

**NAD** **SERVICE**  
**MANUAL**



**MONITOR SERIES**

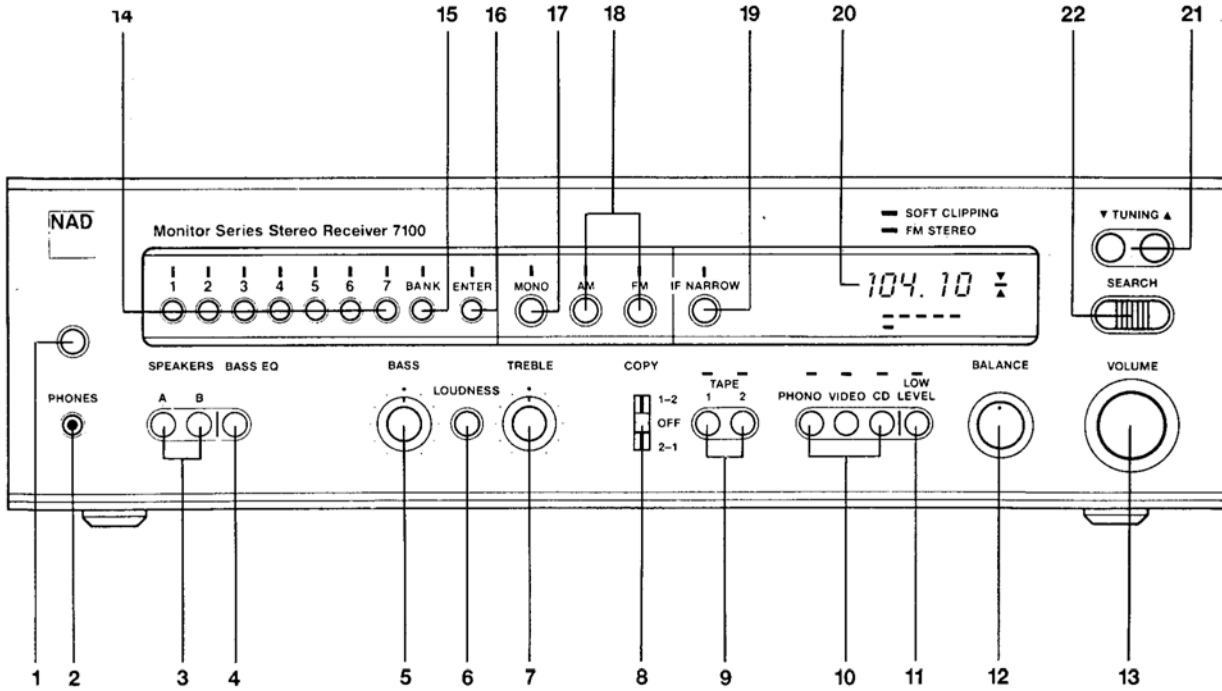
**7100**

**RECEIVER**

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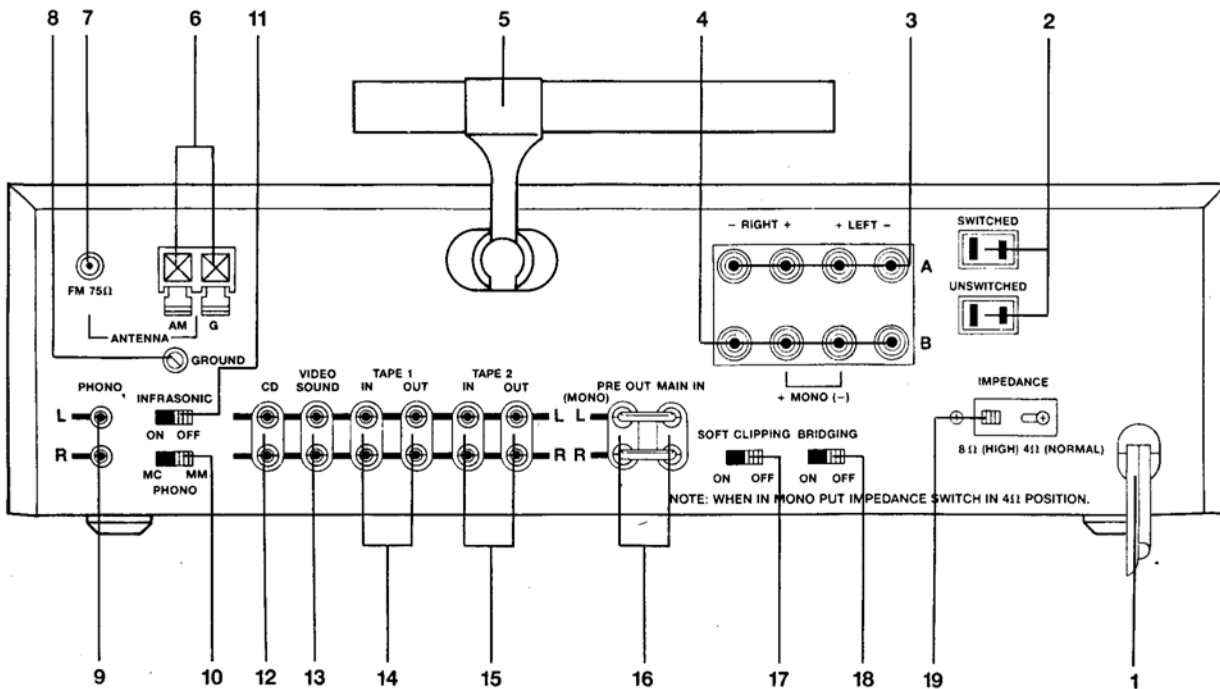
**FRONT PANEL**

- |                           |  |                     |
|---------------------------|--|---------------------|
| 1. Power.                 | 9. Tape 1, Tape 2 (Monitor).           | 17. Mono.           |
| 2. Phones.                | 10. Input Selector (Phono, Video, CD). | 18. AM/FM.          |
| 3. Speaker Selector.      | 11. Low Level.                         | 19. Narrow I.F.     |
| 4. Bass Eq.               | 12. Balance.                           | 20. Tuning Display. |
| 5. Bass.                  | 13. Volume.                            | 21. Tuning Up/Down. |
| 6. Loudness Compensation. | 14. Pre-sets.                          | 22. Search mode.    |
| 7. Treble.                | 15. Bank Selector.                     |                     |
| 8. Tape Copy.             | 16. Memory Enter.                      |                     |



**REAR PANEL**

- |                          |                          |                           |
|--------------------------|--------------------------|---------------------------|
| 1. AC Line Cord.         | 8. Phono Ground.         | 15. Tape 2 Input/Output.  |
| 2. AC Outlets            | 9. Phono Input.          | 16. Preamp Out, Main In.  |
| 3. Speakers A.           | 10. MM/MC Selector.      | 17. Soft Clipping On/Off. |
| 4. Speakers B.           | 11. Infrasonic Filter.   | 18. Bridging.             |
| 5. AM Rod Antenna.       | 12. CD Input.            | 19. Speaker Impedance.    |
| 6. AM Antenna Terminals. | 13. Video Sound Input.   |                           |
| 7. FM Antenna Input.     | 14. Tape 1 Input/Output. |                           |



## Specifications

### NAD 7100 Stereo Receiver

Note: Specifications are measured in accordance with EIA Standard RS-490 (IHF A-202) for amplifiers and ANSI-IEEE Standard 185 (1975), i.e. IHF T-200, for tuners. Tuner sensitivity is measured via 75-ohm coaxial input. Amplifier measurements referred to 8 ohm are taken with the Speaker Impedance selector set to 8 ohm (High). Measurements for 4 and 2 ohm are taken with Impedance selector at 4 ohm (Normal).

#### Power Amplifier Section

##### CONTINUOUS AVERAGE POWER

OUTPUT AT 8 OHM (minimum RMS 50 W(17 dBW)

power per channel, both channels driven, with no more than the rated distortion)

Rated distortion (THD), 20 Hz - 20 kHz 0.03%

Clipping power, 1 kHz (maximum continuous power per channel) 70 W

Dynamic Headroom at 8 ohm +6 dB

Dynamic power (maximum 8 ohm 200 W

short-term power per channel) 4 ohm 250 W

2 ohm 330 W

Damping factor 100

Slew factor >50

Slew rate 35V/usec

T.H.D. and SMPTE I.M. distortion from <0.03%

250 mW to rated output

IHF I.M. (CCIF IM) and T.I.M. distortion <0.03%

at rated output

Input impedance 10 kohm/600pF

Input sensitivity for 1 Watt/50 Watts out 120 mV/850mV

Power amp gain 27 dB

#### Preamplifier Section

##### Phono Input

Input Impedance MM + MC R=47 kohm, C=100 pF

Input Sensitivity (1 kHz) MM/MC .35/.025mV for 1W out

MM/MC 2.5/.18mV for 50W out

Signal-to-Noise Ratio with MM 75 dB re 5 mV

cartridge connected, A-weighted MC 75 dB re 0.5mV

Input Overload at 20 Hz/1kHz/20kHz MM 20/180/1500 mV

MC 1.4/13/100 mV

RIAA Accuracy ±0.5 dB

##### High-Level Inputs (CD, Video, Tape)

Input Impedance R=50 kohm, C=500 pF

Input Sensitivity 20 mV for 1W out

150 mV for 50W out

Signal-to-Noise ratio, A-weighted 94 dB re 1 W out

111 dB re 50 W out

Input Overload >10V

Frequency Response 20Hz-20kHz ± 0.5dB

#### Outputs

Preamp output impedance 600 ohm

Tape output impedance 100 ohm

#### Controls

Treble ±9 dB at 10kHz

Bass ±10 dB at 50 Hz

Bass Equalization ±3 dB at 55 Hz

+6 dB at 36 Hz

-3 dB at 12 Hz

Infrasonic Filter 12 dB/octave

Low Level (audio muting) -20 dB

#### FM Tuner Section

##### Input sensitivity

Mono, -30 dB THD+N 11 dBf(1.0uV into 75 ohm)

Mono, 50 dB S/N 14 dBf(1.4uV into 75 ohm)

Stereo, 50 dB S/N 26 dBf (5.5 uV)

Stereo, 60 dB S/N 37 dBf (20 uV)

Capture ratio (at 45 and 85 dBf) <1.6 dB

AM rejection (at 45 and 85 dBf) >60 dB

Selectivity, alternate channel 70 dB, IF normal

80 dB, IF narrow

Image rejection >80 dB

R.F. intermodulation >60 dB

I.F. rejection >120 dB

SCA rejection 70 dB

Subcarrier suppression(19, 38 kHz) 65 dB

THD at 100% modulation Mono, 1 kHz 0.1%

Narrow IF 0.5%

100Hz-6kHz 0.2%

Stereo, 1 kHz 0.1%

Narrow IF 0.5%

100Hz-6kHz 0.3%

Signal-to-noise ratio Mono 83 dB

IHF weighted, 65 dBf Stereo 77 dB

Frequency response, 30Hz-15 kHz ±0.5 dB

Stereo separation 1 kHz 50 dB

30Hz-10kHz 35 dB

#### AM Tuner Section

Usable sensitivity 300 uV/meter

THD 0.5%

Selectivity 35 dB

Image rejection 50 dB

I.F. rejection 35 dB

S/N ratio(30% mod., 50mV input) 45 dB

#### Physical Specifications

Width x Height x Depth 43.5 x 11 x 40 cm.

17.1 x 4.25 x 15.5 in.

