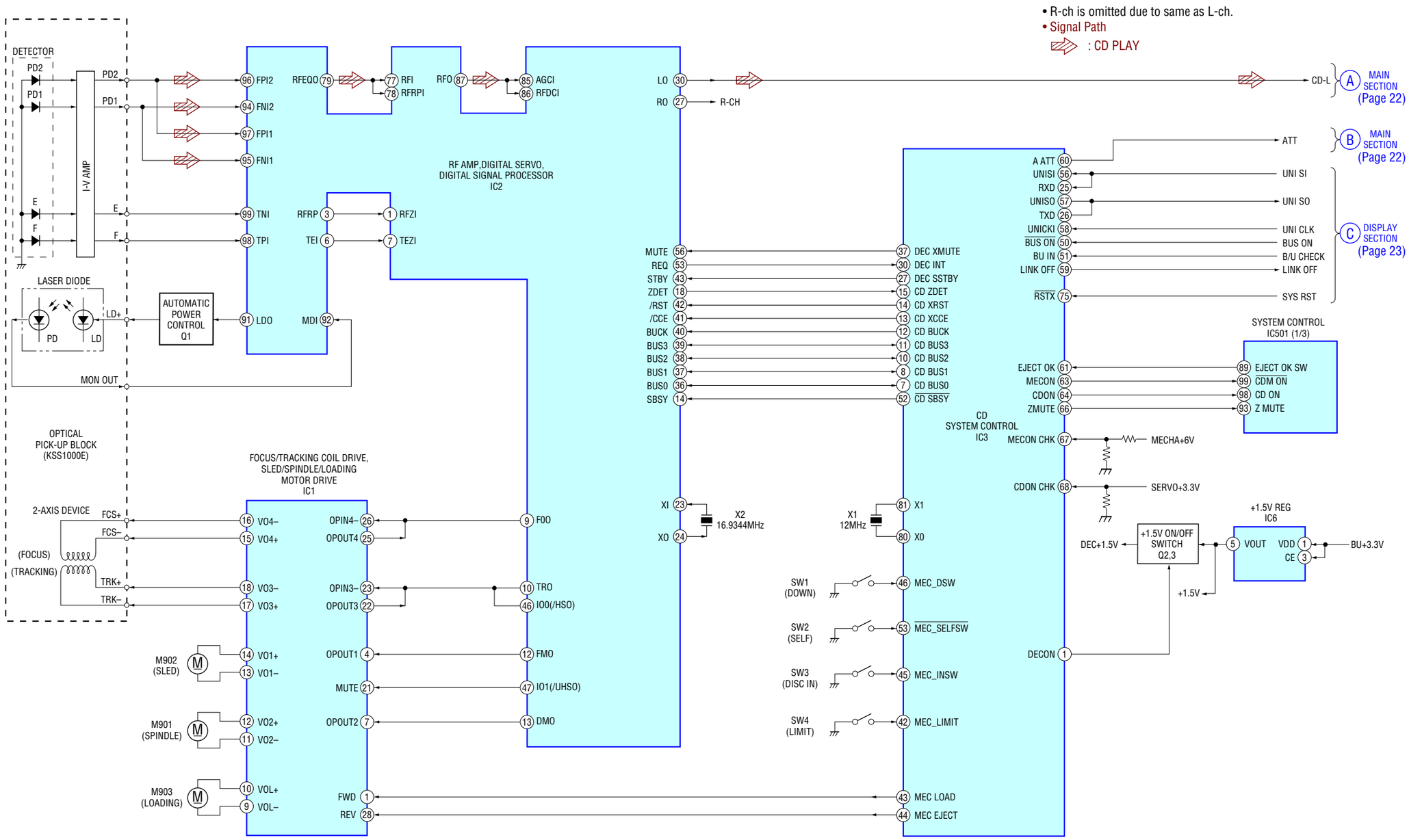
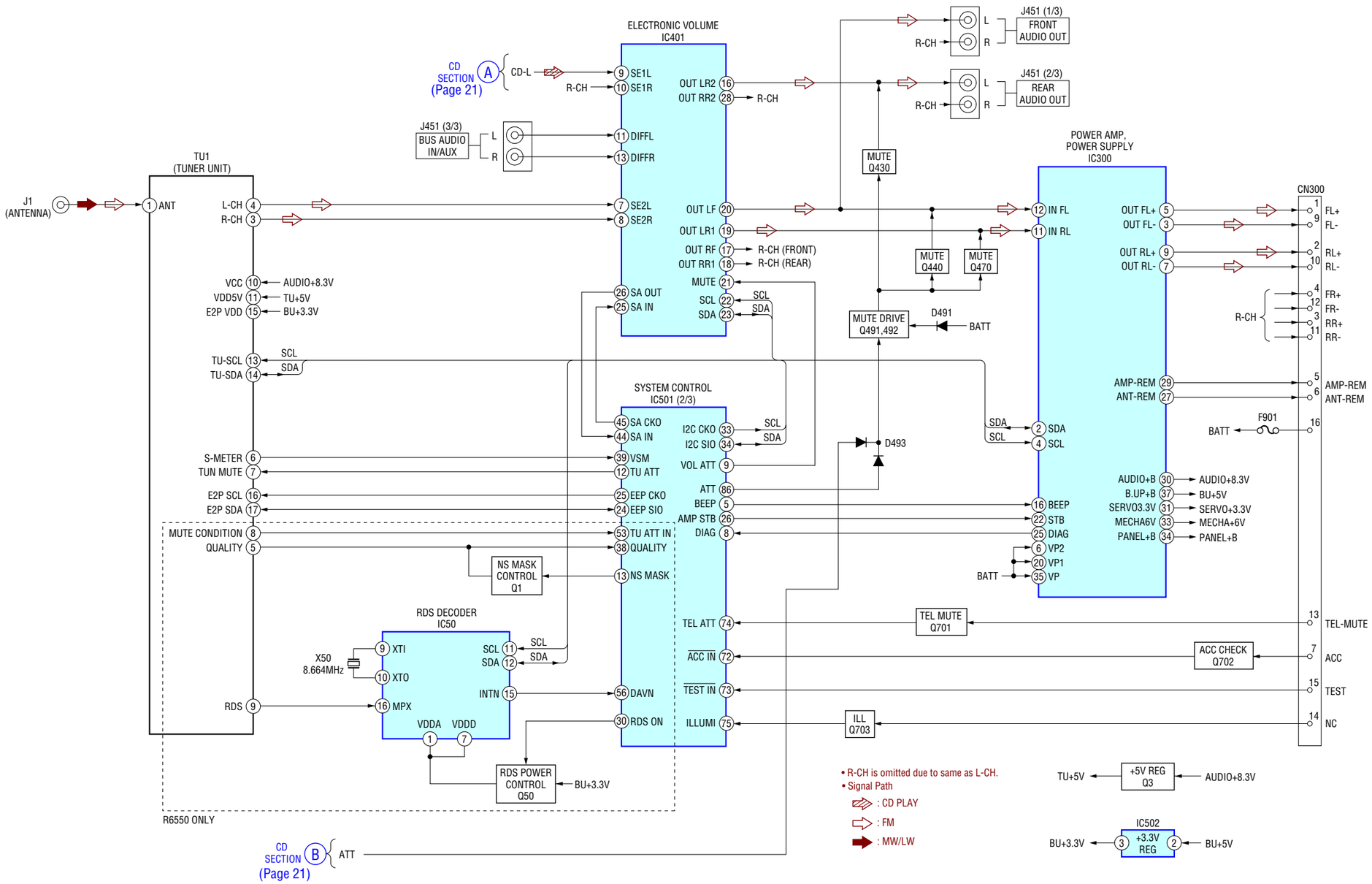
SECTION 3
DIAGRAMS

