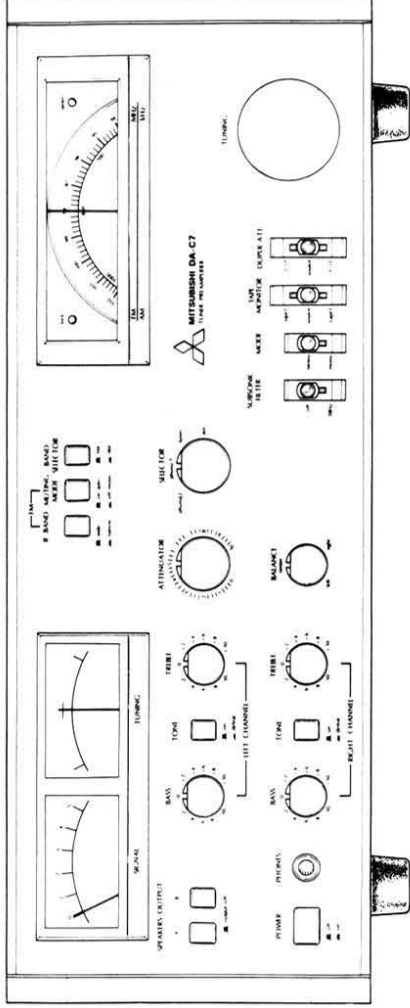




SERVICE MANUAL
TUNER-PREAMPLIFIER
MODEL DA-C7



MELCO SALES INC.
3030 East Victoria Street Compton, California 90221

SPECIFICATIONS

1-(1) FM TUNER SECTION (IHF)

Usable sensitivity	11.2dBf (2.0 μ V)
MONO	23.1dBf (7.8 μ V)
STEREO	
50dB quieting sensitivity	20dBf (5.5 μ V)
MONO	40dBf (55 μ V)
STEREO	
Signal to noise ratio	76dB
MONO	73dB
STEREO	
Frequency response	+0.5 dB from 30Hz to 16kHz - 1.0
Total harmonic distortion (at 1kHz, 65dBf)	
MONO	0.08% (WIDE)
STEREO	0.25% (NARROW) 0.1% (WIDE) 0.5% (NARROW) 1.0dB (WIDE) 2.0dB (NARROW) 50dB (WIDE) 75dB (NARROW)
Capture ratio	70dB
Alternate channel selectivity	60dB
Spurious response ratio	80dB
Image response ratio	50dB (WIDE) 40dB (NARROW)
IF response ratio	
AM suppression ratio	
Stereo separation	
WIDE	45dB at 1kHz, 40dB at 10kHz
NARROW	35dB at 1kHz, 30dB at 10kHz
Subcarrier product ratio	60dB
SCA rejection ratio	70dB
Tuning range	88MHz to 108MHz

1-(2) FM TUNER SECTION (DIN)

Sensitivity (at 40kHz deviation)	1.2 μ V
MONO (S/N 26dB)	32 μ V
STEREO (S/N 46dB)	60dB
Image frequency rejection (at 98MHz)	80dB
IF rejection (at 98MHz)	70dB
Spurious rejection (at 98MHz)	50dB (WIDE)
AM suppression	40dB (NARROW) 45dB (WIDE) 70dB (NARROW)
Selectivity (at 40kHz deviation, \pm 300kHz)	
Signal to noise ratio (at 40kHz deviation)	75dB
MONO	68dB
STEREO	

Total harmonic distortion (at 1kHz deviation)

MONO

0.08% (WIDE)
0.25% (NARROW)
0.1% (WIDE)
0.5% (NARROW)
35dB (NARROW)
+ 0.5 dB from 30Hz to 16kHz
- 1.0

STEREO

Stereo separation (at 1kHz, 40kHz deviation)

Frequency response

2-(1) AM TUNER SECTION (IHF)

Usable sensitivity (bar antenna)

200 μ V/m

Selectivity

25dB

Total harmonic distortion

1.0%

Image response ratio

40dB

IF response ratio

40dB

Hum and noise

50dB

Tuning range

525kHz to 1605kHz

2-(2) AM TUNER SECTION (DIN)

Selectivity (bar antenna, at 30% modulation S/N 25dB)

300 μ V/m

Signal to noise ratio (at 5mV/m, 30% modulation)

50dB

Selectivity (at \pm 9kHz)

25dB

Image frequency rejection (at 1MHz)

40dB

IF rejection (at 1MHz)

70dB

Total harmonic distortion (at 30% modulation)

1.0%

3 PREAMPLIFIER SECTION

Input sensitivity/i/impedance

PHONO 1, PHONO 2

2.5mV/50k ohms

AUX, PLAY 1, PLAY 2

150mV/50k ohms

Output level/i/impedance

OUTPUT

1V (rated output)/600 ohms

10V (maximum output)

150mV/600 ohms

600mV(at output 1V /15 ohms)

650mV (maximum output)

(headhone impedance from 8 ohms to 16 ohms)

Equivalent input noise level (IHF, A network)

PHONO 1, PHONO 2

-127dB(V) (closed circuit)

AUX, PLAY 1, PLAY 2

-115dB(V) (closed circuit)

Signal to noise ratio (IHF, A network, at rated output)

PHONO 1, PHONO 2

75dB (closed circuit)

AUX, PLAY 1, PLAY 2

99dB (closed circuit)

Signal to noise ratio (DIN)

PHONO 1, PHONO 2

69dB (2.2k ohms terminated)

AUX, PLAY 1, PLAY 2

88dB (47k ohms//250pF terminated)

Total harmonic distortion

(at rated output attenuator -20dB, 1kHz)

PHONO 1, PHONO 2

0.003%

AUX, PLAY 1, PLAY 2

0.003%

Frequency response

PHONO 1, PHONO 2
PLAY 1, PLAY 2

±0.2dB from 20Hz to 20kHz (RIAA STD)
+0
-0.5 dB from 10Hz to 70kHz

Tone control

BASS

±10dB at 100Hz

TREBLE

±10dB at 10kHz

Subsonic filter

18Hz (-6dB/oct)

Phono overload level (at 1kHz with 0.1% THD)

PHONO 1, PHONO 2

100mV

4 GENERAL

Power consumption

25W

Dimensions (W x H x D)

425 x 170 x 292 mm
(16-3/4 x 6-3/4 x 11-1/2")

Weight

7.5kg (16-1/2 lbs)

Supplied with; T shaped antenna

Design and specifications are subject to change without notice for improvements

SERVICING NOTES

1. **Before connection, turn off the power supply at all times**

Otherwise, the speakers are liable to be damaged by click noise caused when the cord is plugged in or out.

2. **Avoid improper connection**

When turntable, tuner, and R and L output terminals of this machine are incorrectly connected or short-circuited, damage to the unit may result.

3. **Correctly make input terminal connection**

If pin plug or ground wire of record player output cord is loosely connected or disconnected, hum occurs. Note that the speaker is liable to be damaged as a result of this induced hum.

4. **Use shielded wire for input terminal connection**

Use a shielded wire of not more than 2 m long for connections to record player. In this case, avoid the use of longer shielded wire which causes deterioration of high frequency characteristics and may cause an increase in hum and noise.

5. **Use the short-circuiting pin plugs provided in the unused PHONE terminal**

This is intended to prevent open noise, and click noise caused when the input selector is switched without connecting a turntable. When you use Mitsubishi DA-A7DC, DA-A10DC, or DA-A15DC in combination with this machine, power of the power amplifier must be supplied from SWITCHED plug sockets of this machine. The speaker control cord is used only with Mitsubishi power amplifiers.

DISASSEMBLING

1. Removal of the Top Plate and the Bottom Cover

- 1) After removing the two screws indicated as A in Fig. 1, take off the top plate pulling it backwards.
- 2) The bottom cover is removed by taking off the two screws indicated as B in Fig. 1 as well as the two screws located at the bottom.

