTH MAY DEVIATE. SO, ENSURE AGAIN THE RIGHT AZIMUTH BY THE MIT-114.

IN CASE OF THE DEVIATION OF THE PHASE BETWEEN THE TAPE A AND B SIDES AT MORE THAN 45° , RE-ADJUST THE P.HEAD AS PER THE INSTRUCTION OF 1 AND 2.

USE MIT-114(10KHz) AZIMUTH TAPE

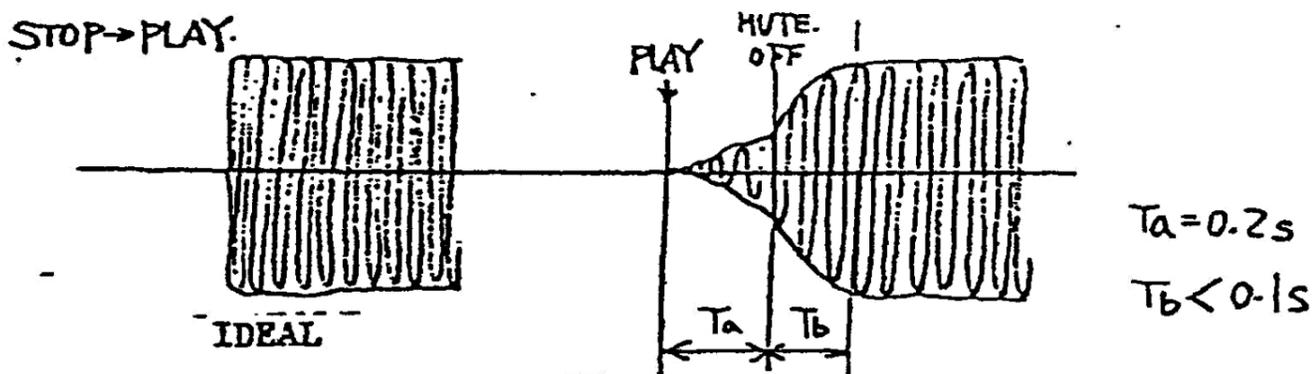


FIG.3. RISING CHARACTERISTIC AT 10KHz.

9.

AFTER THE COMPLETION OF P.HEAD ADJUSTMENT, RE-ADJUST THE R.HEAD AS PER THE INSTRUCTIONS SHOWN IN THE 4 - 7, AND IF THE PERFORMANCE FULFIL THE CONDITION SHOWN IN THE FIG.4, THE R.HEAD ADJUSTMENT IS COMPLETED.

AC 511, signal -20dB at 10kHz

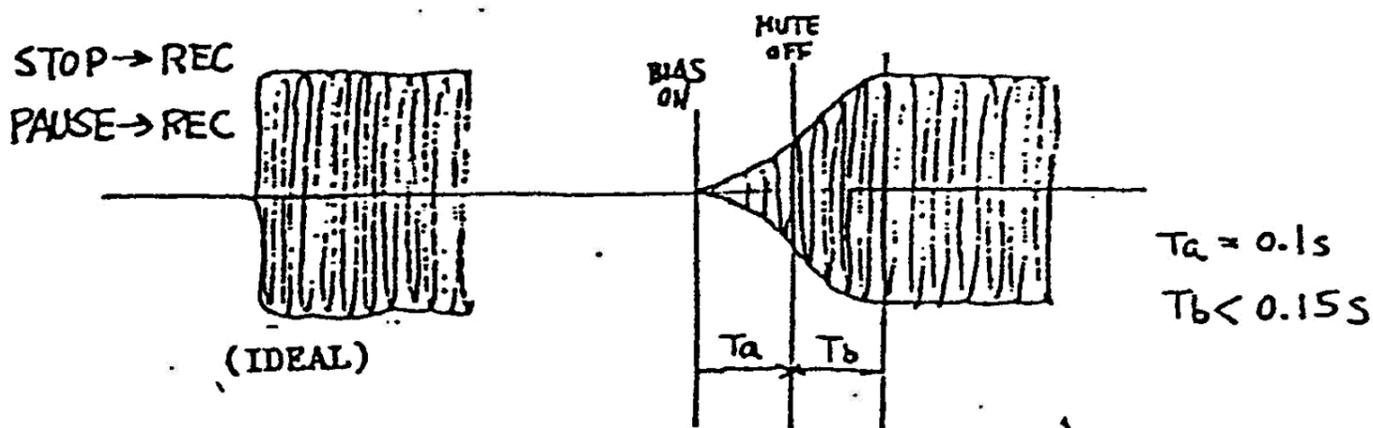
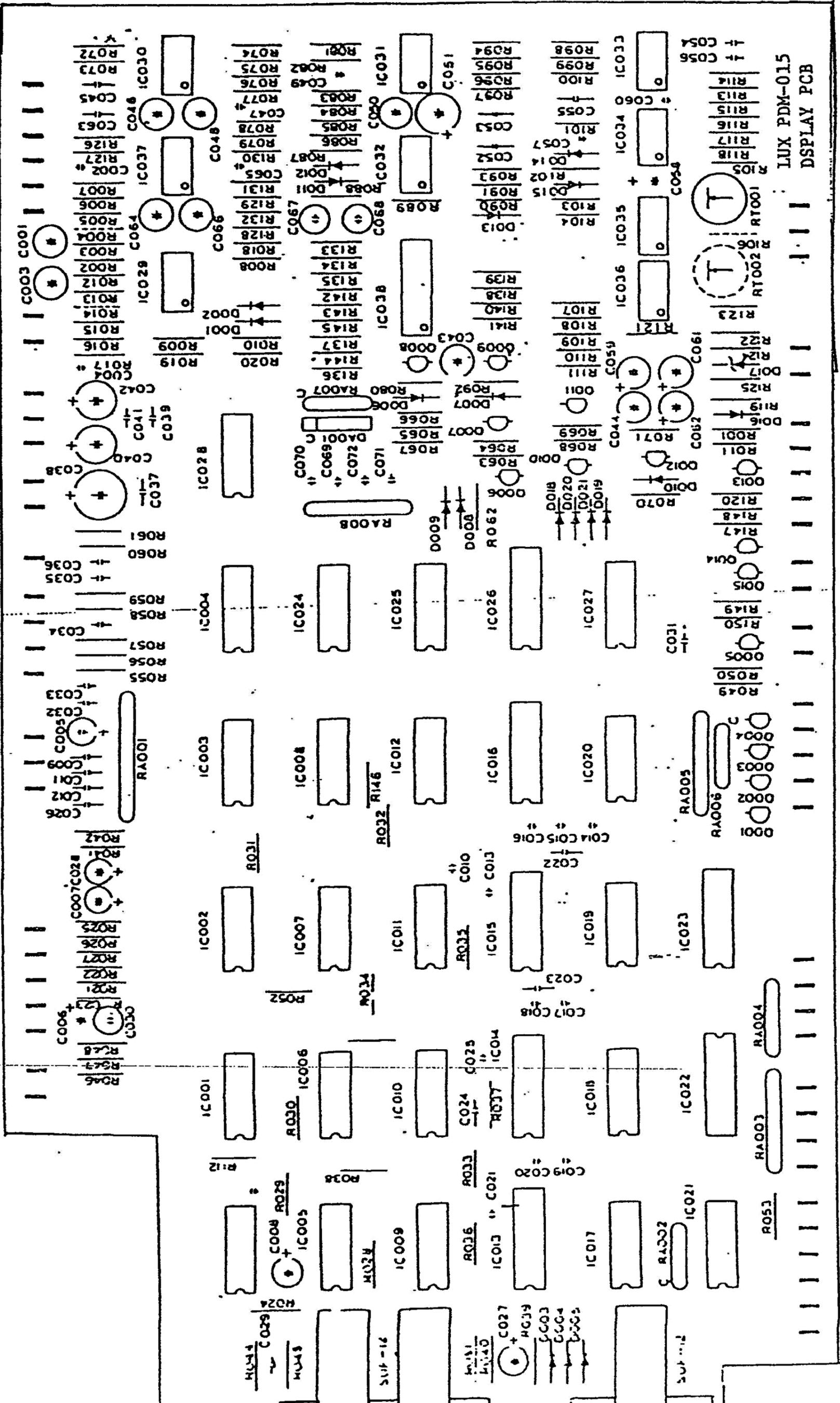


FIG.4. RISING TIME CHARACTERISTICS AT 10KHz.