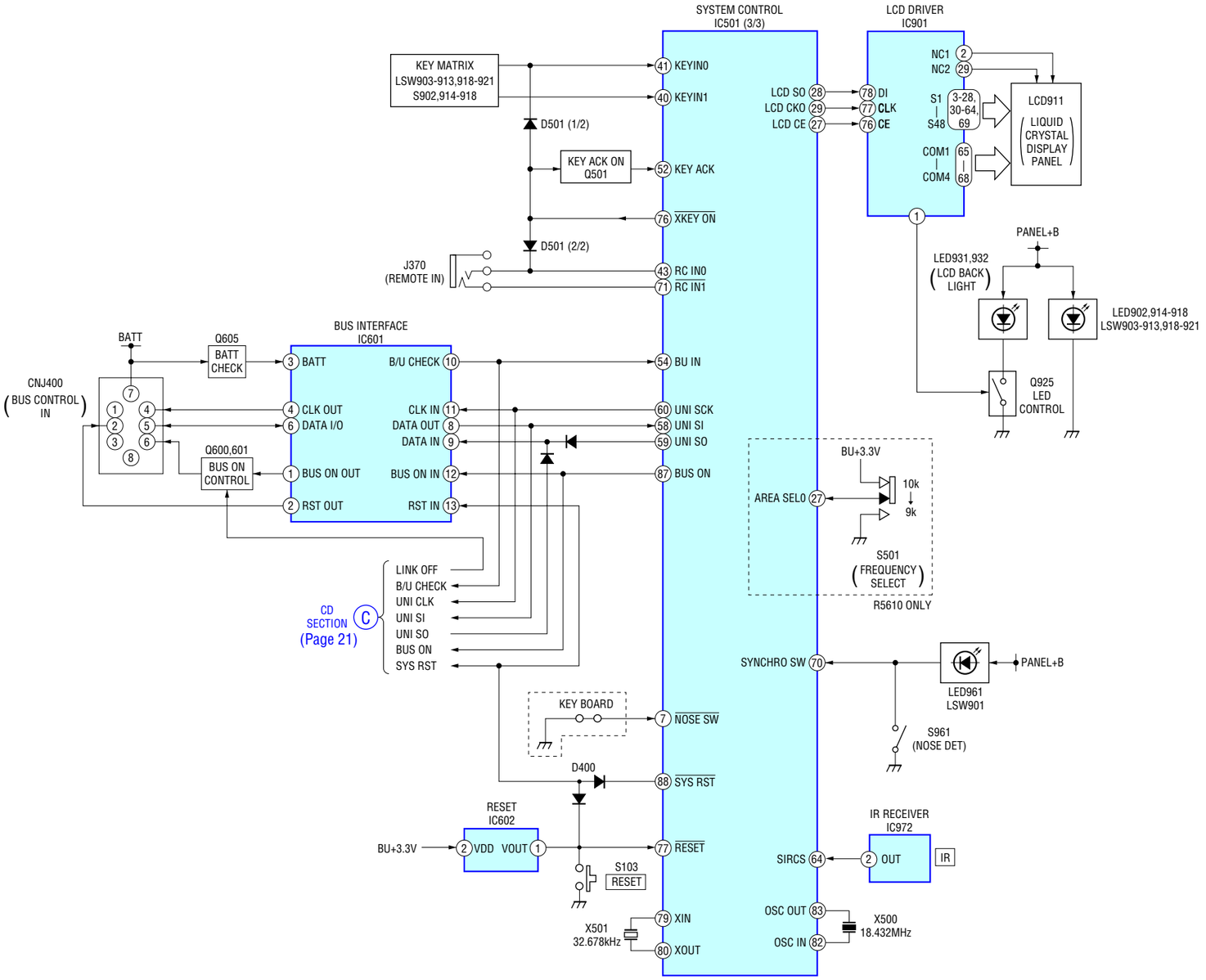
3-1. BLOCK DIAGRAM — CD SECTION —



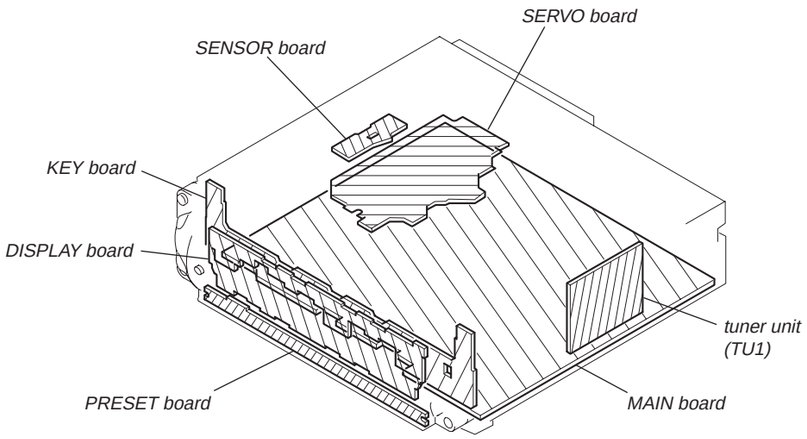
3-2. BLOCK DIAGRAM — MAIN SECTION —



3-3. BLOCK DIAGRAM — DISPLAY SECTION —



3-4. CIRCUIT BOARDS LOCATION



• WAVEFORMS

— SERVO BOARD — (CD PLAY)

① IC2 ④ (FEI)

Approx. 100 mVp-p

50 mV/DIV, 5 msec/DIV

④ IC2 ⑦⑦ (RFI)

0.5 V/DIV, 0.5 µsec/DIV

⑦ IC3 ⑧① (X1)

12 MHz

0.5 V/DIV, 0.2 µsec/DIV

② IC2 ⑥ (TEI)

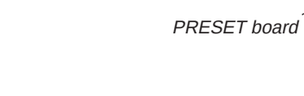
Approx. 400 mVp-p

200 mV/DIV, 5 msec/DIV

⑤ IC2 ⑨④ (FNI2), ⑨⑤ (FNI1)

0.5 V/DIV, 0.5 µsec/DIV

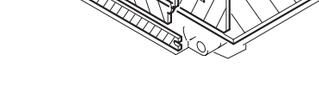
③ IC2 ㉓ (XI)



16.9344 MHz

0.2 V/DIV, 0.2 µsec/DIV

⑥ IC2 ⑨⑥ (FPI2), ⑨⑦ (FPI1)



0.5 V/DIV, 0.5 µsec/DIV

• NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For schematic diagrams.