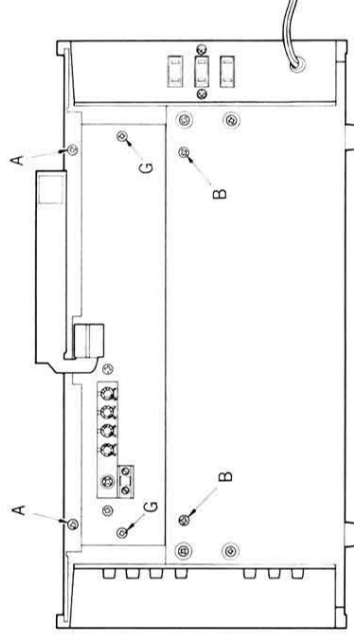


Fig. 1

2. Removal of Front Panel

- 1) Take out the two upper panel fixing screws indicated as C in Fig. 2.
- 2) Take out the two lower panel fixing screws indicated as D in Fig. 4.
- 3) Remove the knobs on the front panel. The tuning knob, (T in Fig. 3), should be removed by means of a hexagonal screw driver having a 2 mm opposite side.) The remaining knobs should be removed by forcefully pulling them out toward the front.
- 4) In this condition, the front panel can be removed toward the front.

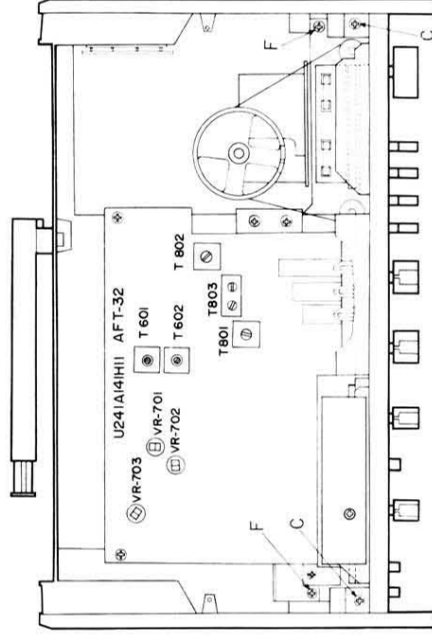


Fig. 2

3. Removal of Tuner Section

- 1) Disassemble the aluminum inlay of the tuner section by removing the four screws indicated as E in Fig. 5.
- 2) Take off the two chassis-fixing screws (F in Fig. 2) of the tuner section.
- 3) Remove the rear-chassis-fixing screws (9 of Fig. 1) of the tuner section.
- 4) Take off the two chassis-fixing screws (H and I in Fig. 4) of the tuner section.
- 5) Lift up the tuner section. To prevent short-circuiting between the tuner section's chassis and the preamplifier's printed circuit board, insert a cloth or the like in between as shown in Fig. 6.
- 6) With the set in this condition, the front end can be serviced or adjusted.
- 7) To remove the printed circuit board from the chassis when replacing the parts on it, the following screws must be removed.
 - (1) Take off the two holder setscrews for meter mounting (J in Fig. 6).
 - (2) Unscrew the two push switch assembly screws (K in Fig. 6).
 - (3) Unscrew the two printed circuit board assembly screws (L in Fig. 6).

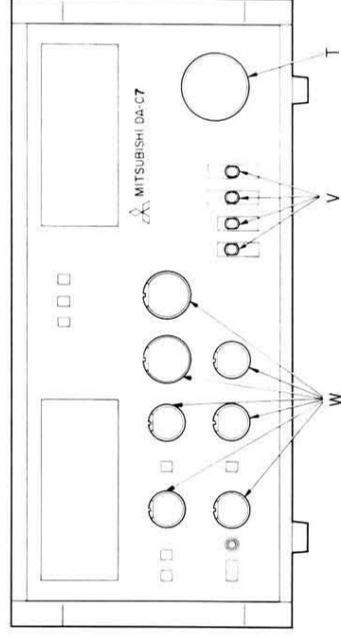


Fig. 3

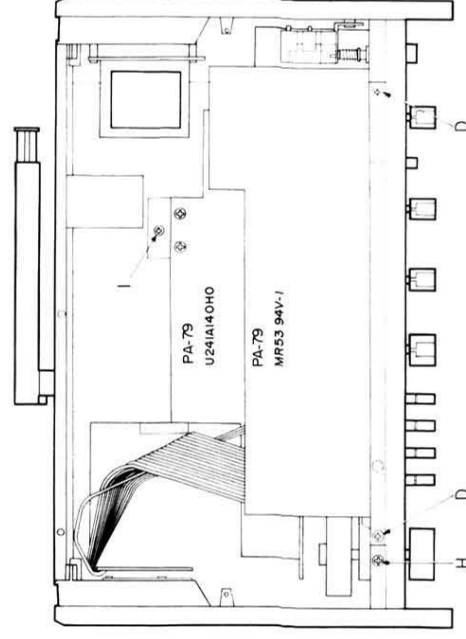


Fig. 4

4. Disassembling Preamplifier Section

- 1) The order of disassembly is the same as that for the tuner section, Steps 1) through 5). However, in Step 5), the tuner section should be placed at the back.
- 2) Remove the four front chassis fixing screws (M in Fig. 5) of the preamplifier section.
- 3) Remove the three volume fixing nuts and the one Selector switch fixing nut (N of Fig. 5) of the front chassis section.
- 4) Take off the two switch assembly screws (P of Fig. 5) of the front chassis section.
- 5) Pull the printed circuit board (left Channel) backwards and turn it upper side.
- 6) In this condition, it is possible to replace the parts provided on the printed circuit boards of the pre-amplifier section.

