

TA-FA50ES/FA70ES

SERVICE MANUAL

AEP Model

TA-FA50ES and TA-FA70ES is the integrated stereo amplifier.
The mechanical and electrical specifications of TA-FA50ES/FA70ES is almost same as TA-FA5ES/FA7ES.
So, this manual contains only the points which differ from TA-FA5ES/FA7ES.
For the informations not contained in this manual, please refer to the TA-FA5ES/FA7ES service manual (9-959-828-00) previously issued.

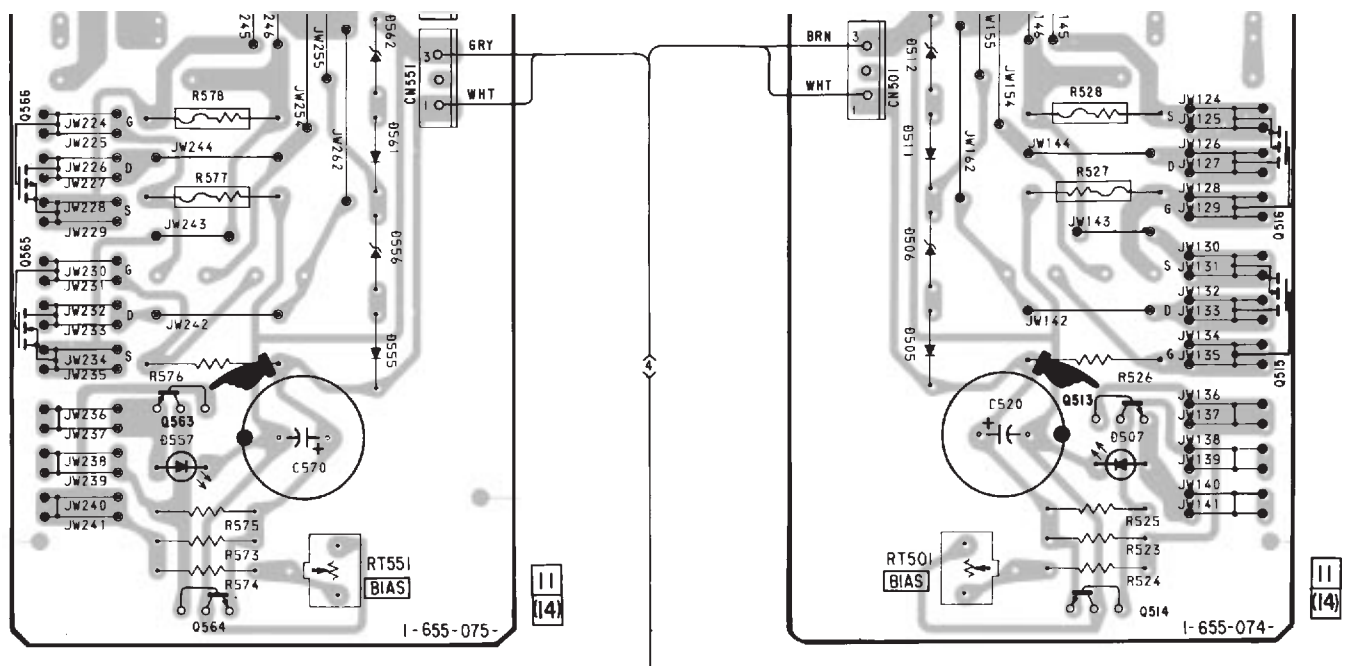
1. DIAGRAMS

- **W** : Difference portion

PRINTED WIRING BOARDS — MAIN Section —

(Refer to the TA-FA5ES/FA7ES service manual page 16)

- Location E-11 to H-17



INTEGRATED STEREO AMPLIFIER

SONY®



TA-FA5ES/FA7ES

SERVICE MANUAL

AEP Model



Photo: TA-FA7ES (Black)

SPECIFICATIONS

System

Power Amplifier: Pure-complementary SEPP MOS
FET power amplifier with all stages directly coupled
Preamplifier: Low-noise, high-gain equalizer amplifier
Power section: Large-capacity power supply advanced
STD

Rated output

TA-FA7ES
4 ohms, 150 W + 150 W (DIN 0.7%)
8 ohms, 100 W + 100 W (DIN 0.7%)
TA-FA5ES
4 ohms, 135 W + 135 W (DIN 0.7%)
8 ohms, 90 W + 90 W (DIN 0.7%)

Speakers impedance

4 to 16 ohms

Output bandwidth (8 ohms)

10 Hz to 100 kHz (at 40 W output, and
high-frequency distortion rate of
0.08%)

Dynamic headroom

at 4 ohms: TA-FA7ES 2 dB
TA-FA5ES 3 dB
at 8 ohms: TA-FA7ES 1.2 dB
TA-FA5ES 2 dB

Total harmonic distortion

0.005% (at 8 ohms, 10 W output)

Damping factor

100 (8 ohms, 1 kHz)

Intermodulation (IM)

distortion (60 Hz:7 kHz=4:1)

0.005% (8 ohms)

Throughrate

125 V/ μ sec, 250 V/ μ sec (Inside)

Residual noise

Less than 115 μ V (network A)

Equalizer deviation

PHONO MM: 20 Hz to 20 kHz,
 ± 0.2 dB

Frequency response

TUNER, CD, AUX, TAPE 1, 2, 3: 2 Hz
to 100 kHz ± 3 dB

S/N

PHONO MC: TA-FA7ES 78dB
(A Fil, 0.5 mV)
TA-FA5ES 76 dB
(A Fil, 0.5 mV)
MM: 87 dB (A Fil, 5 mV)
TUNER, CD, AUX, TAPE 1, 2, 3:
105 dB

Inputs

Input sensitivity and impedance

PHONO MC: 0.25 mV, 100 ohms
MM: 2.5 mV, 50 kilohms
TUNER, CD, AUX, TAPE 1, 2, 3:
150 mV, 30 kilohms

Maximum input capability (1 kHz)

PHONO MC: 9 mV
MM: 150 mV

Outputs

Output level / impedance

REC OUT 1, 2, 3: 150 mV, 1 kilohms
PHONES: 10 mW (at 8 ohms)

Tone controls

BASS (100 Hz): ± 7 dB
TREBLE (10 kHz): ± 6 dB

General

Power requirements

220 - 230 V AC, 50/60 Hz

Power consumption

TA-FA7ES: 330 W
TA-FA5ES: 300 W

Dimensions (approx.) (w/h/d)

430 \times 175 \times 450 mm
(17 \times 7 \times 17 $\frac{3}{4}$ inches)

Mass (approx.)

incl. projecting parts and controls
TA-FA7ES: 19.8 kg (43 lb 6 oz)
TA-FA5ES: 17.5 kg (38 lb 10 oz)

Supplied accessories

Remote commander (remote)
RM-S703 (1)
Sony batteries SUM-3(NS) (2)

Design and specifications are subject to change without notice.

INTEGRATED STEREO AMPLIFIER
SONY[®]

