ORDER NO. MD9712150C1
A2

Service Manual

AV Control Stereo Receiver

DOLBY SURROUND PRO • LOGIC *

Receiver

SA-AX720

Colour

(K) . . . . . Black Type

Area

Suffix for Model No.	Area	Colour
(P)	U.S.A.	(K)
(PC)	Canada	

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■ Specifications

■ FM Tuner Section

Frequency range	87.9 — 107.9 MHz
Sensitivity	11.2 dBf (2µV, IHF '58)
50 dB quieting Sensitivity	
MONO	18.3 dBf (4.5µV, IHF '58)
STEREO	38.3 dBf (45µV, IHF '58)
Total harmonic distortion	
MONO	0.2%
STEREO	0.3%
S/N	
MONO	73 dB
STEREO	67 dB
Frequency response	20 Hz — 15 kHz (+1dB, –2dB)
Alternate channel selectivity	65 dB
Capture ratio	1.5 dB
Image rejection at 98MHz	40 dB
Spurious response rejection at 98MHz	75 dB
AM suppression	50 dB
Stereo separation	
1 kHz	40 dB
10kHz	30 dB
Antenna terminal(s)	75Ω (unbalanced)

■ AM Tuner Section

Frequency range	530 — 1710 kHz
Sensitivty	20µV, 330µV/m
Selectivity	55 dB
IF rejection at 1000kHz	50 dB

■ Video Section

Output voltage at 1 V input (unbalanced)	1±0.1 Vp-p
Maximum input voltage	1.5 Vp-p
Input/output impedance	75 Ω

■ Amplifier Section

Rated minimum sine wave RMS power output	
20 Hz–20 kHz both channels driven	
0.05% total hamonic distortion	100 W per channel (8Ω)
1 kHz continuous power output	
both channels driven 0.05% total	
hamonic distortion	105 W per channel (8Ω)
Total harmonic distortion	
Rated power at 20 Hz – 20 kHz	0.05% (8Ω)
Half power at 1 kHz	0.03% (8Ω)
Power output at the Dolby Pro Logic operation	
0.9% at 1 kHz,	
Front	2 X 100 W (8Ω)
Center	100 W (8Ω)
Surround	2 X100 W (8Ω)
Low frequency damping factor	30 (8Ω)
Load impedance	
Front	
A or B	8 Ω
A and B	8 Ω
Center	8 Ω
Surround	8 Ω
Dynamic headroom	2 dB (8Ω)
Frequency response	
PHONO	RIAA standard curve ± 0.8 dB
CD, TAPE, DVD, VCR, TV/DSS	10 Hz – 70 kHz, ± 3 dB
Input sensitivity	
PHONO	0.4 mV (3mV, IHF '66)
CD, TAPE, DVD, VCR, TV/DSS	27 mV (200mV, IHF '66)
S/N (IHF A)	
PHONO	70 dB (80dB, IHF '66)
CD, TAPE, DVD, VCR, TV/DSS	75 dB (85dB, IHF '66)
Input impedance	
PHONO	47 kΩ
CD, TAPE, DVD, VCR, TV/DSS	22 kΩ
Tone controls	
BASS	50 Hz, +10 to -10 dB
TREBLE	20 kHz, +10 to -10 dB
Sub-Woofer frequency response	7 -100 Hz, ±3 dB

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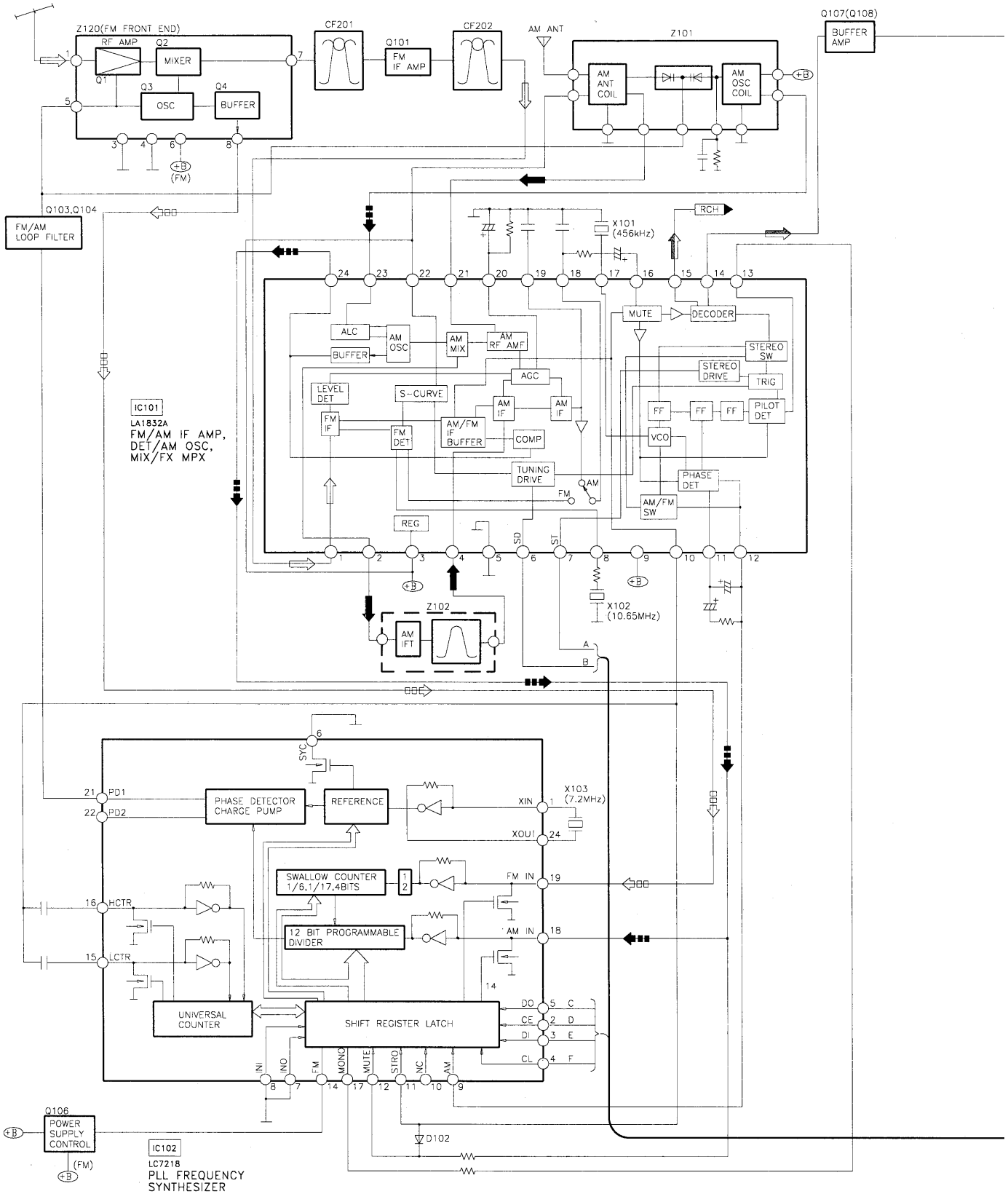
■ Block Diagram



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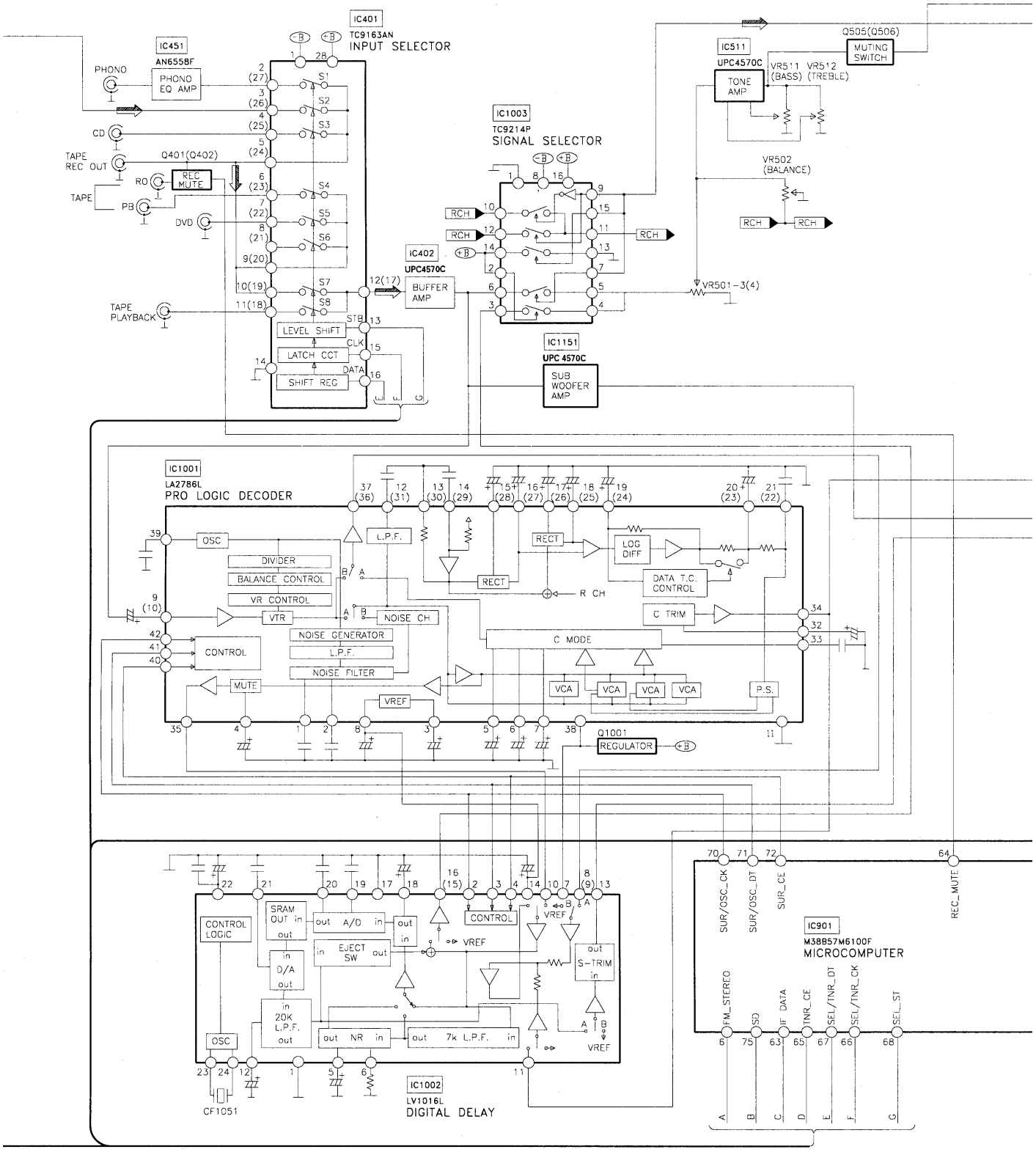