Net Weight 11 kg (24.4 lbs)

Shipping Weight 12.7 kg (28.2 lbs)

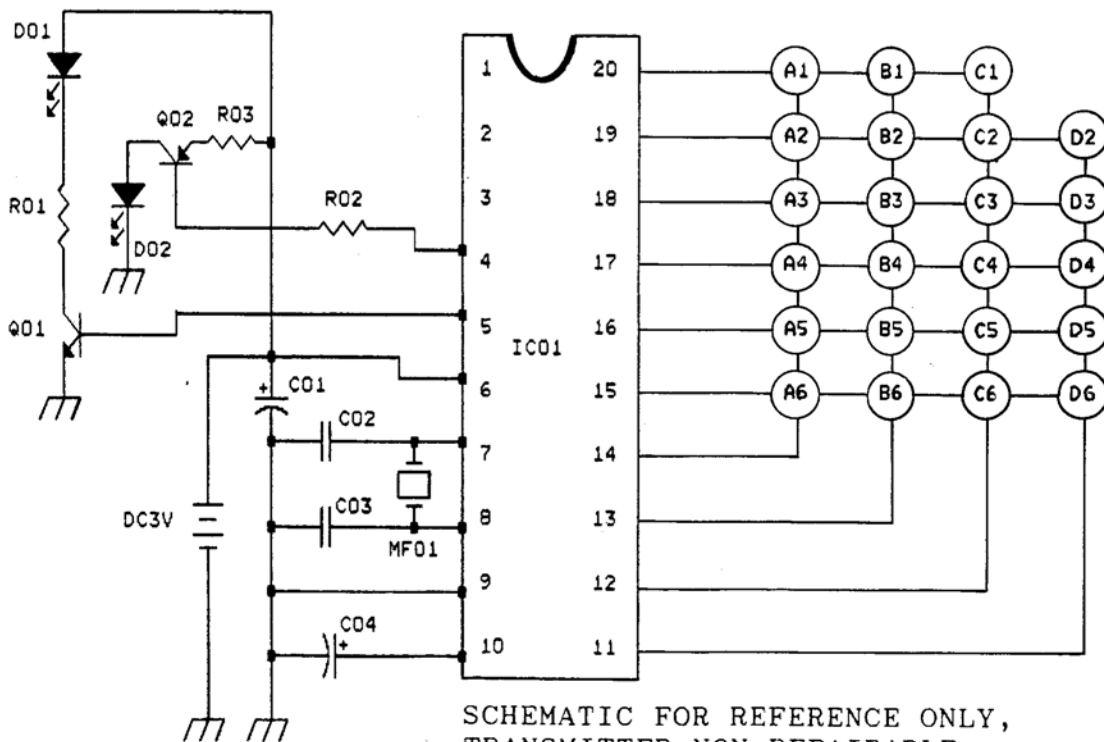
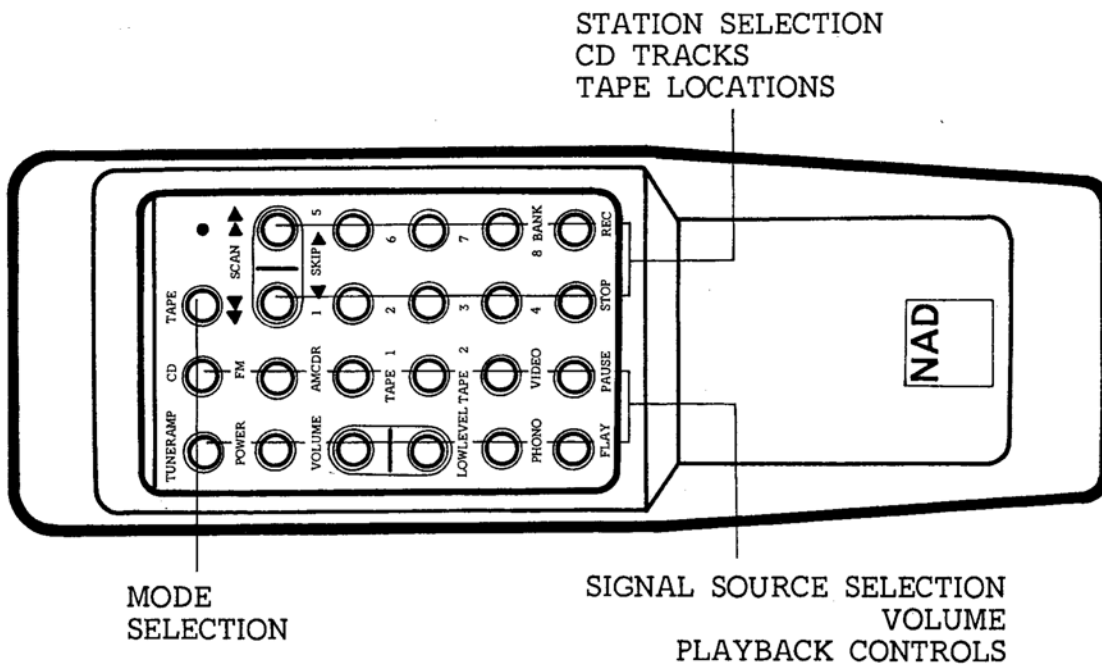
Power Consumption 50/60 Hz at 110,120,

220, or 240 VAC

220 VA

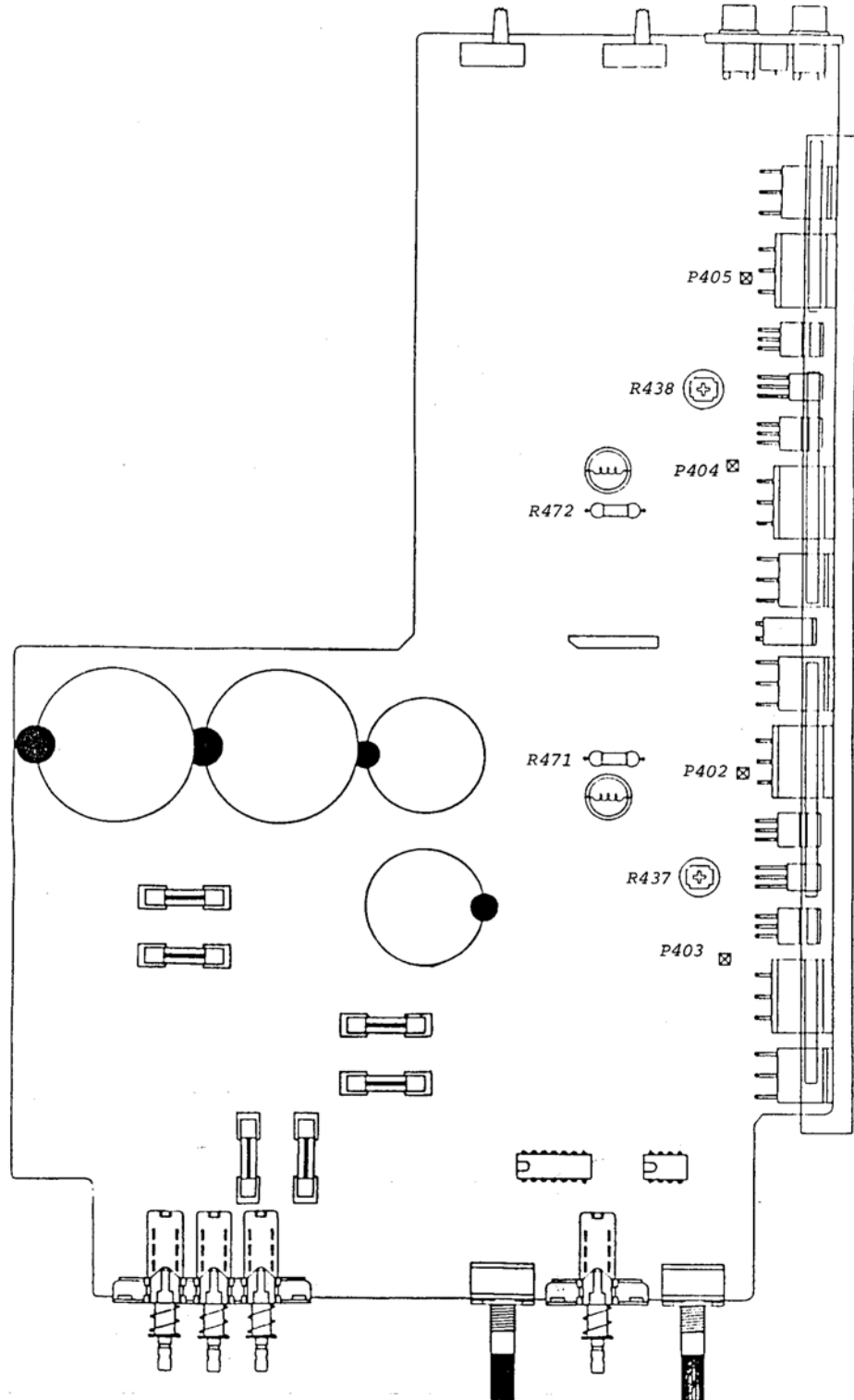
All specifications for A, A1 model (US-type, 75 uSec)  
; others may vary.

REMOTE CONTROL TRANSMITTER



SCHEMATIC FOR REFERENCE ONLY,  
TRANSMITTER NON-REPAIRABLE.

# MAIN AMPLIFIER ADJUSTMENT POINTS



## MAIN AMPLIFIER ADJUSTMENT

### IMPORTANT NOTES:

- 1) Before adjusting, remove input signal and load, and set Speaker impedance switch to 8 ohms (reset to 4 ohms when finished).
- 2) These adjustments are always necessary after repair to main amplifier.
- 3) After repair, it is recommended to use current limiter (70-100W lightbulb) in mains line, for initial turn-on.

### A. CENTER VOLTAGE CHECK

1. Connect DMM between Ground and R-471 (L channel)(R-472, R channel)(amplifier output).
2. Turn on, and read voltage. Specification  $0V \pm 100mVDC$ .

### B. IDLE CURRENT ADJUSTMENT

1. Connect DMM across P-402(+) and P-403(-), and adjust R-437 for reading of  $15mV \pm 2.5mVDC$ .
2. Repeat, using P-404(+) and P-405(-), adjust R-438.

### C. FINAL ADJUSTMENT

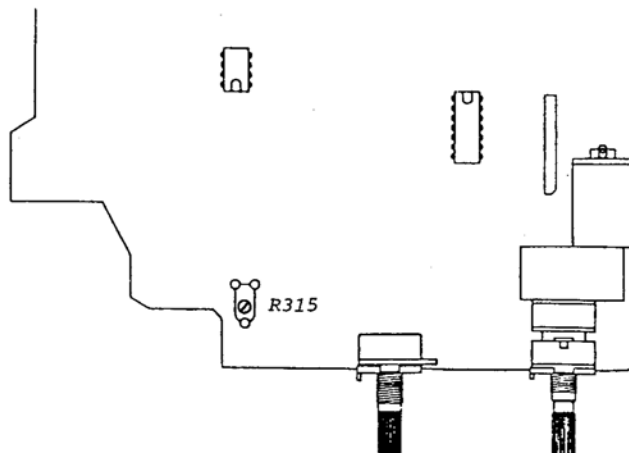
1. Leave power on minimum 5 minutes.
2. Repeat center voltage check and idle current adjustments.