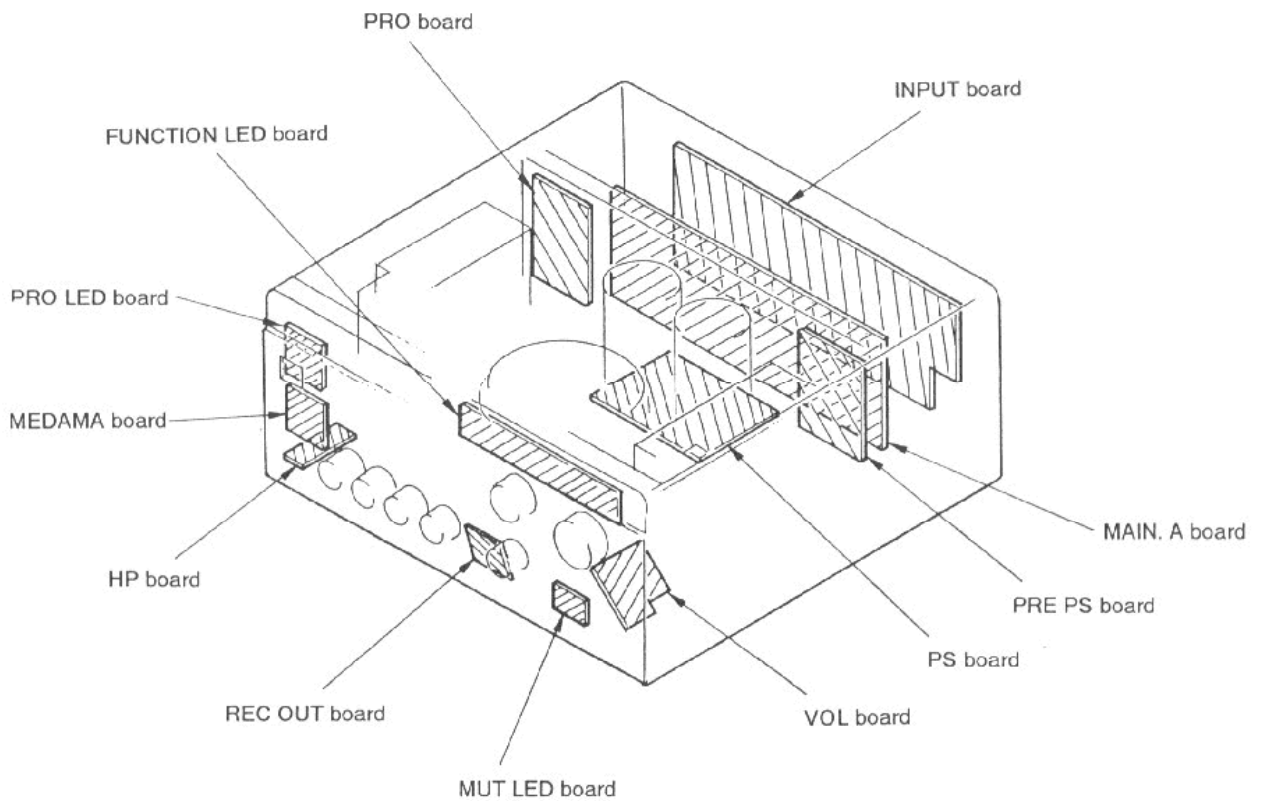
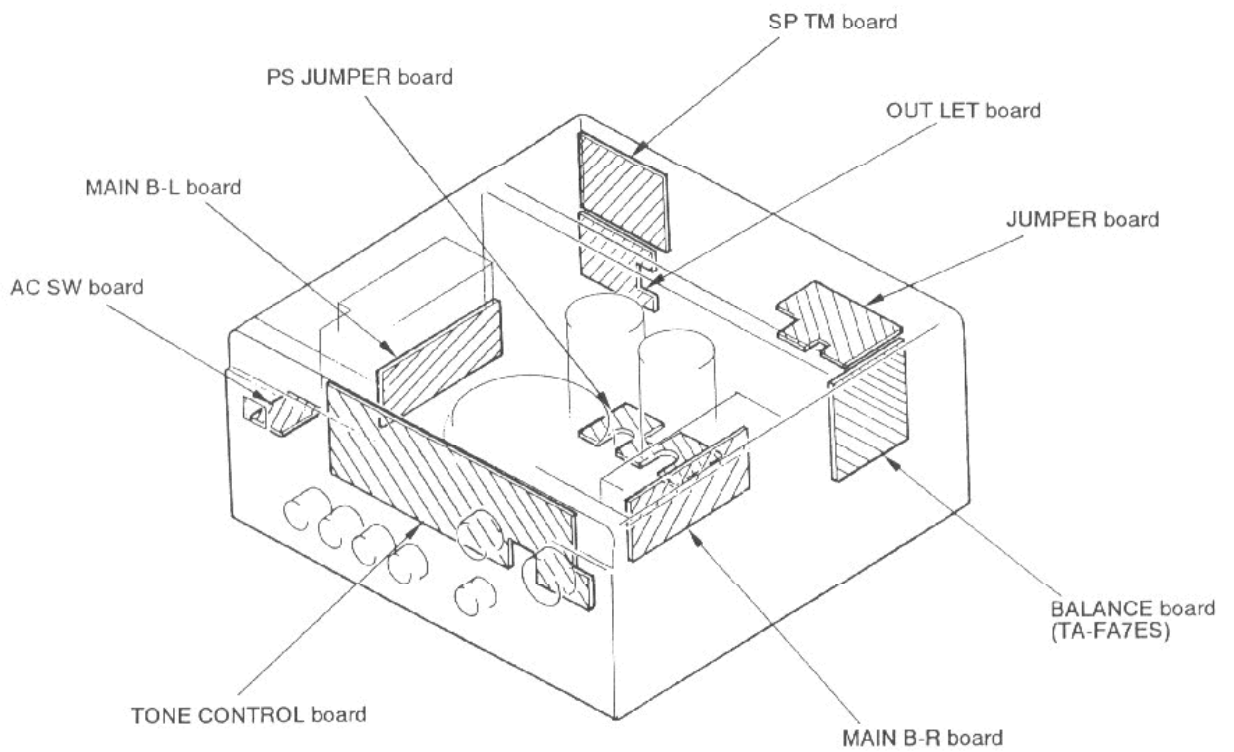


SECTION 4 DIAGRAMS

4-1. IC PIN FUNCTION DESCRIPTION IC901 TMP47C200BN-H327 (SYSTEM CONTROL)

Pin No.	Pin Name	I/O	Function
1	RCL	O	Clock } Data } Serial data of EEPROM (X24C01P)
2	RDT	I/O	
3	VDW	O	Down } Up } VR motor control signal (Active: H, Stop: L-L, Brake: H-H)
4	VUP	O	
5	CD	O	Function relay select signal output (ON: L)
6	MUT	O	Mute control signal output when switching (Mute: H)
7	AUX	O	Function relay select signal output (ON: L)
8	T3	O	Function relay select signal output (ON: L)
9	T2	O	Function relay select signal output (ON: L)
10	T1	O	Function relay select signal output (ON: L)
11	SW0	I	Relativity position detection signal of rotary switch (One of them terminal: H, the other terminal: L) Direction from SW5 to SW0, TUNER → CD → AUX → TAPE2 → TAPE1 → PHONO → TUNER →
12	SW1	I	
13	SW2	I	
14	SW3	I	
15	SW4	I	
16	SW5	I	
17	PHONO	O	Function LED drive signal (ON: L)
18	TUNER	O	
19	CD	O	
20	AUX	O	
21	GND	—	GND terminal
22	TAPE1	O	Function LED drive signal (ON: L)
23	TAPE2	O	
24	TAPE3	O	
25	—	O	Not used (Connected to GND)
26	—	I	Not used (Connected to GND)
27	—	I	Not used (Connected to GND)
28	—	I	Not used (Connected to GND)
29	—	I	Not used (Connected to GND)
30	TEST	—	Test terminal (Open)
31	XIN	—	Oscillation signal 8.19 MHz
32	XOUT	—	
33	RESET	I	Reset signal (Reset: L)
34	HOLD	I	Cancellation of hold mode signal (Start: H)
35	TUNER	O	Function relay select signal output (ON: L)
36	PHONO	O	Function relay select signal output (ON: L)
37	SIRCS	I	SIRCS signal (Active: L)
38	—	O	Not used (Connected to GND)
39	—	O	Not used (Connected to GND)
40	—	O	Not used (Connected to GND)
41	—	O	Model mode switch signal (Connected to GND)
42	VDD	—	POWER supply (+5 V) terminal