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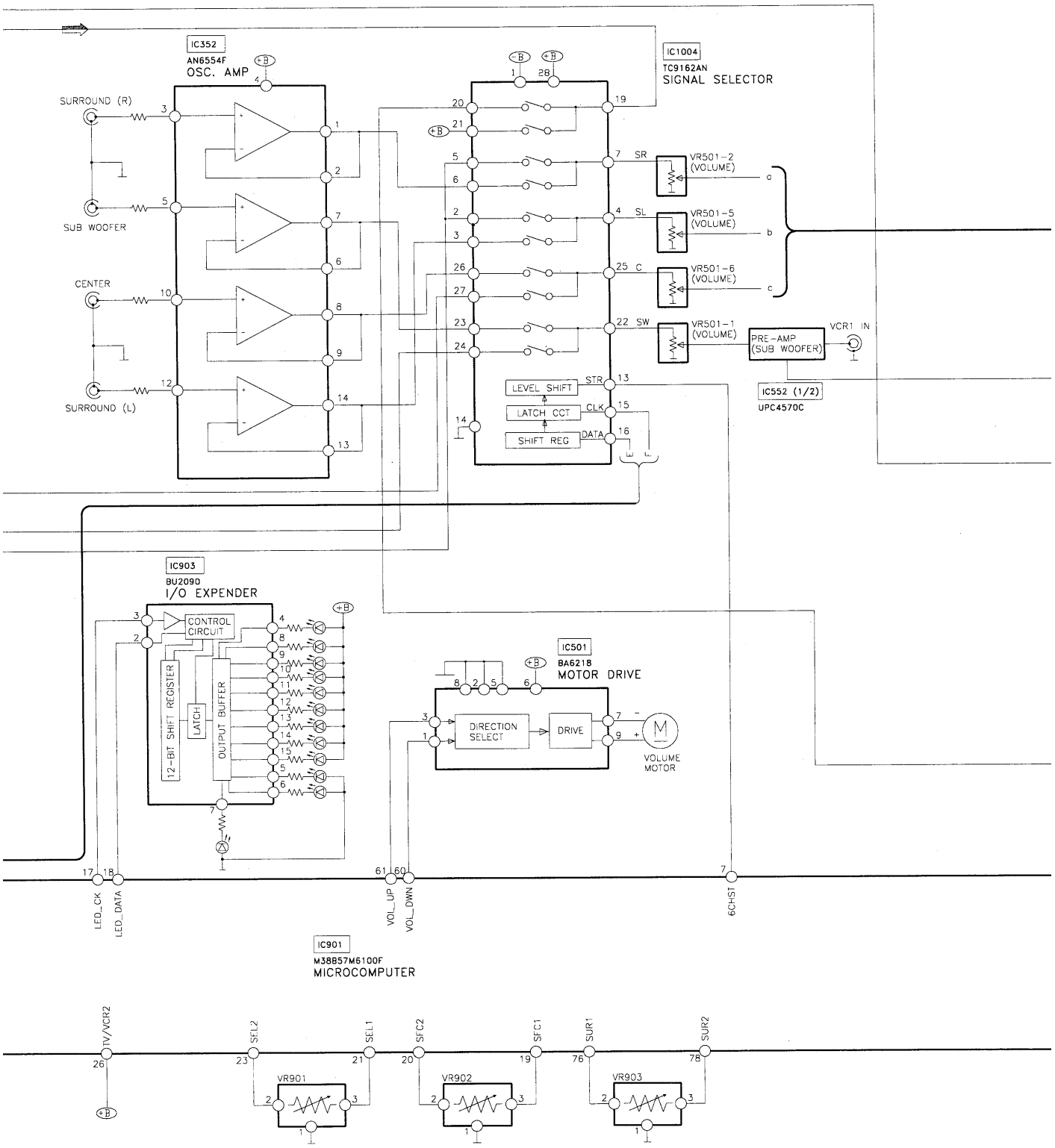

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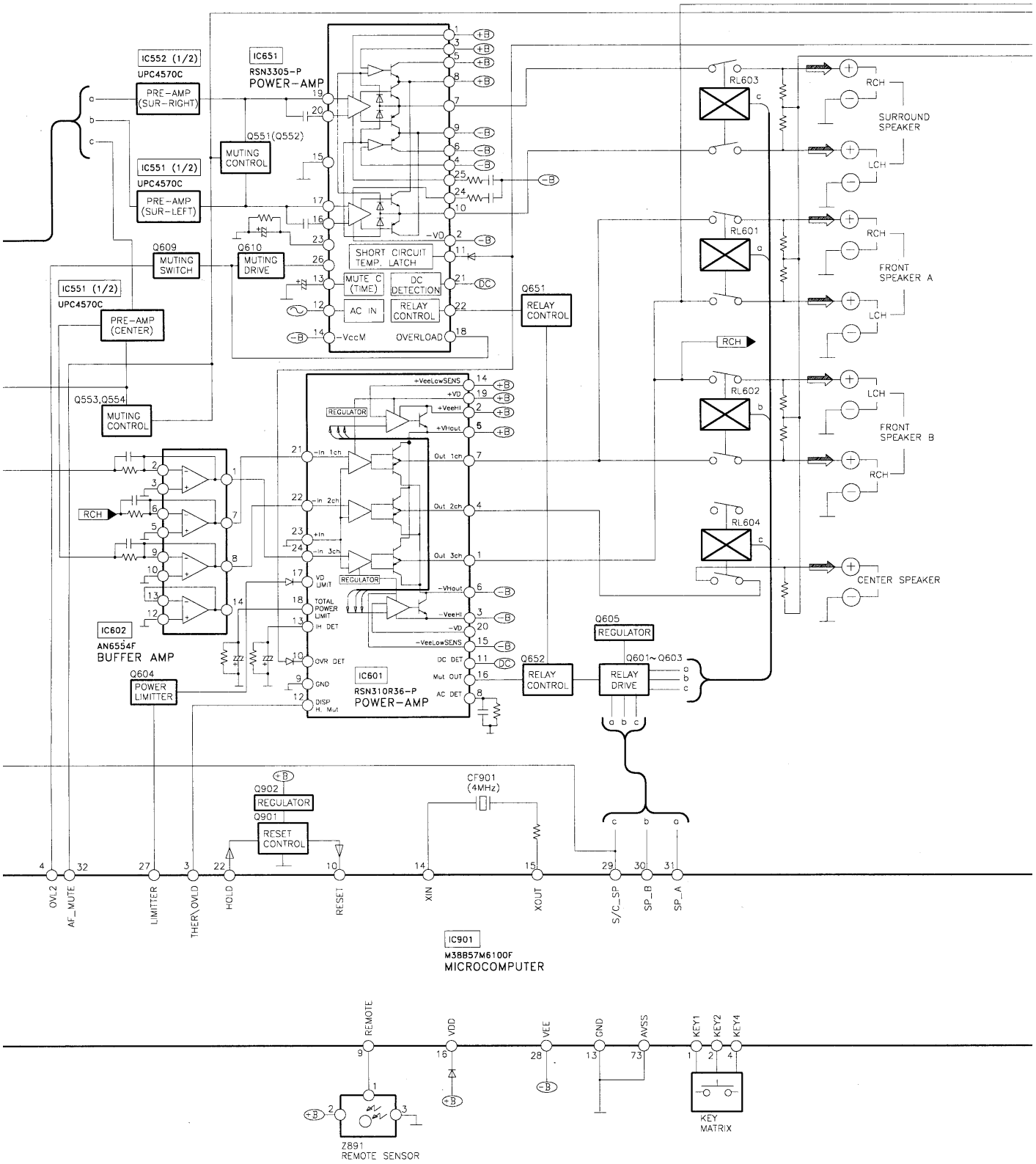

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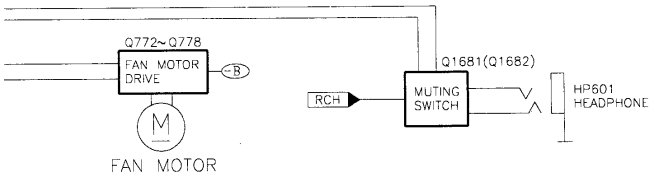

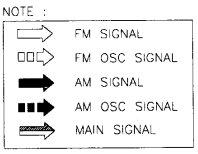

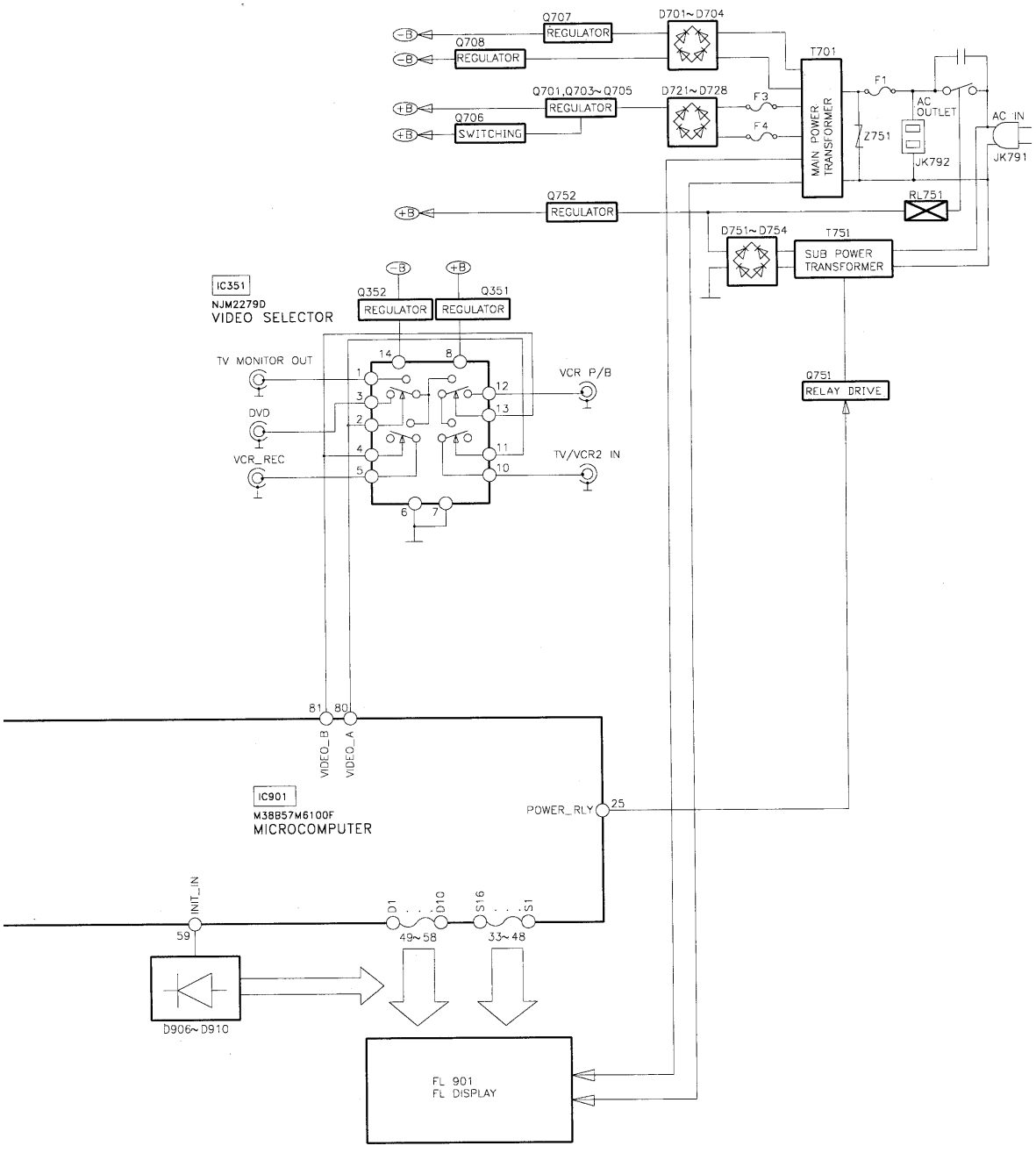

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■ Terminal Functions Of ICs

• IC901 (M38B57M6100F) System Microprocessor

Pin No.	Mark	I/O	Function
1~2	KEY2~KEY1	I	Key Input 1 ~ 2
3	THERM/OVLD1	I	Thermal/Over load input 1
4	KEY4	I	Key Input 4
5	THERM/OVLD2	I	Thermal/Over load input 2
6	FM_ST	I	Stereo signal detect terminal
7	WAKE_LED	O	Wake up timer LED
8	RDS_ST	I	Control of RDS IC (ST) stereo signal
9	REMOTE	I	Remote control terminal
10	RESET	–	Reset detect terminal
11	RDS_CK	I	Control of RDS IC (CK) clock signal
12	RDS_DT	I	Control of RDS IC (DT) data signal
13	GND	–	GND terminal
14	OCS	–	Crystal oscillator terminal (4 MHz)
15	OCS	–	Crystal oscillator terminal (4 MHz)
16	VDD (+5V)	–	Power supply terminal +5V
17	LED_IC_CK	O	LED driver IC (CK) clock signal
18	LED_IC_DT	O	LED driver IC (DT) data signal
19	SFC/PTY_ENCD1	I	SFC mode encoder input 1
20	SFC/PTY_ENCD2	I	SFC mode encoder input 2
21	SEL_ENCD1	I	Selector encoder for input 1
22	HOLD	I	Blackout detection terminal
23	SEL_ENCD2	I	Selector encoder for input 2
24	FRT_VCR2	I	VCR2 control input
25	RELAY	–	Relay control output
26	ABS	O	ABS control output
27	6ch_SW_ST	O	6 ch sw control output (ST)
28	Vee (-22V)	–	Power supply for FL driver
29	S/C_SP	O	Surround/Center speaker control output