## PREAMPLIFIER ADJUSTMENT

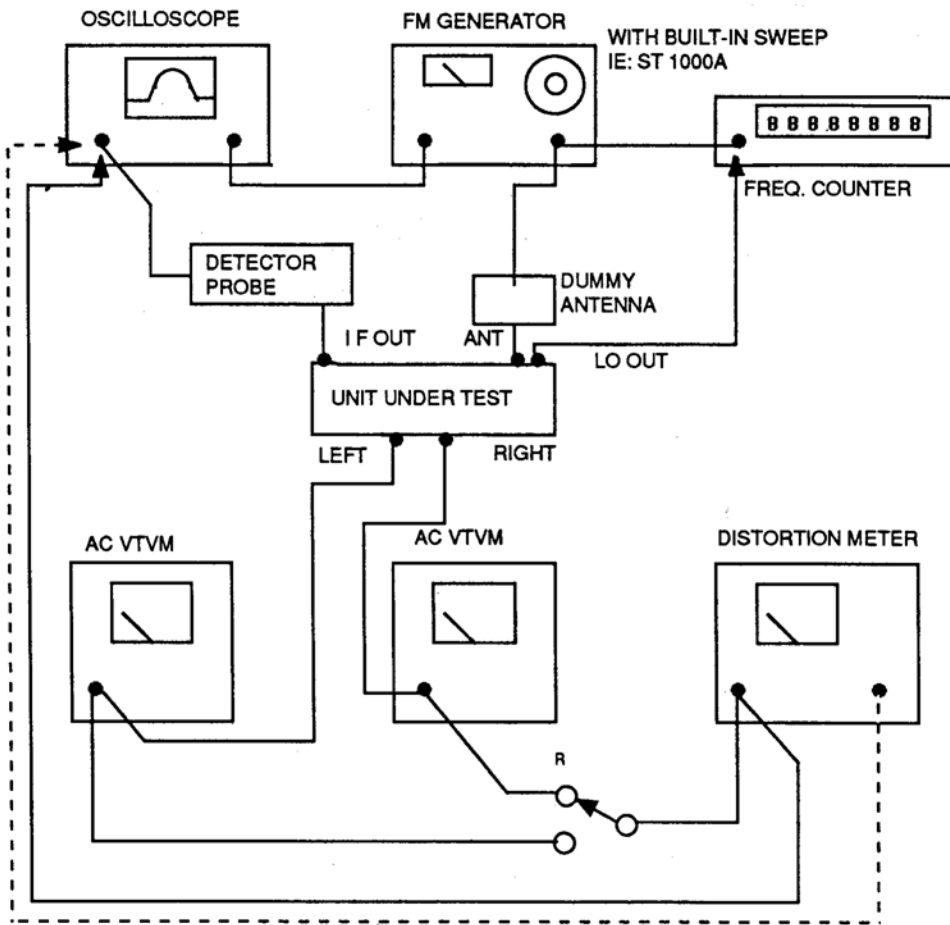
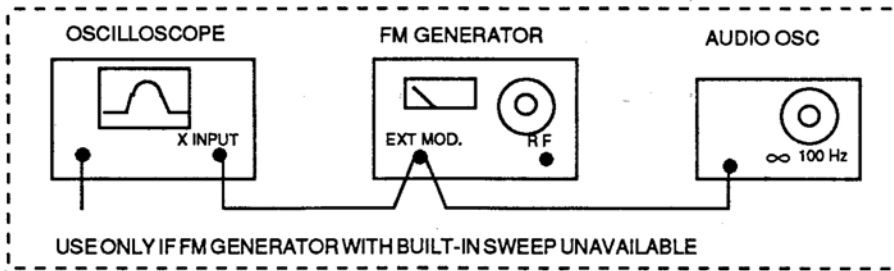
### A. CHANNEL BALANCE

1. Feed 1kHz, 100mV to CD input; connect AC VTVM's to preamp output.
2. Set volume to maximum, balance to center, low level off.
3. Adjust R-315 so that both channels have same output level  $\pm 0.25dB$ .

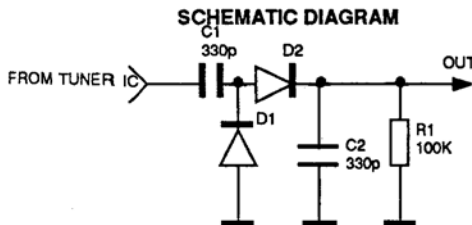
### PREAMPLIFIER ADJUSTMENT POINTS



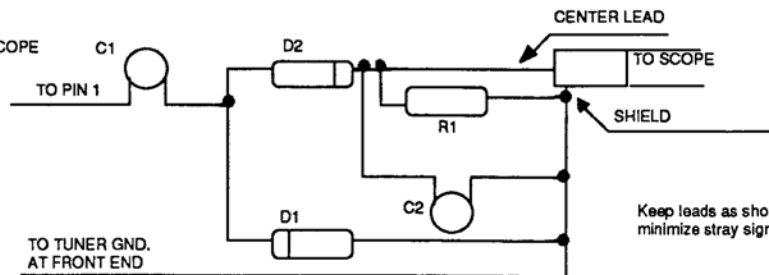
# SUGGESTED INSTRUMENTATION HOOKUP- FM ALIGNMENT



## DETECTOR PROBE



## PICTORIAL DIAGRAM



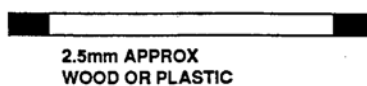
Keep leads as short as possible, to minimize stray signal pickup.

Diodes should be point-contact germanium; some types commonly available are:

- OAB0
- OAB1
- AA119
- 1N60
- 1N34
- 1N22

## INDUCTOR TEST PROBE

THIN BRASS,  
2x10 mm approx



FERRITE  
2-3 mm DIA

BRASS, FERRITE  
FROM RF COIL.  
FASTEN WITH  
GLUE.



## FM ALIGNMENT

### NECESSARY INSTRUMENTATION:

- \* Stereo Modulator (less than 0.05% THD, more than 50dB Sep.)
- \* FM Generator (less than 0.05% THD)
- \* 75 ohm Dummy Antenna (if needed by generator)
- \* Audio Oscillator (not necessary if FM generator has built-in sweep, e.g., SOUND TECHNOLOGY ST 1000A or ST 1020A)
- \* 2 AC VTVM's (or one with a Left/Right switch)
- \* THD Analyzer (resolution less than 0.1%)
- \* Oscilloscope (5mV or better sensitivity, X-Y capability)
- \* Frequency Counter
- \* Diode Detector Probe
- \* Ferrite/Brass inductor test probe

### IMPORTANT NOTES

- 1) RF levels are at antenna input.
- 2) Before aligning, select FM, switch off IF NARROW and MONO.
- 3) If FM Generator is not synthesizer-type, be sure to check its frequency with Frequency Counter When adjusting detector and stereo decoder circuits.
- 4) Hum in measurements may be caused by ground loop via antenna cable; if so, use isolation balun, or isolate cable shield and hot with small capacitors (470 ~ 1000pf).
- 5) To adjust front-end coils, bend gently with wooden or plastic tool (non-interactive).
- 6) ENTER the following frequencies: 90.00, 105.00, 87.50, 108.00, 98.00

#### A. LOCAL OSCILLATOR FREQUENCY

1. Connect Frequency Counter between front-end pin 8 (front-most) and Ground.
2. Tune to 90 MHz (No RF input needed).
3. Adjust C-934 so that reading is  $100.700\text{MHz} \pm 2\text{KHz}$ .
4. Remove counter.

#### B. TUNING VOLTAGE

1. Connect DMM between P-936 and Ground.
2. Tune to 108.00MHz, and adjust L-7 if reading is not  $20.0\text{V} \pm 0.5\text{V}$
3. Tune to 88.00MHz, and check that reading is  $3.0\text{V} \pm 0.5\text{V}$
4. Repeat until within tolerance.

#### C. TRACKING

1. Connect FM Generator to 75 ohm antenna input (modulate  $\pm 150\text{kHz}$  sweep) and Detector Probe to Pin 1 of Q106 (ground to tuners shield).
2. Adjust vertical sensitivity of Oscilloscope to maximum, and set to X-Y mode. (X input is sweep signal, Y is detector probe).
3. Tune to 105MHz and adjust generator so that curve appears on Oscilloscope, and covers approximately 1/2 of display.
4. Check L2, L3, L4 with ferrite/brass probe, adjust only if probe causes curve height to increase more than 10%. If necessary, reduce generator output to keep entire curve on display.

5. Tune to 90MHz and adjust Generator so that curve appears on Oscilloscope.
6. Check L2, L3, L4 again; if necessary, distribute any error between both frequencies.

Note: 105MHz curve is typically slightly higher than 90MHz.

#### D. IF ADJUSTMENTS

1. Tune to approximately 98MHz (must be an unoccupied frequency), and adjust FM Generator to display curve on the oscilloscope.
2. Adjust I-1 and I-101 for maximum and symmetrical curve using as little RF input signal as possible.
3. Remove detector probe.

#### E. DETECTOR ADJUSTMENT

1. Remove Detector Probe, and connect Tape Output to Distortion Analyzer and Oscilloscope.
2. Connect DMM between P-703 (-) and P-704 (+).
3. Tune to 98MHz and feed 1000uV from FM Generator (Modulate 1kHz 100%, Mono).
4. Adjust I-102 Secondary (front) for lowest THD. Specification: less than 0.1%
5. Adjust L-102 Primary (rear) for  $0V \pm 50mV$  reading on DMM.
6. Repeat until no further improvement.

#### F. STEREO DISTORTION & SEPARATION

1. Tune to 98MHz and feed 1000uV from FM Generator. Modulate 1kHz, 100% left (or right) only.
2. Adjust I-1 and I-101 just slightly so that distortion on left (or right) channel becomes minimum.
3. Check stereo distortion, wide IF; Specification: less than 0.1% , L + R, L only, R only, L - R.
4. Next, select IF NARROW, and check distortion; Specification: less than 2%, L only, R only, L - R.
5. Set IF to wide and modulate L only. Adjust R-176 for minimum output on right channel.  
Next, modulate R only and adjust R-176 for minimum output on left channel.  
If necessary, readjust R-176 so that readings become same on both channels. Specification: less than -45dB.
6. Select IF NARROW, and modulate left (or right) channel only. Adjust R-177 for minimum output on right (or left) channel VTVM and oscilloscope.  
If necessary, readjust R-177 so that readings become same on both channels. Specification: less than -40dB.

#### G. AUTO SEARCH LEVEL

1. Set IF to wide. Connect DMM between P-935 and Ground.
2. Set FM Generator output to 10uV and adjust R-144 so that reading just goes from 0 V to 4.4V. Tolerance:  $\pm 2uV$ .

## TUNER ADJUSTMENT POINTS

### H. STEREO SWITCHING LEVEL

1. Set FM Generator output to 5uV, 1kHz 100% L + R.
2. Adjust R-148 so that the stereo light just turns on. Tolerance:  $\pm 1$  uV.

NOTE: The tuner will switch into mono at a lower level, typically 4uV.

### I. SIGNAL METER LEVEL

1. Set FM Generator output to 500 uV
2. Adjust R-141 so that fifth LED just lights.

### J. FM NR CIRCUIT, MULTIPLEX FILTERS

1. Adjust R-025 full cw.
2. Set FM Generator output to 1000uV, 1kHz 100% L + R, and set reference for S/N measurement. Cancel the stereo modulation and leave pilot tone.
3. Adjust Z-111 (Z-112)(rear slug) for minimum subcarrier output on left (right) channel; Specification: less than -60dB.
4. Reduce FM Generator output so that S/N ratio reads 50dB. (Approx 18uV)
5. Adjust R-025 so that S/N is improved by 8dB.