Note:

- All capacitors are in µF unless otherwise noted. (p: pF) 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

- ▬ : B+ Line.
- ▬ ▬ : B– Line.
- ▭ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- CD mechanism section (1/2), (2/2)
  no mark : CD PLAY
- Main (1/2), (2/2), Key and Display sections
  no mark : FM
  ( ) : AM/MW/LW
  < > : CD PLAY
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD PLAY
  ⇨ : FM
  ➡ : AM/MW/LW

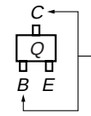
For printed wiring boards.

Note:

- o——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ○ : Through hole.
- ▬ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Side B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A)	Parts on the parts face side seen from the parts face are indicated.



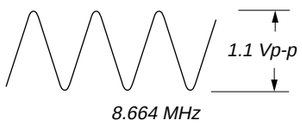
These are omitted

These are omitted

These are omitted

— MAIN BOARD —

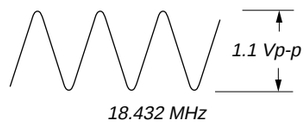
① IC50 ⑩ (XTO)



8.664 MHz

0.5 V/DIV, 0.2 µsec/DIV

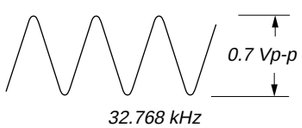
③ IC501 ⑧③ (OSCOUT)



18.432 MHz

0.5 V/DIV, 0.1 µsec/DIV

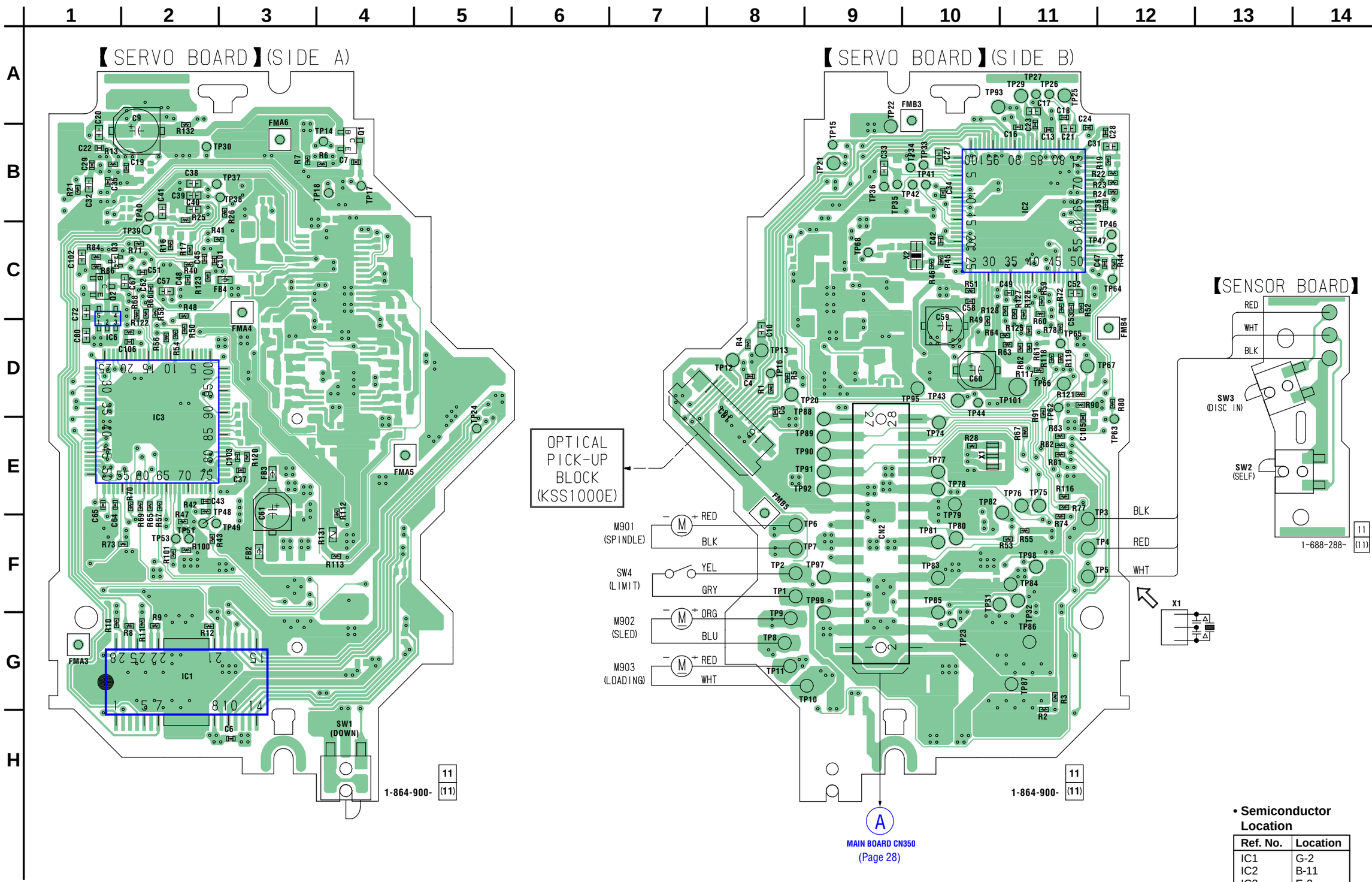
② IC501 ⑧⓪ (XOUT)



32.768 kHz

0.2 V/DIV, 20 µsec/DIV

3-5. PRINTED WIRING BOARDS — CD MECHANISM SECTION — • Refer to page 24 for Circuit Boards Location. : Uses unleaded solder.