Pin No.	Mark	I/O	Function
30	SP_B	O	Speaker B control output
31	SP_A	O	Speaker A control output
32	AF_MUTE	O	Muting control output
33~48	SEG16~SEG1	O	FL segment signal output
49~58	DEG1~DEG10	O	FL digit signal output
59	INIT_IN	I	Diode input initial settings
60	VOL_DOWN	O	Volume control output (Down)
61	VOL_UP	O	Volume control output (Up)
62	REC_MUTE	O	REC Mute control
63	IF_DATA	I	Serial data signal
64	LIMITTER	O	Power limitter control output
65	TNR_CE	O	Tuner control (CE) chip enable signal
66	SEL/TNR_CK	O	Selector/Tuner (CK) clock signal
67	SEL/TNR_DT	O	Selector/Tuner (DT) data signal
68	SEL_ST	O	Selector control terminal
69	MMD_CTRL	O	MMD control terminal
70	SURR_CK	O	Surround control (CK) clock signal
71	SURR_DT	O	Surround control (DT) data signal
72	SURR_CE	O	Surround control (CE) chip enable signal
73	AVSS	–	GND for A-D converter
74	VREF	–	Reference voltage for A-D converter
75	SD	I	SD signal detect input
76	SUR_ENCD1	I	Encoder of surround mode selector input1
77	HELP_LED	O	Help LED control output
78	SUR_ENCD2	I	Encoder of surround mode selector input2
79	VIDEO_A	O	Video selector control output A
80	VIDEO_B	O	Video selector control output B

■ Terminal Guide of ICs, Transistors and Diodes

LA1832A LC7218 LV1016L	NJM2279D	TC9163AN TC9162AN	UPC4570C	AN6558F	BA6218	LA2786L (42Pin)
RSN3305-P RSN310R36-P	M38B57M6100F (80 Pin)	TC9214P	AN6554F	BU2090	2SC2785FETA 2SC2786MTA	2SC2787FL1TA 2SC2787LTA 2SD1915FTA 2SA933SSTA 2SC3311ARTA

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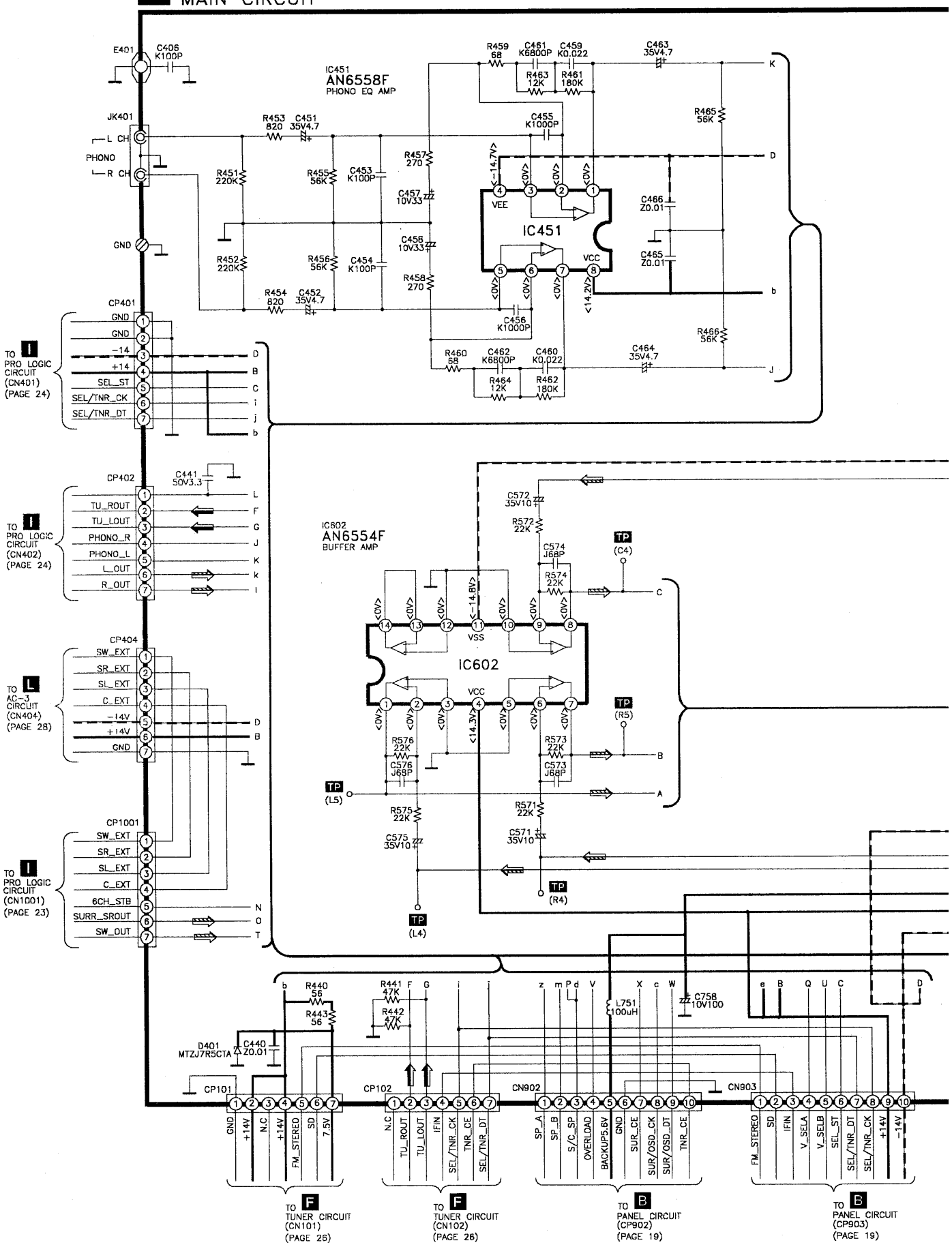
A MAIN CIRCUIT



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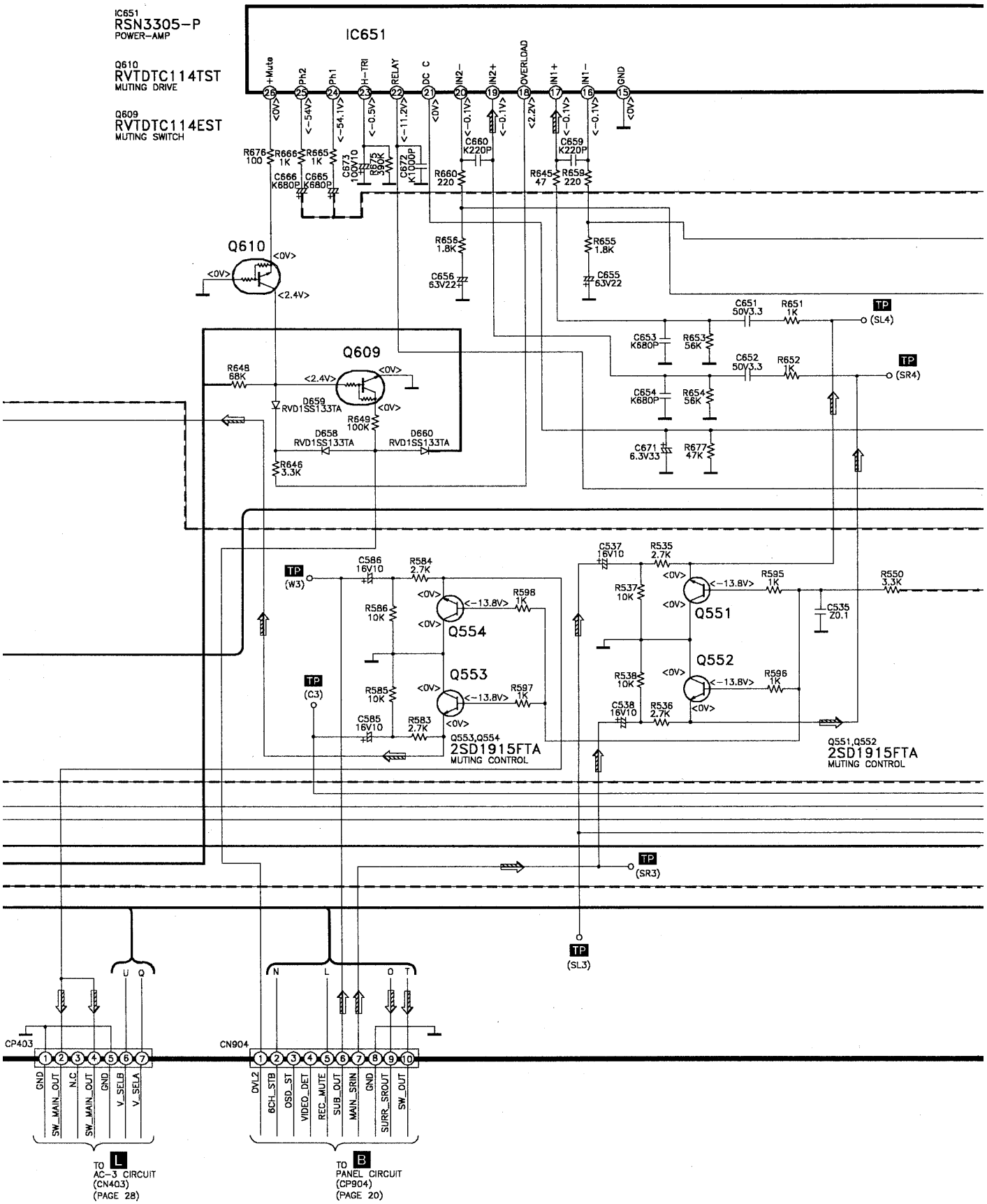