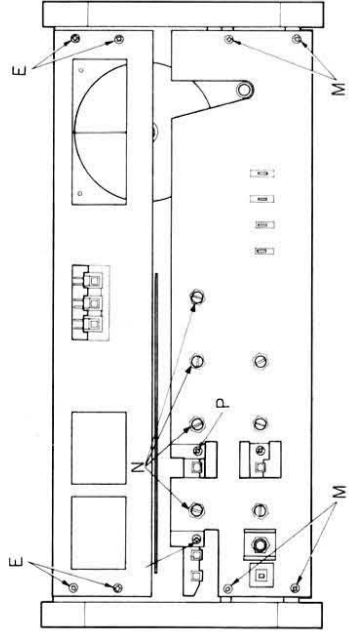


Fig. 5

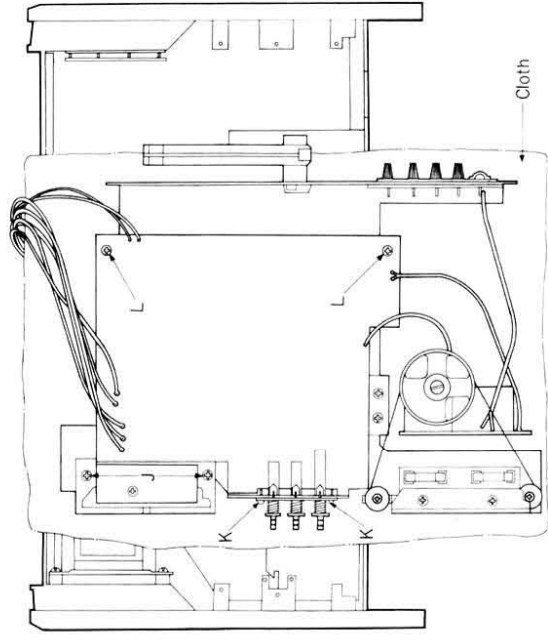
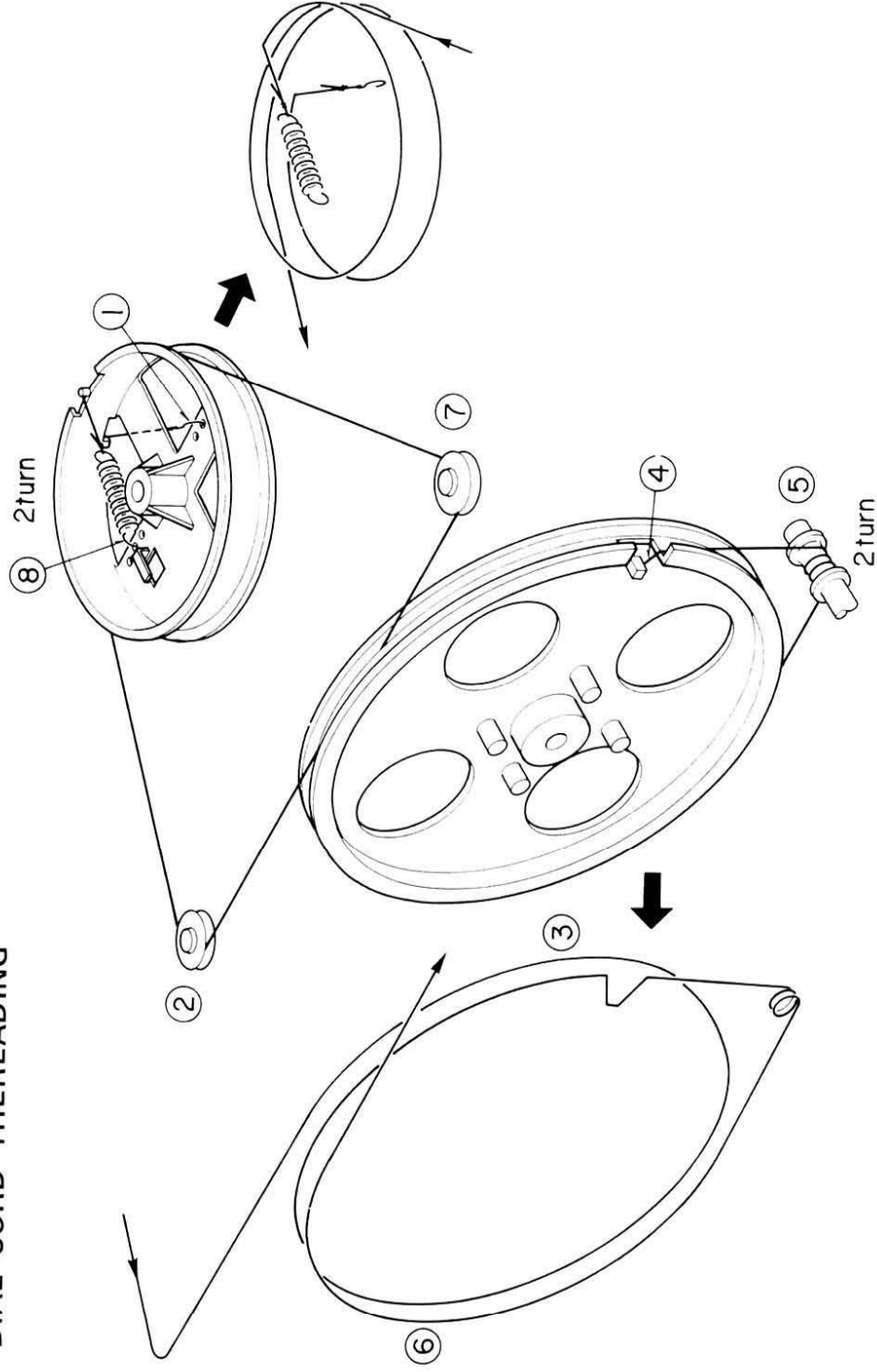


Fig. 6

DIAL CORD THEREADING



■ FM SECTION

1. Front End Adjustment

- 1) With the signals of a signal generator (SG) connected to the FM-ANT terminal, take out the set's output from terminal 2 of IC701.
- 2) With the SG's frequency set to 87 MHz, turn the dial fully counterclockwise so that the tuner may indicate the lowest frequency. Adjust the local oscillator coil so as to make the signals generated by the SG maximum.
- 3) With the SG's frequency set to 109 MHz, turn the dial fully clockwise so that the tuner indicator may show the maximum frequency. Adjust the local oscillator trimmer C517 in a manner as to make the SG's signal maximum.
- 4) Repeat Steps 2) and 3) several times.
- 5) With the SG's frequency set to 88 MHz, set the tuner to indicate 88 MHz with the dial. Adjust coils L501 and L502 so as to make the output maximum.
- 6) With the SG's frequency set to 108 MHz, set the tuner to indicate 108 MHz with the dial. Adjust trimmers C502 and C506 so as to make the output maximum.

2. Adjustment of FM-MONO

- 1) Set the SG to 98 MHz, 400 Hz MONO modulation and the output to 80 dB.
- 2) Set the selector switch of the set to the FM position and the mode to FM-MONO/MUTING OFF and SELECTIVITY-WIDE.
- 3) Adjust the secondary side core (upper side) of T602 so that the center meter may indicate the center during detuning (approximately 100 MHz).
- 4) Tune the set to the SG's frequency (98 MHz). Tuning, in this case, is attained when the center meter is a state in which it indicates the center.
Next, with the mode switch set to FM-AUTO/MUTING-ON, adjust VR703 so as to make the center meter indicate the center.
- 5) After connecting a distortion meter to the output pin terminal, adjust the primary side core (lower side) of T601 so as to make the distortion factor minimum. In this case, if the center meter does not indicate the center, adjust the secondary side of T602 again until it does.

3. Adjustment of FM-MPX

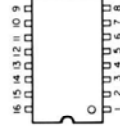
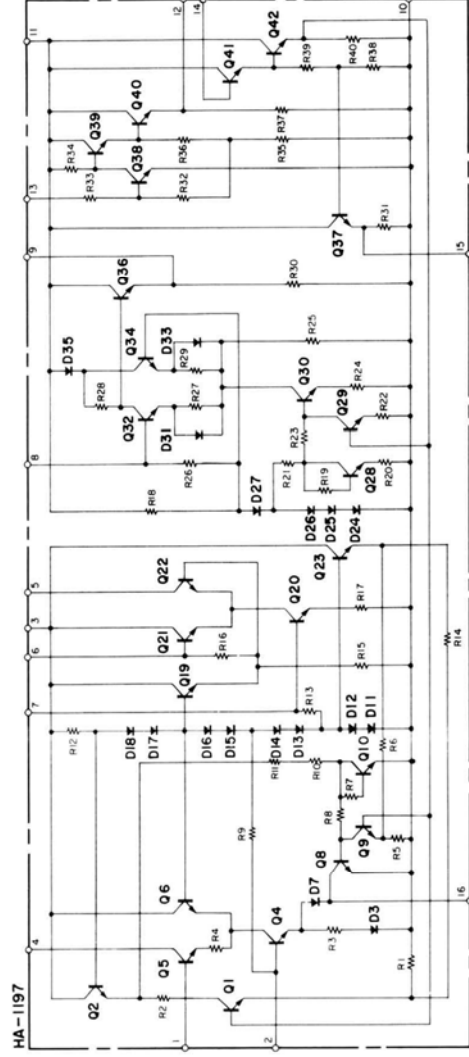
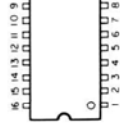
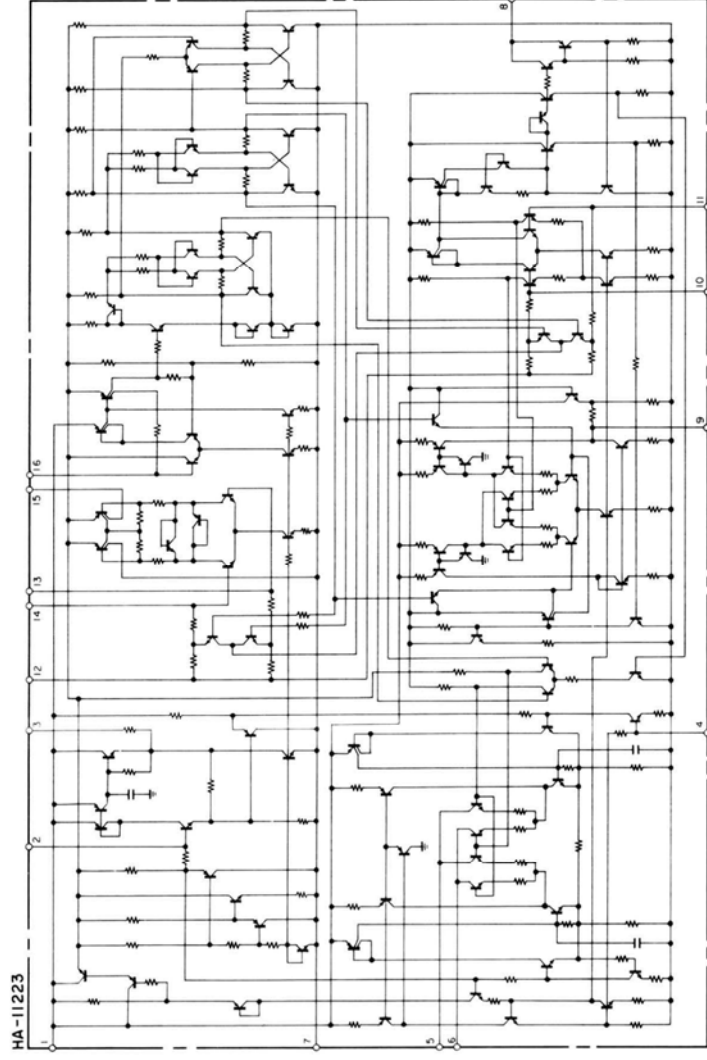
- 1) Set the SG to 98 MHz, 1 kHz STEREO to L+R 90%, pilot to 10% modulation and the output to 80 dB.
- 2) Set the selector switch of the set to the FM position and mode to FM-MONO/MUTING-OFF and to SELECTIVITY-WIDE.
While receiving 98 MHz signals from the SG, adjust the local oscillation trimmer C517 of the front end in a manner to make the indicator indicate 98 MHz on the dial plate.
- 3) Place the set to FM-AUTO/MUTING-ON. Shift the position of the indicator to the left and right from 98 MHz and confirm that LOCK and MUTING operations are normal.
- 4) Set the SG modulation to OFF. Connect the frequency counter to the terminal 14 of IC701. Adjust VR701 for the frequency counter to read $76K \pm 0.2KHz$.
- 5) Connect the stereo modulator to SG to turn on the pilot signal. Then check to see that the stereo indicator is light up.
- 6) Adjust VR702 so that the leakage to the output of the pilot signal of 19KHz may be minimized.
- 7) With the modulation of the stereo modulator set to either L or R, adjust VR703 so that the leakage to L → R and that to R → L may be minimized.