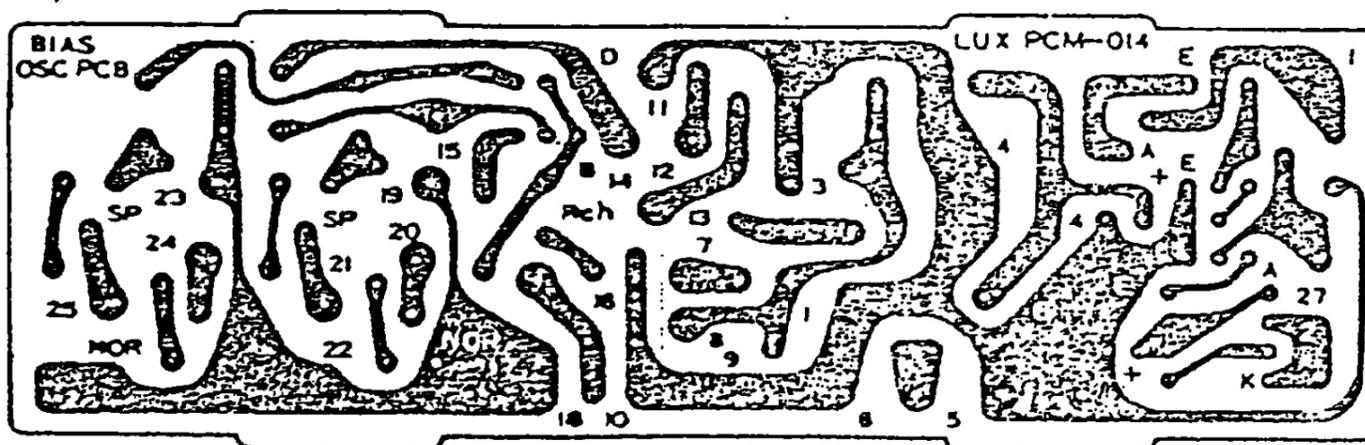
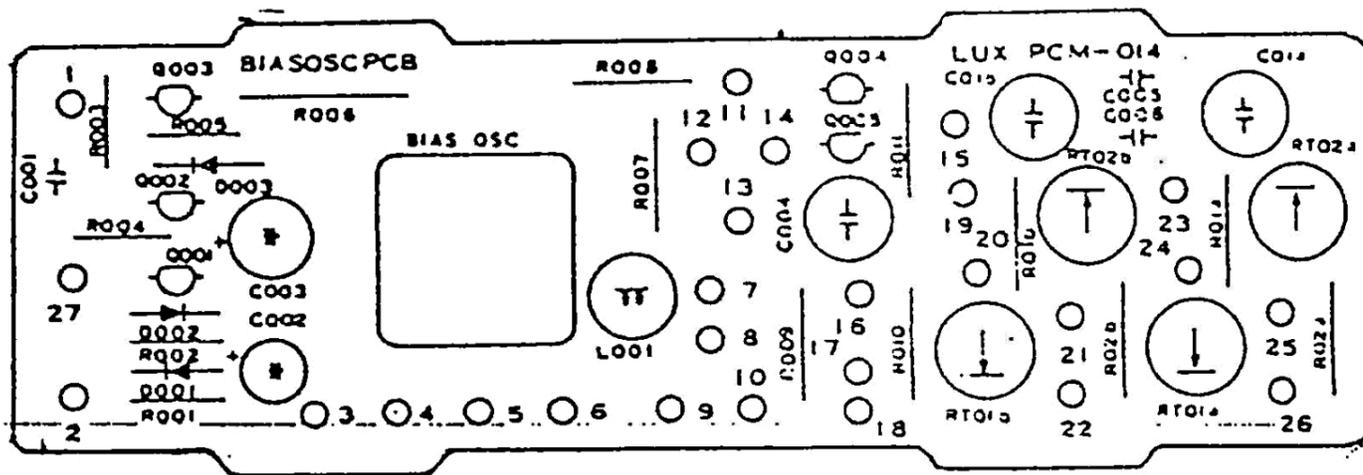
AS TO THE START OF RECORDING FROM STOP POSITION AND FROM PAUSE POSITION, ENSURE THE PHASE IS SET AT THE SAME CONDITION OR THE DIFFERENCE $\phi 30^\circ$ WHEN THE STABLE TAPE RUNNING IS OBTAINED.

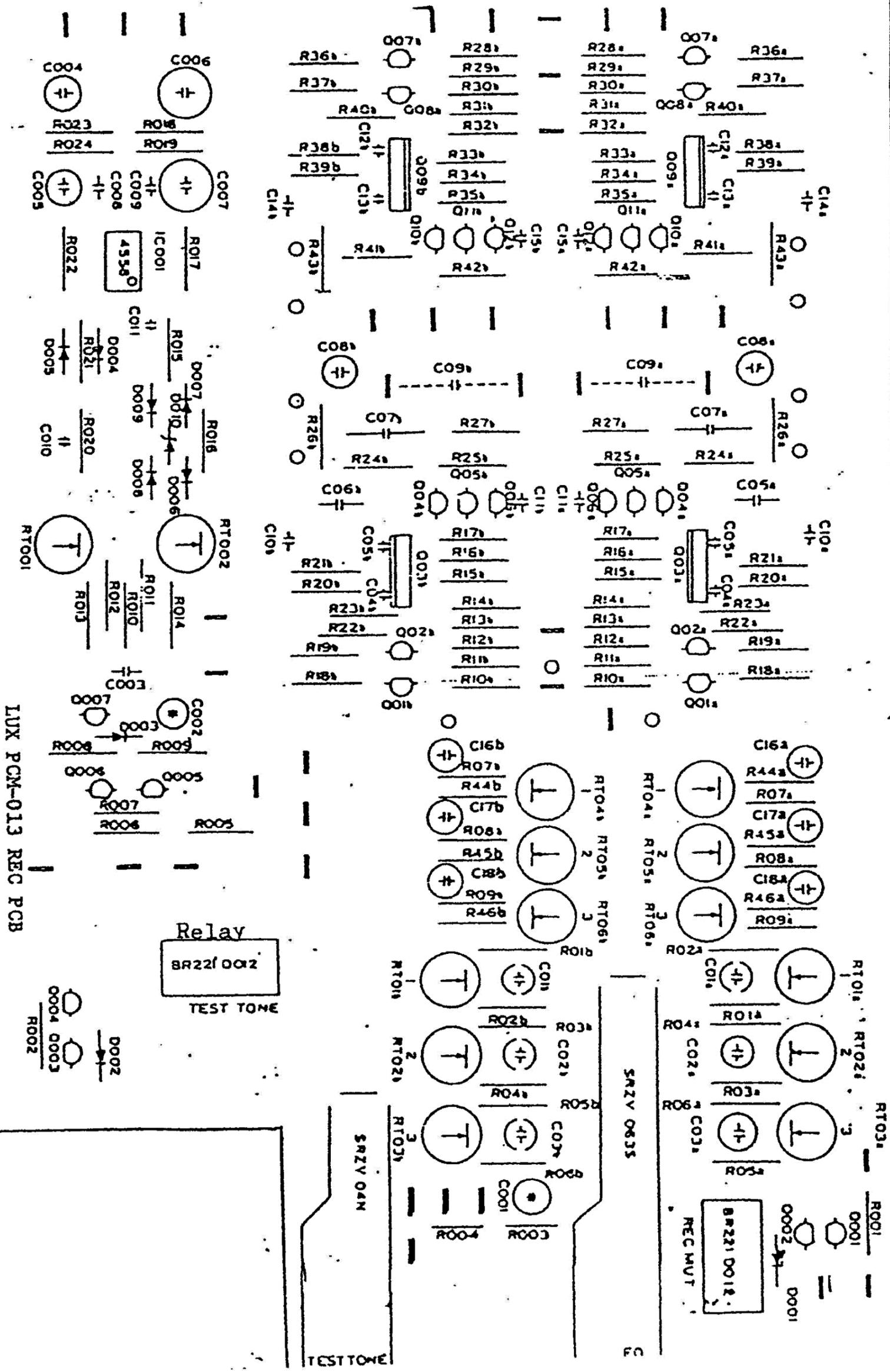
IF NOT, REPEAT THE ADJUSTMENT OF THE P.HEAD AND R.HEAD.