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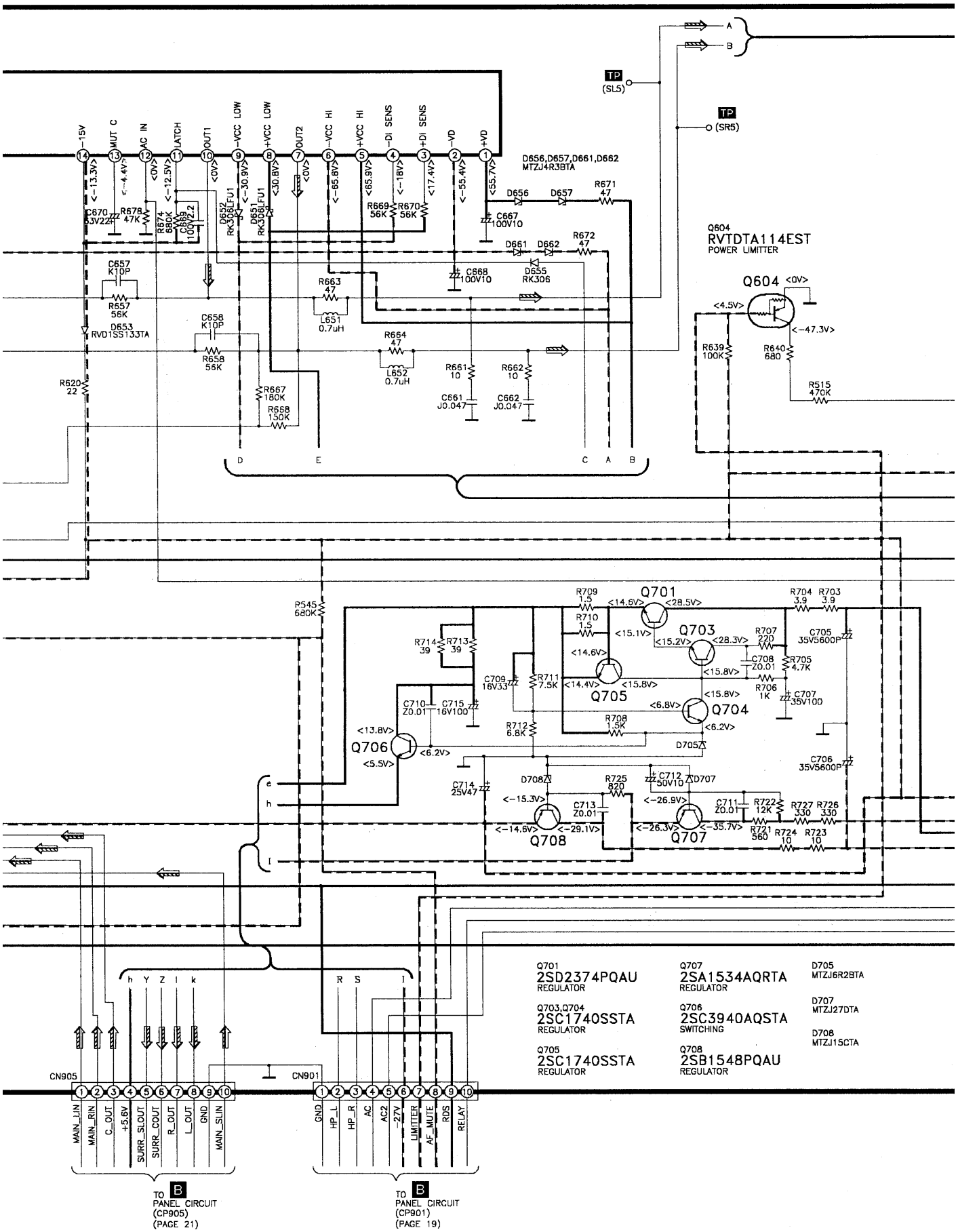

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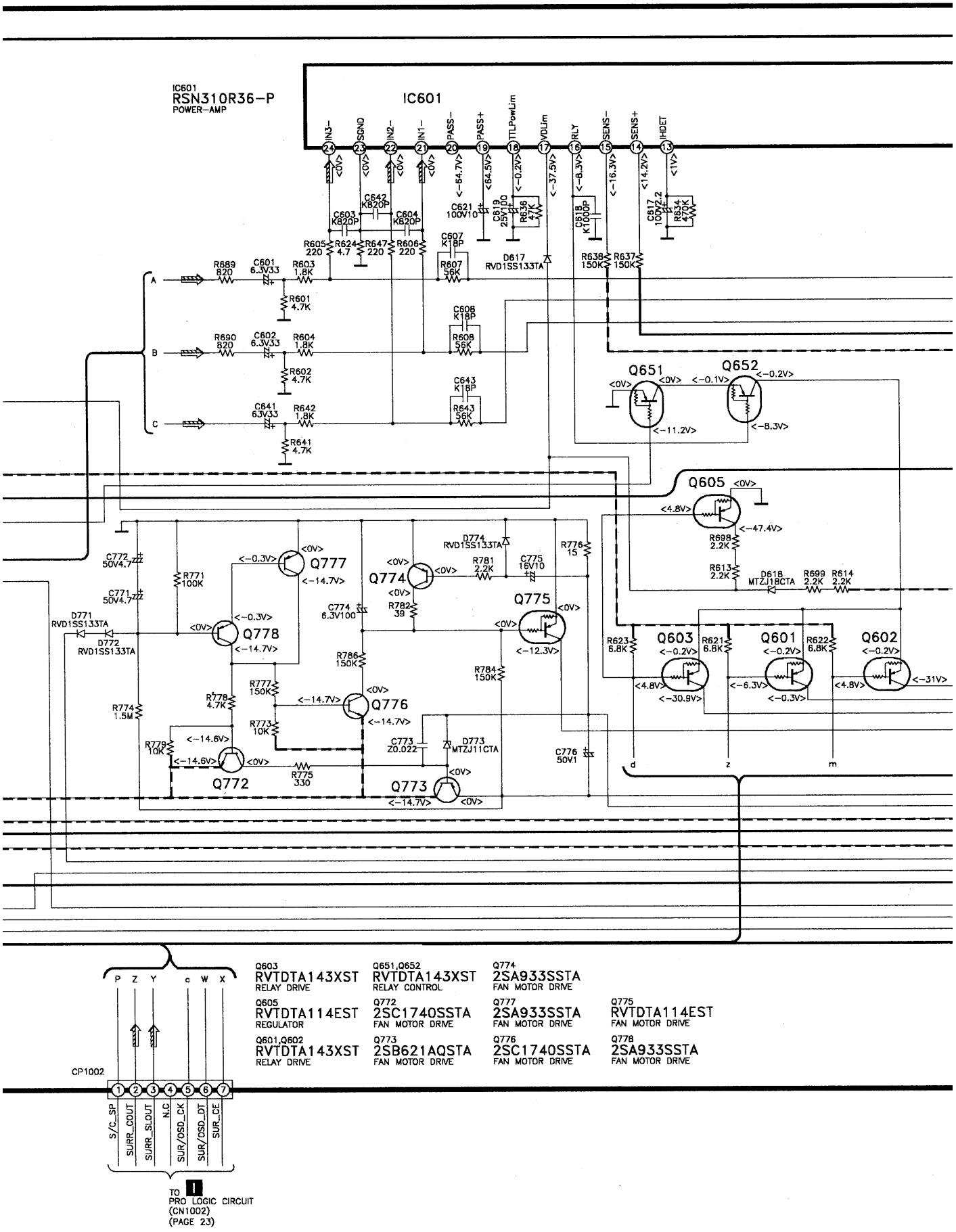

Q603 RVTDTA143XST RELAY DRIVE	Q651,Q652 RVTDTA143XST RELAY CONTROL	Q774 2SA933SSTA FAN MOTOR DRIVE		
Q605 RVTDTA114EST REGULATOR	Q772 2SC1740SSTA FAN MOTOR DRIVE	Q777 2SA933SSTA FAN MOTOR DRIVE	Q775 RVTDTA114EST FAN MOTOR DRIVE	
Q601,Q602 RVTDTA143XST RELAY DRIVE	Q773 2SB621AQSTA FAN MOTOR DRIVE	Q776 2SC1740SSTA FAN MOTOR DRIVE	Q778 2SA933SSTA FAN MOTOR DRIVE	

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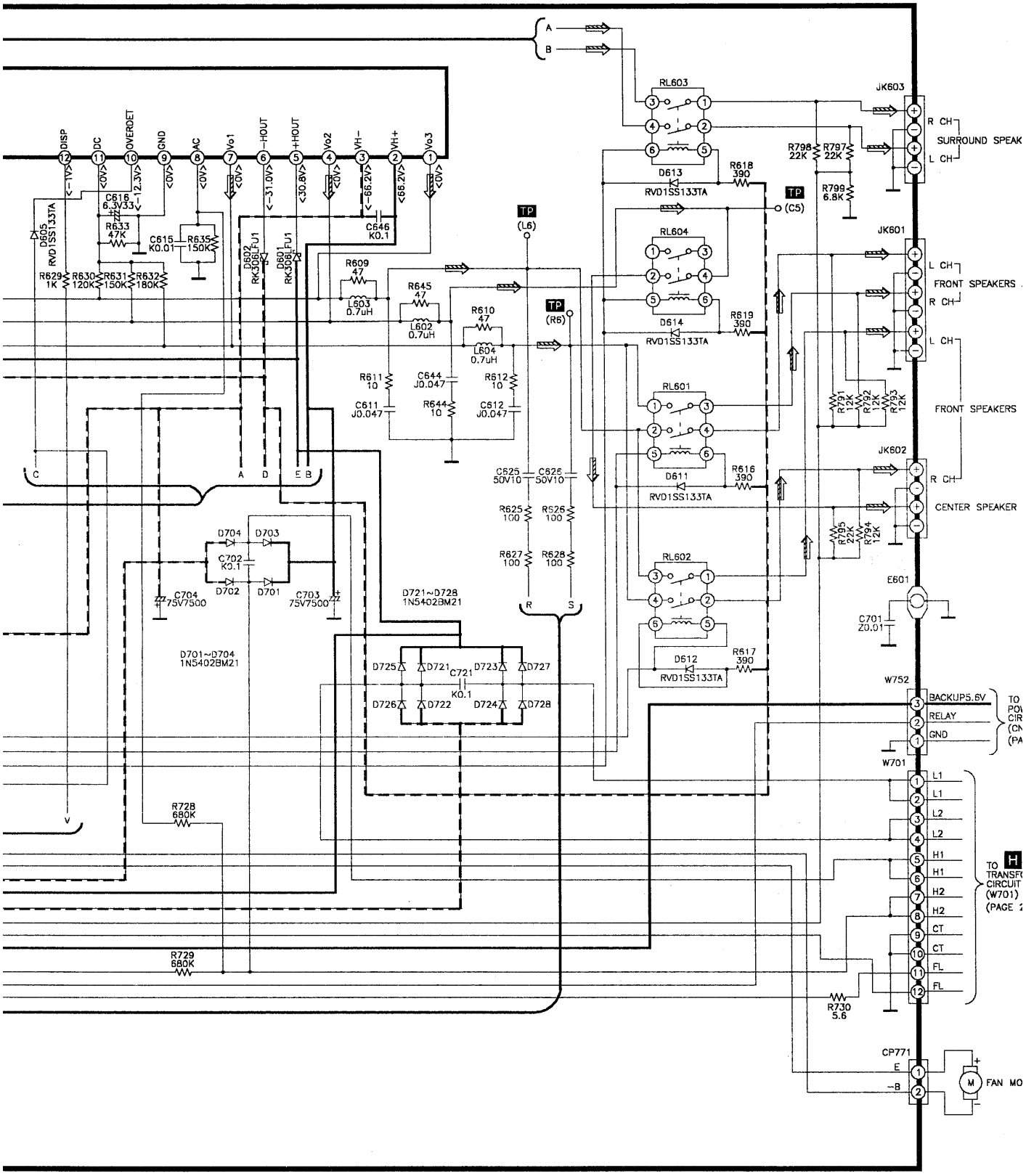