### AM ALIGNMENTS

#### A. TUNING VOLTAGE

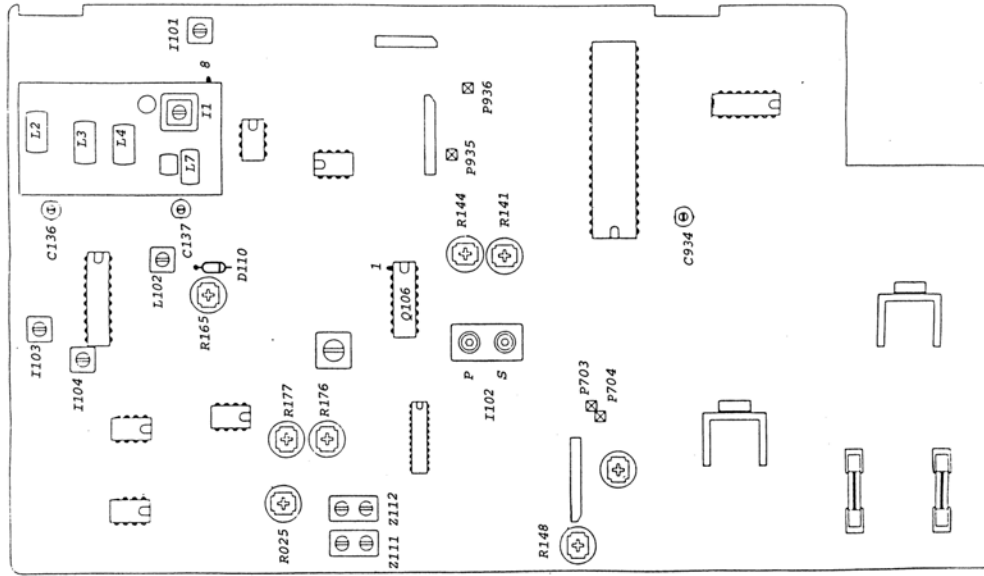
1. Connect DMM between P-936 and Ground.
2. Tune to 1600(1602)KHz. Enter into Preset 2. Adjust C-137 for reading of  $8.1V \pm 0.5V$ .
3. Tune to 520(522)kHz. Enter into Preset 1. Adjust L-102 for reading of  $1.0V \pm 0.1V$ .
4. Repeat until within tolerance.

#### B. ANTENNA, IF

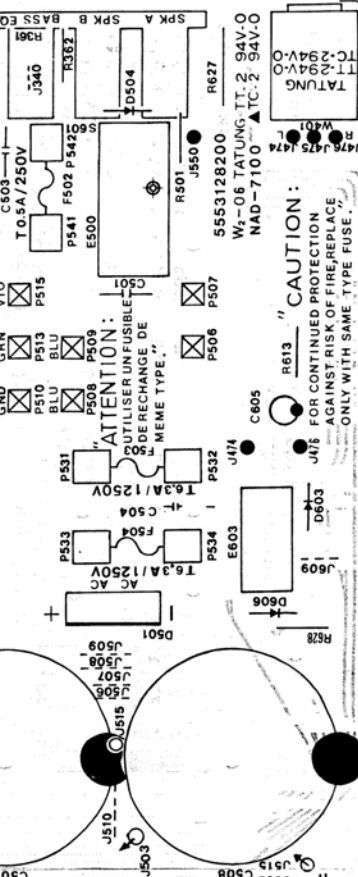
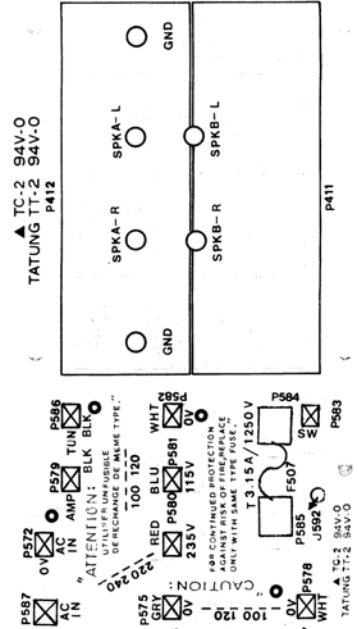
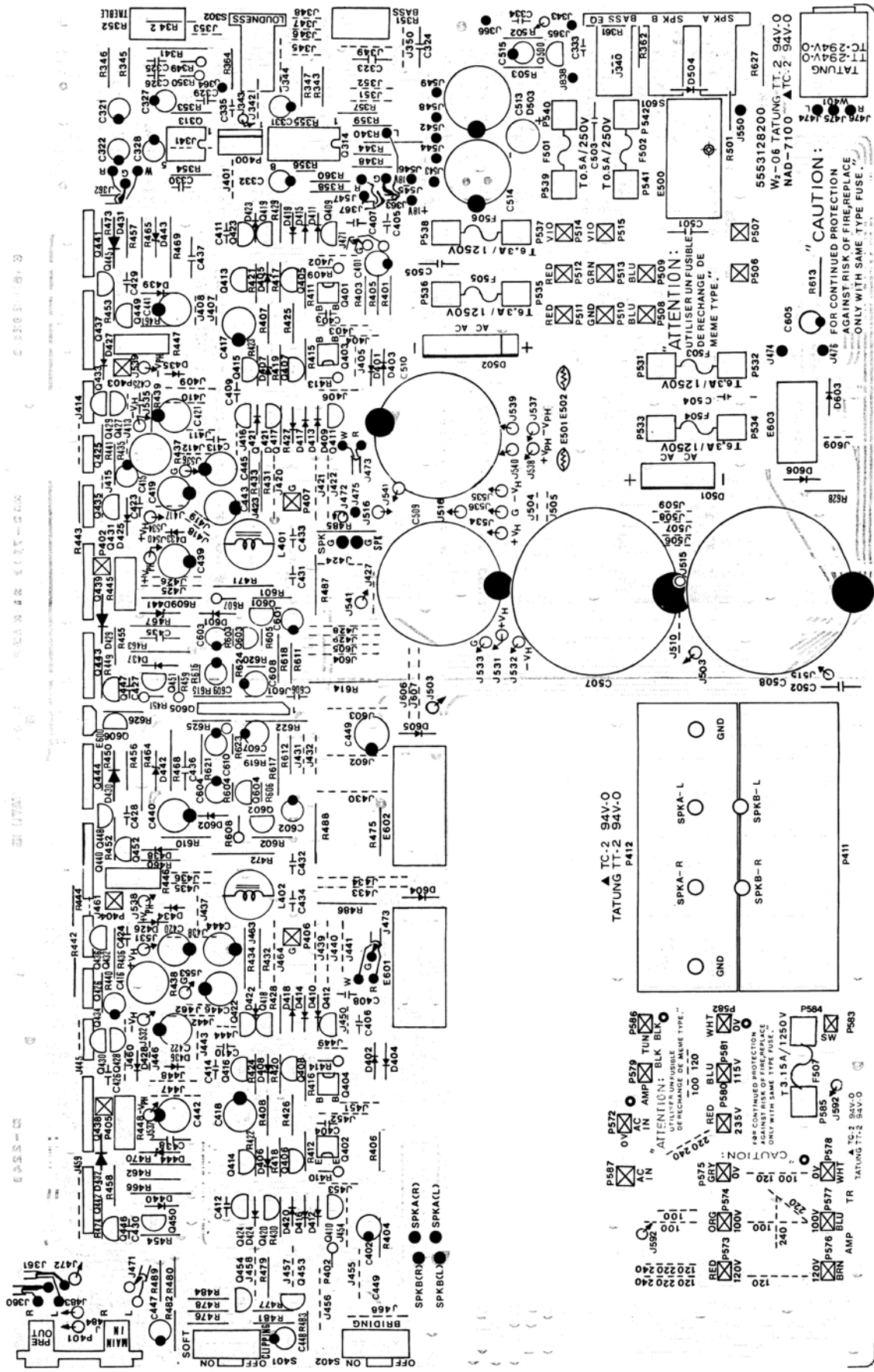
1. Swing antenna away from chassis.
2. Connect DC voltmeter to Anode, D110 (rear) and Ground.
3. Tune to a station of moderate strength near 1400kHz. Enter into Preset 4. Adjust C-136 for maximum reading on meter.
4. Adjust I-103 and I-104 for maximum reading on meter.
5. Tune to a station of moderate strength near 600kHz. Enter into Preset 3. Adjust L-101(AM Antenna) for maximum reading on meter (use non-interactive tool, such as plastic or wooden stick).
6. Repeat until no further improvement.

#### C. SCAN STOP/SIGNAL METER LEVEL

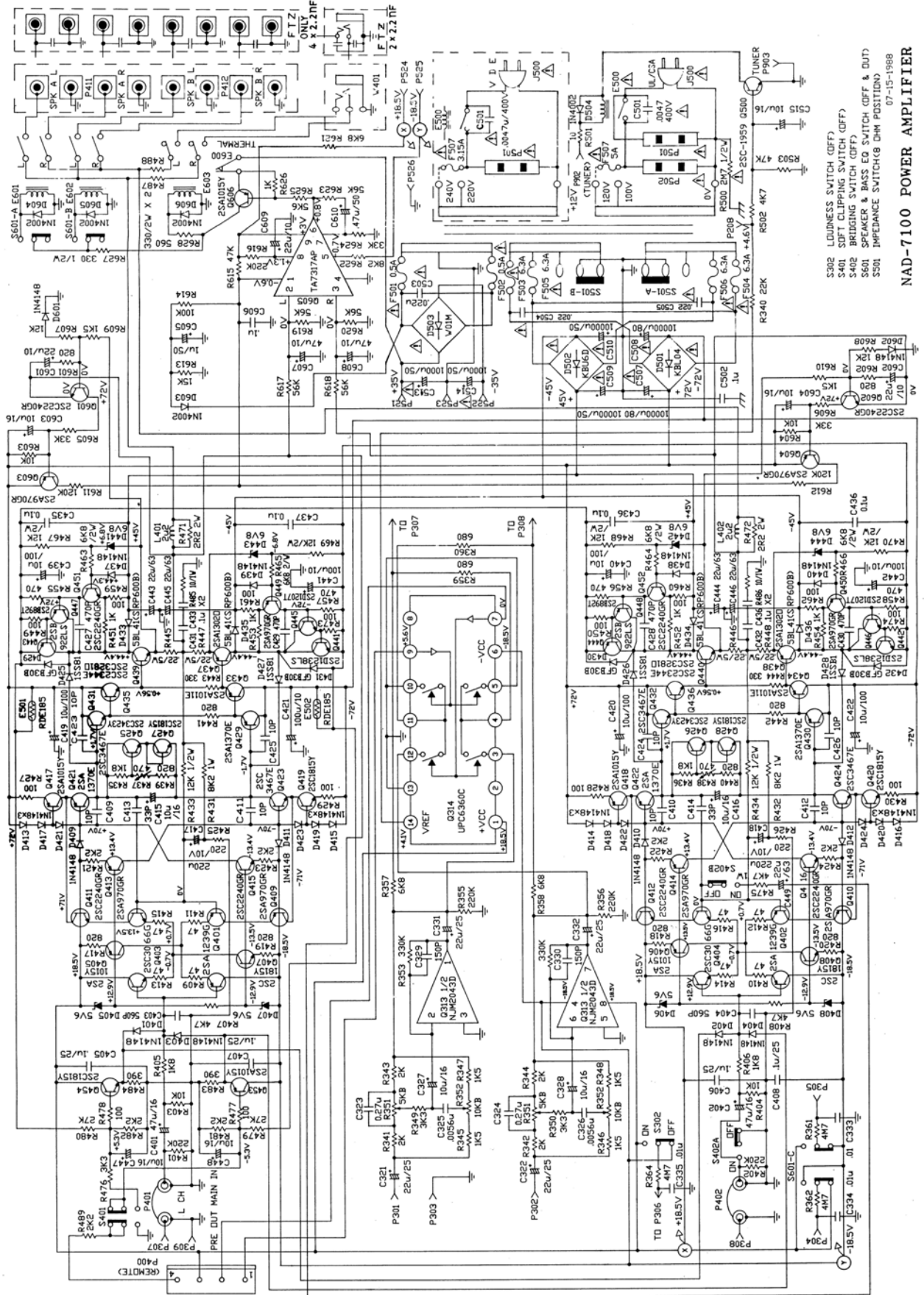
1. Tune to 1000kHz and feed 200uV to antenna terminals.
2. Adjust R-165 so that fifth LED just lights fully.