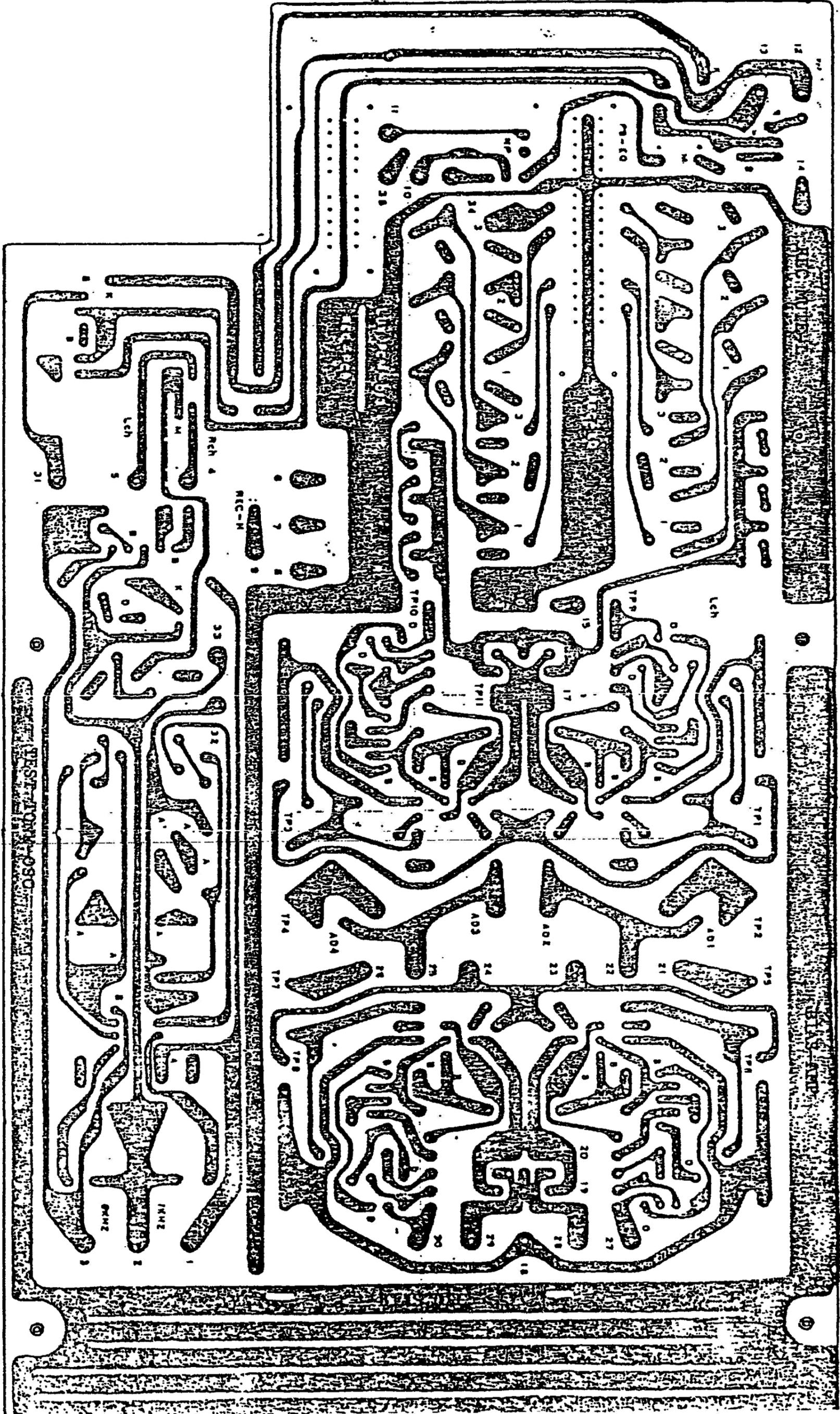


LUX PDM-015
DSPLAY PCB

BIAS OSC PCB (LUX PCM-014)