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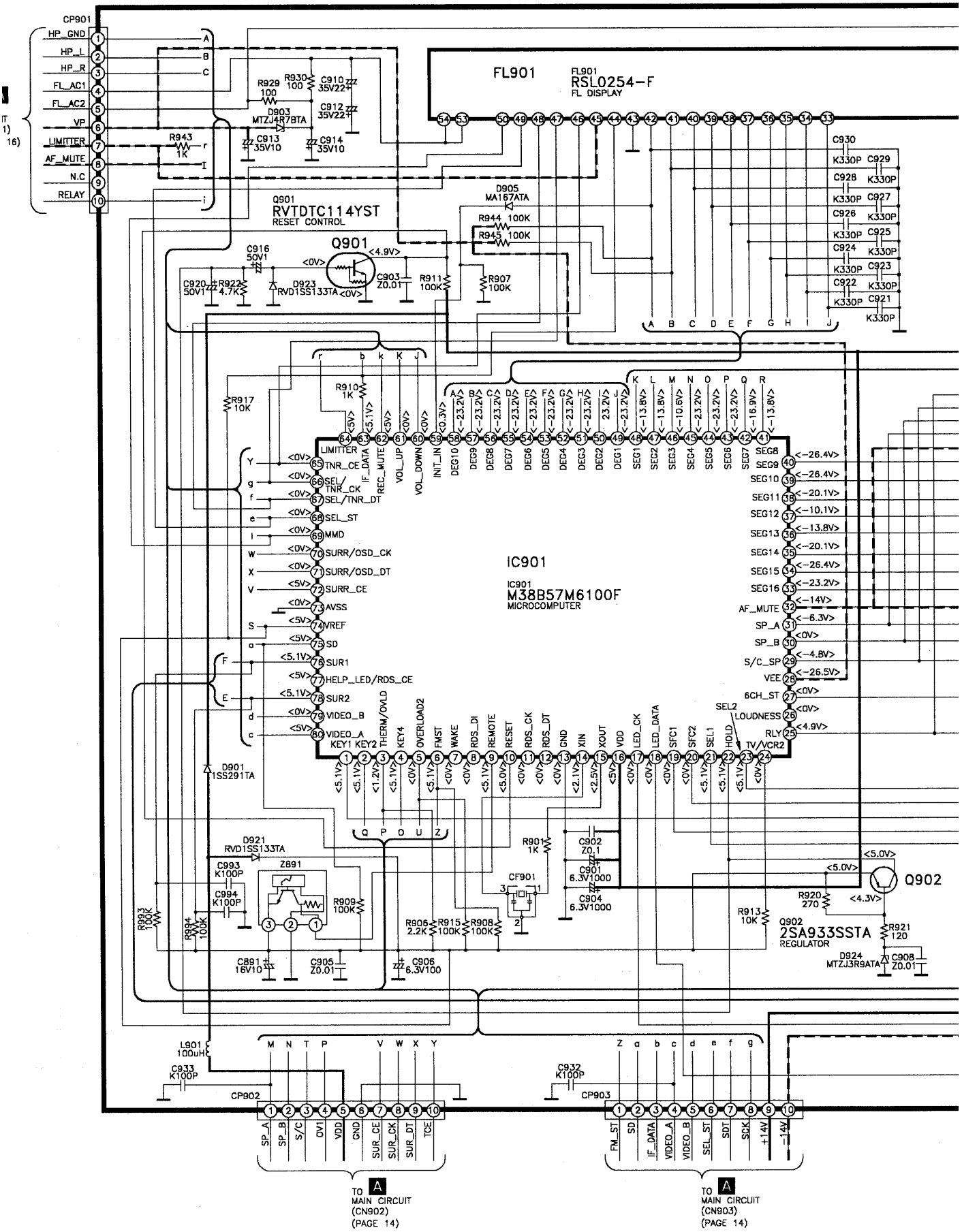
B PANEL CIRCUIT



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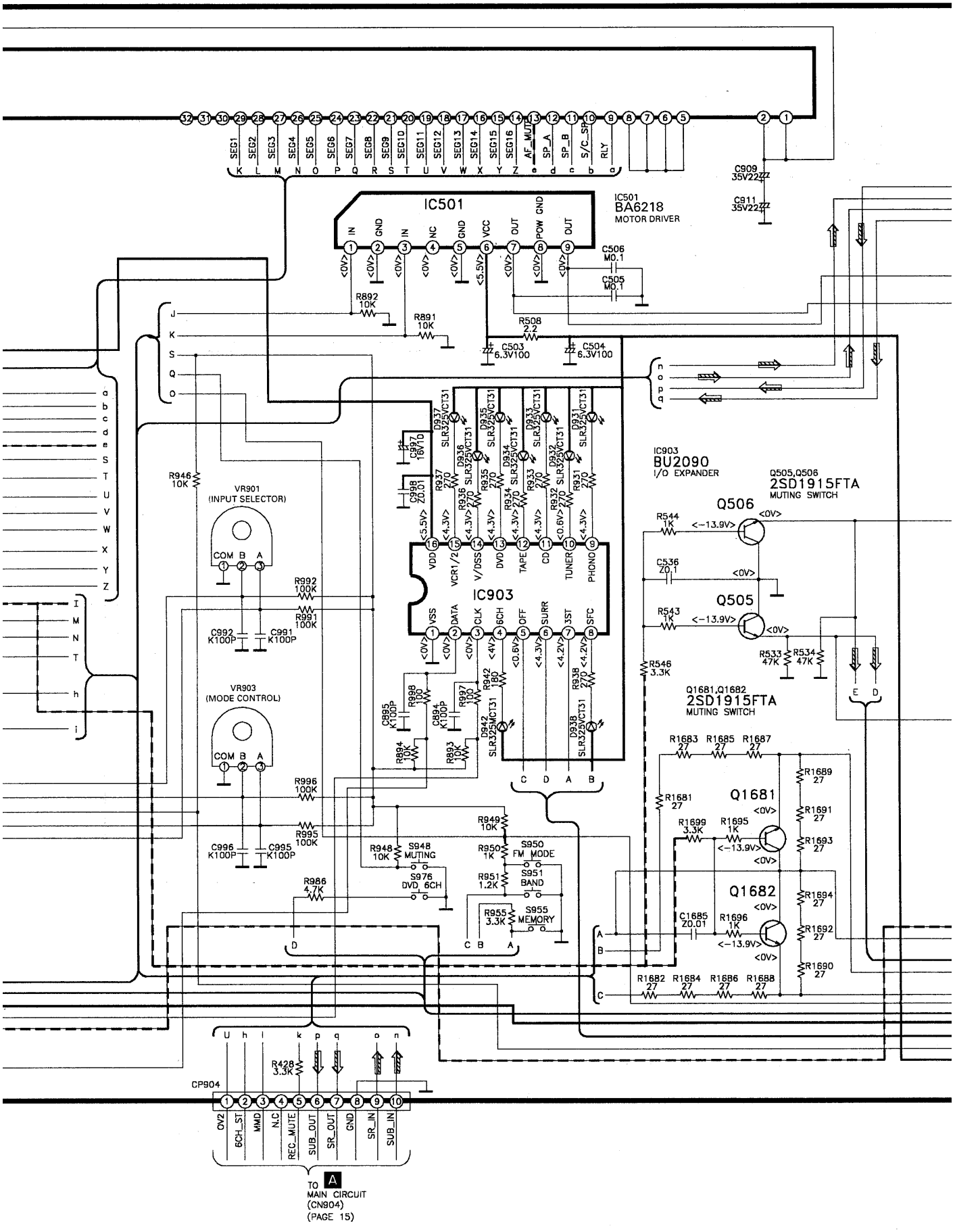

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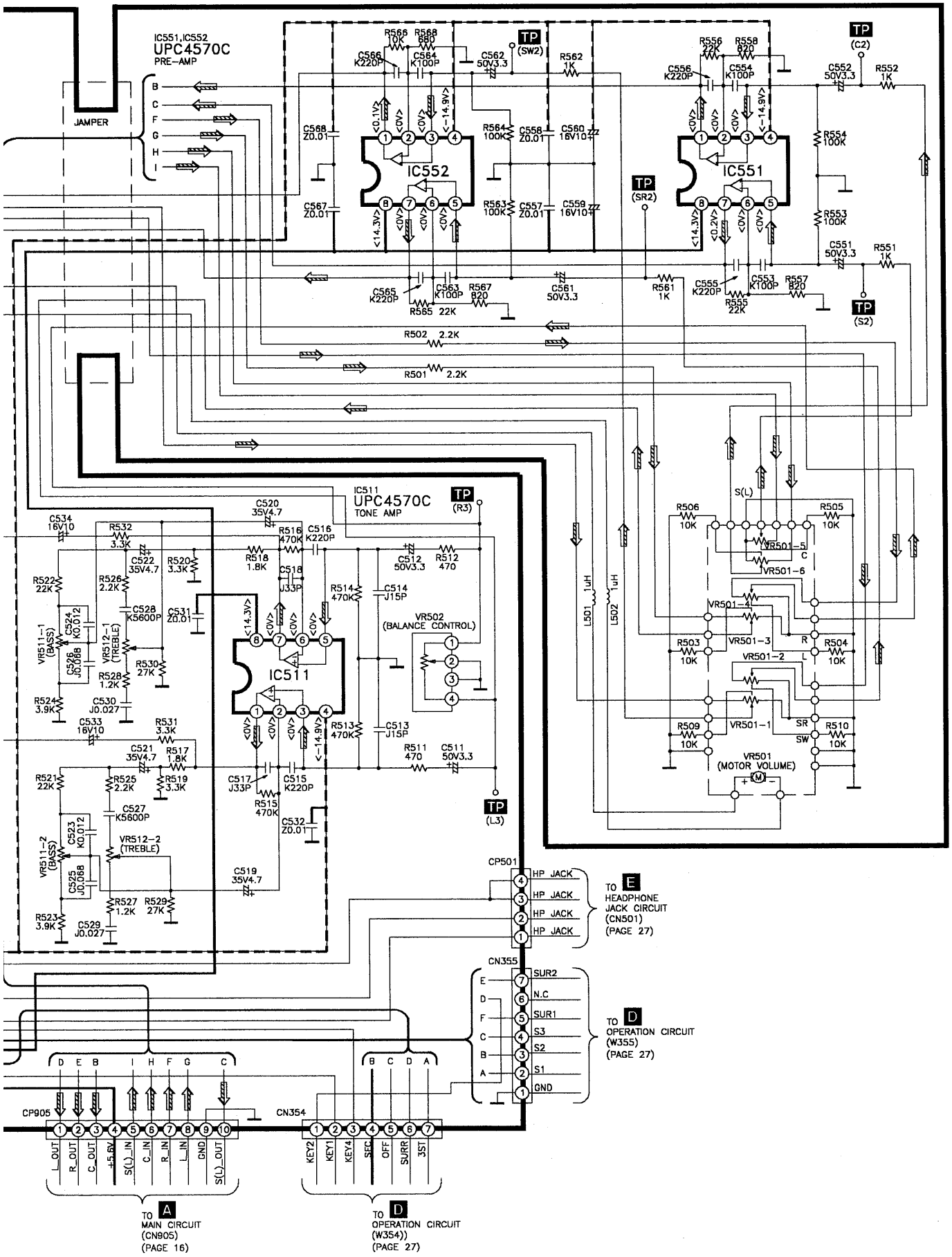