MAIN AMPLIFIER PCB LAYOUT  
COMPONENT SIDE



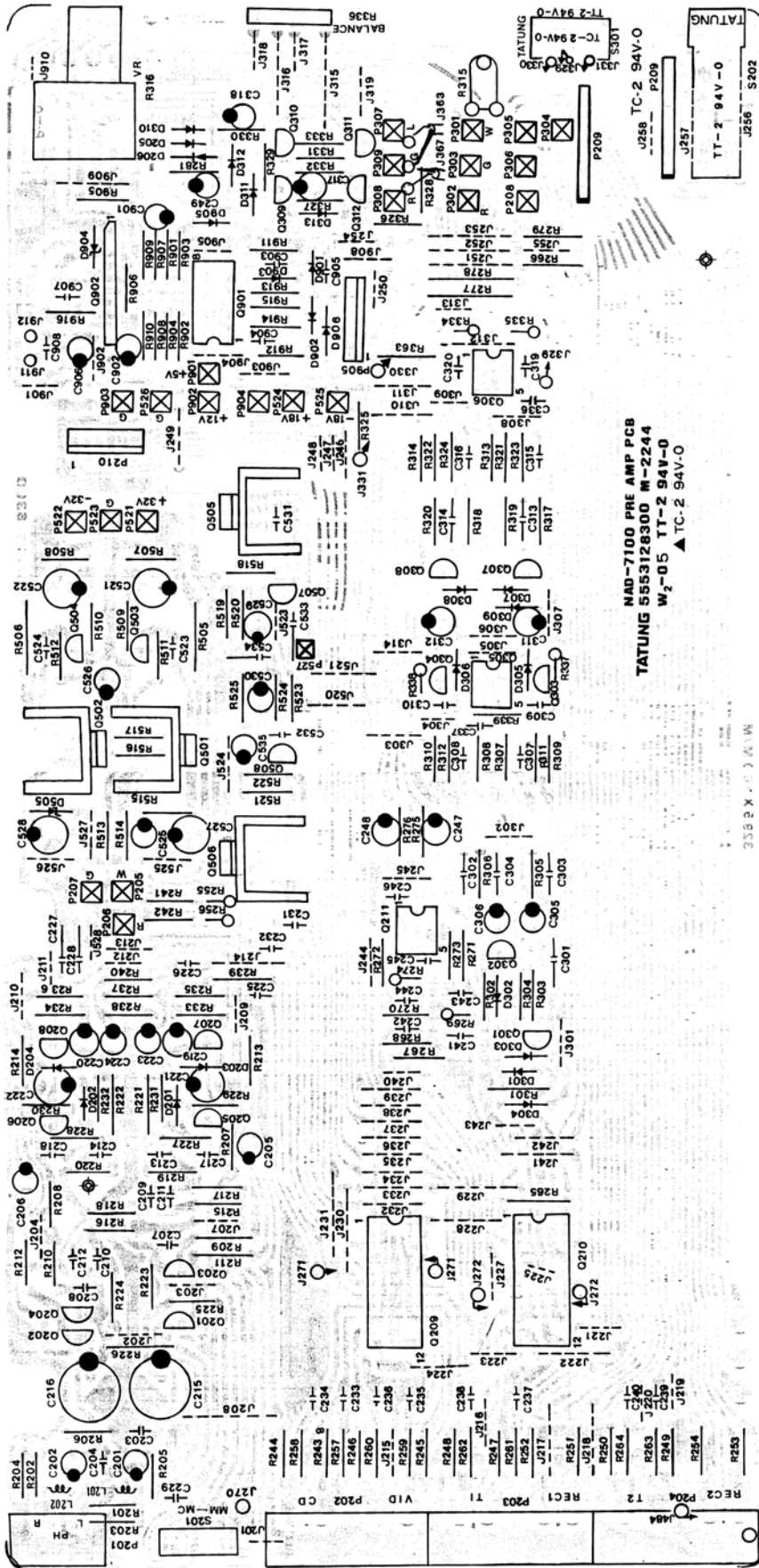
CAUTION:  
FOR CONTINUED PROTECTION  
AGAINST RISK OF FIRE, REPLACE  
ONLY WITH SAME TYPE FUSE.



NAD-7100 POWER AMPLIFIER

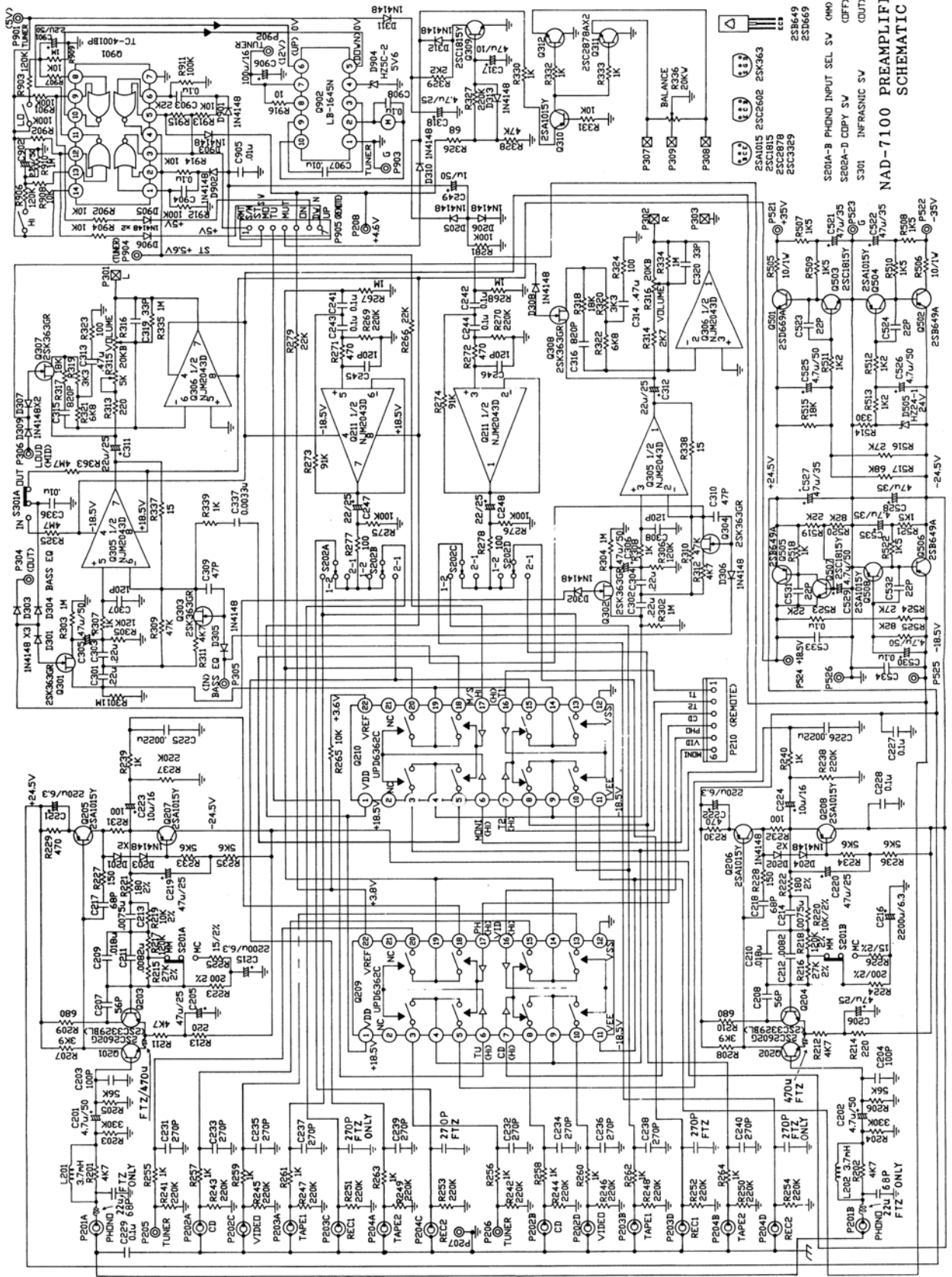
- S302 LOUDNESS SWITCH (OFF)
- S401 SOFT CLIPPING SWITCH (OFF)
- S402 BRIDGING SWITCH (OFF)
- S601 SPEAKER & BASS EQ SWITCH (OFF)
- S501 IMPEDANCE SWITCH (8 OHM POSITION)

PREAMPLIFIER PCB LAYOUT  
COMPONENT SIDE



MAD-7100 PRE AMP PCB  
TATUNG 5553129300 M-2244  
W2-05 TT-2 94V-0  
▲ TC-2 94V-0

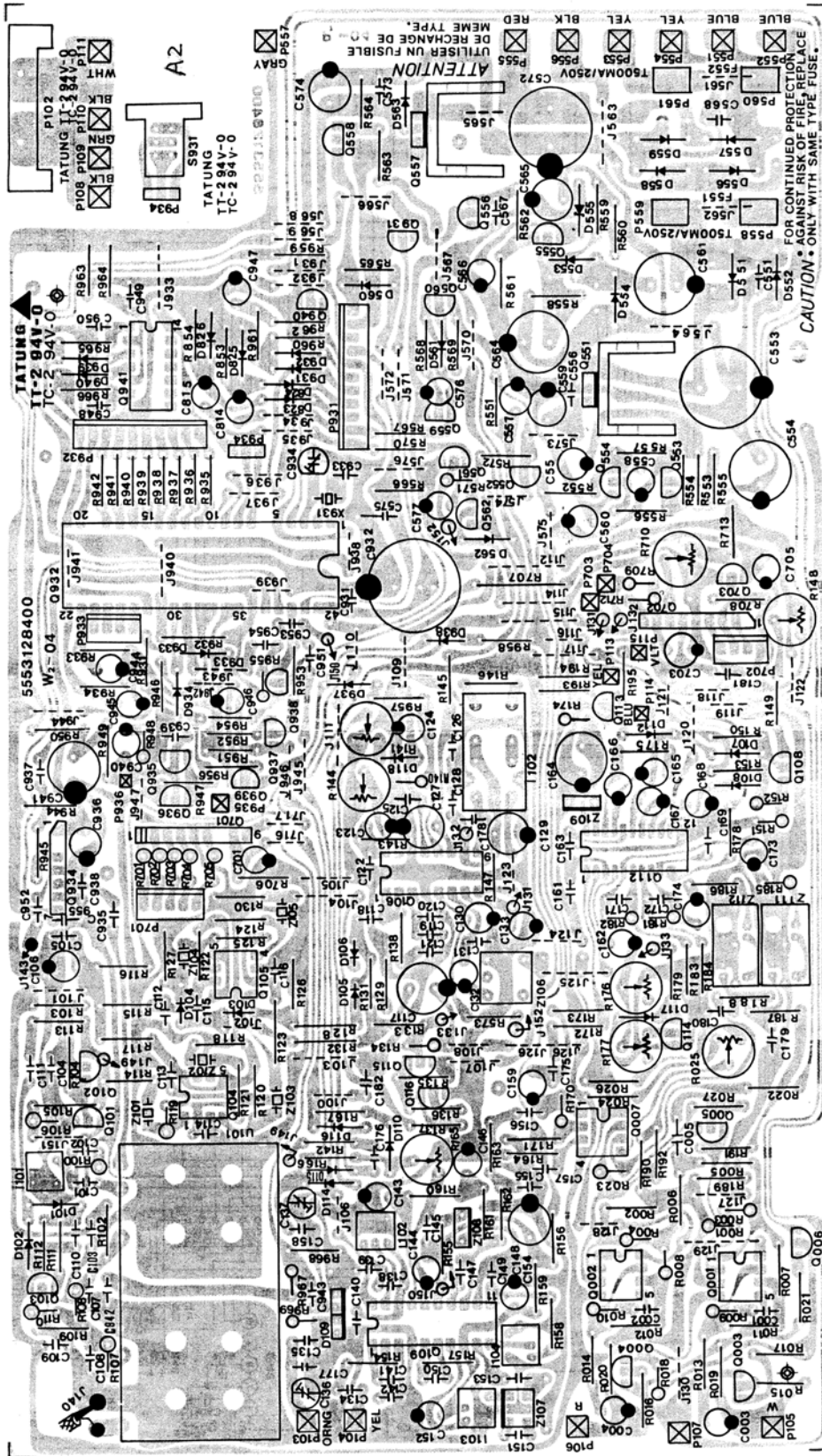
3562 X . . . J. W. W.