■ AM SECTION

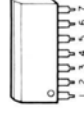
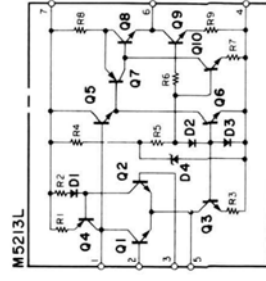
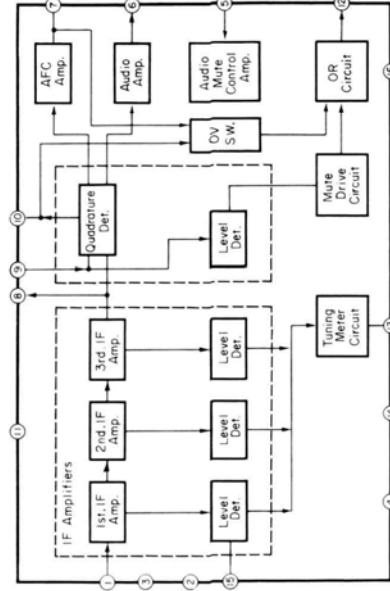
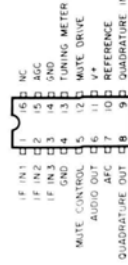
1. Tracking Adjustment

- 1) With the SG's signal set to 600 kHz and 400 Hz to 30% modulation, and the indicator of the set tuned to 600 kHz, adjust the COIL-ANT (L801) and COIL-OSC (T801) so that the output will become maximum.
- 2) With the SG's signal set to 1,400 kHz and the indicator of the set tuned to 1,400 kHz, adjust the antenna trimmer C525 and local oscillation trimmer C523 to make the output maximum.
- 3) Repeat steps 1) and 2) several times.

EQUIVALENT CIRCUIT DIAGRAM



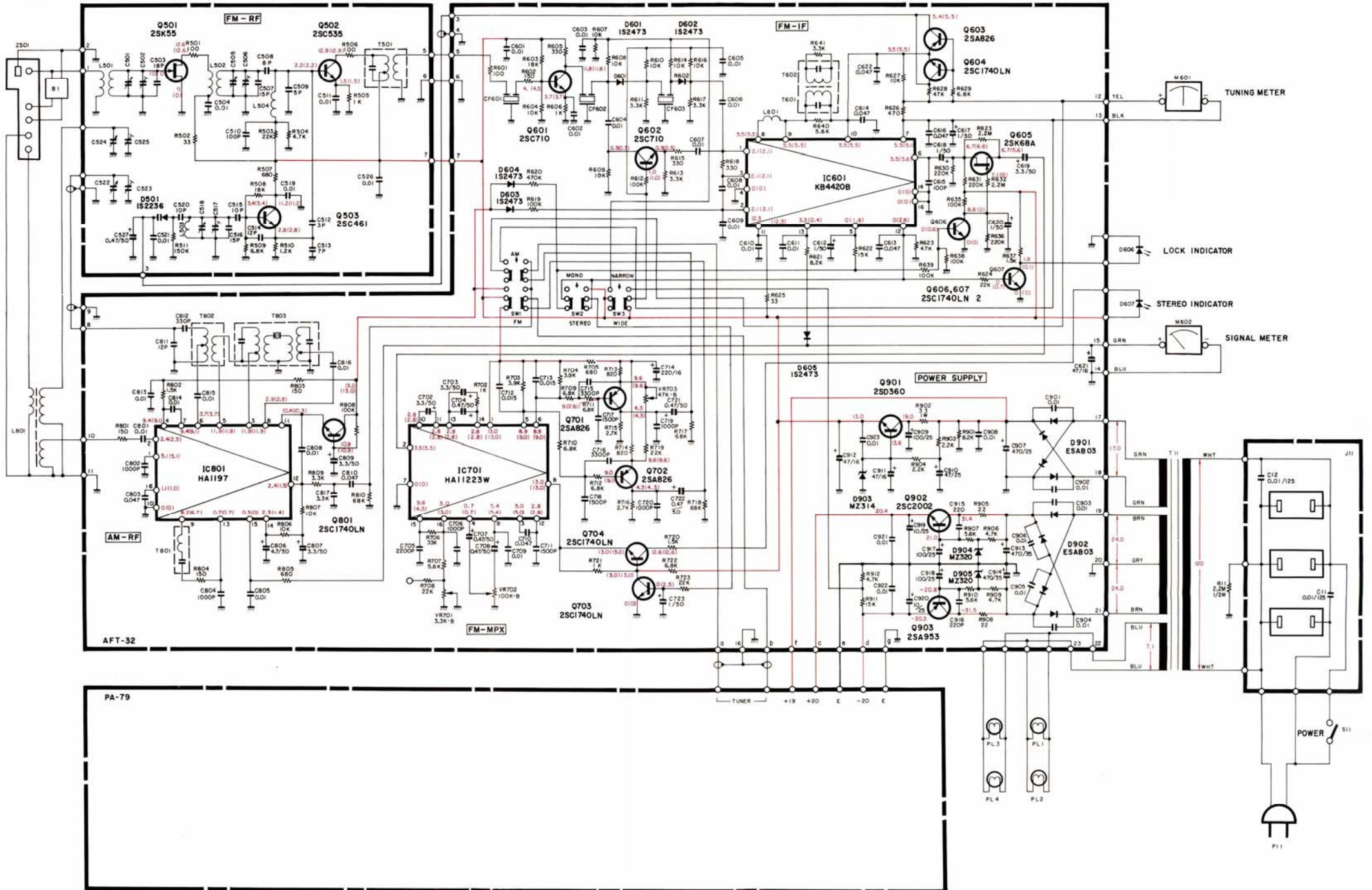
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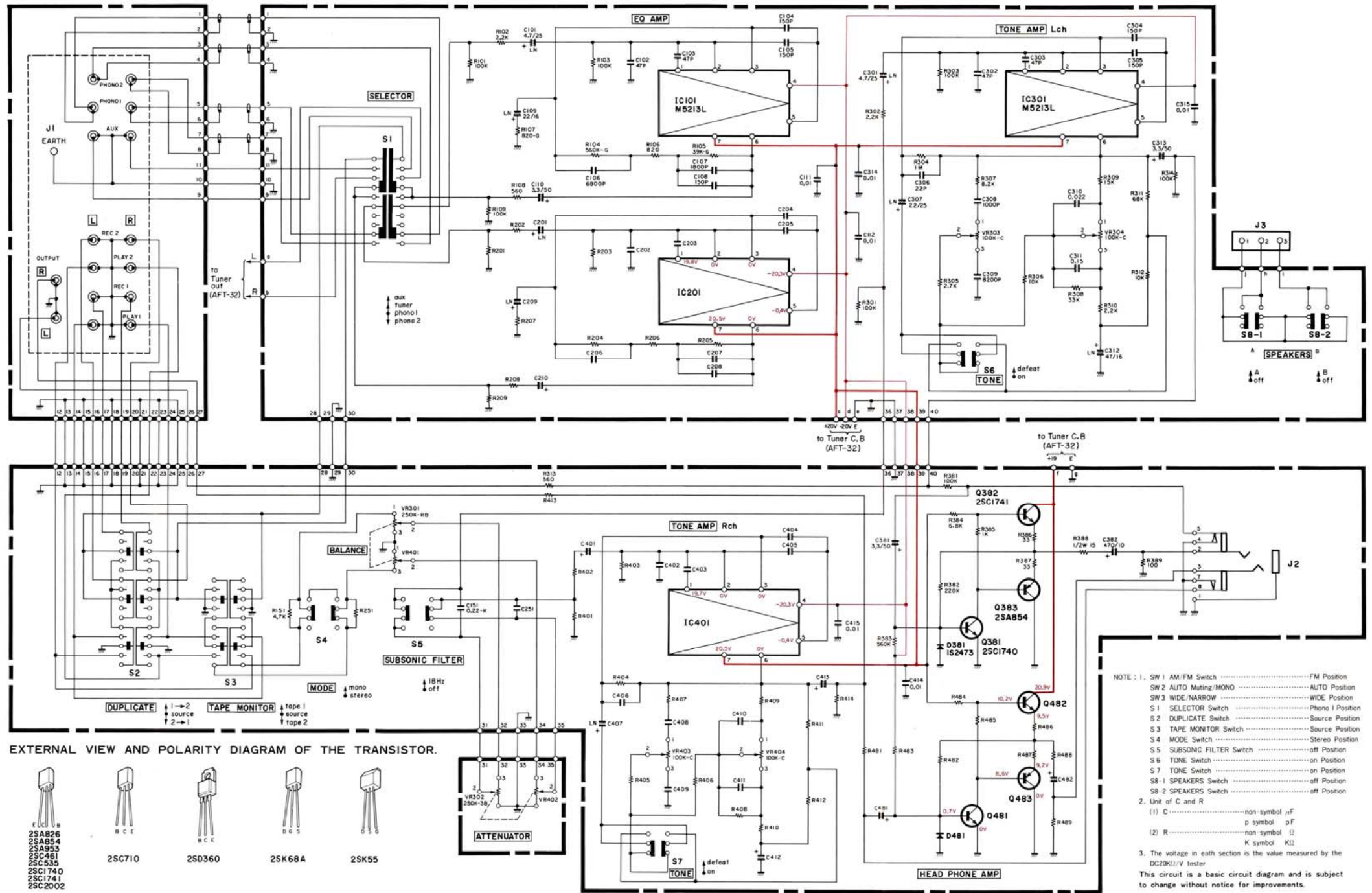
- ① Phase compensation terminal
- ② Input terminal
- ③ Feedback terminal
- ④ Minus power terminal
- ⑤ Buz preventive terminal
- ⑥ Output terminal
- ⑦ Plus power terminal