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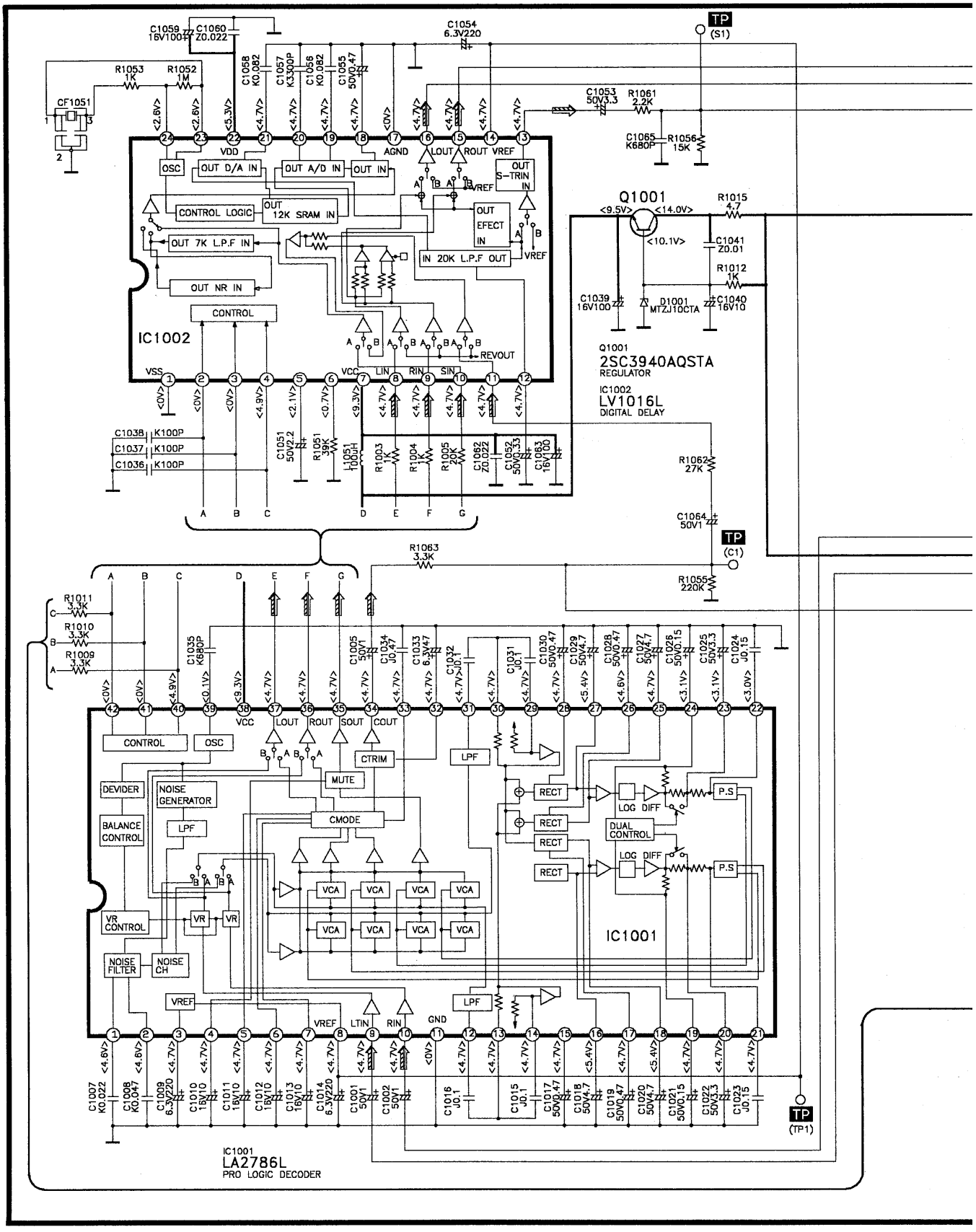
I PRO LOGIC CIRCUIT



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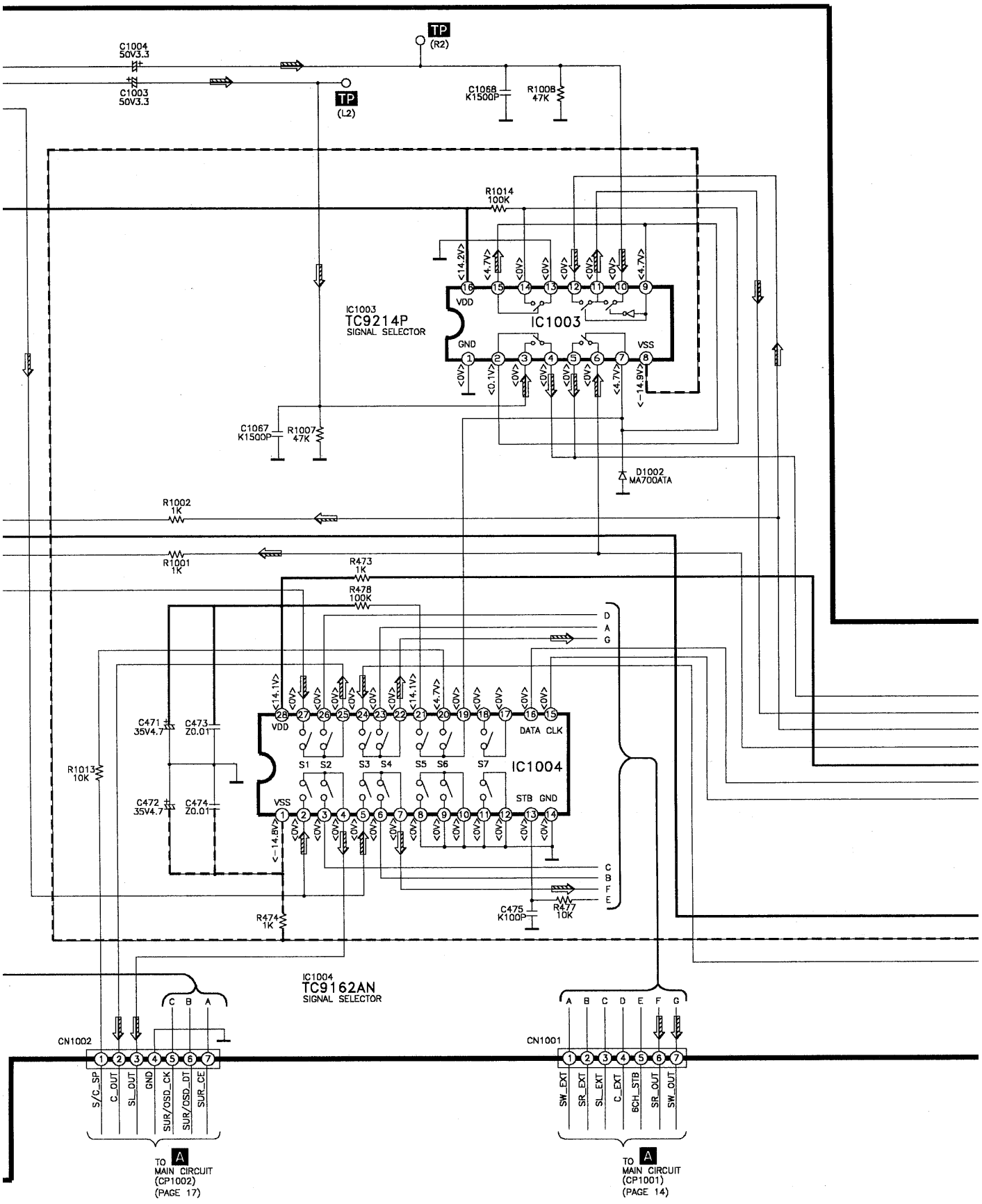

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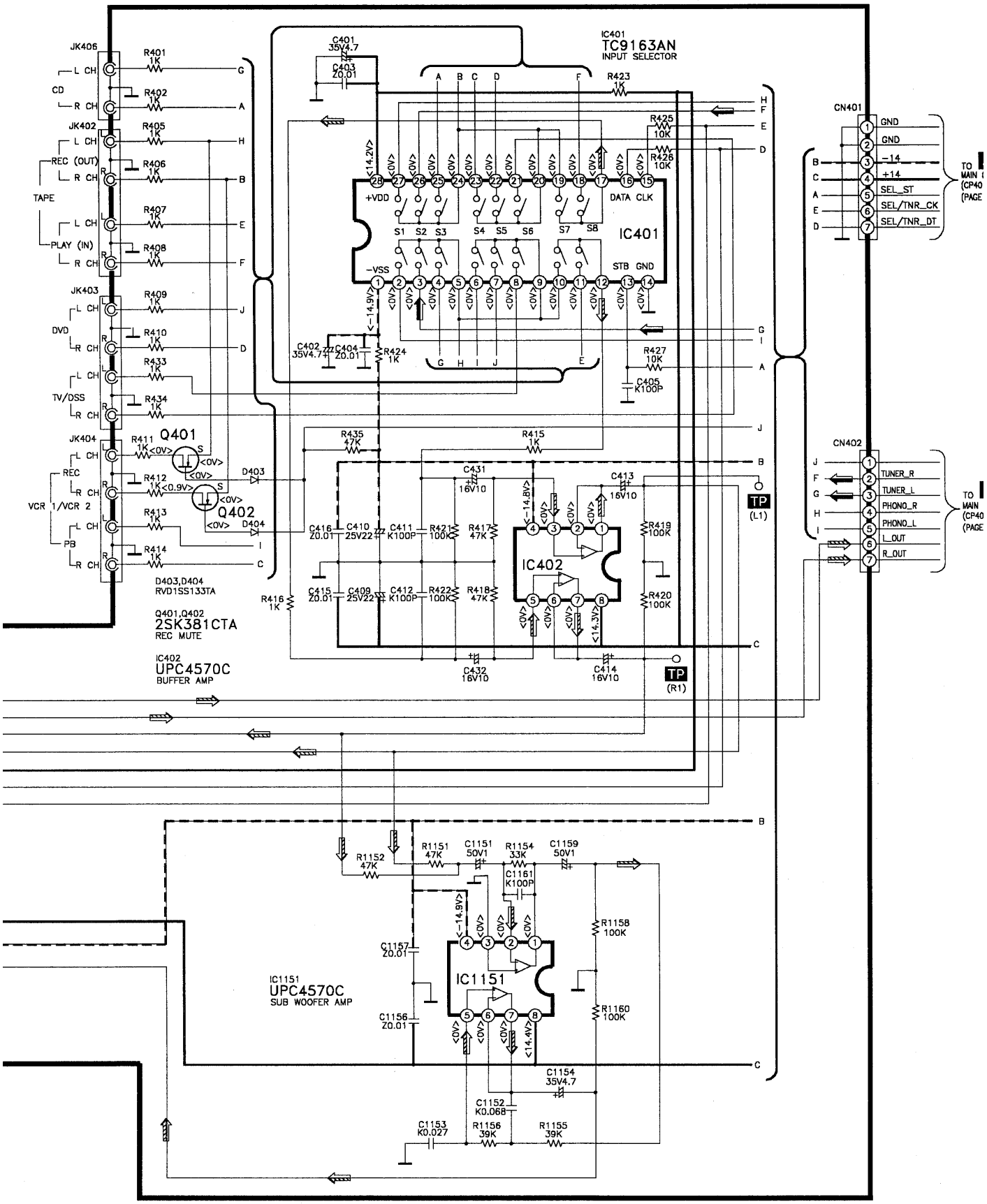