NAD-7100 PREAMPLIFIER SCHEMATIC

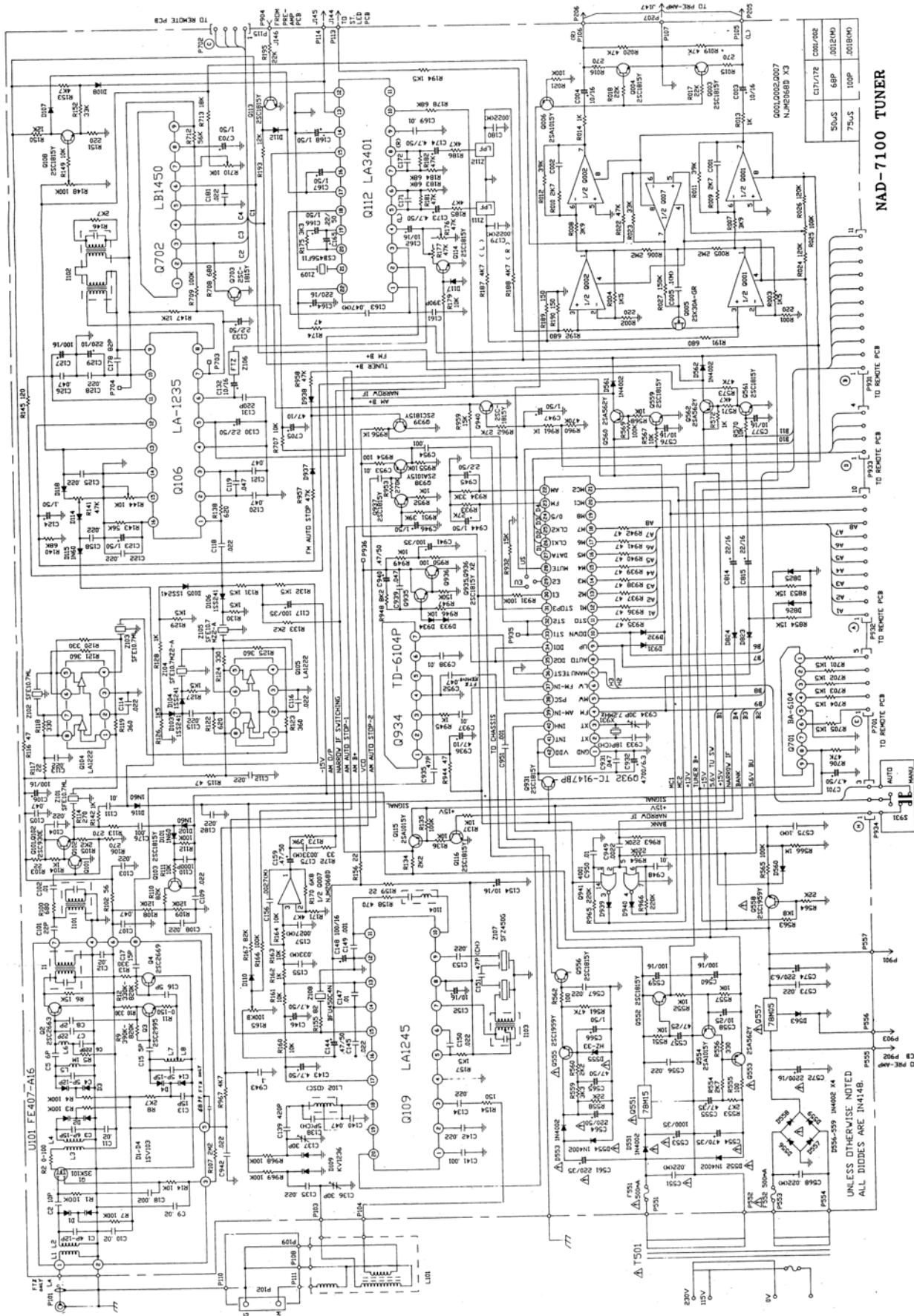
- 25A1015Y 25A1015Y
- 25C1815Y 25C1815Y
- 25C2815Y 25C2815Y
- 25C3329 25C3329
- 25C3649A 25C3649A
- 25C3649 25C3649
- 25C3669 25C3669
- 25A1015Y 25A1015Y
- 25C1815Y 25C1815Y
- 25C2815Y 25C2815Y
- 25C3329 25C3329
- 25C3649A 25C3649A
- 25C3649 25C3649
- 25C3669 25C3669

TUNER PCB LAYOUT  
COMPONENT SIDE





**TUNER**

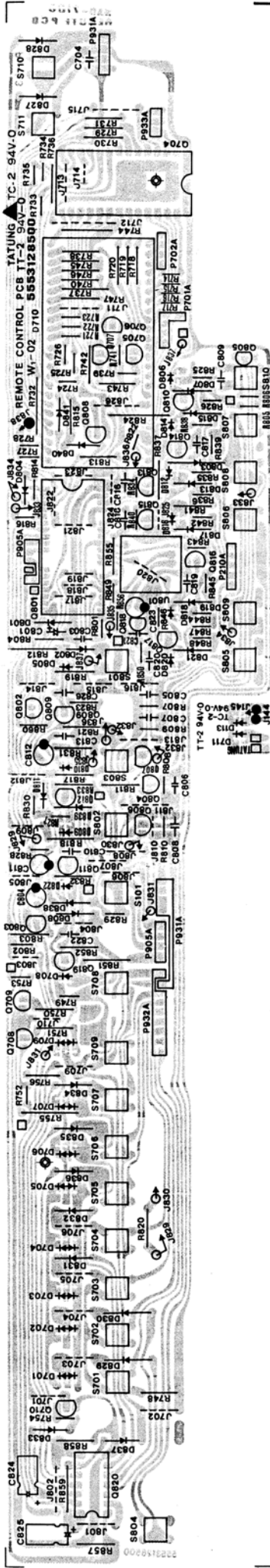


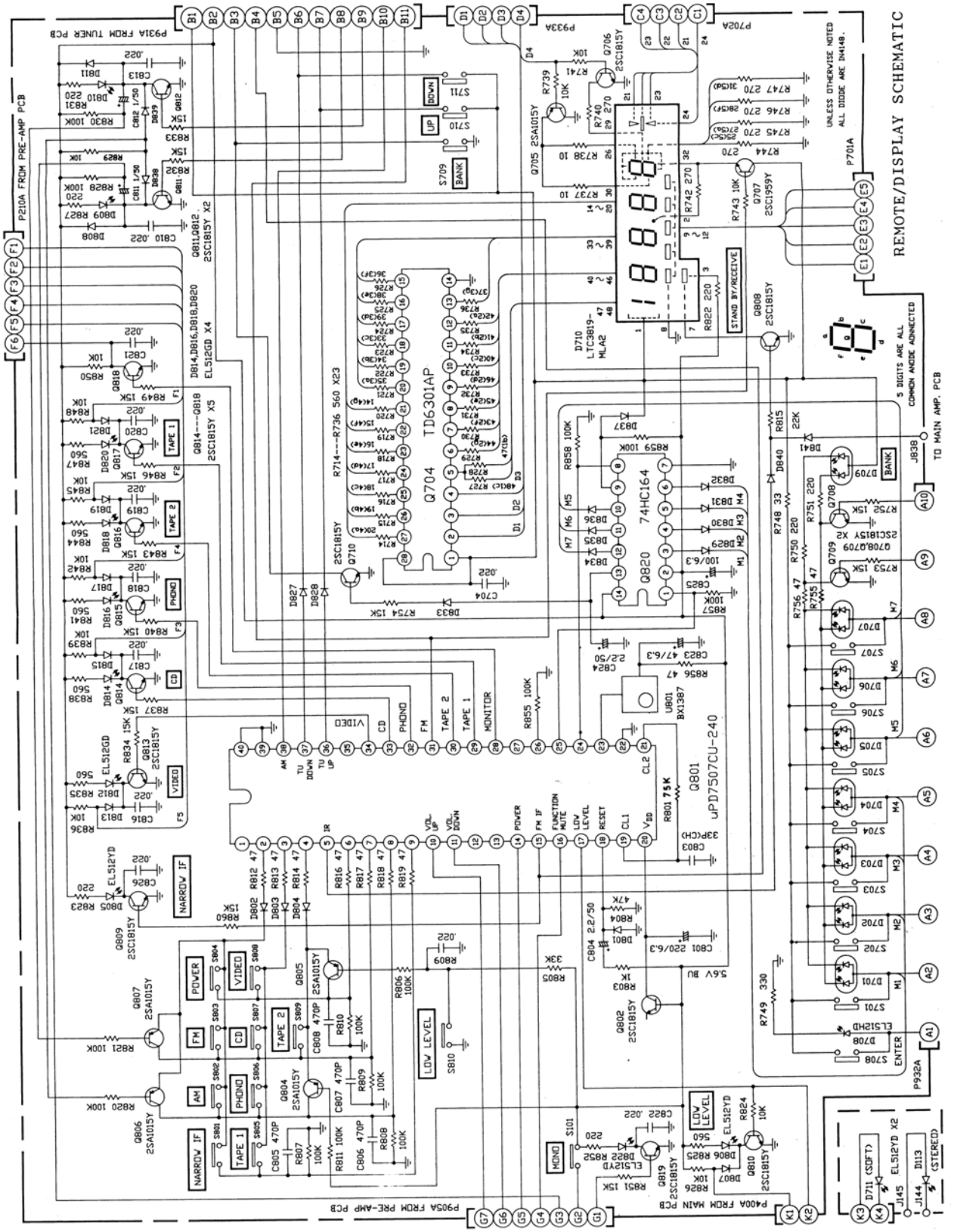
**NAD-7100 TUNER**

001.000.0007	001.000.0007
NAD-7100 TUNER	NAD-7100 TUNER
50.5	68P
75.5	100P
	100BHD

UNLESS OTHERWISE NOTED  
ALL DIODES ARE IN-4148.