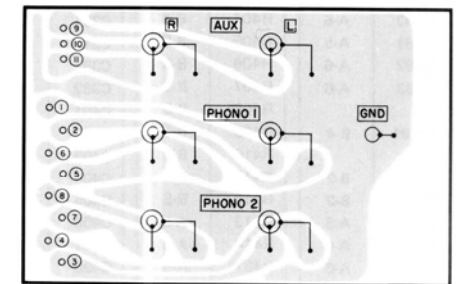
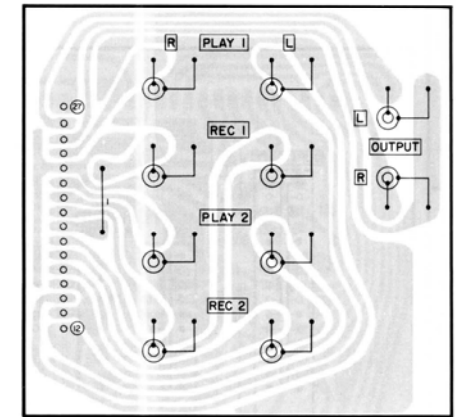
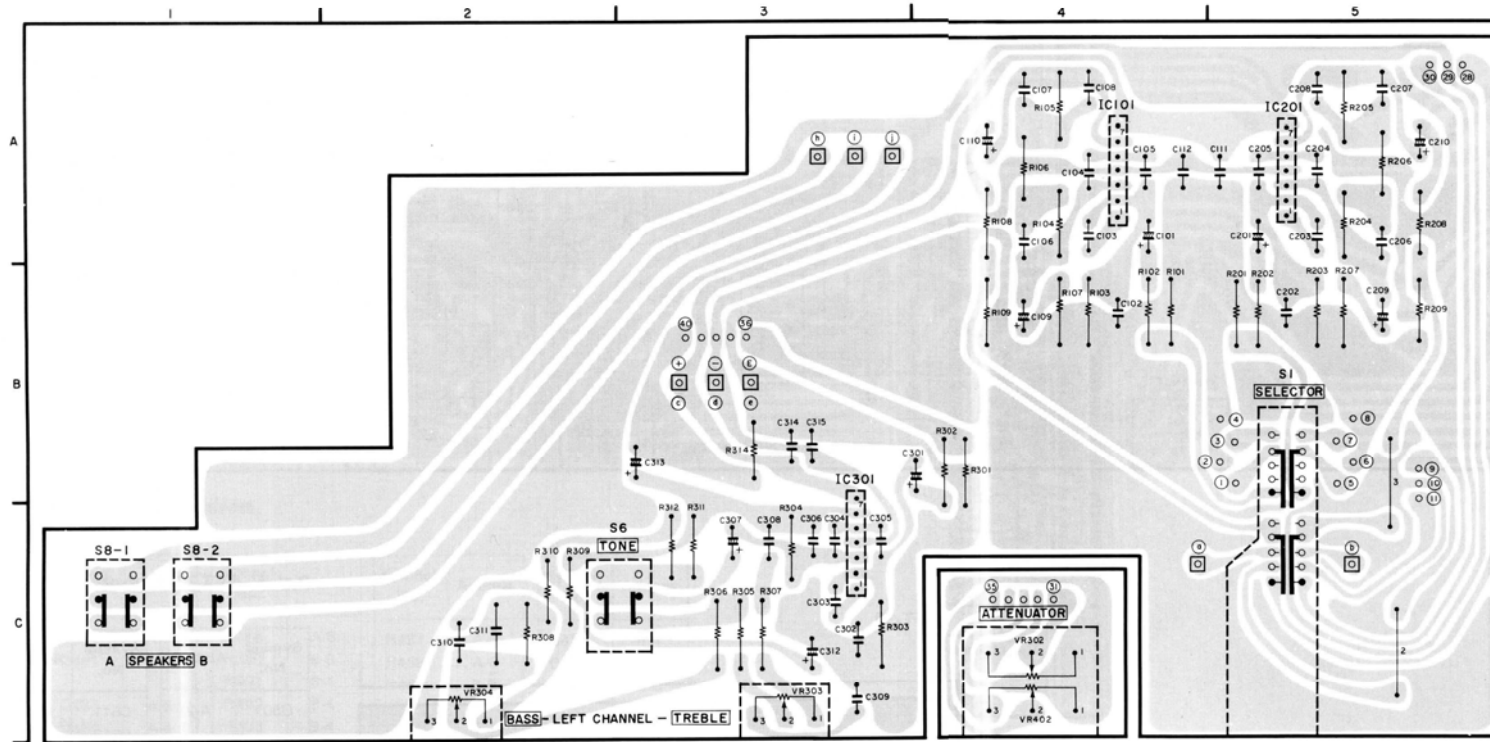
SCHEMATIC DIAGRAM