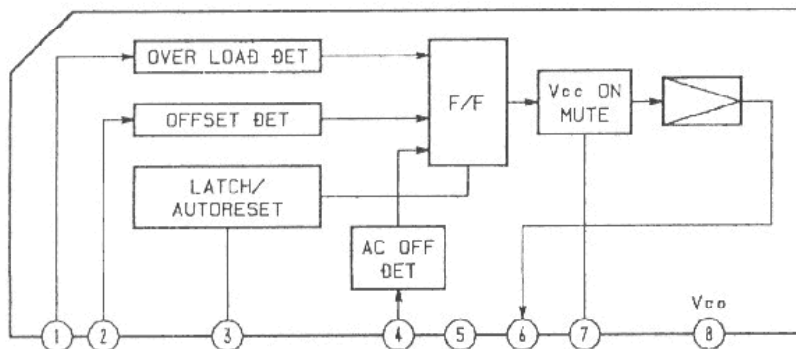
• Circuit Boards Location



• IC Block Diagrams

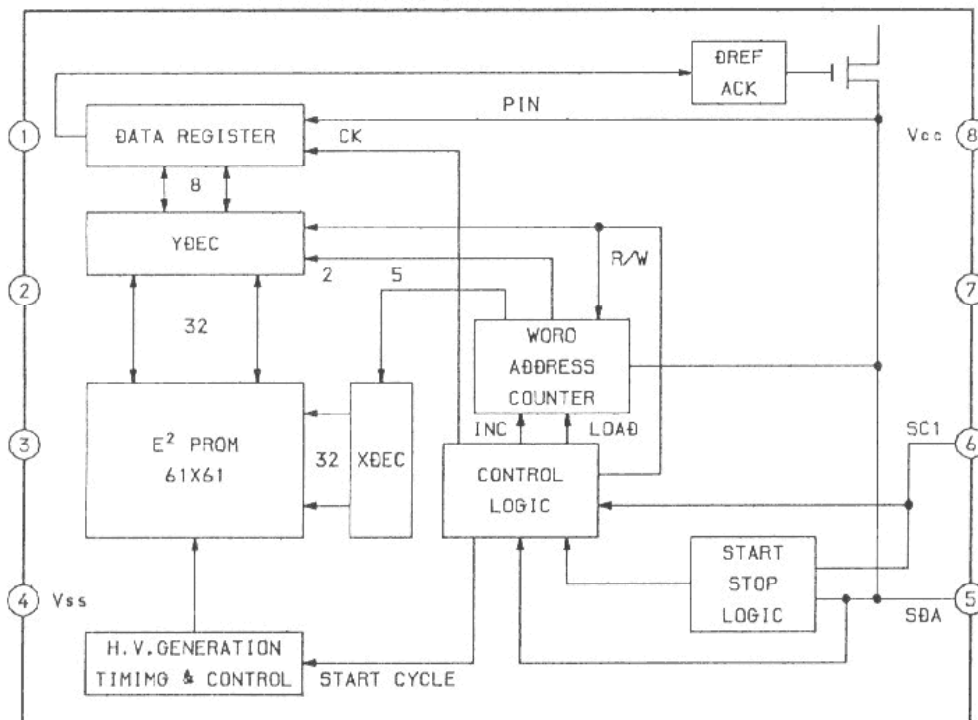
PRO board

IC601 μ PC1237HA

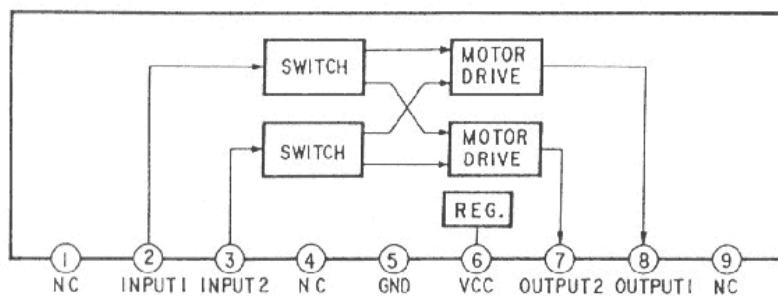


TONE CONTROL board

IC903 X24C01P-S

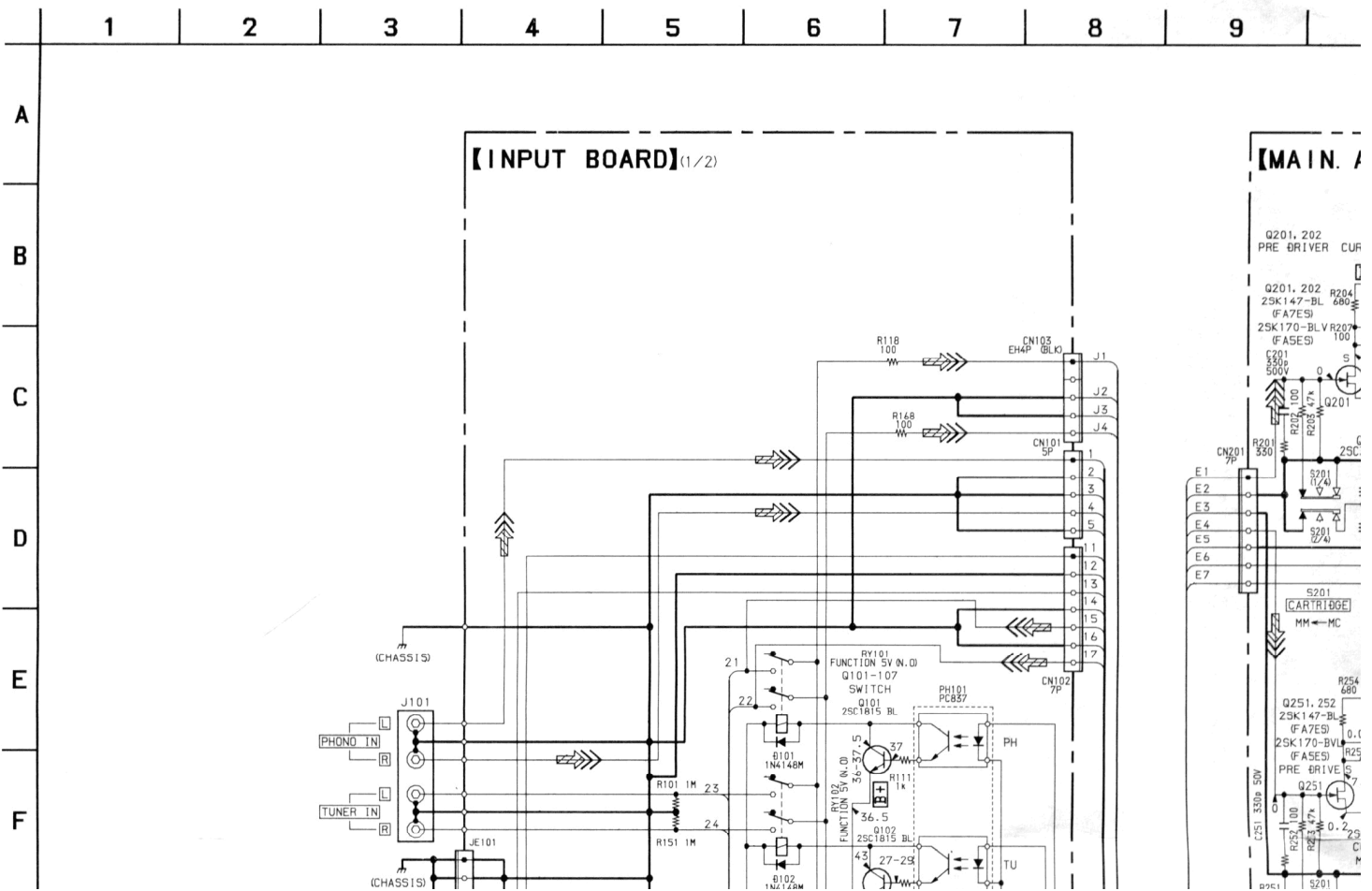


IC904 BA6208