ADJUSTMENT SPECIFICATIONS 2. <ELECTRICITY>

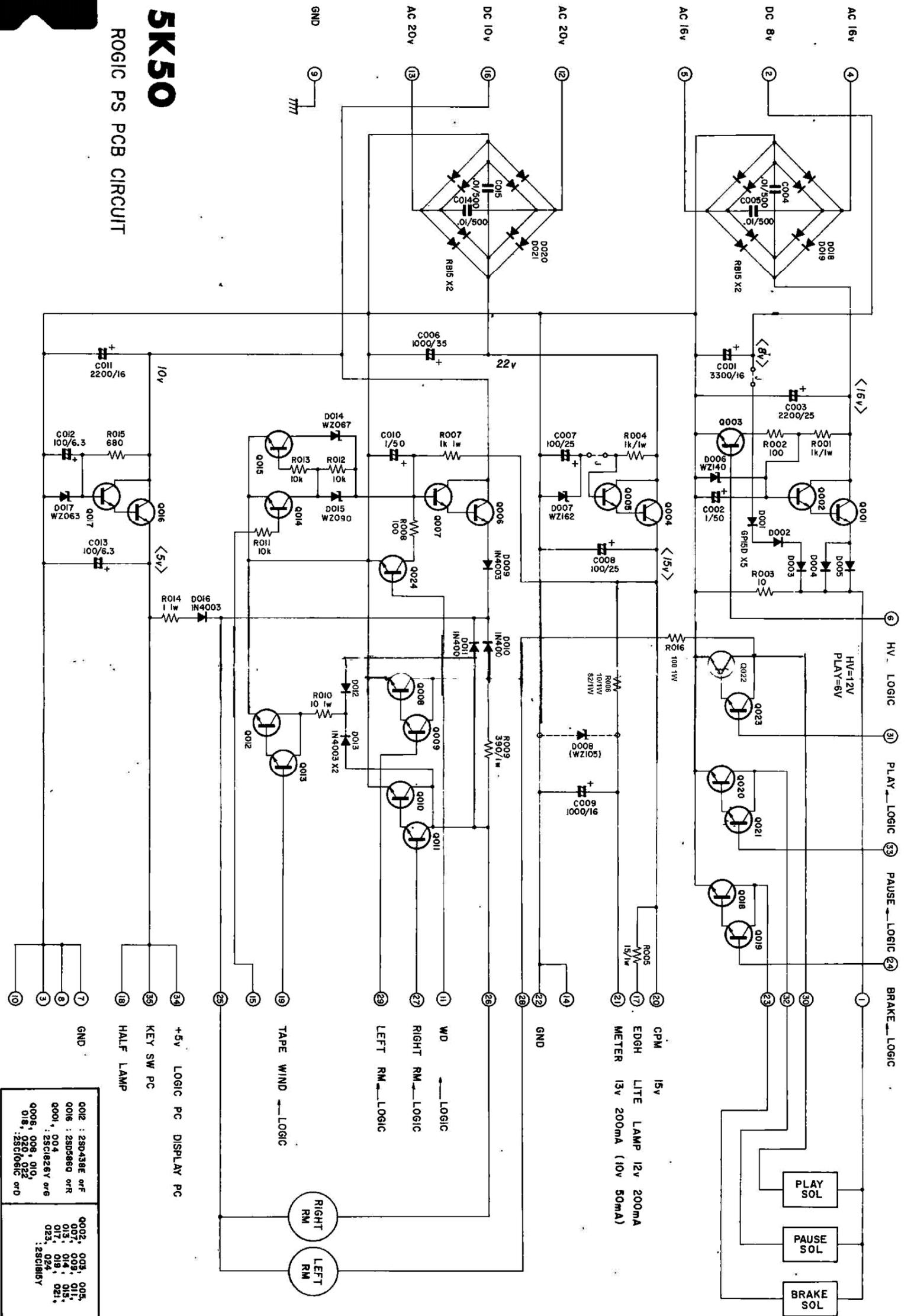
NOTE 1. OSC R_g = 600Ω
2. OUTPUT LOAD = 47kΩ

ADJUSTMENT HEAD	ADJUSTMENT POINT	CHECK POINT	SPECIFICATIONS	MODE	IN PUT VOLUME	MIC VOLUME	OUT PUT VOLUME	MONITOR SW	DOLBY SW	EQ SW	BIAS SW	BIAS VOLUME	OSC SW	REC.CAL. SW
1. PB. EQ AMP. DC BALANCE <NOTICE>	PB AMP PCB RT010 RT01B	PB AMP PCB. H(C) TP1 (TP2) H(C) TP4 (TP3)	±50mV (DRIFT CENTER)	PLAY	MIN	MIN	MAX	TAPE	OFF	NORMAL	NORMAL	MIN	OFF	OFF
2. PB LEVEL MTT-150 <300Hz-2000Hz>	PB AMP PCB. RT03A RT03B	DOLBY PCB. H(C) 22 (21) H(C) 4 (3)	±1dB (DRIFT CENTER)	PLAY	MIN	MIN	MAX	TAPE	OFF	NORMAL	NORMAL	MIN	OFF	OFF
3. METER SENSITIVITY MTT-150 <NOTICE>	SV PCB. RT01A RT01B	METER.	SEE ATTACHED PAPER 2-3	PLAY	MIN	MIN	MAX	TAPE	OFF	NORMAL	NORMAL	MIN	OFF	OFF
4. PB. FREQUENCY MTT-216(3180+120μs) <NOTICE>	PB AMP PCB. RT02A RT02B	OUT PUT	SEE ATTACHED PAPER 2-1	PLAY	MIN	MIN	MAX	TAPE	OFF	NORMAL	NORMAL	MIN	OFF	OFF
5. PB DOLBY LEVEL MTT-150	DOLBY PCB. RT01A RT01B	OUT PUT	(DOLBY SW ON LEVEL) = ±0.05dB.	PLAY	MIN	MIN	MAX	TAPE	ON-OFF	NORMAL	NORMAL	MIN	OFF	OFF
6. IN PUT LEVEL	OSC ATTENUATOR	H(C) 22 (21)	577mV (at 400Hz)	PLAY	MAX	MIN	MAX	SOURCE	ON	NORMAL	NORMAL	MIN	OFF	OFF
7. MPX. FILTER at 19kHz	DOLBY PCB. L LPF A. RED R LPF B. RED	DOLBY PCB. PIN H(C) 18 (DOLBY FILTER) H(C) 11 (DOLBY FILTER)	MIN (LEVEL at 400Hz - LEVEL at 19kHz) > 3dB	PLAY	MAX	MIN	MAX	SOURCE	OFF	NORMAL	NORMAL	MIN	OFF	OFF
8. BIAS CURRENT <NOTICE>	SEE ATTACHED PAPER 2-1	OUT PUT	SEE ATTACHED PAPER 2-1	REC PLAY	MAX	MIN	MAX	TAPE	OFF	NORMAL C-02 EX	NORMAL EX	CENTER	OFF	OFF
9. REC PLAY LEVEL <NOTICE>	SEE ATTACHED PAPER 2-2	OUT PUT	SEE ATTACHED PAPER 2-2	REC PLAY	MAX	MIN	MAX	TAPE SOURCE	OFF	NORMAL C-02 EX	NORMAL EX	PEAK BIAS POSITION at 400Hz	OFF	OFF
10. REC PLAY FREQUENCY <NOTICE>	SEE ATTACHED PAPER 2-2	SEE ATTACHED PAPER 2-2	SEE ATTACHED PAPER 2-2	REC PLAY	MAX	MIN	MAX	TAPE	OFF	NORMAL C-02 EX	NORMAL EX	PEAK BIAS POSITION at 400Hz	OFF	OFF
11. BIAS TRAP PB	PB AMP PCB. TRAP A. TRAP B.	OUT PUT	MIN. <-60dBm. 105kHz B-P.F	REC PLAY	MIN	MIN	MAX	TAPE	OFF	EX	EX	MAX	OFF	OFF
12. TEST TONE AC 511	REC PCB RT002 REC PB RT001	METER.	-8dB DOT	REC PLAY	MIN	MIN	MAX	TAPE	OFF	C-02	NORMAL	PEAK BIAS POSITION at 400Hz	REC.CAL AZIMUTH	OFF
13. REC.CAL AC 511	SW PCB. RT02A RT02B	DOLBY PCB PIN H(C) 22 (21) H(C) 15 (14)	577mV (at 400Hz) (METER DOT 0dB)	REC PLAY	MIN	MIN	MAX	SOURCE	ON	C-02	NORMAL	PEAK BIAS POSITION at 400Hz	REC.CAL	ON
14. REC DOLBY LEVEL AC-511	DOLBY PCB. RT02A RT02B	OUT PUT	(DOLBY SW ON LEVEL) = ±0.05dB (at 400Hz)	REC PLAY	MAX	MIN	MAX	TAPE	ON-OFF	C-02	NORMAL	PEAK BIAS POSITION at 400Hz	OFF	OFF
15. PEAK BIAS INDICATOR AC-511	DISPLAY PCB. RT-001	OUT PUT. PEAK BIAS INDICATOR	LIGHTING LIMIT. PEAK LEVEL TO 25dB	REC PLAY	MIN	MIN	MAX	TAPE	OFF	C-02	NORMAL	REVELATION	REC.CAL	OFF