■TUNER SECTION



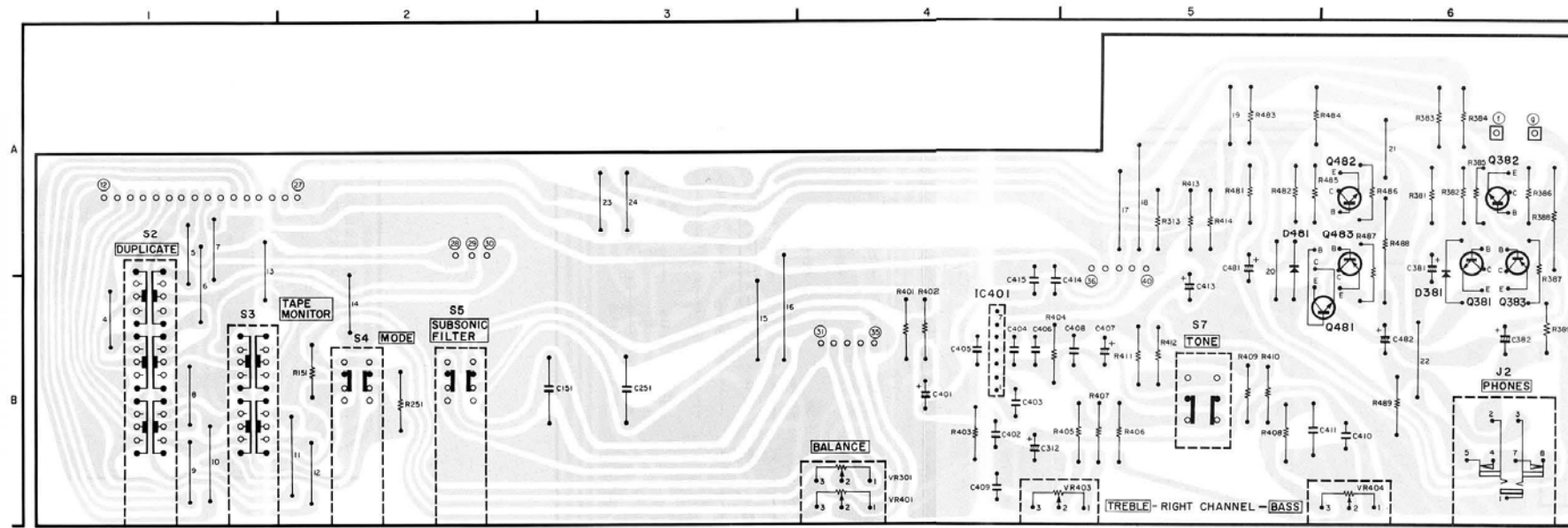
■PREAMPLIFIER SECTION





P.C.B PA-79 Address

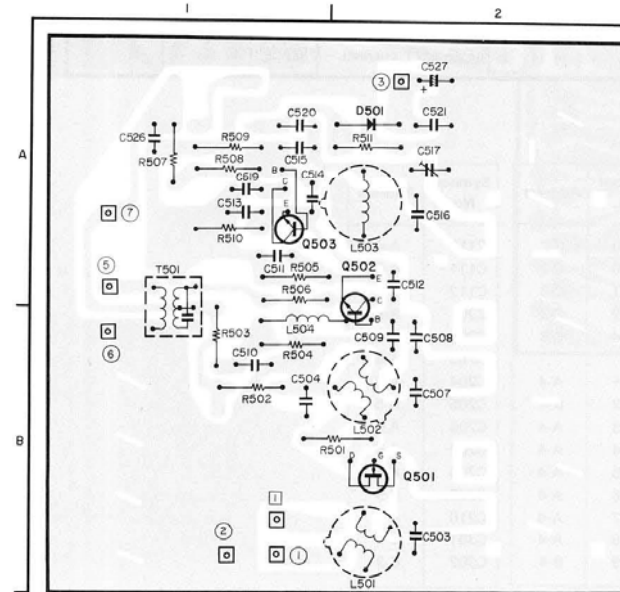
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IC101	A-4	R203	B-5	R309	C-2	C110	A-4
IC201	A-5	R204	A-5	R310	C-2	C111	A-5
IC301	C-3	R205	A-5	R311	C-3	C112	A-4
		R206	A-5	R312	C-3	C201	A-5
R101	B-4	R207	B-5	R314	B-3	C202	B-5
R102	B-4	R208	A-5			C203	A-5
R103	B-4	R209	B-5	C101	A-4	C204	A-5
R104	A-4	R301	B-4	C102	B-4	C205	A-5
R105	A-4	R302	B-4	C103	A-4	C206	A-5
R106	A-4	R303	C-3	C104	A-4	C207	A-5
R107	B-4	R304	C-3	C105	A-4	C208	A-5
R108	A-4	R305	C-3	C106	A-4	C209	B-5
R109	B-4	R306	C-3	C107	A-4	C210	A-5
R201	B-5	R307	C-3	C108	A-4	C301	B-4
R202	B-5	R308	C-2	C109	B-4	C302	C-3



P.C.B. PA-79 Address

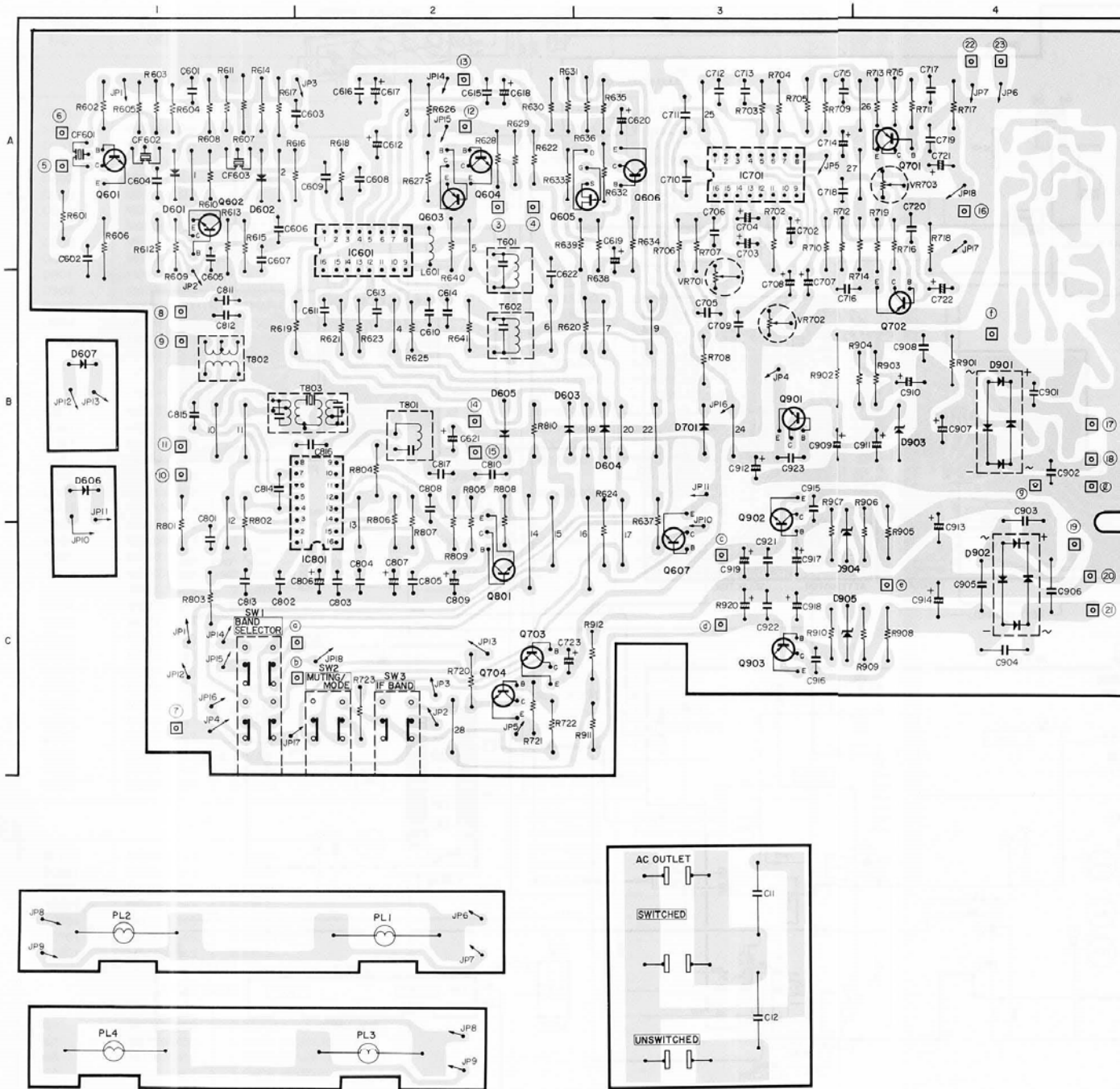
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D481	A-5	R389	B-6	R488	A-6	C481	A-5
Q381	A-6	R401	B-4	R489	B-6	C482	B-6
Q382	A-6	R402	B-4	C151	B-3	VR301	B-4
Q383	A-6	R403	B-4	C251	B-3	VR401	B-4
Q481	A-5	R404	B-4	C312	B-4	VR403	B-5
Q482	A-6	R405	B-5	C381	A-6	VR404	B-6
Q483	A-6	R406	B-5	C382	B-6	S2	B-1
IC401	B-4	R407	B-5	C401	B-4	S3	B-1
R151	B-2	R408	B-5	C402	B-4	S4	B-2
R251	B-2	R409	B-5	C403	B-4	S5	B-2
R313	A-5	R410	B-5	C404	B-4	S7	S-5
R381	A-6	R411	B-5	C405	B-4	J2	B-6
R382	A-6	R412	B-5	C406	B-4		
R383	A-6	R413	A-5	C407	B-5		
R384	A-6	R414	A-5	C408	B-5		
R385	A-6	R481	A-5	C409	B-4		
R386	A-6	R482	A-5	C410	B-6		
R387	A-6	R483	A-5	C411	B-5		
		R484	A-5	C413	B-5		
		R485	A-5	C414	B-4		
		R486	A-6				