REMOTE/DISPLAY PCB LAYOUT  
COMPONENT SIDE





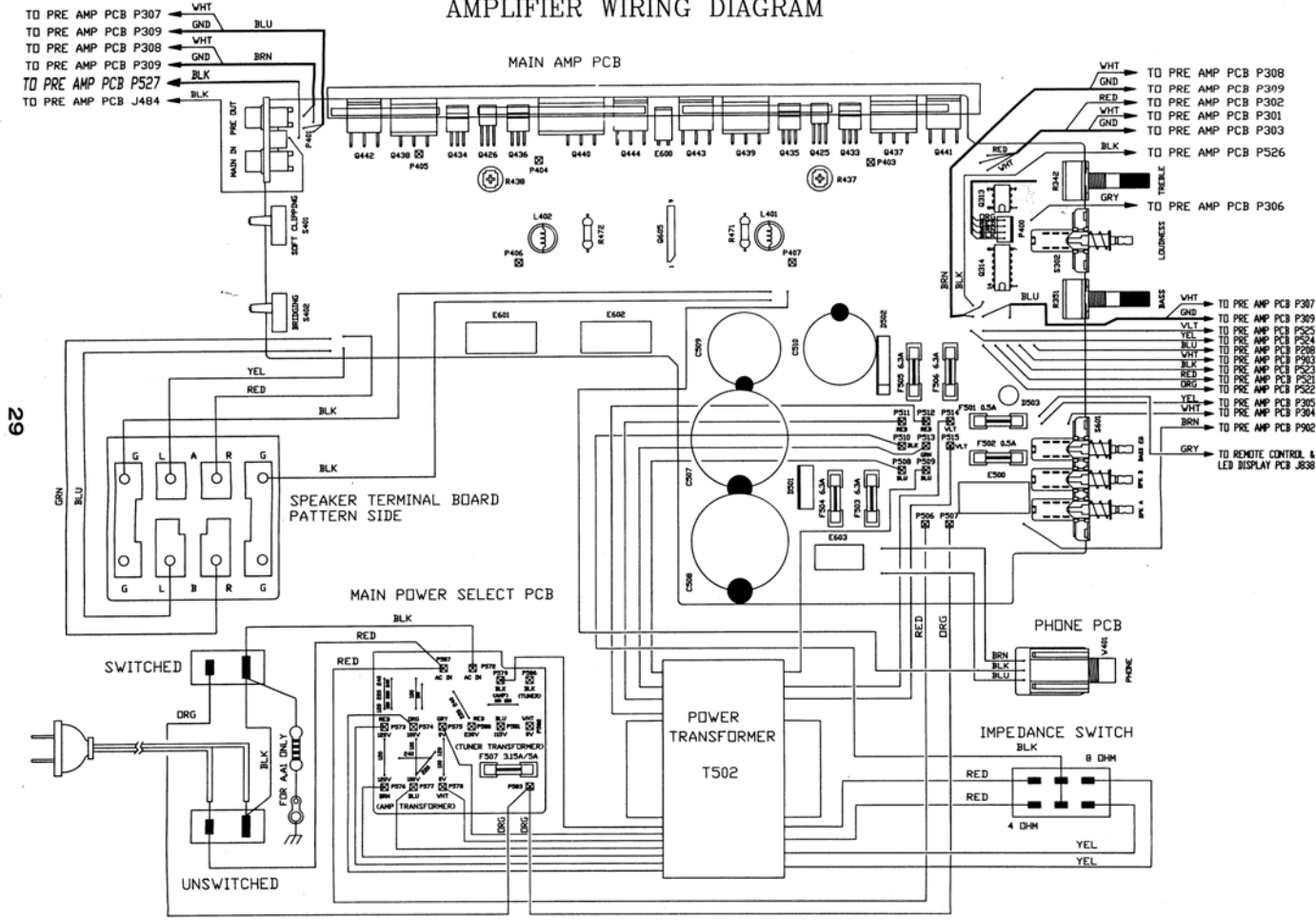
UNLESS OTHERWISE NOTED  
ALL DIODES ARE 1N4148.

REMOTE/DISPLAY SCHEMATIC

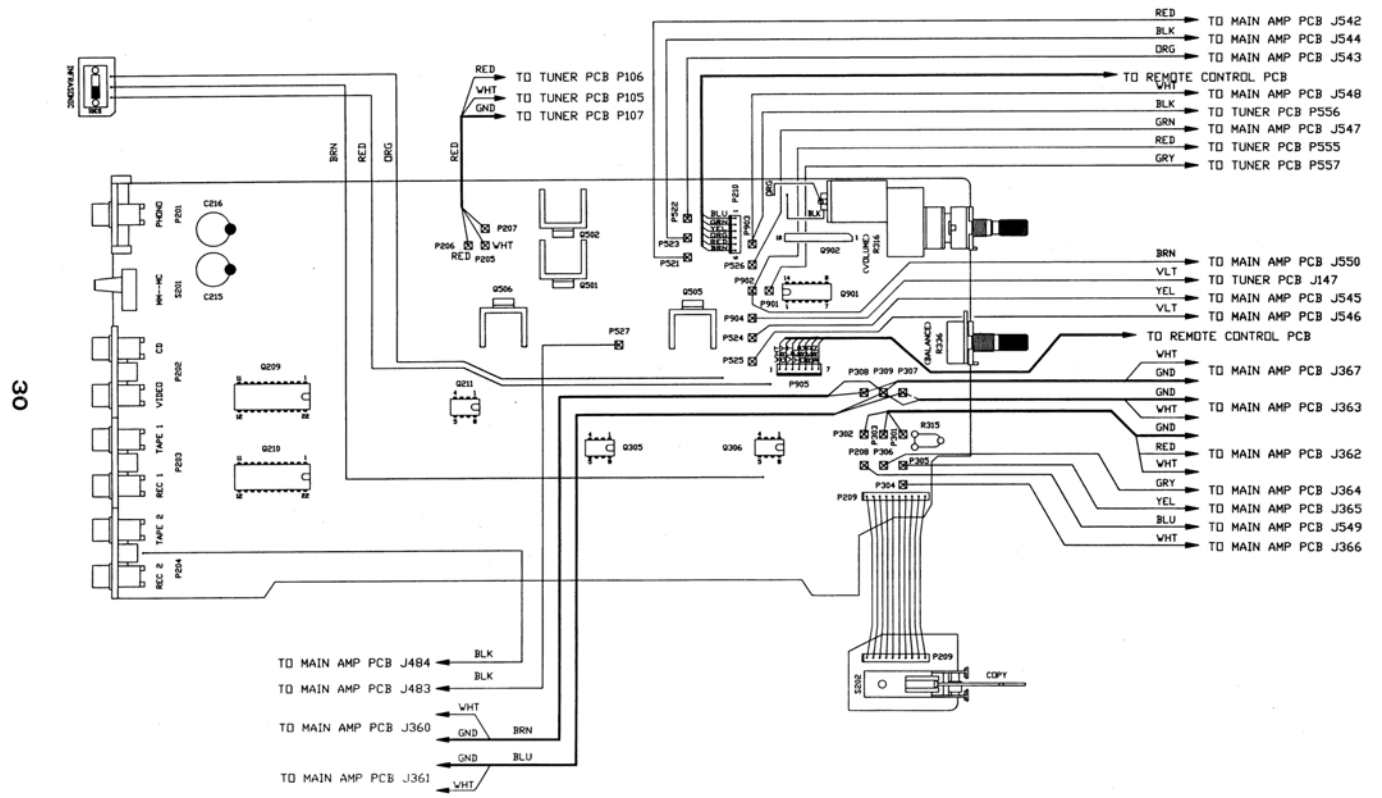
5 DIGITS ARE ALL  
COMMON ANODE UNCONNECTED