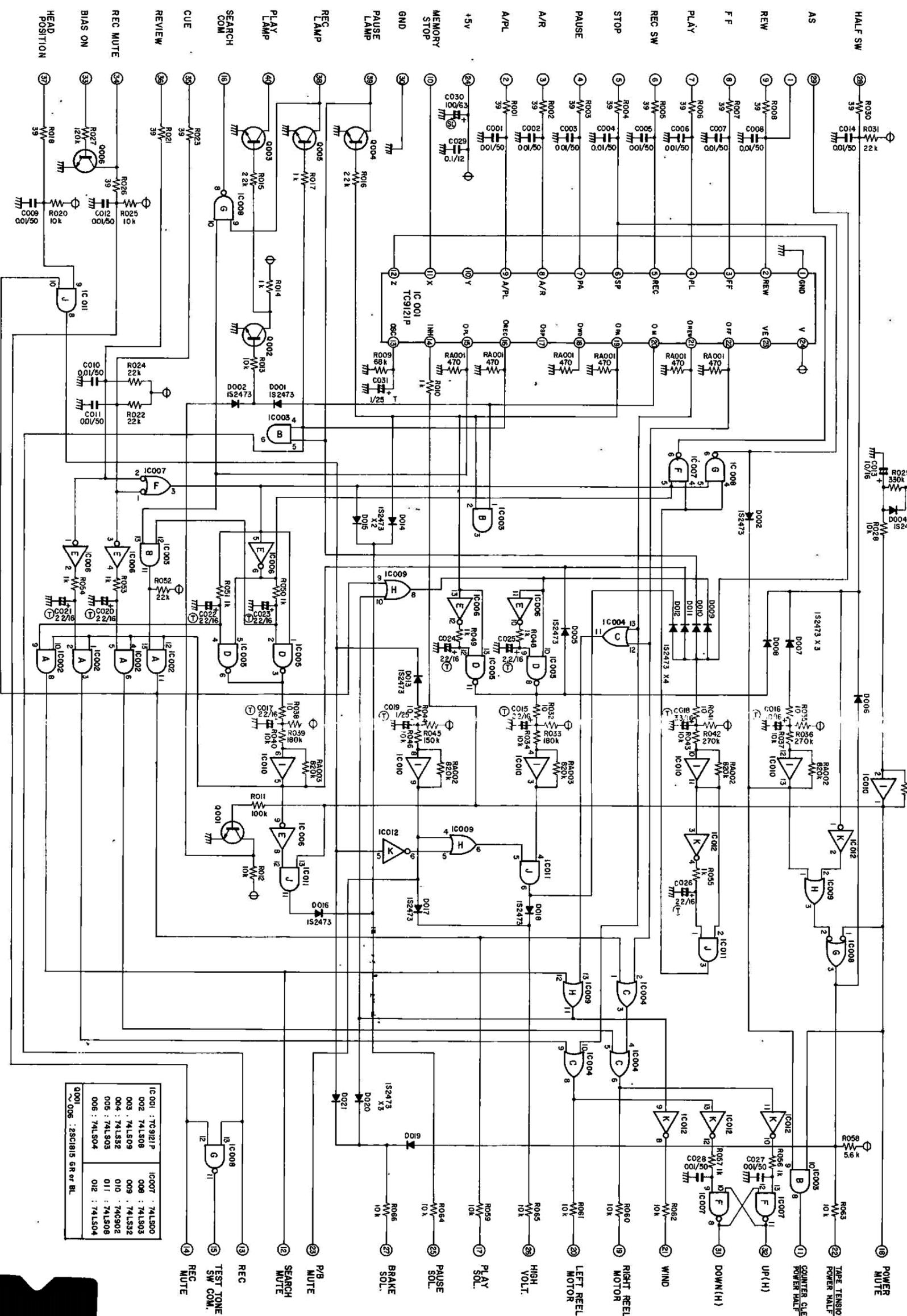


5K50

ROGIC PS PCB CIRCUIT

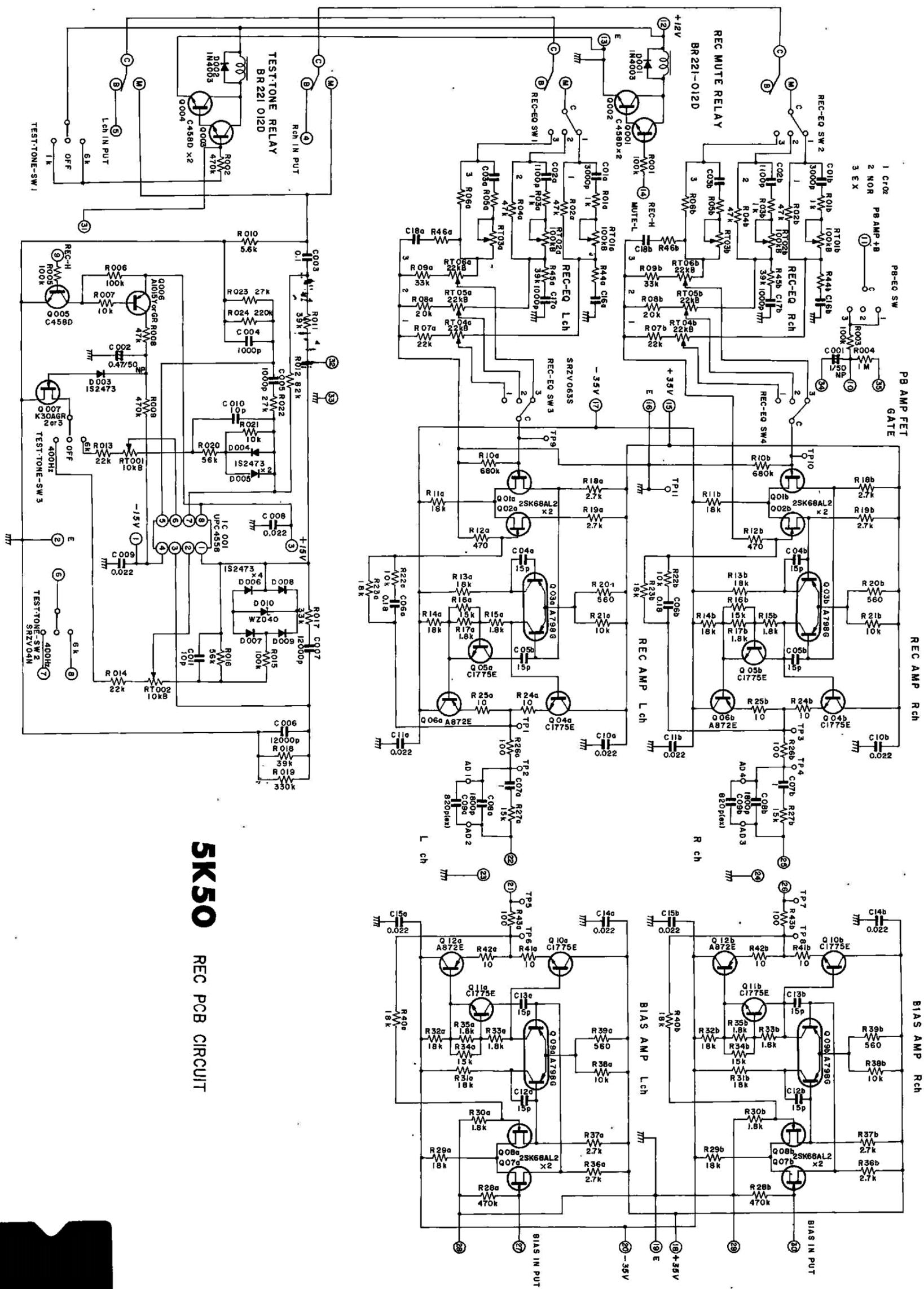


5K50 LOGIC PCB CIRCUIT



IC001 : TC9121P	IC007 : 74LS00
IC002 : 74LS08	IC008 : 74LS05
IC003 : 74LS09	IC009 : 74LS32
IC004 : 74LS32	IC010 : 74LS02
IC005 : 74LS05	IC011 : 74LS08
IC006 : 74LS04	IC012 : 74LS04
IC007 : 74LS04	