AFT-32



P.C.B. AFT32 Address

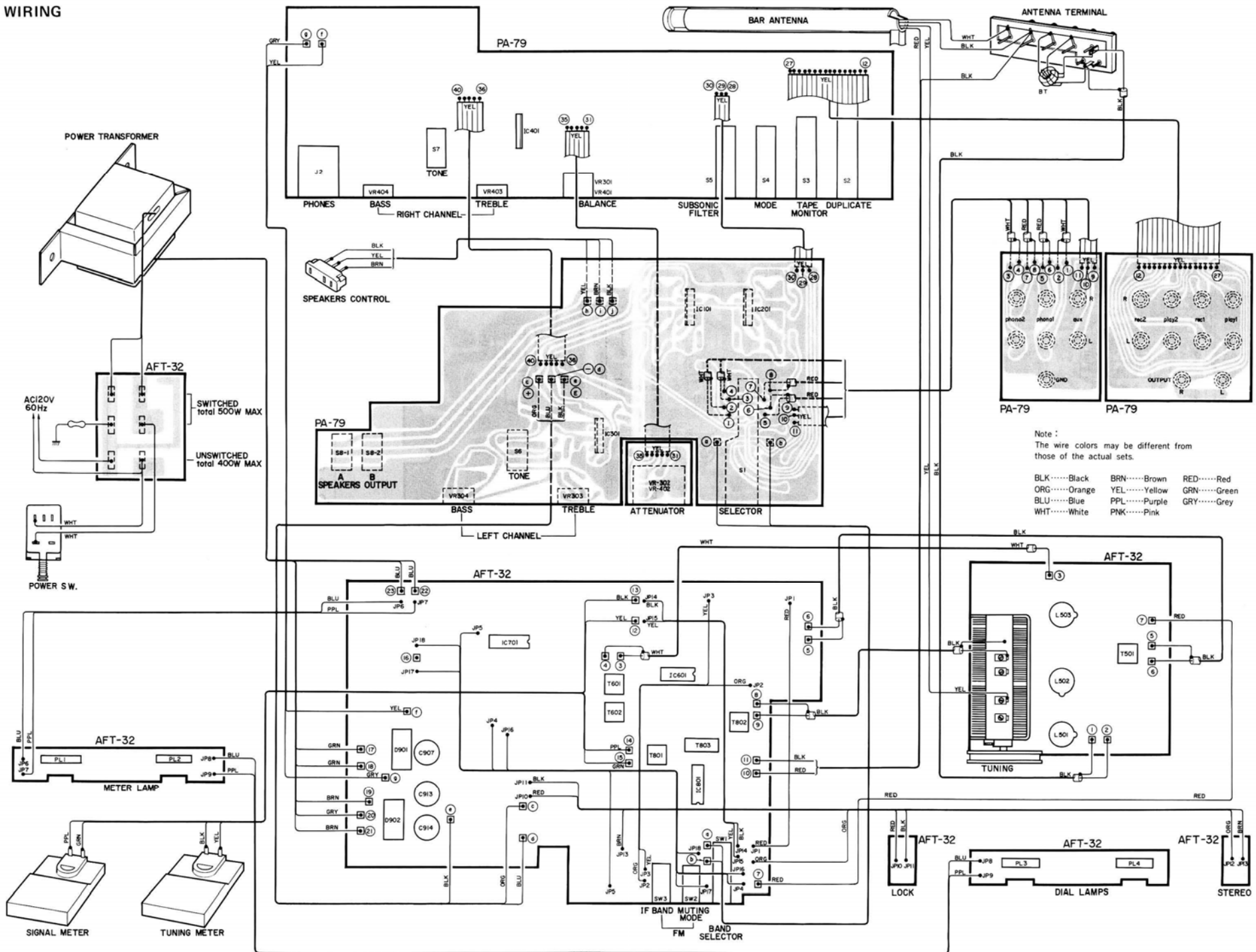
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Q501	B-2	C512	A-2
Q502	A-2	C513	A-1
Q503	A-1	C514	A-1
R501	B-2	C515	A-1
R502	B-1	C516	A-2
R503	B-1	C517	A-2
R504	B-1	C519	A-1
R505	A-1	C520	A-1
R506	A-1	C521	A-2
R507	A-1	C526	A-1
R508	A-1	C527	A-2
R509	A-1	T501	A-1
R510	A-1	L501	B-2
R511	A-2	L502	B-2
C503	B-2	L503	A-2
C504	B-1	L504	B-1
C507	B-2		
C508	B-2		
C509	B-2		
C510	B-1		



P.C.B AFT-32 Address

Symbol No.	Address	Symbol No.	Address	Symbol No.	Address	Symbol No.	Address
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D602	A-1	R624	C-3	R908	C-4	C807	C-2
D603	B-2	R625	B-2	R909	C-4	C808	B-2
D604	B-3	R626	A-2	R910	C-3	C809	C-2
D605	B-2	R627	A-2	R911	C-3	C810	B-2
D606	B-1	R628	A-2	R912	C-3	C811	B-1
D607	B-1	R629	A-2			C812	R-1
D701	B-3	R630	A-2	C601	A-1	C813	C-1
D901	B-4	R631	A-2	C602	A-1	C814	B-1
D902	C-4	R632	A-3	C603	A-2	C815	B-1
D903	B-4	R633	A-2	C604	A-1	C816	B-2
D904	C-3	R634	A-3	C605	A-1	C817	B-2
D905	C-3	R635	A-3	C606	A-1	C901	B-4
		R636	A-3	C607	A-1	C902	B-4
Q601	A-1	R637	B-3	C608	A-2	C903	B-4
Q602	A-1	R638	A-3	C609	A-2	C904	C-4
Q603	A-2	R639	A-3	C610	B-2	C905	C-4
Q604	A-2	R640	A-2	C611	B-2	C906	C-4
Q605	A-3	R641	B-2	C612	A-2	C907	B-4
Q606	A-3	R702	A-3	C613	B-2	C908	B-4
Q607	C-3	R703	A-3	C614	B-2	C909	B-3
Q701	A-4	R704	A-3	C615	A-2	C910	B-4
Q702	B-4	R705	A-3	C616	A-2	C911	B-4
Q703	C-2	R706	A-3	C617	A-2	C912	B-3
Q704	C-2	R707	A-3	C618	A-2	C913	C-4
Q801	C-2	R708	B-3	C619	A-3	C914	C-4
Q901	B-3	R709	A-3	C620	A-3	C915	B-3
Q902	B-3	R710	A-3	C621	B-2	C916	C-3
Q903	C-3	R711	A-4	C622	B-2	C917	C-3
		R712	A-3	C702	A-3	C918	C-3
IC601	A-2	R713	A-4	C703	A-3	C919	C-3
IC701	A-3	R714	A-4	C704	A-3	C920	C-3
IC801	B-2	R715	A-4	C705	B-3	C921	C-3
		R716	A-4	C706	A-3	C922	C-3
R601	A-1	R717	A-4	C707	B-3	C923	B-3
R602	A-1	R718	A-4	C708	B-3		
R603	A-1	R719	A-4	C709	B-3	VR701	B-3
R604	A-1	R720	C-2	C710	A-3	VR702	B-3
R605	A-1	R721	C-2	C711	A-3	VR703	A-4
R606	A-1	R722	C-2	C712	A-3		
R607	A-1	R801	C-1	C713	A-3	T601	A-2
R608	A-1	R802	C-1	C714	A-3	T602	B-2
R609	A-1	R803	C-1	C715	A-3	T801	B-2
R610	A-1	R804	B-2	C716	B-3	T802	B-1
R611	A-1	B805	B-2	C717	A-4	T803	B-2
R612	A-1	R806	B-2	C718	A-3		
R613	A-1	R807	C-2	C719	A-4	CF601	A-1
R614	A-1	R808	B-2	C720	A-4	CF602	A-1
R615	A-1	R809	C-2	C721	A-4	CF603	A-1
R616	A-2	R810	B-2	C722	B-4		
R617	A-1	R901	B-4	C723	C-2	SW1	C-2
R618	A-2	R902	B-3	C801	C-1	SW2	C-2
R619	B-2	R903	B-4	C802	C-1	SW3	C-2
R620	B-3	R904	B-4	C803	C-2		
R621	B-2	R905	C-4	C804	C-2	L601	A-2
R622	A-2	R906	C-4	C805	C-2		