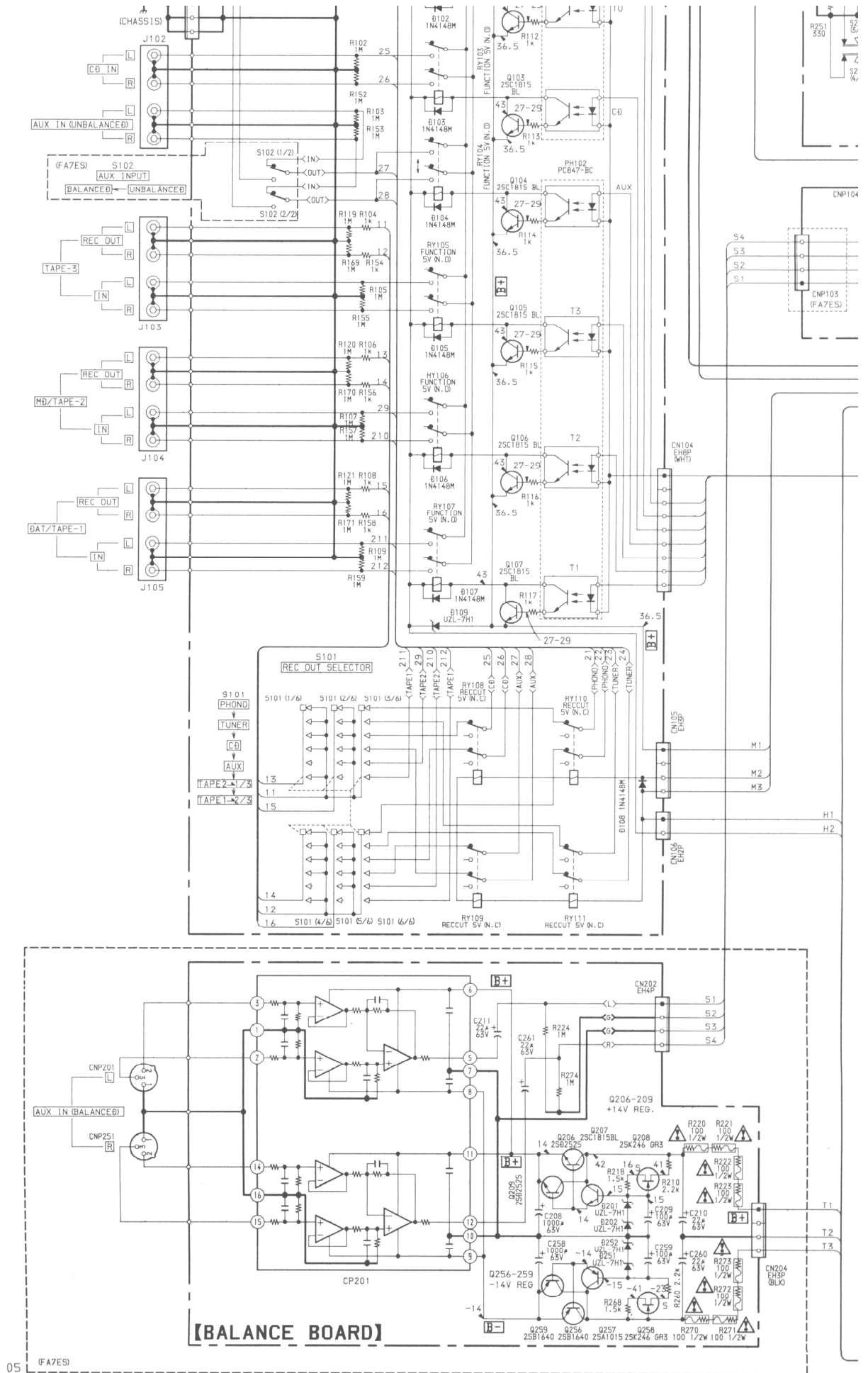


IA-FAJES/FA/ES

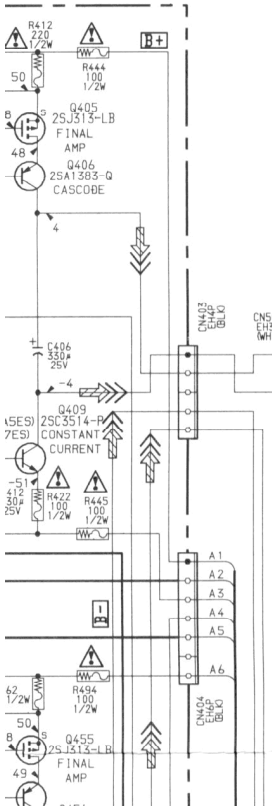
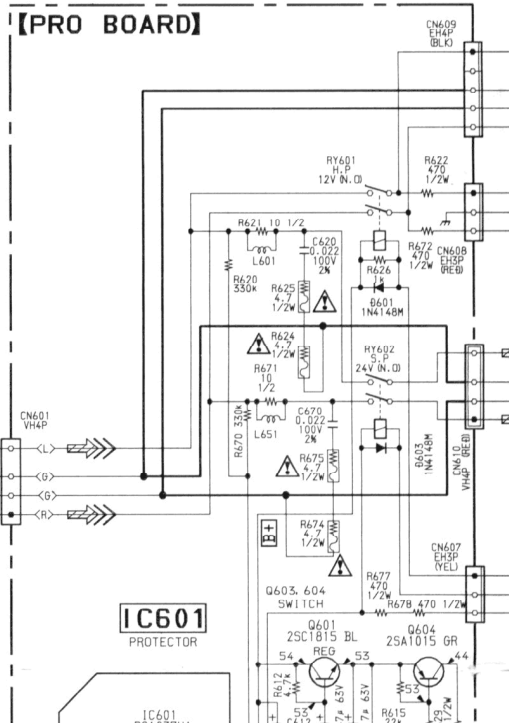
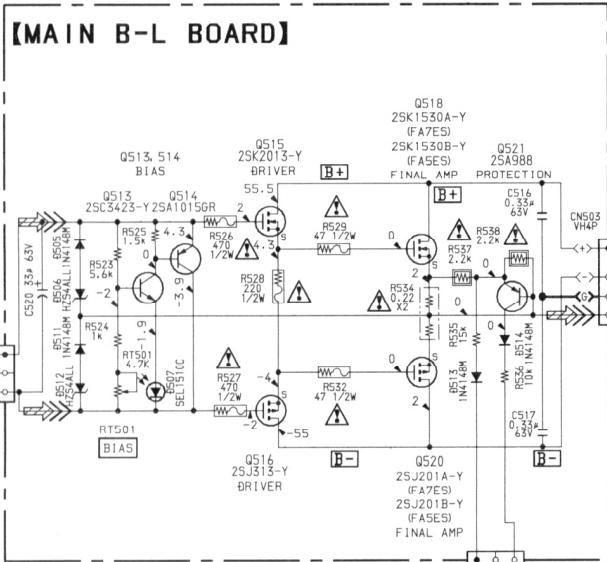
4-2. SCHEMATIC DIAGRAM • See page 10 for IC Block Diagrams.



G
H
I
J
K
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Q
R



05 (FA7ES)