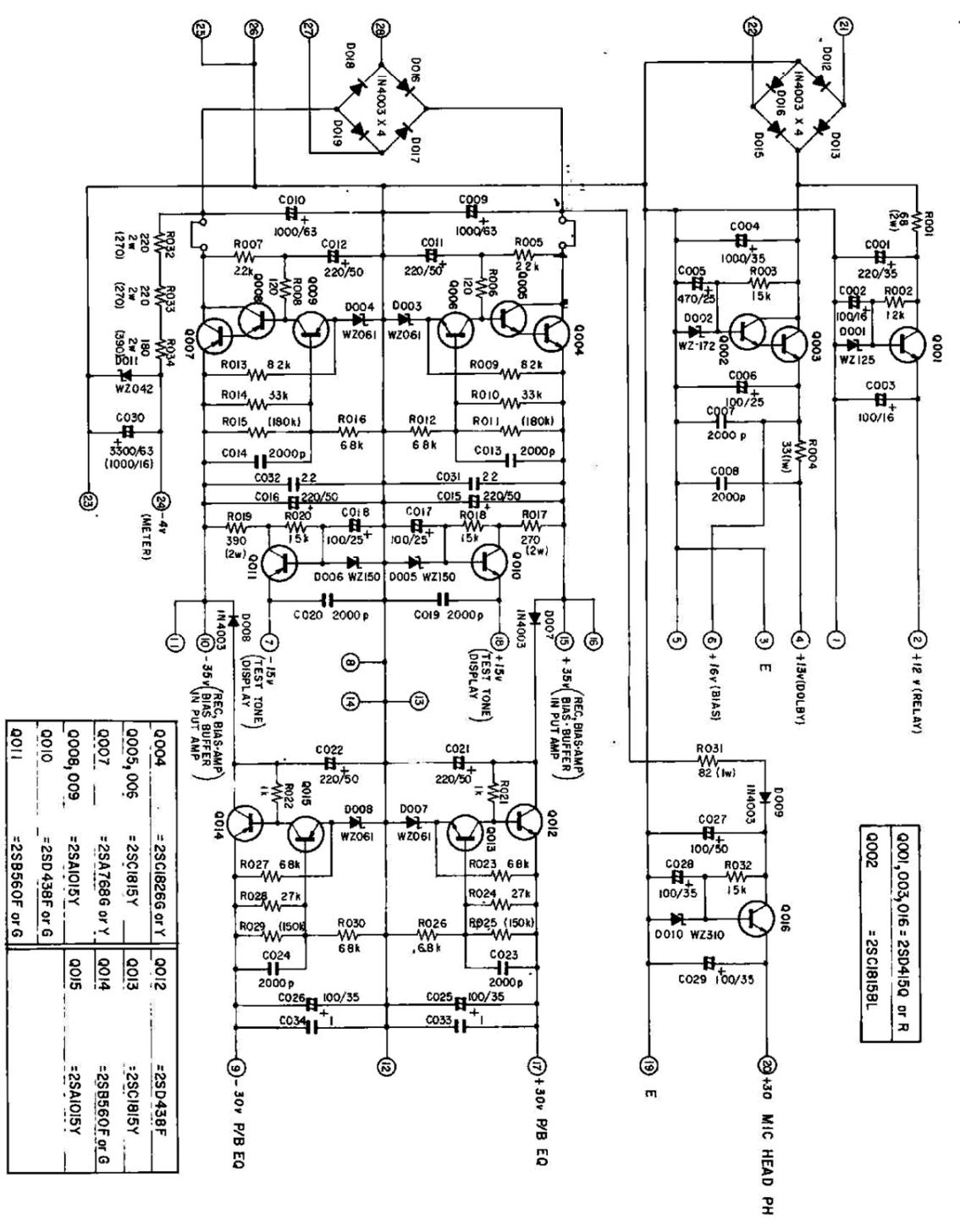




5K50 REC PCB CIRCUIT

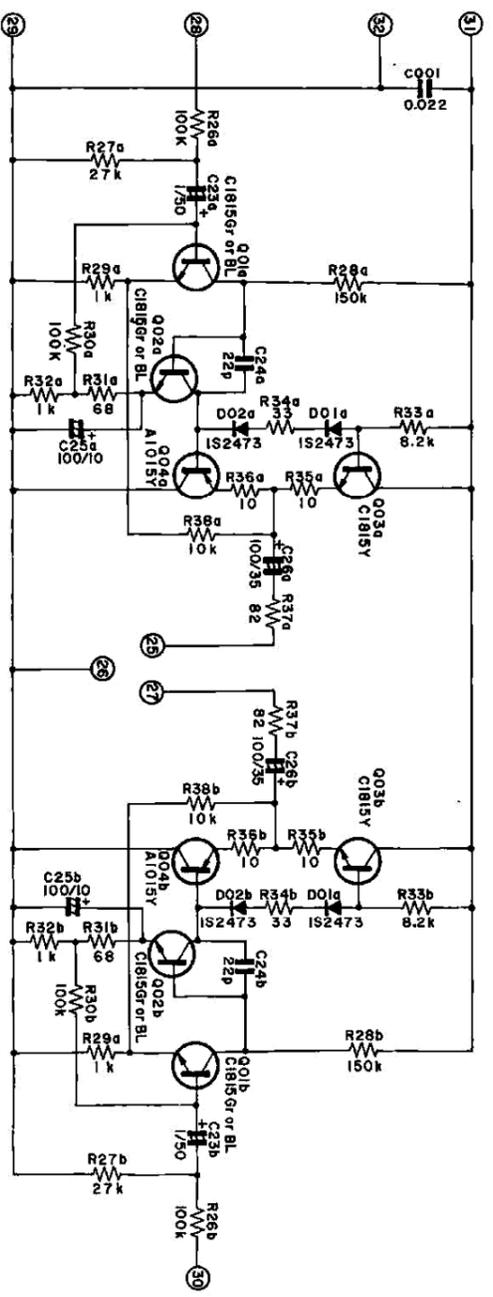
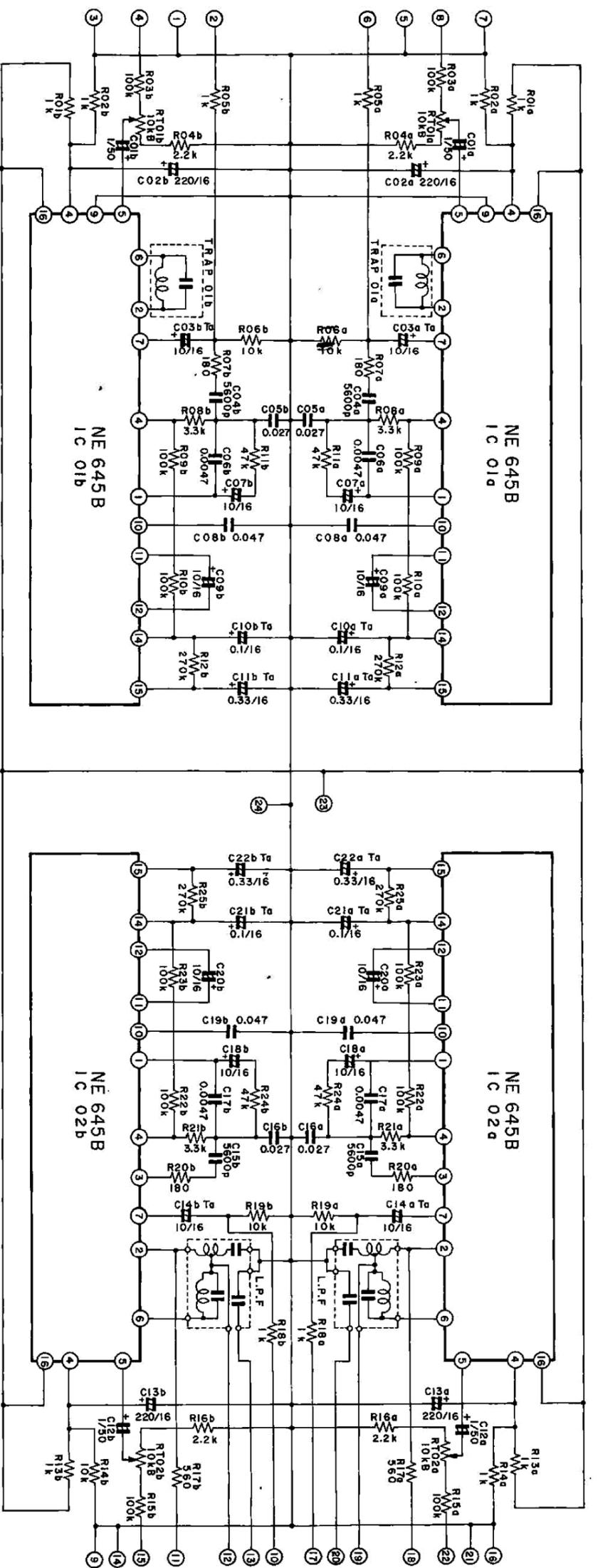


5K50 AMP PS PCB CIRCUIT



Q001, Q03, Q16	= 2SD4150 or R
Q002	= 2SC1815BL

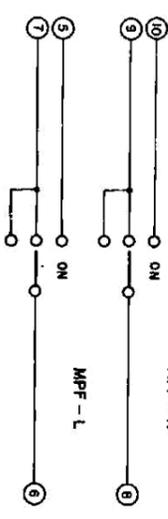
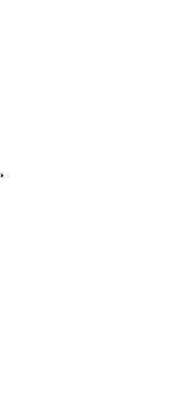
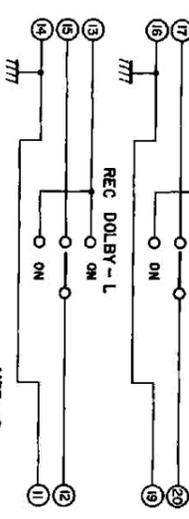
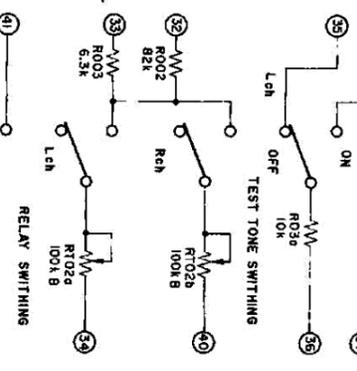