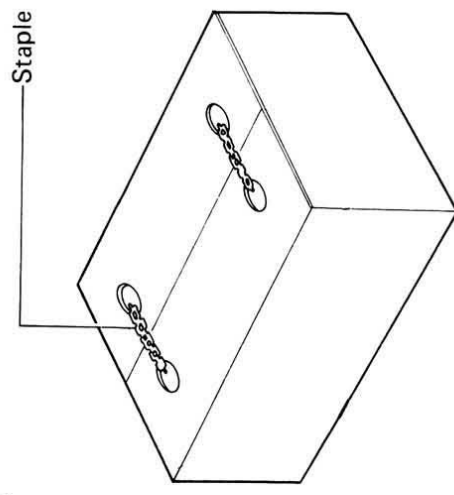
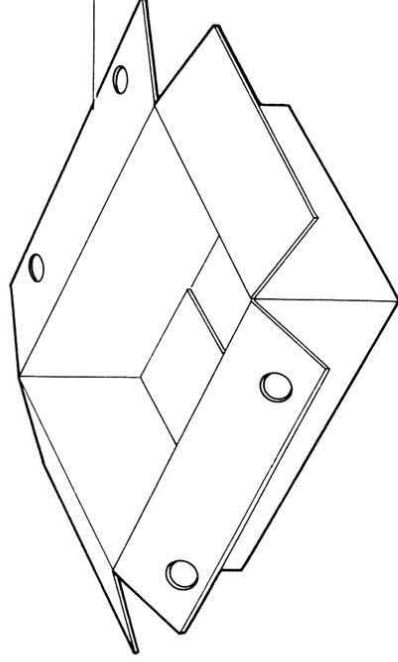
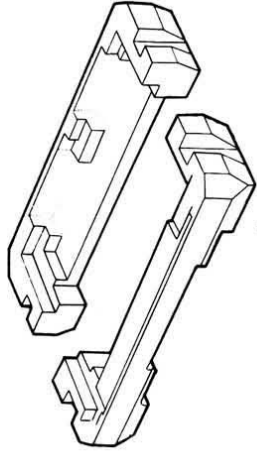
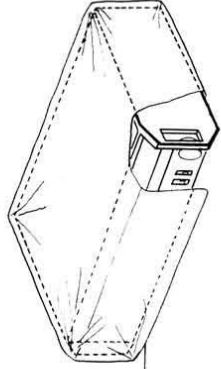
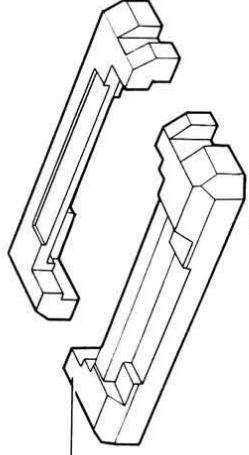
WIRING



PARTS LIST

SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
DIODES					
D381	M07060320	1S2473	S5	M07426451	LEVER (FILTER)
D481	M07060320	1S2473	S6	M07290454	PUSH (TONE)
D501	M07085320	1S2236	S7	M07290454	PUSH (TONE)
D601	M07060320	1S2473	S8	M07290455	PUSH (SPEAKERS)
D602	M07060320	1S2473	SW1~SW3	M07426453	PUSH (IF BAND, MODE AM-FM SELECTOR)
D603	M07060320	1S2473	S11	M07213450	PUSH (POWER)
D604	M07060320	1S2473	ELECTRICAL		
D605	M07060320	1S2473			
D606	M07228320	SEL105R			
D607	M07228320	SEL105R			
D901	M07300323	ESAB03			
D902	M07300323	ESAB03			
D903	M07141322	MZ314			
D904	M07140320	MZ320			
D905	M07140320	MZ320			
TRANSISTORS					
Q381	M07387303	2SC1740	T11	M07426549	TRANS-POWER
Q382	M07141303	2SC1741	PL1	M07115250	LAMP
Q383	M07137308	2SA854	PL2	M07115250	LAMP
Q481	M07387303	2SC1740	PL3	M07115250	LAMP
Q482	M07141303	2SC1741	PL4	M07115250	LAMP
Q483	M07137308	2SA854	M601	M07163261	METER (TUNING)
Q501	M07152303	2SK55	M602	M07163260	MTER (SIGNAL)
Q502	M04070303	2SC535	L801	M07241540	COIL-ANTENNA
Q503	M04066313	2SC461	J2	M07229476	JACK (HEAD PHONE)
Q601	M04070304	2SC710	J3	M07139480	SOCKET
Q602	M04070304	2SC710	Z501	M07236575	TERMINAL BOARD
Q603	M07137306	2SA826	VR301	M07426401	VR-W-HB250K25
Q604	M07387303	2SC1740	(VR401)		(BALANCE)
Q605	M07139304	2SK68A	VR302	M07426400	VR-W-B250K25
Q606	M07387303	2SC1740	(VR402)		(ATTENUATOR)
Q607	M07387303	2SC1740	VR303	M07426402	VR-STD-C100K25 (TREBLE)
Q701	M07137306	2SA826	VR304	M07426402	VR-STD-C100K25 (BASS)
Q702	M07137306	2SA826	VR403	M07426402	VR-STD-C100K25 (TREBLE)
Q703	M07387303	2SC1740	VR404	M07426402	VR-STD-C100K25 (BASS)
Q704	M07387303	2SC1740	CABINET		
Q801	M07387303	2SC1740		M07141210	KNOB (TUNING)
Q901	M05079311	2SD360		M07290210	KNOB (BASS, TREBLE, BALANCE)
Q902	M07229305	2SC2002		M07139211	KNOB (ATTENUATOR, SELECTOR)
Q903	M07229303	2SA953		M07139213	KNOB-LEVER
				M04108195	LEG
ICs					
IC101	M07388343	M5213L	PACKING		
IC201	M07388343	M5213L			
IC301	M07388343	M5213L			
IC401	M07388343	M5213L			
IC601	M07361345	KB4420B			
IC701	M07357345	HA11223W			
IC801	M07387343	HA1197			
S1	M07426452	ROTARY (SELECTOR)	M07426900		PACKING BOX
S2	M07290452	LEVER (DUPLICATE)	M07426930		PACKING BAG
S3	M07426450	LEVER (TAPE-MONITOR)	M07139910		CUSHION
S4	M07426451	LEVER (MODE)	M07426999		I.B
			M07166998		WARRANTY CARD

PACKAGE INSTRUCTION



MELCO SALES, INC.

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