29 | 30 | 31 | 32 | 33

A

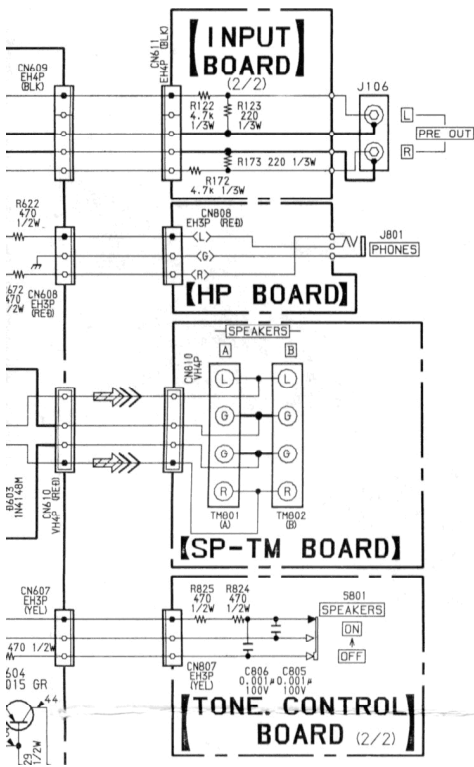
B

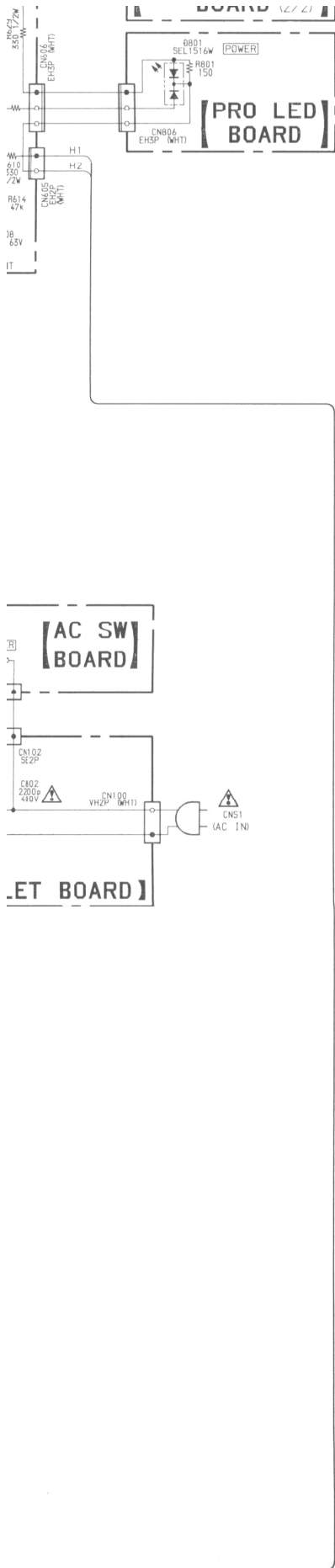
C

D

E



F












G
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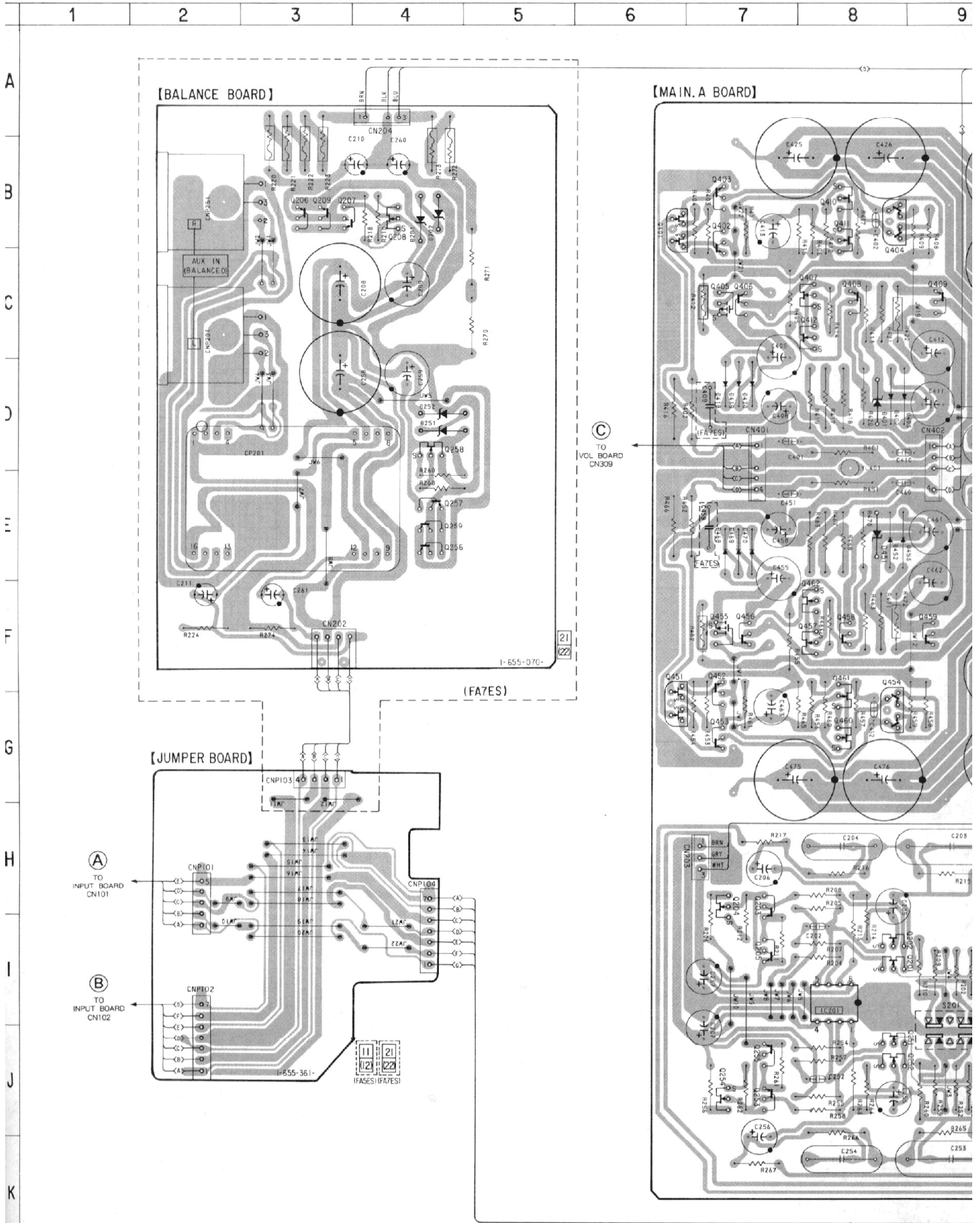
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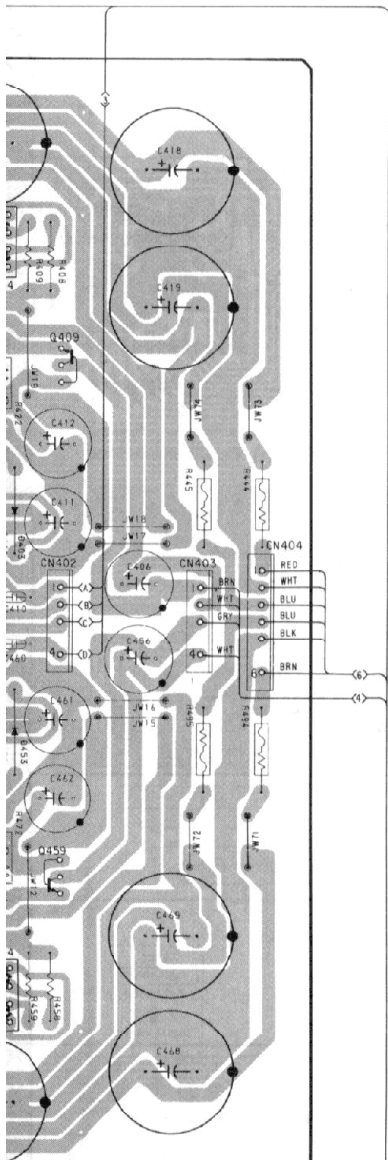
- All capacitors are in μF unless otherwise noted. pF : $\mu\mu\text{F}$
50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}$ W or less unless otherwise specified.
- % : indicates tolerance.
-  : nonflammable resistor.
-  : fusible resistor.

Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

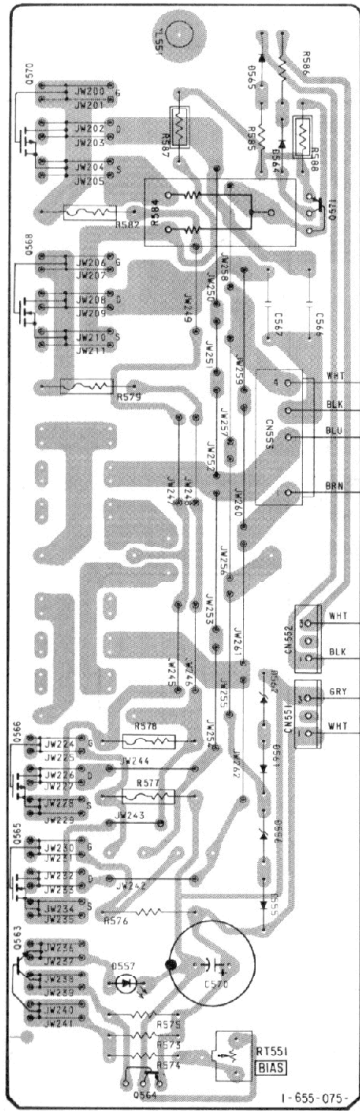
-  : B + Line.
-  : B - Line.
-  : panel designation.
-  : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (10 M Ω /V). Voltage variations may be noted due to normal production tolerances.
- Signal path.
 : PHONO

3. PRINTED WIRING BOARDS - MAIN Section -



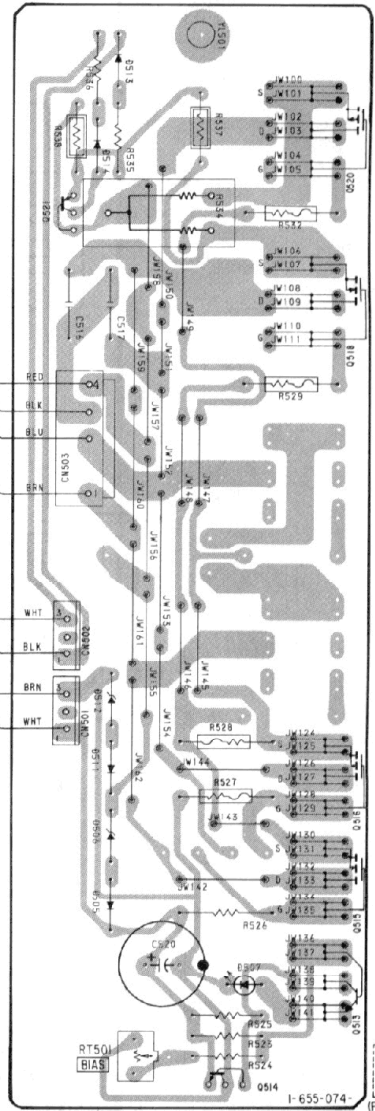


[MAIN B-R BOARD]



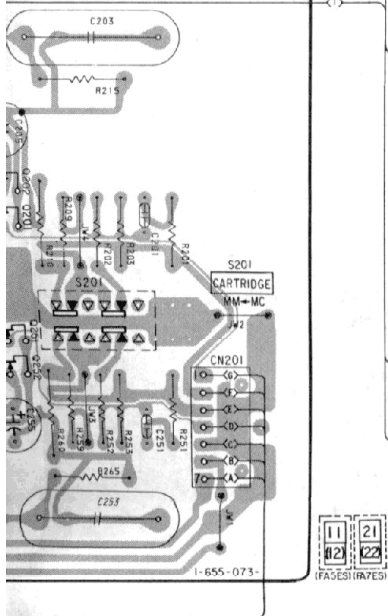
I-655-075 (FACES) (FATES)

[MAIN B-L BOARD]