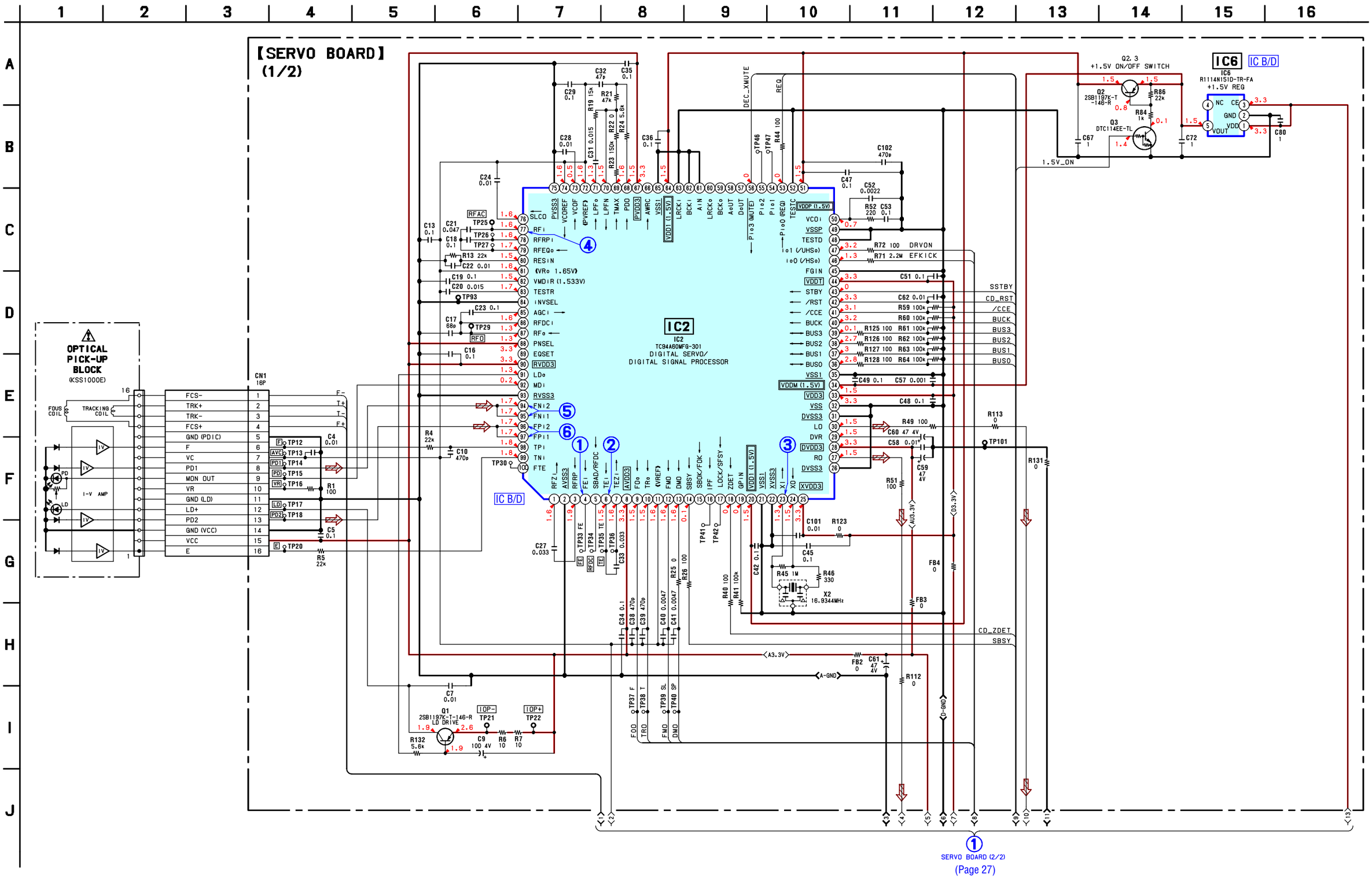


• **Semiconductor Location**

Ref. No.	Location
IC1	G-2
IC2	B-11
IC3	E-2
IC6	D-1
Q1	B-4
Q2	C-1
Q3	C-1

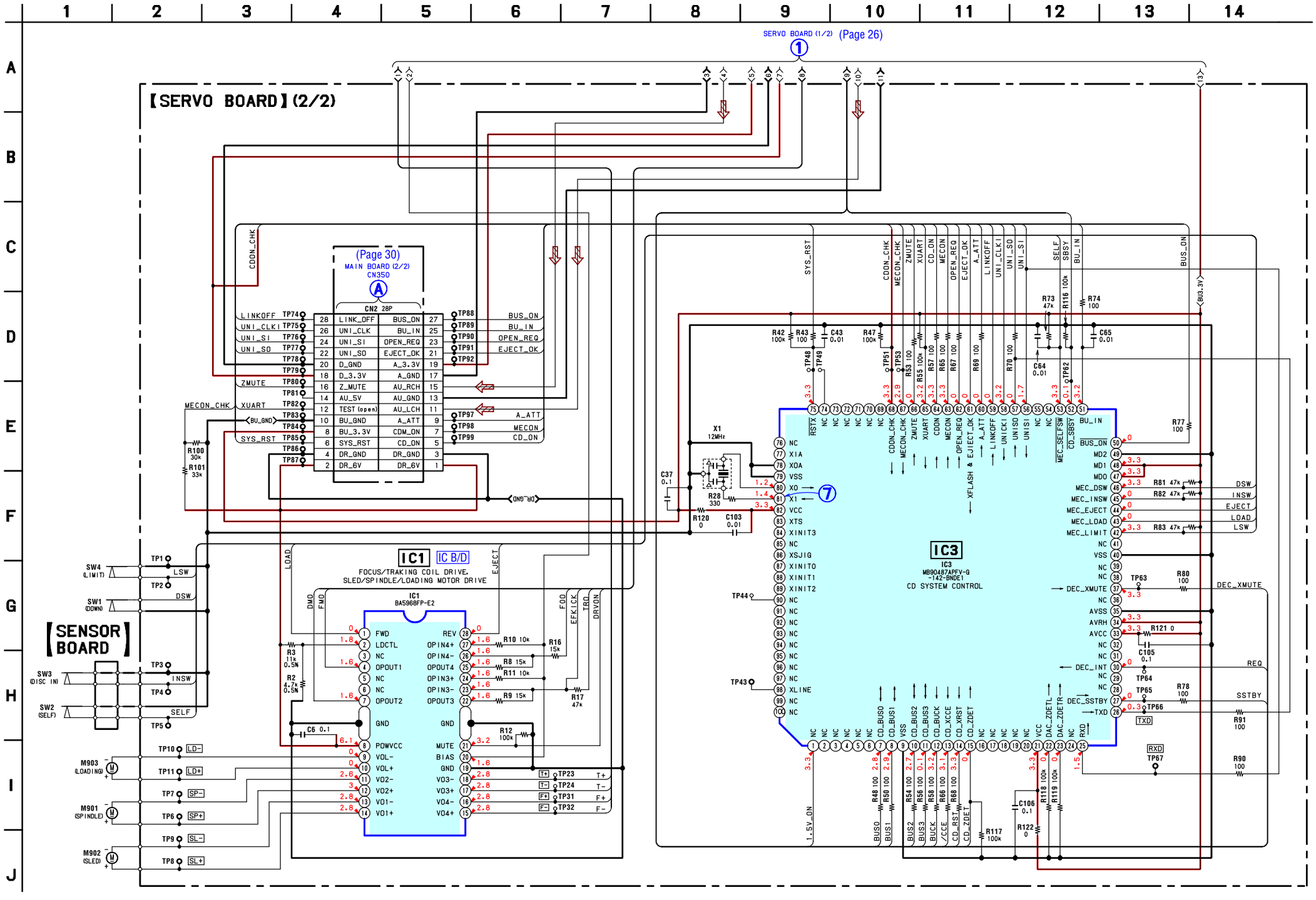
3-6. SCHEMATIC DIAGRAM — CD MECHANISM SECTION (1/2) —