TO MAIN AMP. PCB

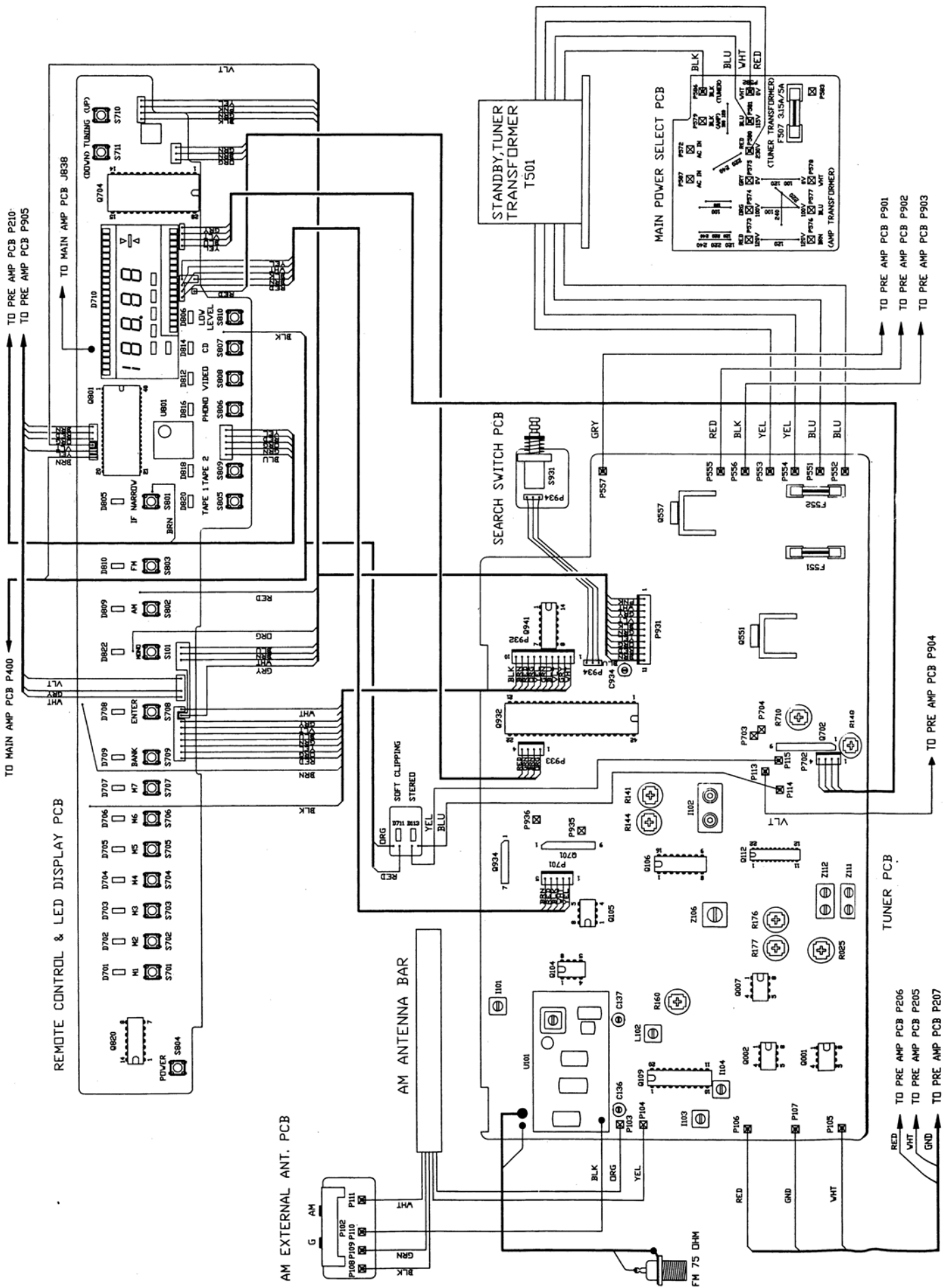
# AMPLIFIER WIRING DIAGRAM



# PRE AMP WIRING DIAGRAM



# TUNER AND REMOTE/DISPLAY WIRING





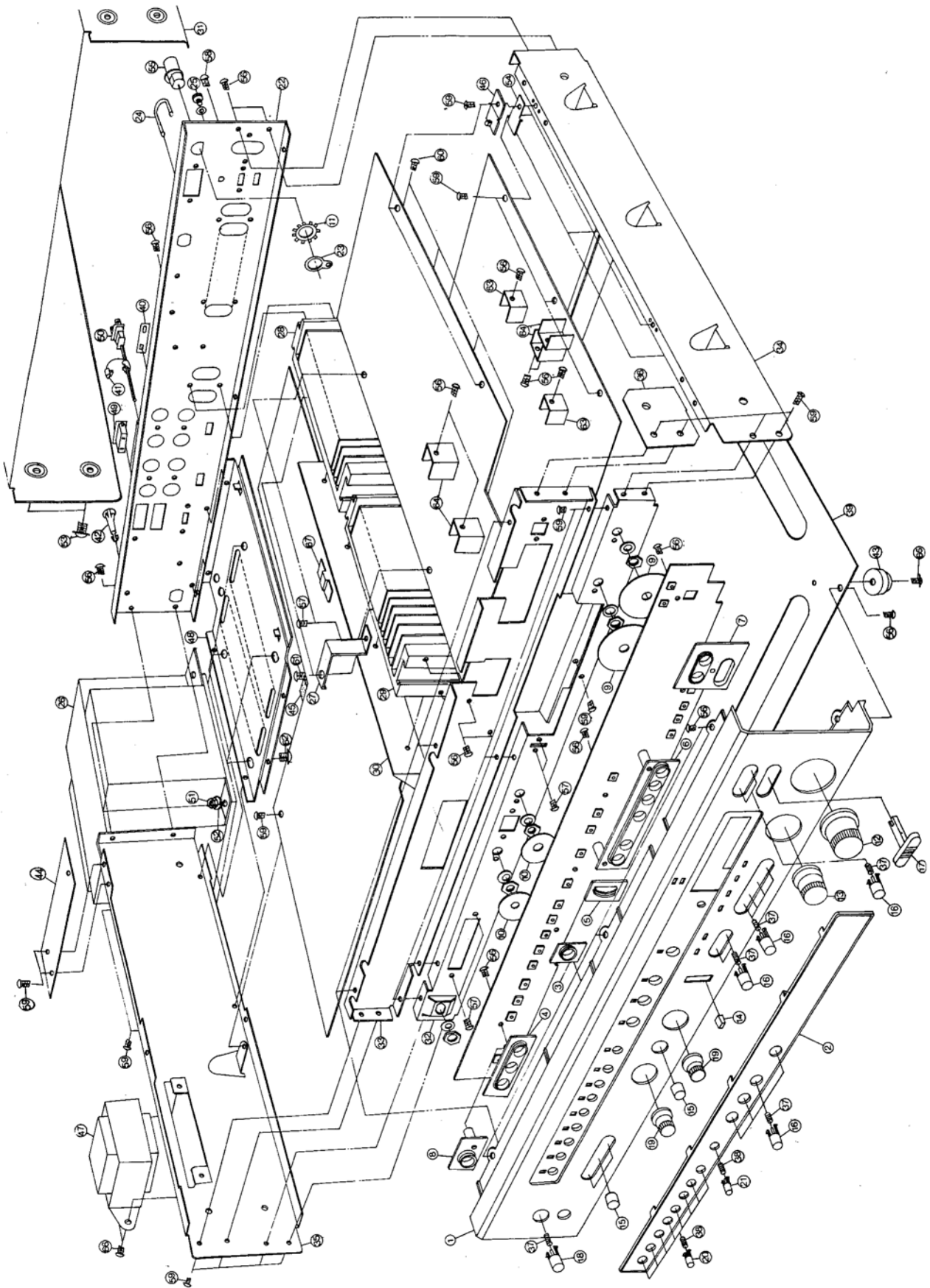








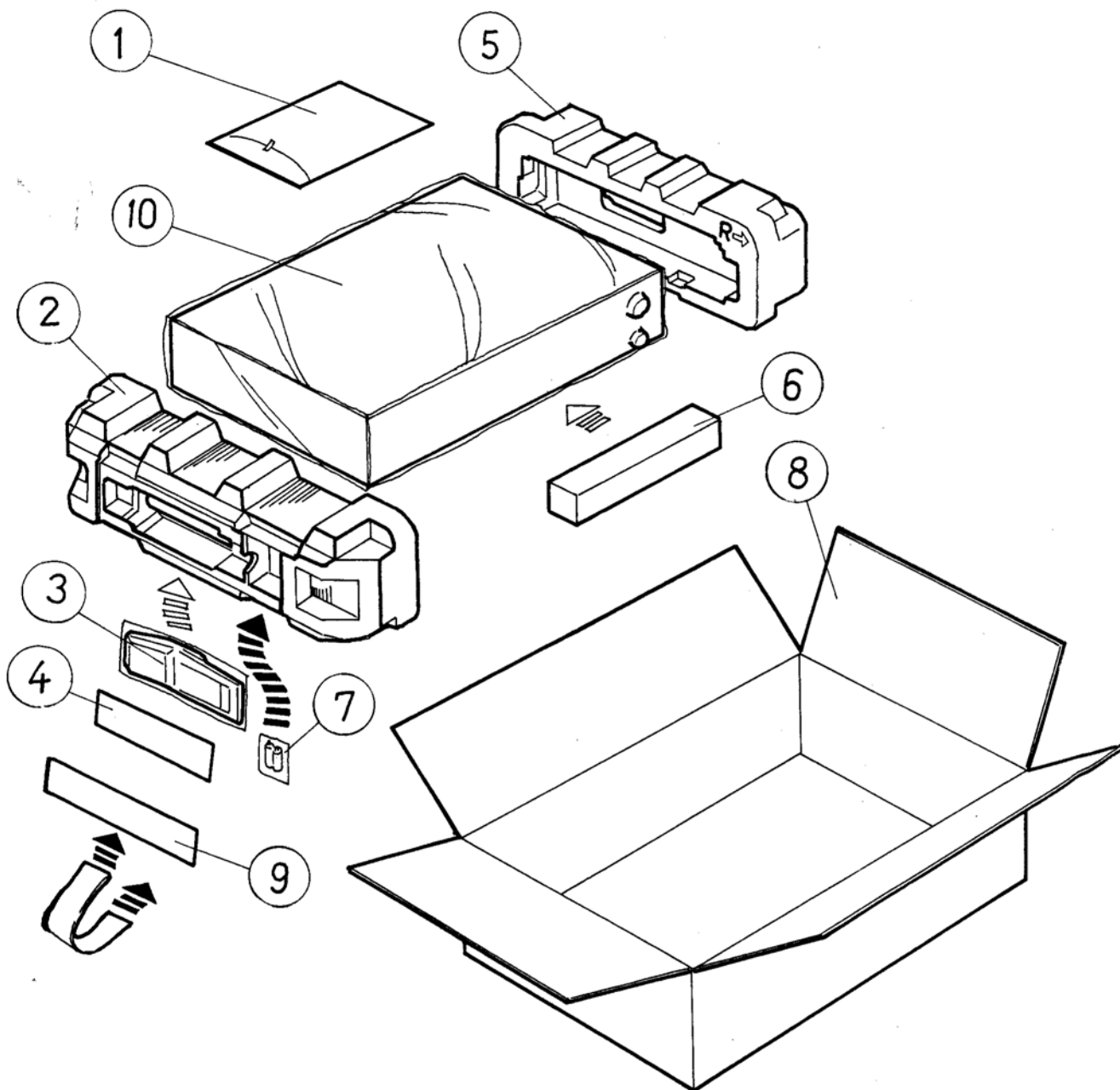
# EXPLODED VIEW



**NAD-7100 EXPLODED PARTS LIST :**

ITEM	PARTS NO.	PARTS NAME	Q'TY
1	5541213100	FRONT PANEL	1
2	5542909400	RECEIVER WINDOW	1
3	5542225000	BEZEL (A)	1
4	5542225100	BEZEL (B)	1
5	5542225200	BEZEL (C)	1
6	5542225300	BEZEL (D)	1
7	5542225800	DOUBLE BEZEL	1
8	5542225400	POWER BEZEL	1
9	5542006110	HEMELON (L)	2
10	5542006100	HEMELON (S)	2
11	7101201202	LOCK WASHER	1
12	5541537900	VOL. KNOB	1
13	5541538000	VOL. KNOB (S)	1
14	5541537800	TOGGLE CAP	1
15	5541537700	PUSH BUTTON	4
16	5541537300	BAND KNOB	12
17	5541537600	PLAY BUTTON	1
18	5541537200	POWER KNOB	1
19	5541537500	CONTROL KNOB	2
20	5541537100	PUSH KNOB (S)	8
21	5541537110	PUSH KNOB (S)	1
22	5547131900	BACK PLATE	1
23	5547033900	LUG	1
24	5547033600	TERMINAL CONNECTOR	2
25	5546121400	TERMINAL	1
26	5561317000	TRANSFORMER (L)	1
27	5547033700	TUNER HOLDER	2
28	5545307800	HEAT SINK (A)	1
29	5545307810	HEAT SINK (B)	1
30	5545307700	TRANSISTOR HOLDER	1
31	5541002300	TOP COVER	1
32	5547131500	FRONT BRACKET (A)	1
33	5547132000	FRONT BRACKET (B)	1
34	5547131700	RIGHT PLATE	1
35	5547131600	LEFT PLATE	1
36	5547033800	RIGHT BRACKET PLATE	1
37	5546323000	PLAY SPRING	13
38	5546322900	PUSH SPRING	9
39	5547131800	CHASSIS	1
40	5547528400	PLATE, SWITCH LOCK (PVC)	1
41	5547501200	BUSHING, POWER CORD	2
42	5547530400	HOLDER-PCB	3
43	5547802120	FOOT	4
44	5545403700	SHIELD COVER	1
45	5532410700	SPACER	2
46	5419700191	HINGE	2
47	5561317020	TRANSFORMER (S)	1
48	5547131100	TRS. PLATE	1
49	5556308320	AC OUTLET	2
50	5556702130	POWER PLUG	1
51	7076260012	NUT 4	4
52	7098250002	WASHER	4
53	7190550003	M4x6 MS	6
54	5547035800	AUX. PLATE	2
55	5556205300	TERMINAL	1
56	7033161156	RUD M3x8 TS	47
57	7001171116	PAN M3x8 MS	6
58	7001120216	PAN M2.5x4 MS	2
59	7033160652	RUD M3x6 TS	35
60	7031161452	PAN M3x10 MS	4
61	7033251452	RUD M4x10 TS	2
62	7000311142	RUD M4x14 TS	4
63	5545306900	HEAT SINK	2
64	5545306910	HEAT SINK (S)	4
65	7000305022	M3x10 TS	4
66	7000305012	M3x8 TS	2
67	5547034000	THERMAL PROTECTOR HOLDE	2

# PACKING DIAGRAM



PACKING LIST FOR NAD-7100

ITEM	PARTS NO.	NAME	QTY
1	5535122011	OWNERS MANUAL	1
2	9520680155	POLYLON L.	1
3	5552000200	REMOTE CONTROL TRANSMITTER	1
4	- - - - -	R/C TRANSMITTER MANUAL	1
5	9520680255	POLYLON R.	1
6	9520685155	POLYLON BAR	1
7	6910151403	BATTER, DRY	1
8	9510680155	CARTON	1
9	9510685155	PAPER PLATE	1
10	9530680155	EPE BAG	1