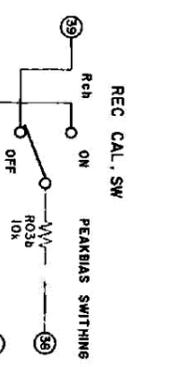
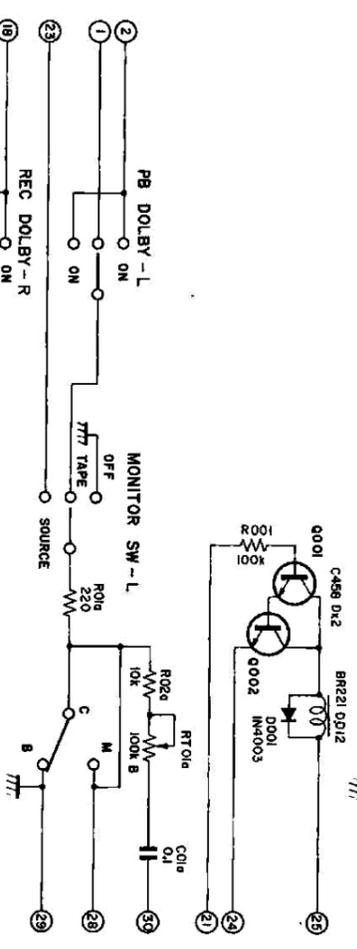
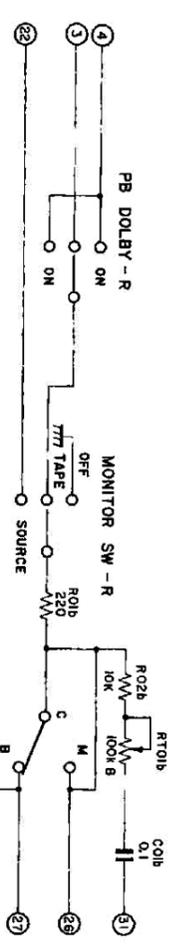
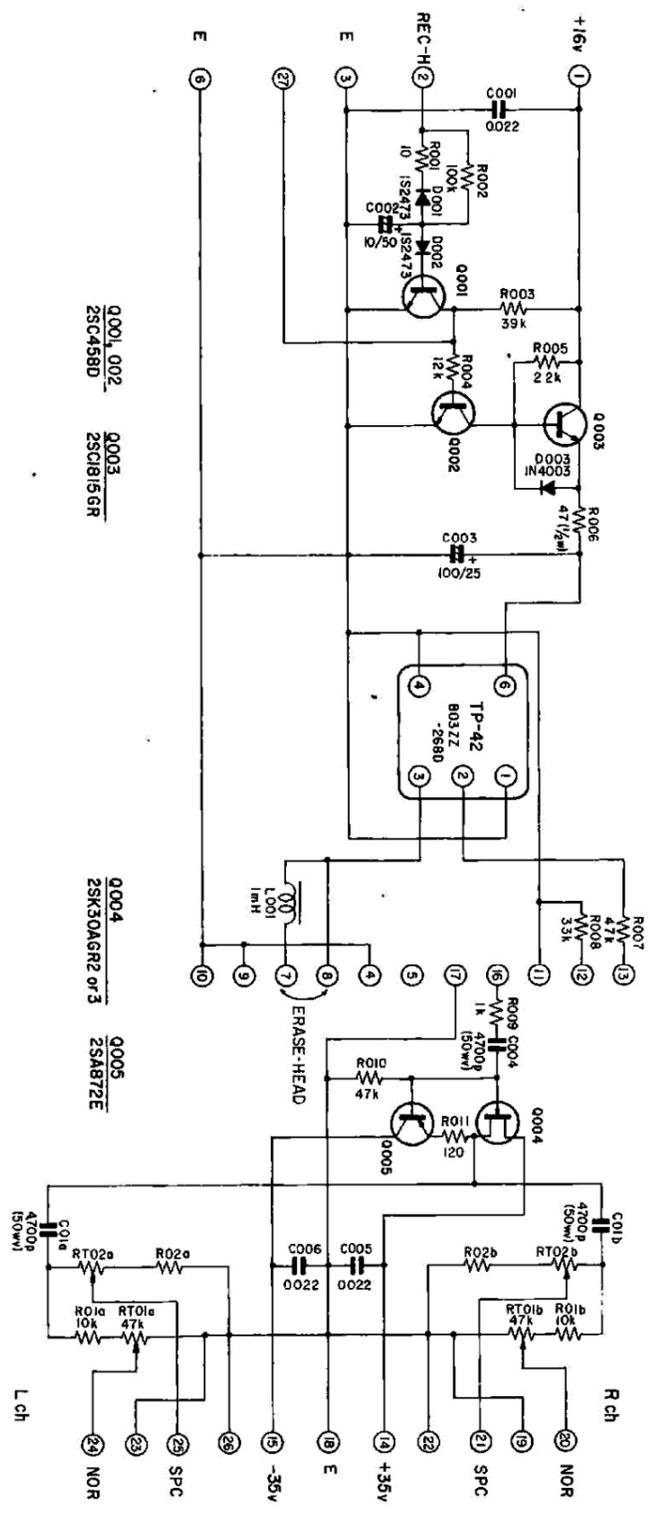
Q004	= 2SC1826G or Y	Q012	= 2SD438F
Q005, Q06	= 2SC1815Y	Q013	= 2SC1815Y
Q007	= 2SA7686 or Y	Q014	= 2SB560F or G
Q008, Q09	= 2SA1015Y	Q015	= 2SA1015Y
Q010	= 2SD438F or G		
Q011	= 2SB560F or G		