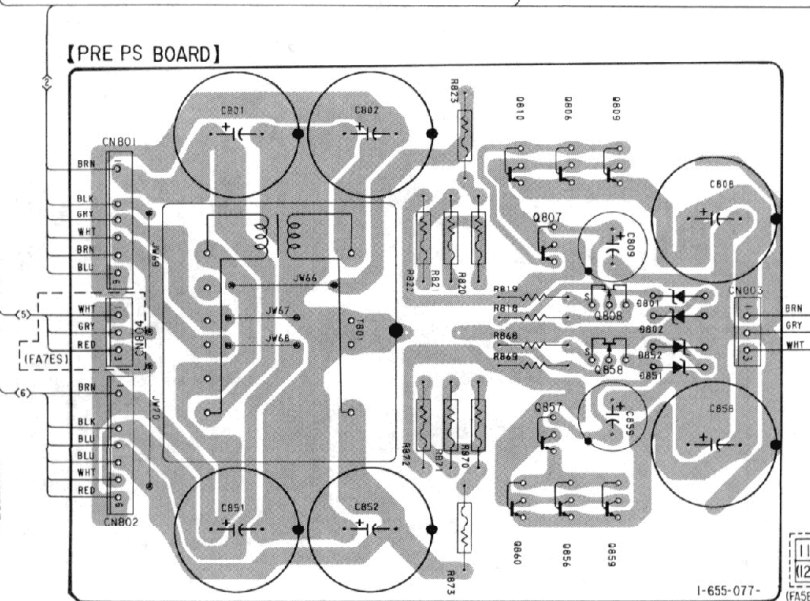


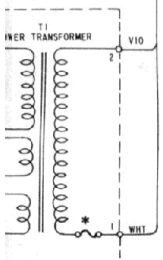
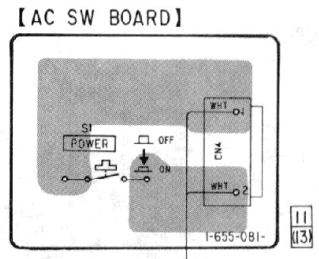
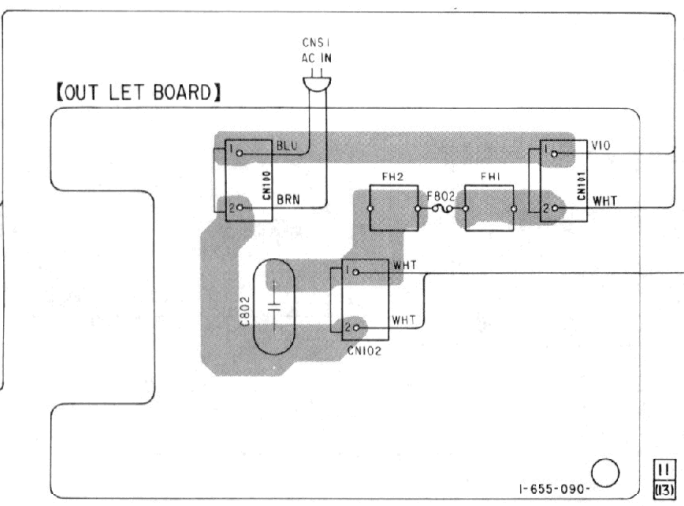
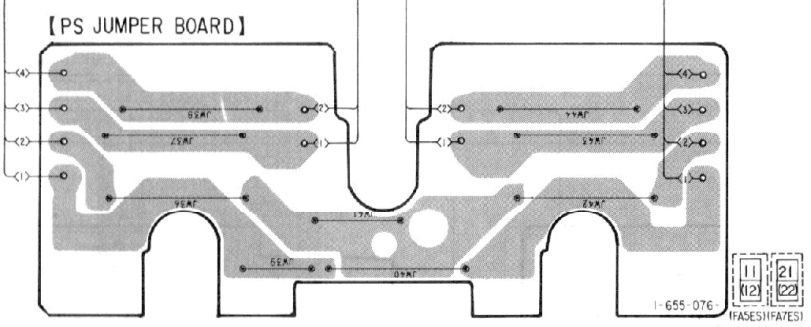
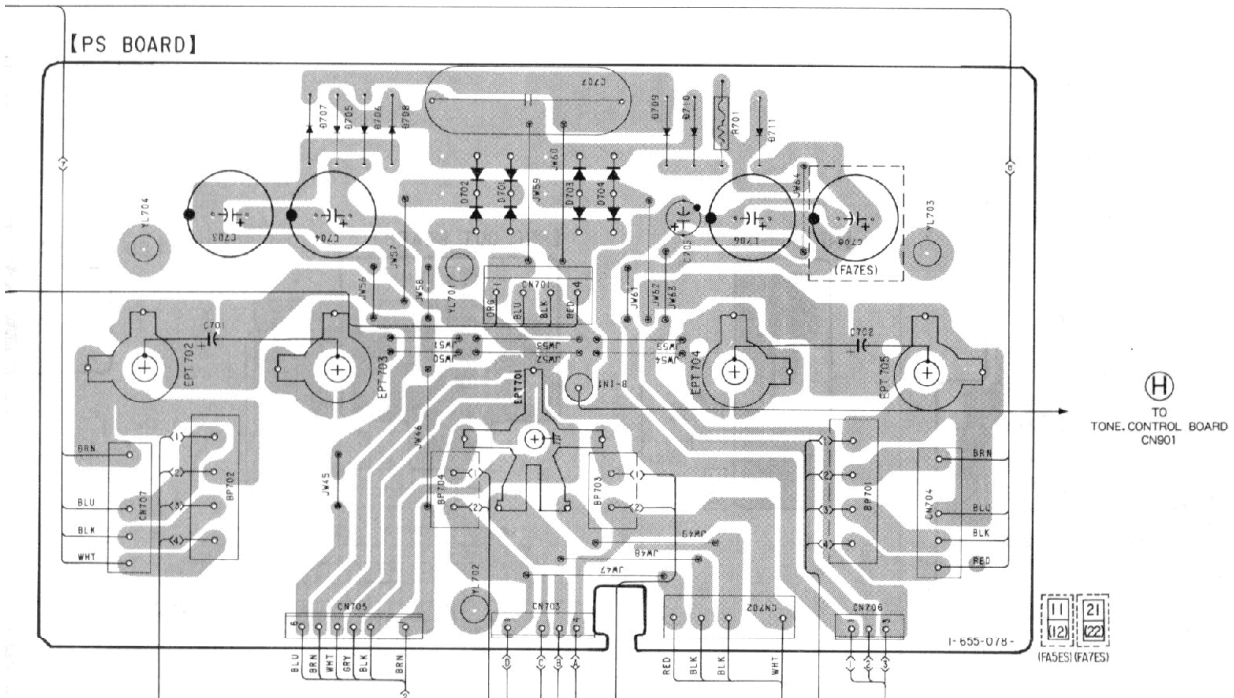
I-655-074 (FACES) (FATES)

[PRE PS BOARD]



I-655-073 (FACES) (FATES)





PLACEABLE: IN TRANSFORMER

● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
○D201	B-4	Q251	J-8
○D202	B-4	Q252	J-8
○D251	D-4	Q253	J-7
○D252	D-4	Q254	J-7
D401	D-8	Q255	J-7
D402	D-8	○Q256	E-4
D403	D-8	○Q257	E-4
D418	D-7	○Q258	D-4
D419	D-7	○Q259	E-4
D420	D-7	Q401	B-6
D451	E-8	Q402	B-7
D452	E-8	Q403	B-7
D453	E-8	Q404	B-8
D468	E-7	Q405	C-7
D469	E-7	Q406	C-7
D470	E-7	Q407	C-8
D505	F-15	Q408	C-8
D506	F-15	Q409	C-9
D507	G-16	Q410	B-8
D511	F-15	Q411	B-8
D512	E-15	Q412	C-8
D513	B-15	Q451	G-6
D514	B-15	Q452	G-7
D555	G-13	Q453	G-7
D556	F-13	Q454	G-8
D557	G-12	Q455	F-7
D561	F-13	Q456	F-7
D562	E-13	Q457	F-8
D564	B-13	Q458	F-8
D565	B-13	Q459	F-9
D701	B-20	Q460	G-8
D702	B-20	Q461	G-8
D703	B-20	Q462	F-8
D704	B-21	Q513	G-16
D705	B-19	Q514	H-16
D706	B-19	Q515	G-16
D707	B-19	Q516	F-16
D708	B-19	Q518	C-16
D709	B-21	Q520	B-16
D710	B-21	Q521	C-15
D711	B-21	Q563	G-11
D801	J-15	Q564	H-12
D802	J-15	Q565	F-11
D851	J-15	Q566	F-11
D852	J-15	Q568	C-11
IC201	J-8	Q570	B-11
Q201	I-8	Q571	B-13
Q202	I-8	Q806	I-14
Q203	I-7	Q807	I-14
Q204	I-7	Q808	J-14
Q205	I-7	Q809	I-14
○Q206	B-3	Q810	I-14
○Q207	B-3	Q856	K-14
○Q208	B-4	Q857	K-14
○Q209	B-3	Q858	J-14
		Q859	K-14
		Q860	K-14

Note:

○:FA7ES ONLY

Note:

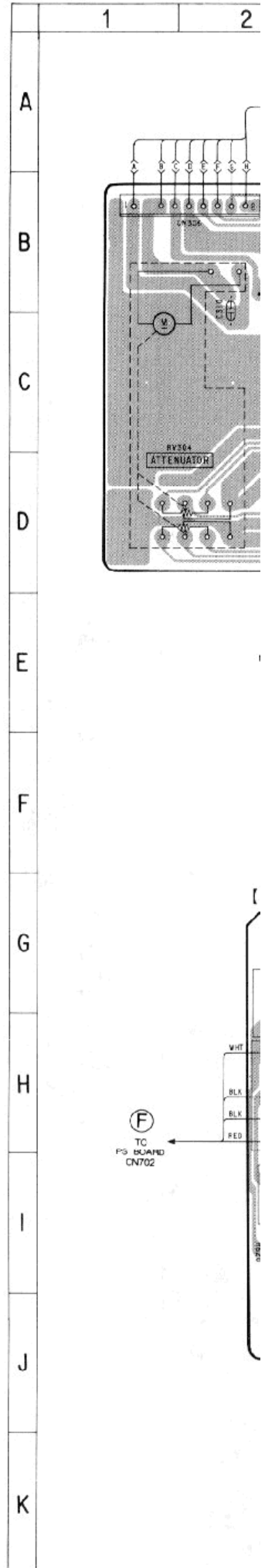
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- ■ : Pattern from the side which enables seeing.