• Refer to page 24 for Waveforms.
• Refer to page 36 for IC Block Diagrams.

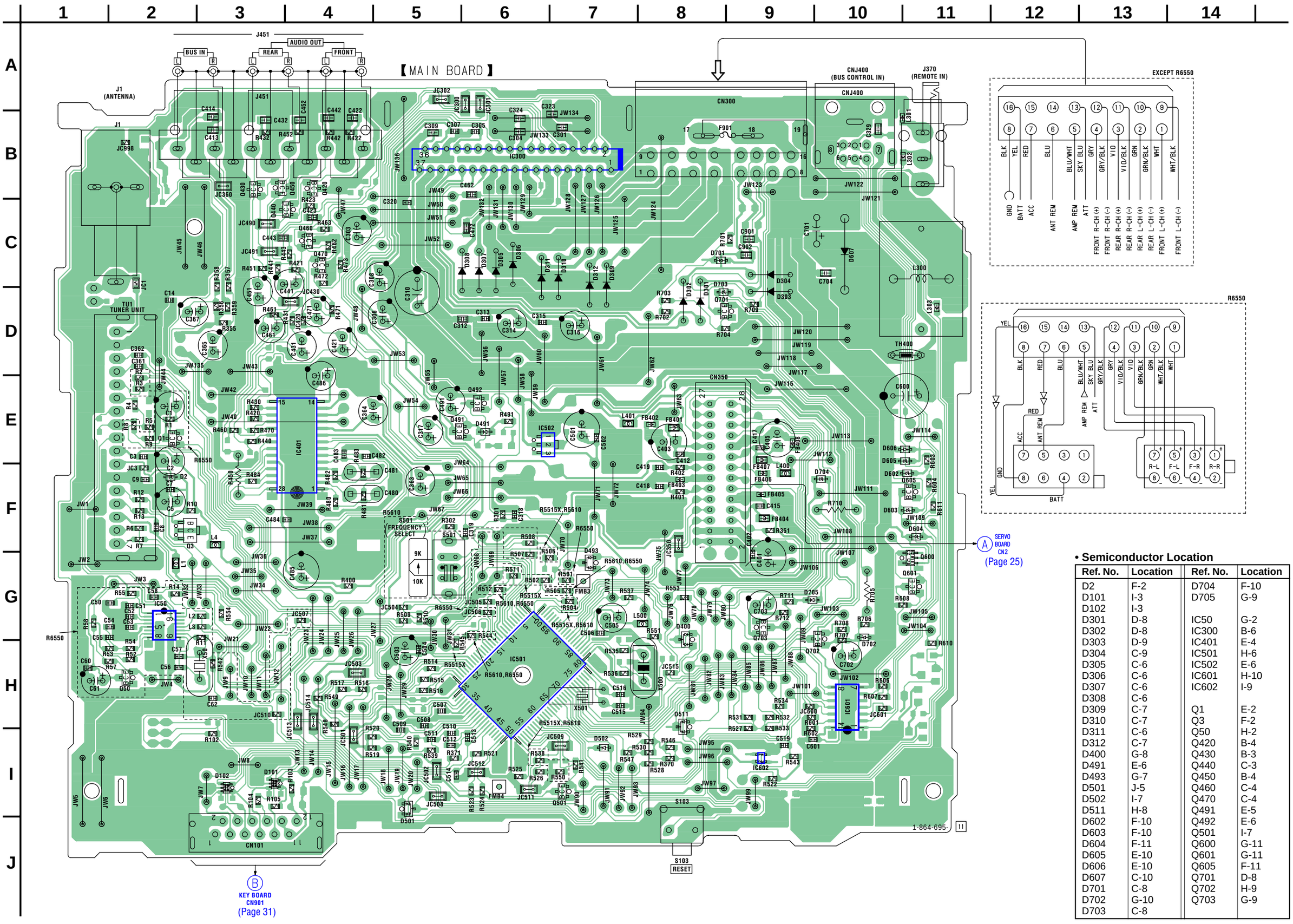


• Refer to page 24 for Waveform.
• Refer to page 36 for IC Block Diagram.
• Refer to page 38 for IC Pin Description.

3-7. SCHEMATIC DIAGRAM — CD MECHANISM SECTION (2/2) —



3-8. PRINTED WIRING BOARD — MAIN SECTION — • Refer to page 24 for Circuit Boards Location. : Uses unleaded solder.