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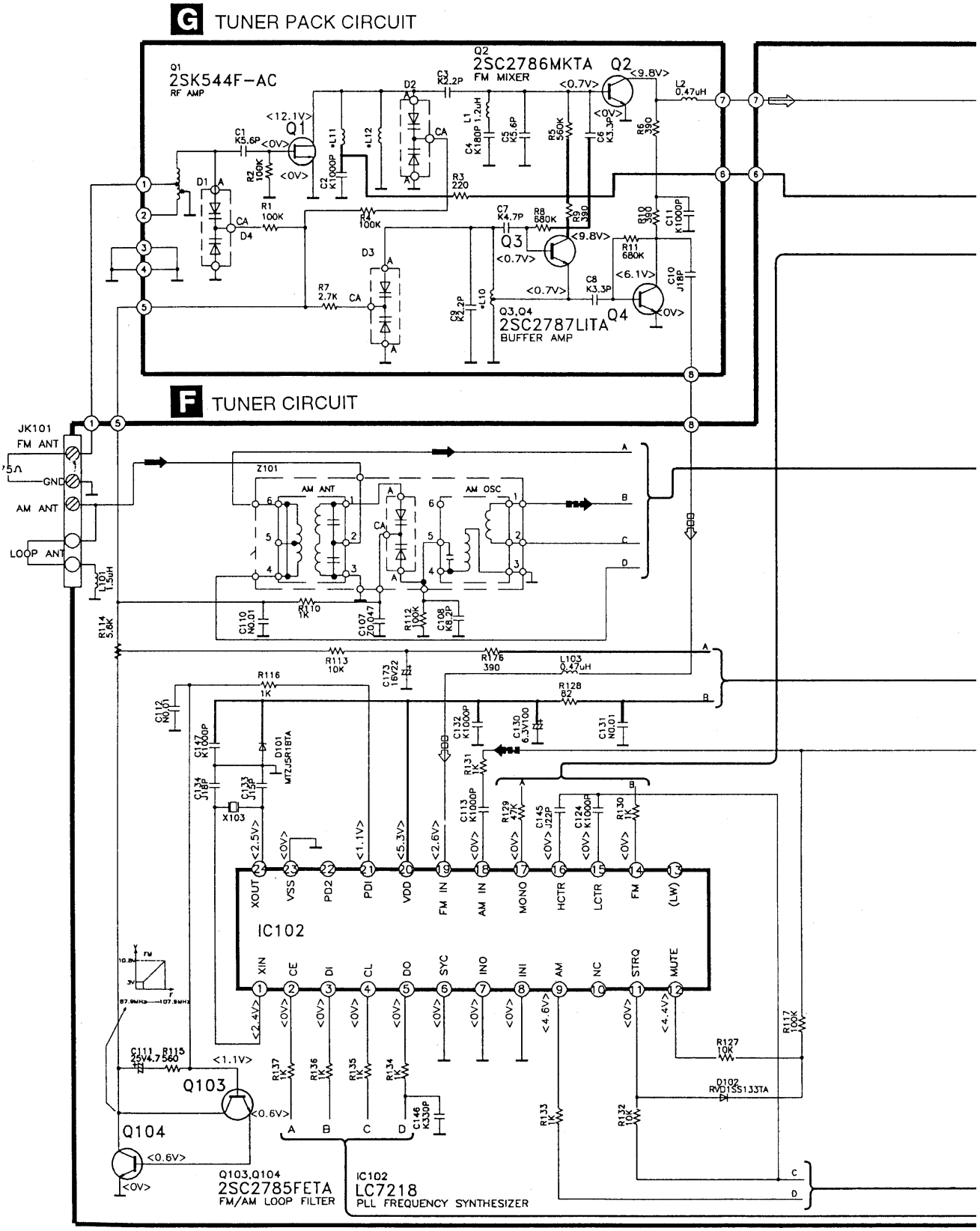

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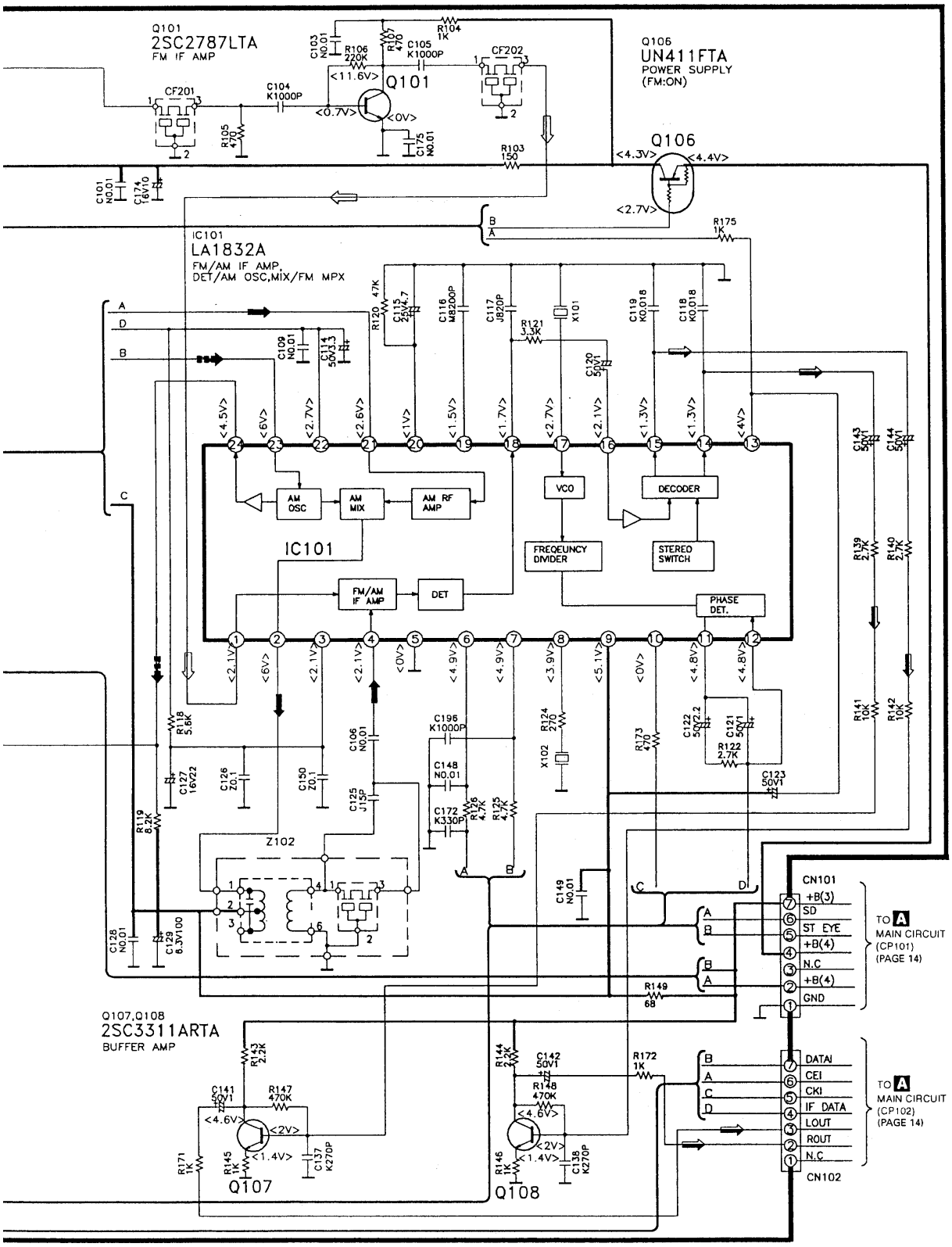

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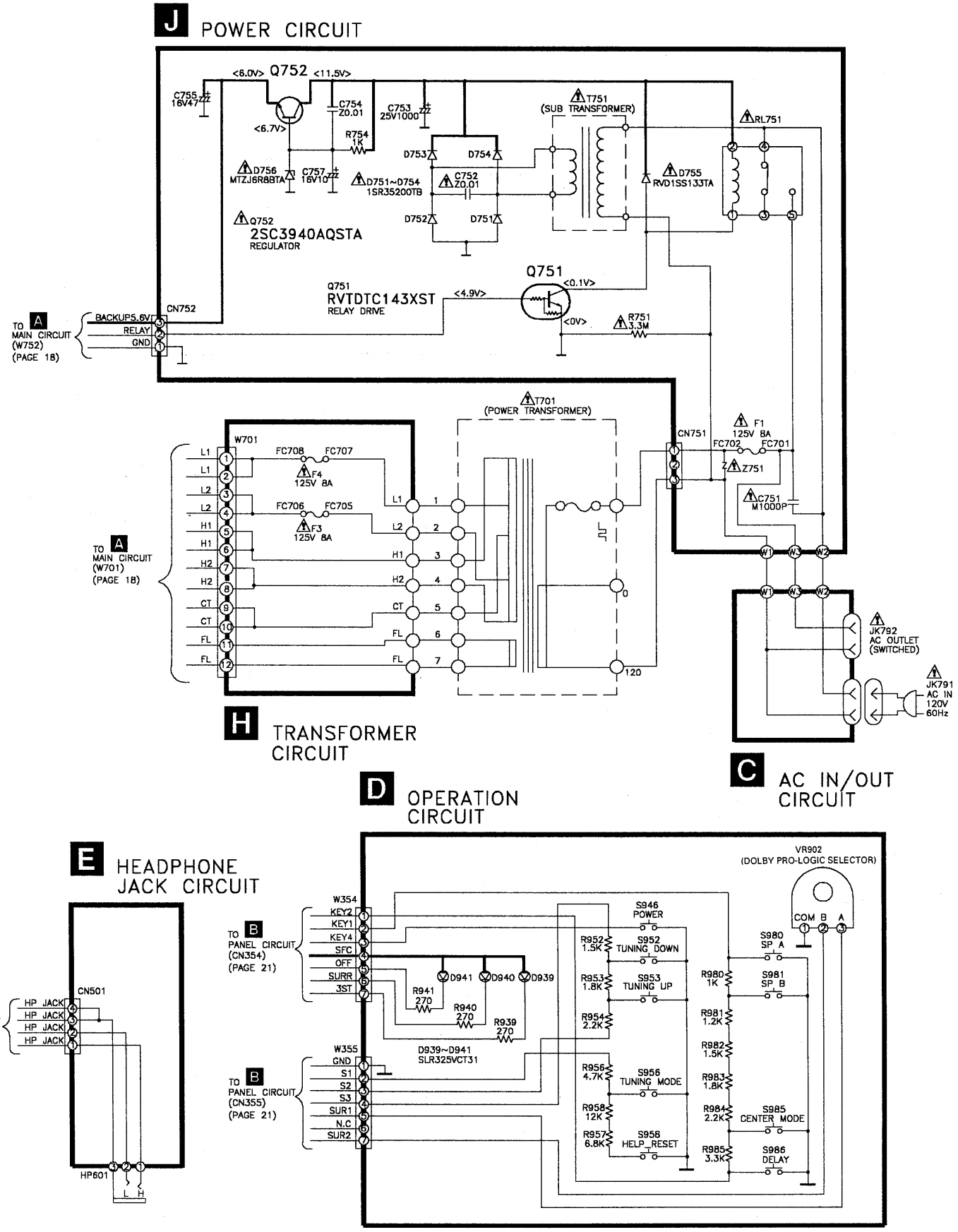