• Semiconductor Location

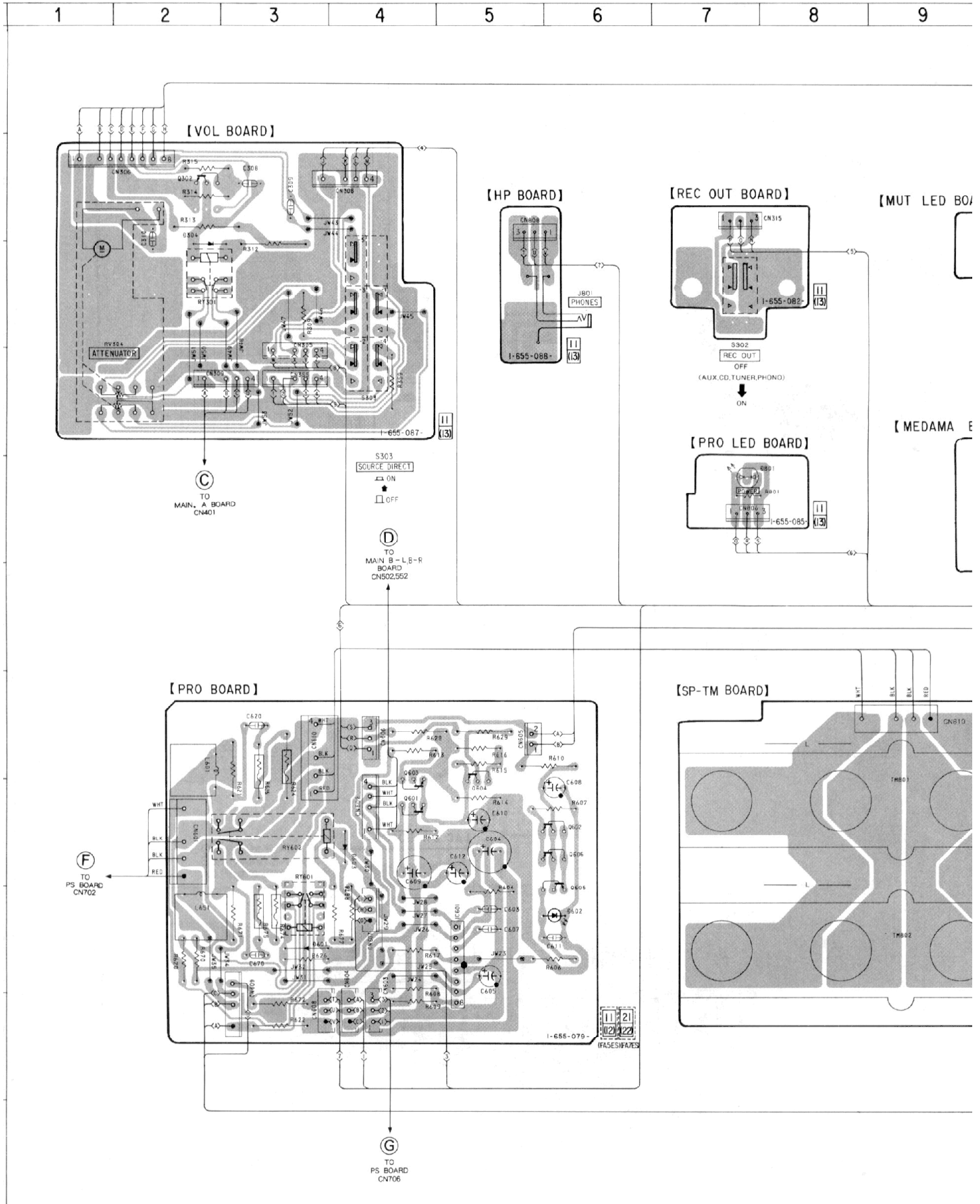
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D102	G-19
D103	G-18
D104	H-17
D105	H-16
D106	H-15
D107	H-14
D108	J-18
D109	H-13
D301	H-25
D302	C-10
D304	C-2
D601	I-3
D602	I-6
D603	H-4
D801	E-7
D901	B-22
D902	B-22
D903	B-22
D904	B-22
D905	C-16
D906	C-16
D907	C-17
D908	C-17
D909	C-17
D910	C-17
D911	B-16
D912	B-16
D913	C-20
D914	C-25
D915	C-25
D916	D-25
D917	D-25
D918	E-25
D919	F-25
D920	F-25
PH101	G-13
PH102	G-14
IC601	I-5
IC901	B-18
IC902	B-20
IC903	C-19
IC904	C-21
IC905	B-23
IC906	E-10
Q101	G-13
Q102	G-13
Q103	H-13
Q104	G-17
Q105	G-16
Q106	G-15
Q107	G-14
Q301	B-14
Q302	B-2
Q601	H-4
Q602	H-6
Q603	H-4
Q604	H-5
Q605	H-6
Q606	H-6
Q901	B-16
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Q907	B-22
Q908	B-22