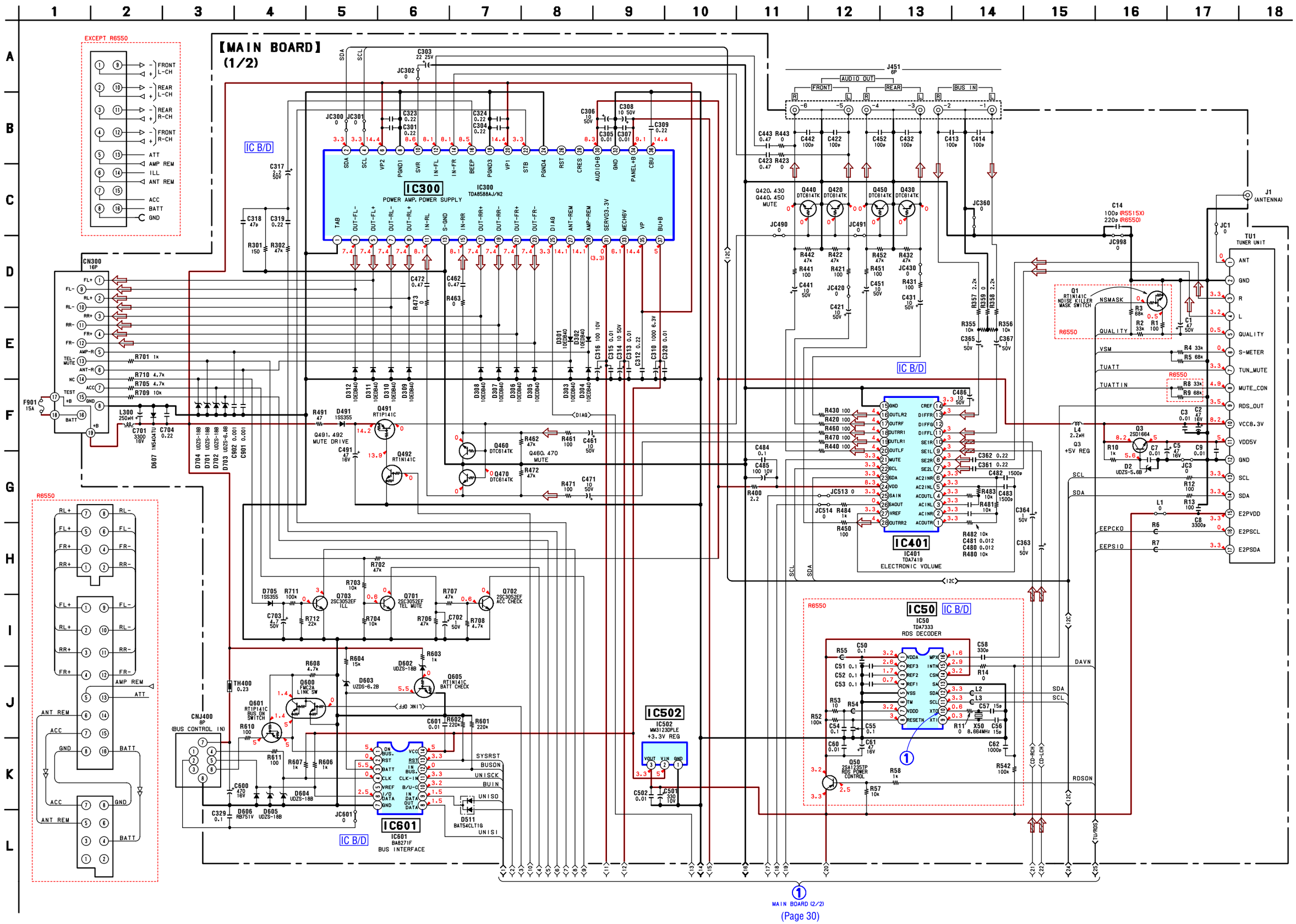


• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D2	F-2	D704	F-10
D101	I-3	D705	G-9
D102	I-3		
D301	D-8	IC50	G-2
D302	D-8	IC300	B-6
D303	D-9	IC401	E-4
D304	C-9	IC501	H-6
D305	C-6	IC502	E-6
D306	C-6	IC601	H-10
D307	C-6	IC602	I-9
D308	C-6		
D309	C-7	Q1	E-2
D310	C-7	Q3	F-2
D311	C-6	Q50	H-2
D312	C-7	Q420	B-4
D400	G-8	Q430	B-3
D491	E-6	Q440	C-3
D493	G-7	Q450	B-4
D501	J-5	Q460	C-4
D502	I-7	Q470	C-4
D511	H-8	Q491	E-5
D602	F-10	Q492	E-6
D603	F-10	Q501	I-7
D604	F-11	Q600	G-11
D605	E-10	Q601	G-11
D606	E-10	Q605	F-11
D607	C-10	Q701	D-8
D701	C-8	Q702	H-9
D702	G-10	Q703	G-9
D703	C-8		

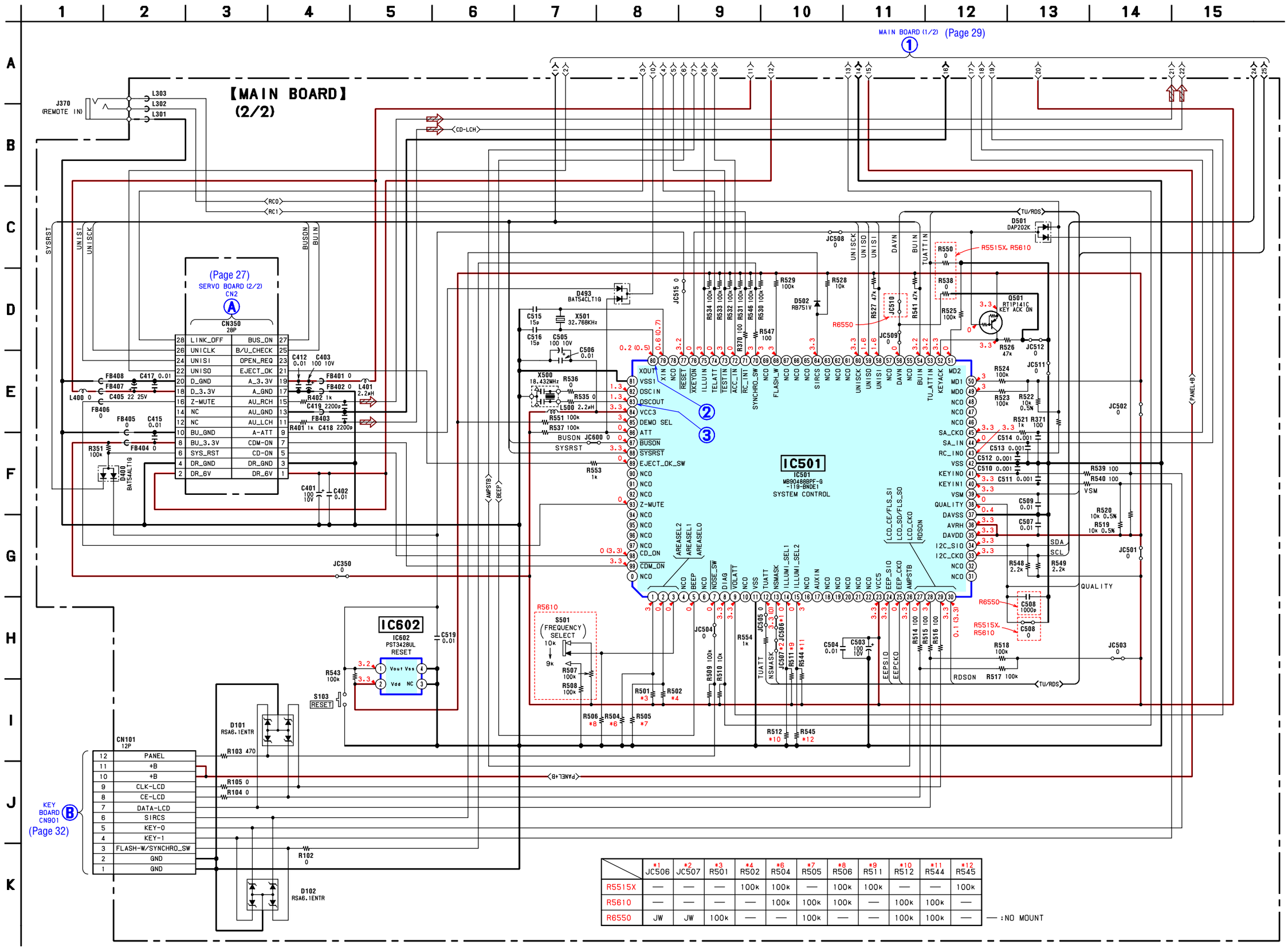
3-9. SCHEMATIC DIAGRAM — MAIN SECTION (1/2) —

• Refer to page 24 for Waveform.
• Refer to page 36 for IC Block Diagram.