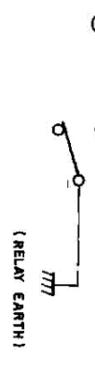
5K50 DOLBY B & HEAD PH CIRCUIT



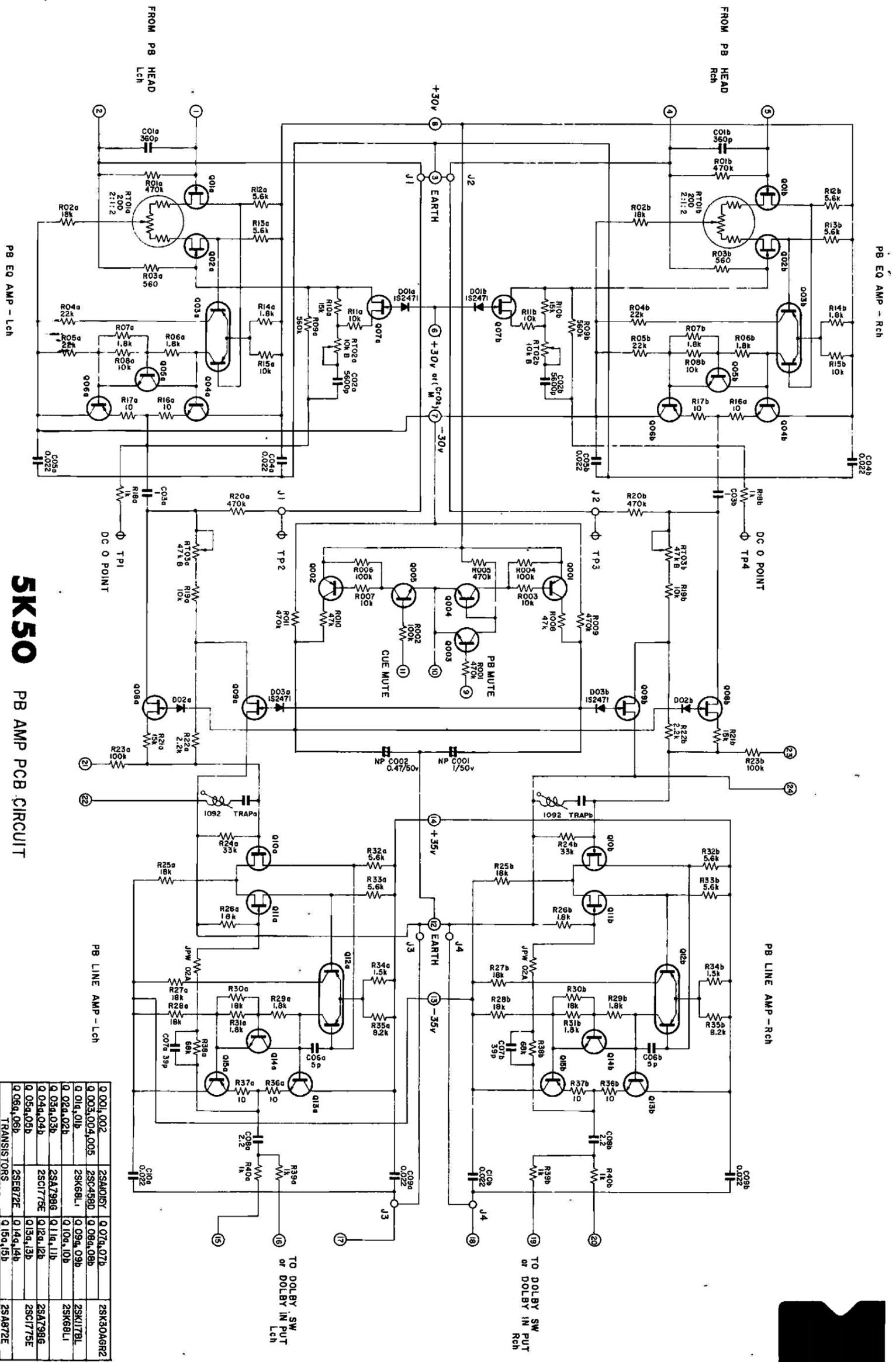
5K50 BIAS OSC PCB CIRCUIT



5K50 SW-PCB CIRCUIT



(RELAY EARTH)



5K50 PB AMP PCB CIRCUIT

Q 001, 002	2SA105T	Q 07a, 07b	2SK30A6R2
Q 003, 004, 005	2SC459D	Q 08a, 08b	
Q 01a, 01b	2SK68L	Q 09a, 09b	2SK17BL
Q 02a, 02b	Q 10a, 10b		2SK68L
Q 03a, 03b	2SA798G	Q 11a, 11b	2SA798G
Q 04a, 04b	2SC177E	Q 12a, 12b	2SA798G
Q 05a, 05b	Q 13a, 13b		2SC177E
Q 06a, 06b	2SE87ZE	Q 14a, 14b	
TRANSISTORS	Q 15a, 15b		2SA87ZE