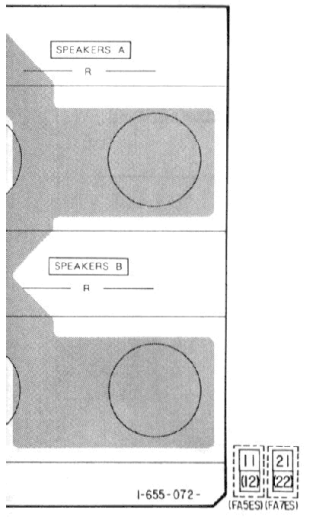
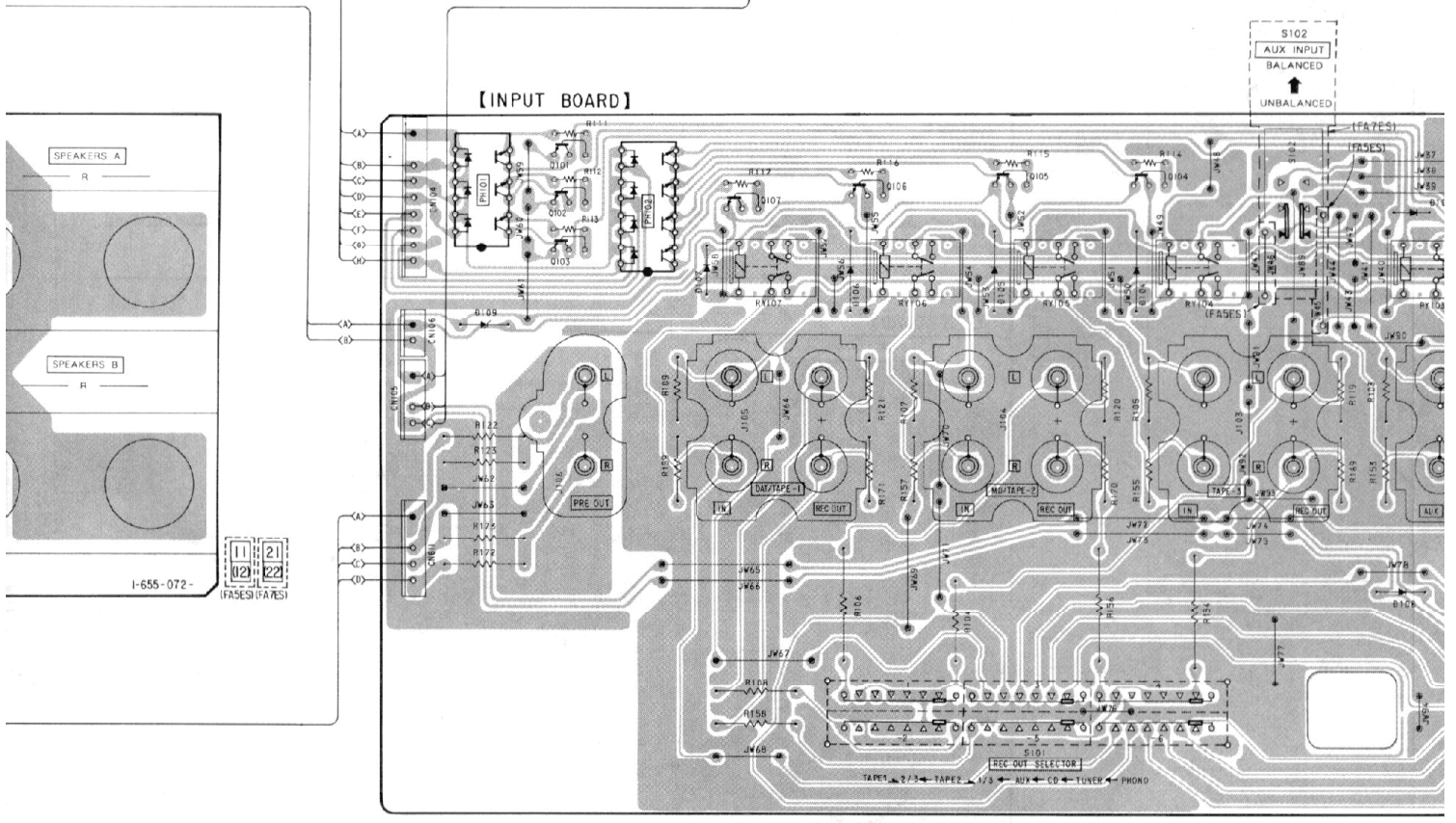
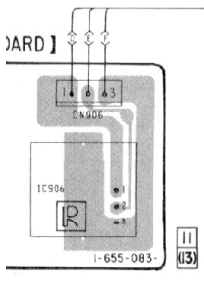
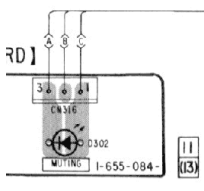
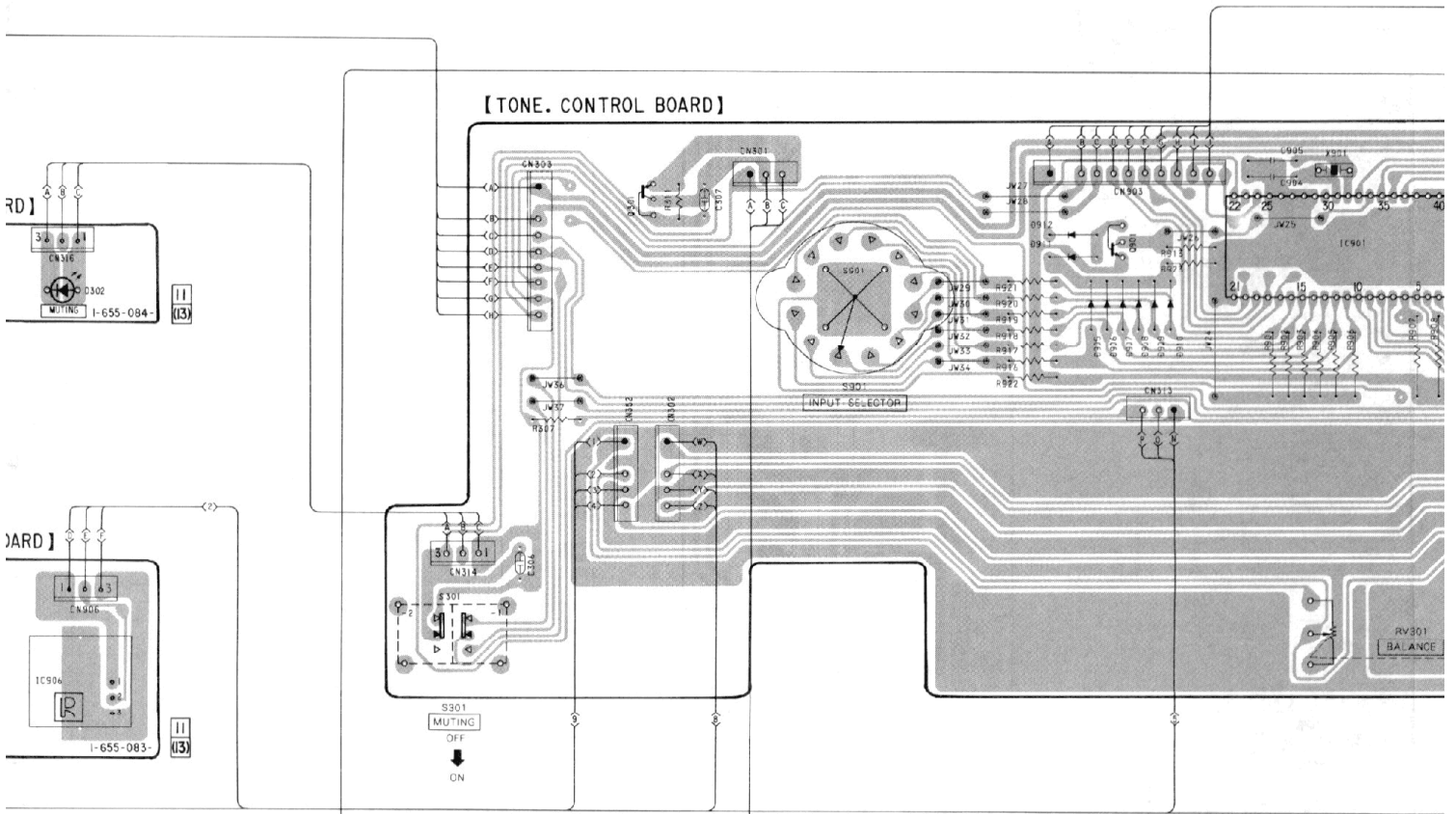
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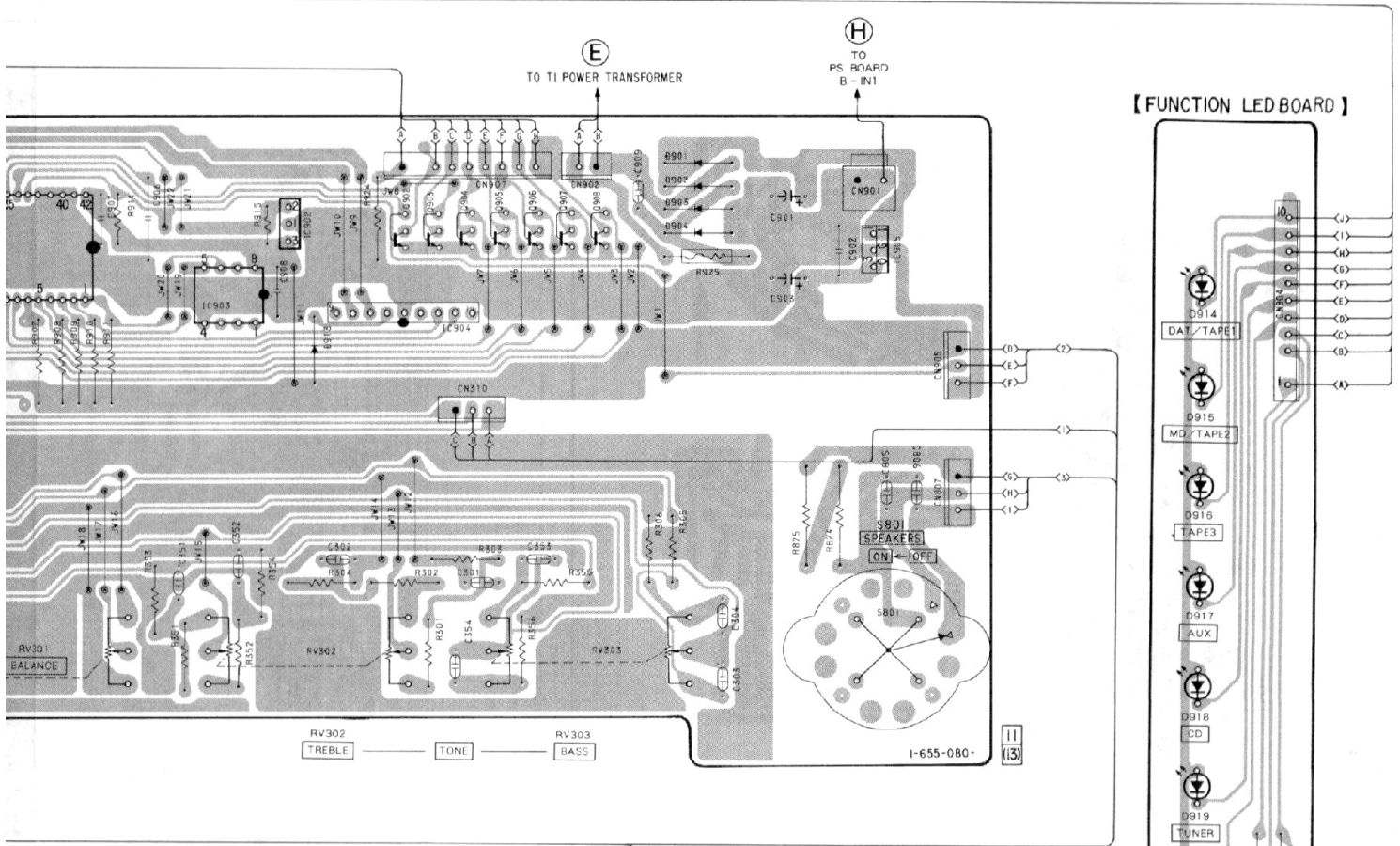
- : parts extracted from the component side.
- ▨ : Pattern from the side which enables seeing.



I. PRINTED WIRING BOARDS - CONTROL Section -







【FUNCTION LED BOARD】