3-10. SCHEMATIC DIAGRAM — MAIN SECTION (2/2) —

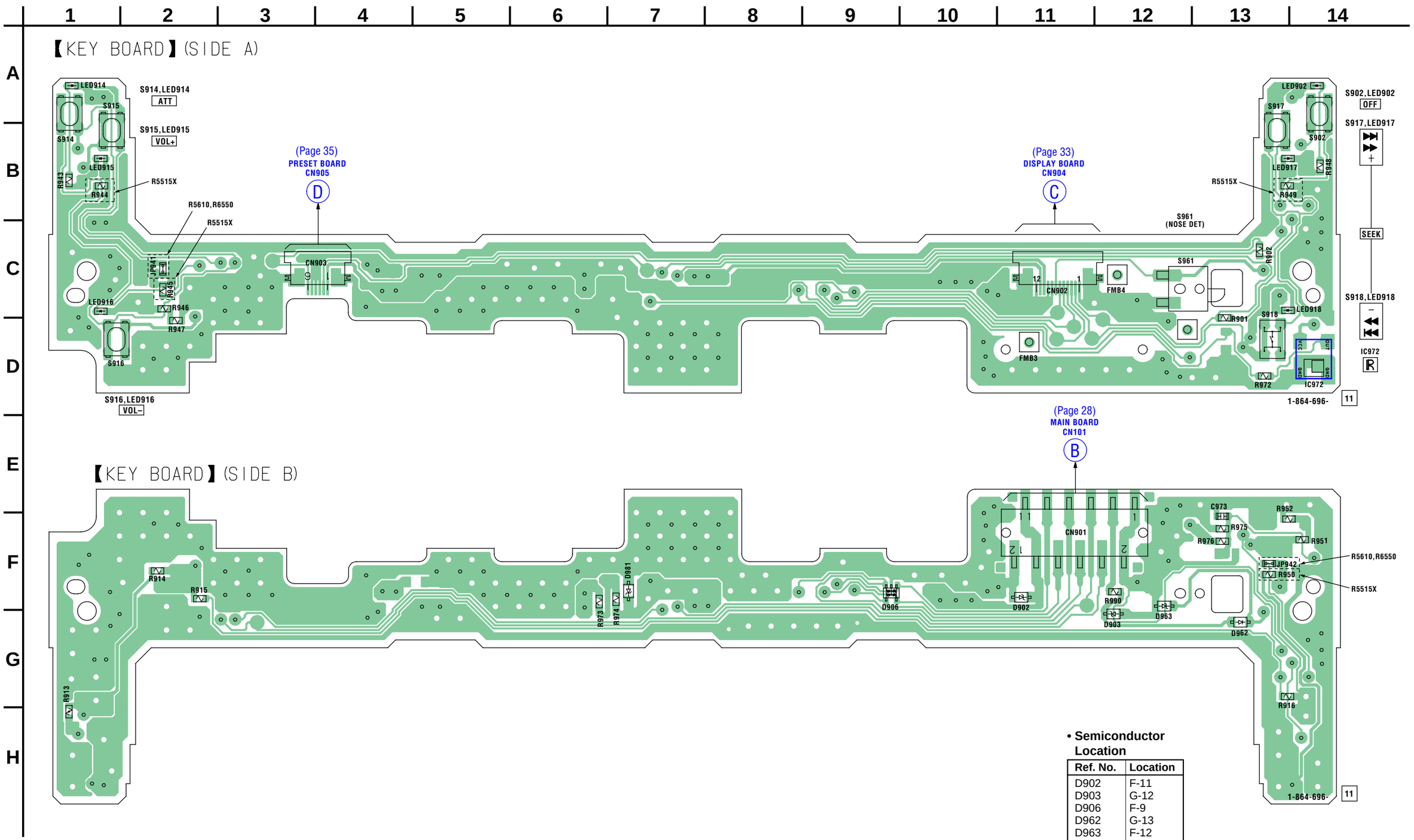
• Refer to page 24 for Waveforms.
• Refer to page 40 for IC Pin Description.



	*1 JC506	*2 JC507	*3 R501	*4 R502	*6 R504	*7 R505	*8 R506	*9 R511	*10 R512	*11 R544	*12 R545
R5515X	—	—	—	100k	100k	—	100k	100k	—	—	100k
R5610	—	—	—	—	100k	100k	100k	—	100k	100k	—
R6550	JW	JW	100k	—	—	100k	—	—	100k	100k	—