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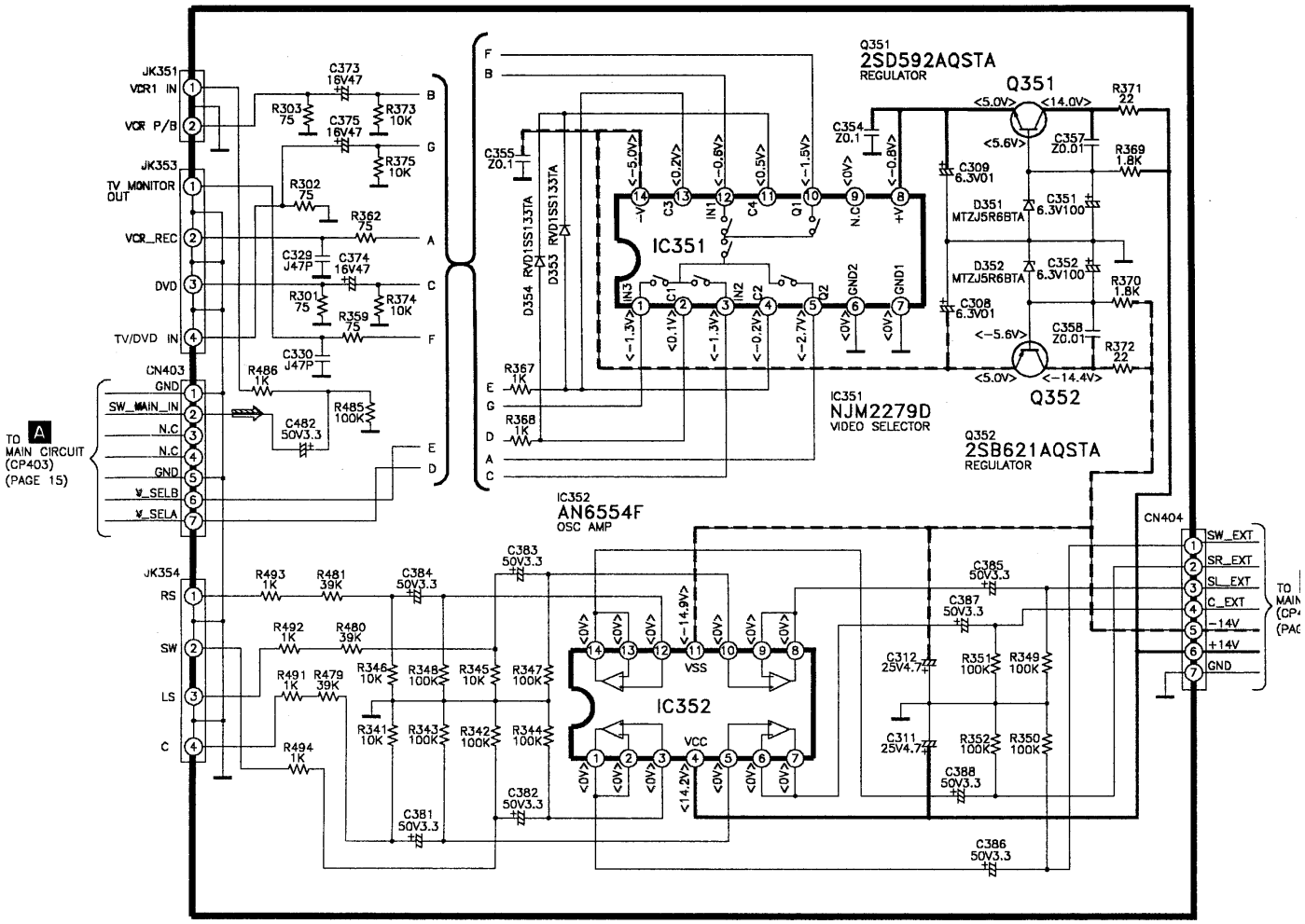
L AC-3 CIRCUIT



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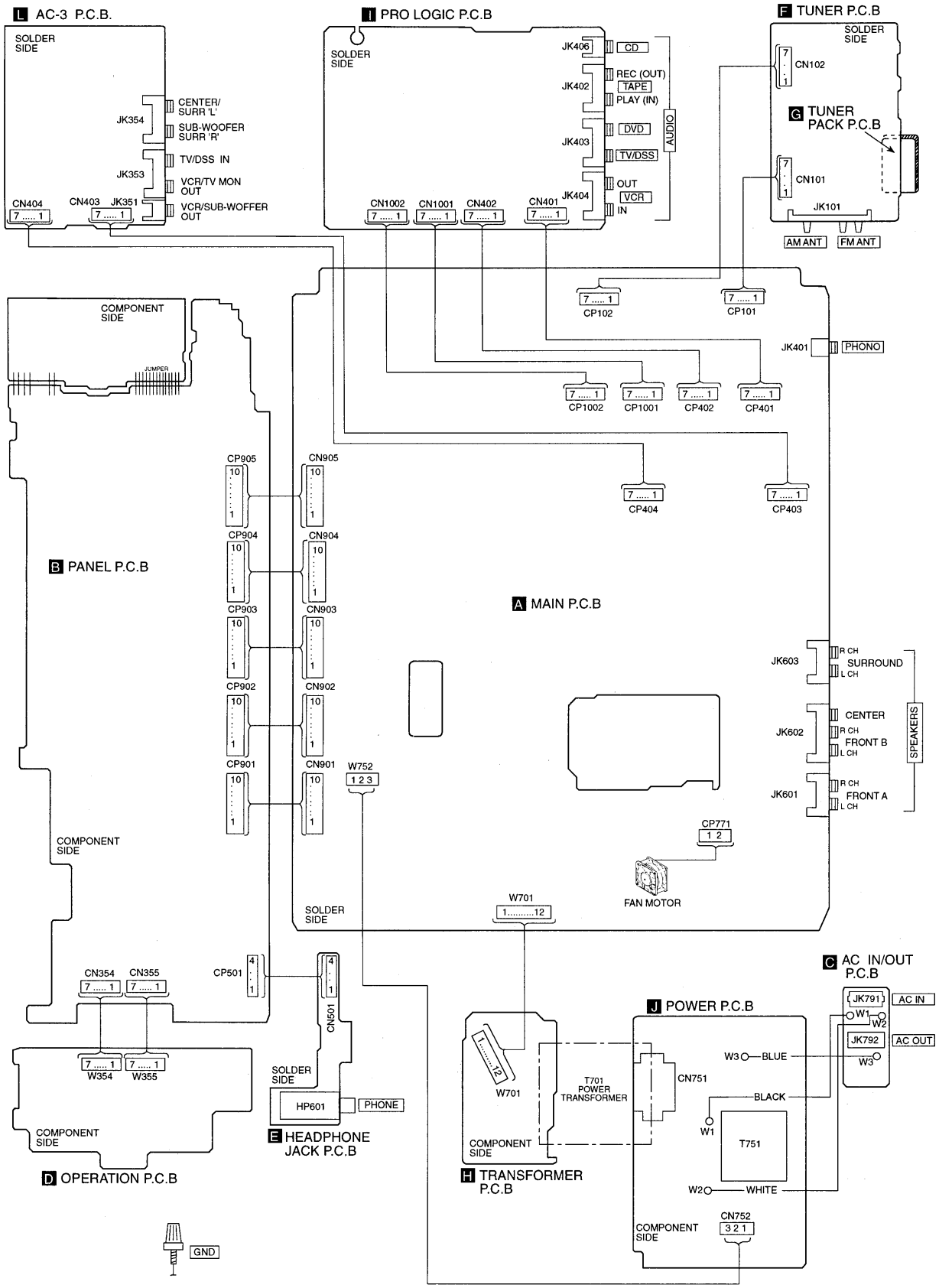
■ Wiring Connection Diagram



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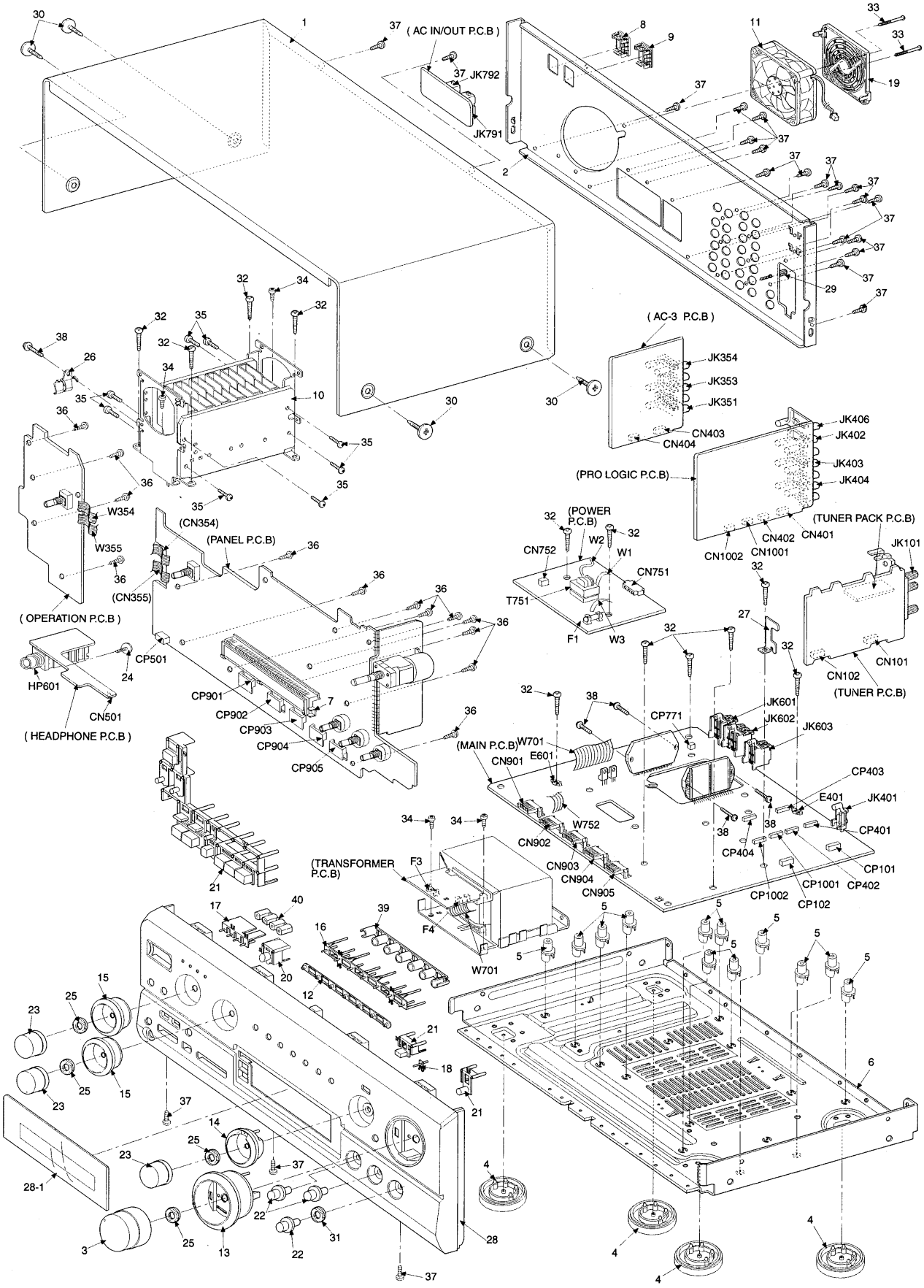
■ Cabinet Parts Location



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