— : NO MOUNT

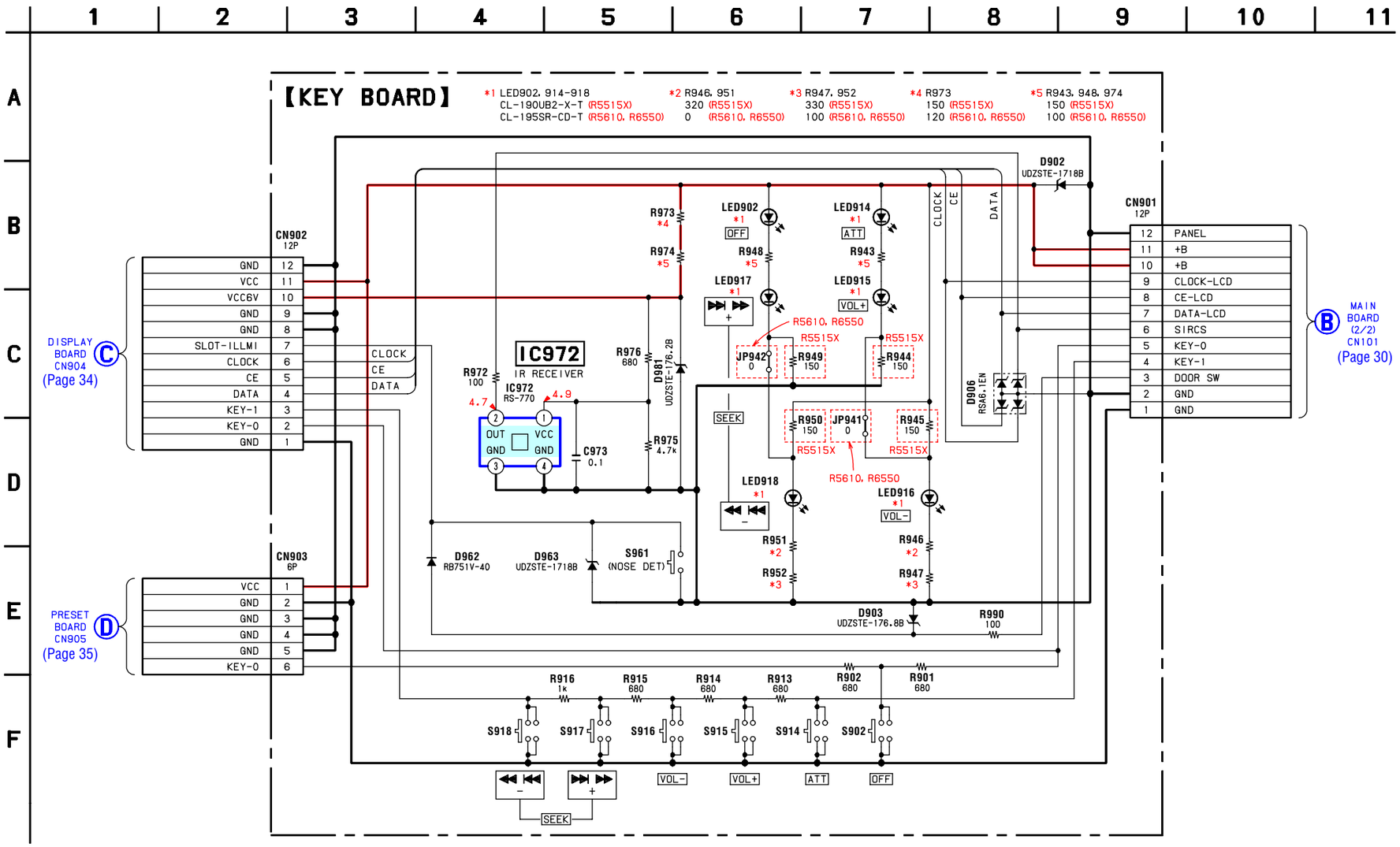
3-11. PRINTED WIRING BOARD — KEY SECTION — • Refer to page 24 for Circuit Boards Location. : Uses unleaded solder.



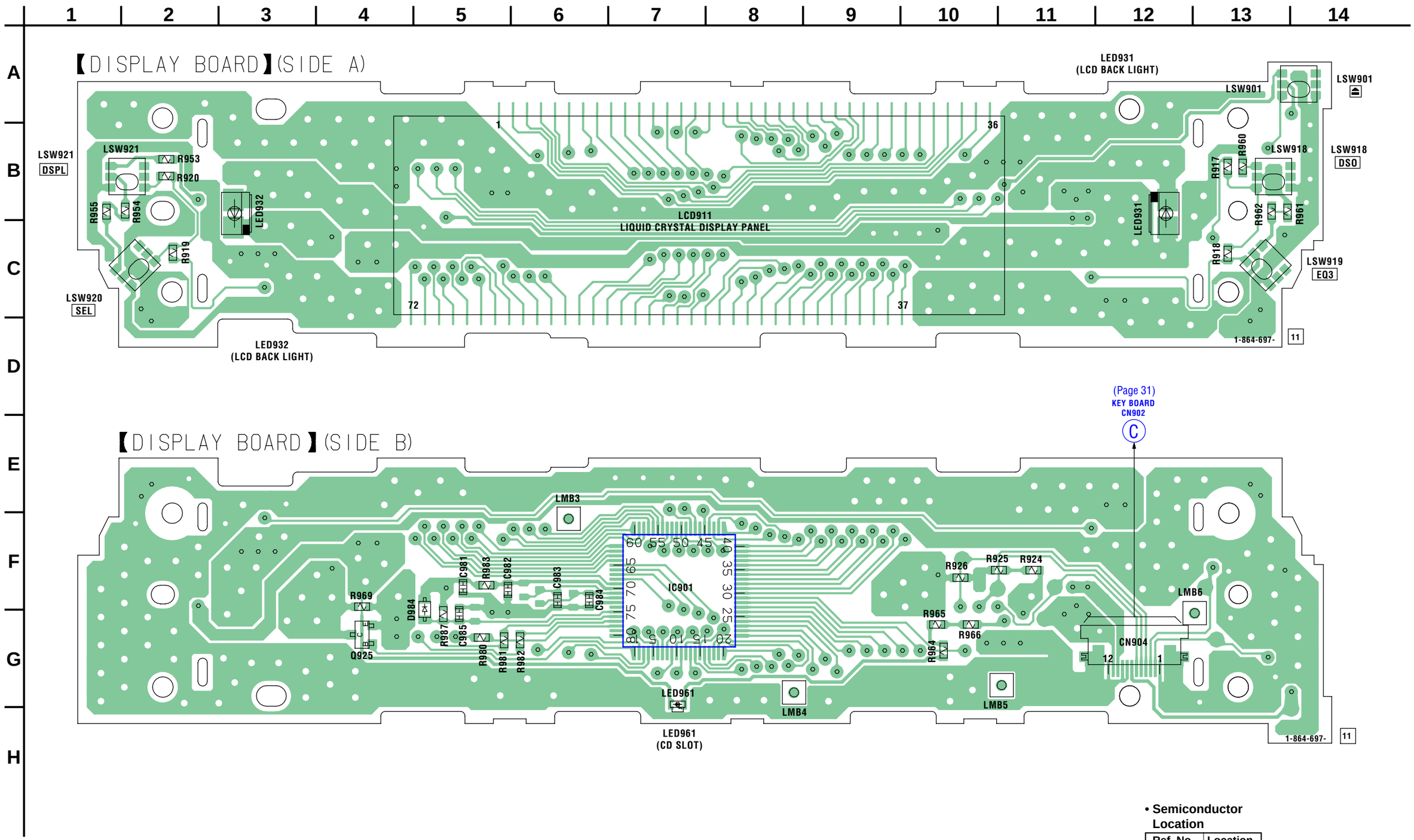
• **Semiconductor Location**

Ref. No.	Location
D902	F-11
D903	G-12
D906	F-9
D962	G-13
D963	F-12
D981	F-7
IC972	D-14
LED902	A-14
LED914	A-1
LED915	B-1
LED916	C-1
LED917	B-13
LED918	C-14

3-12. SCHEMATIC DIAGRAM — KEY SECTION —



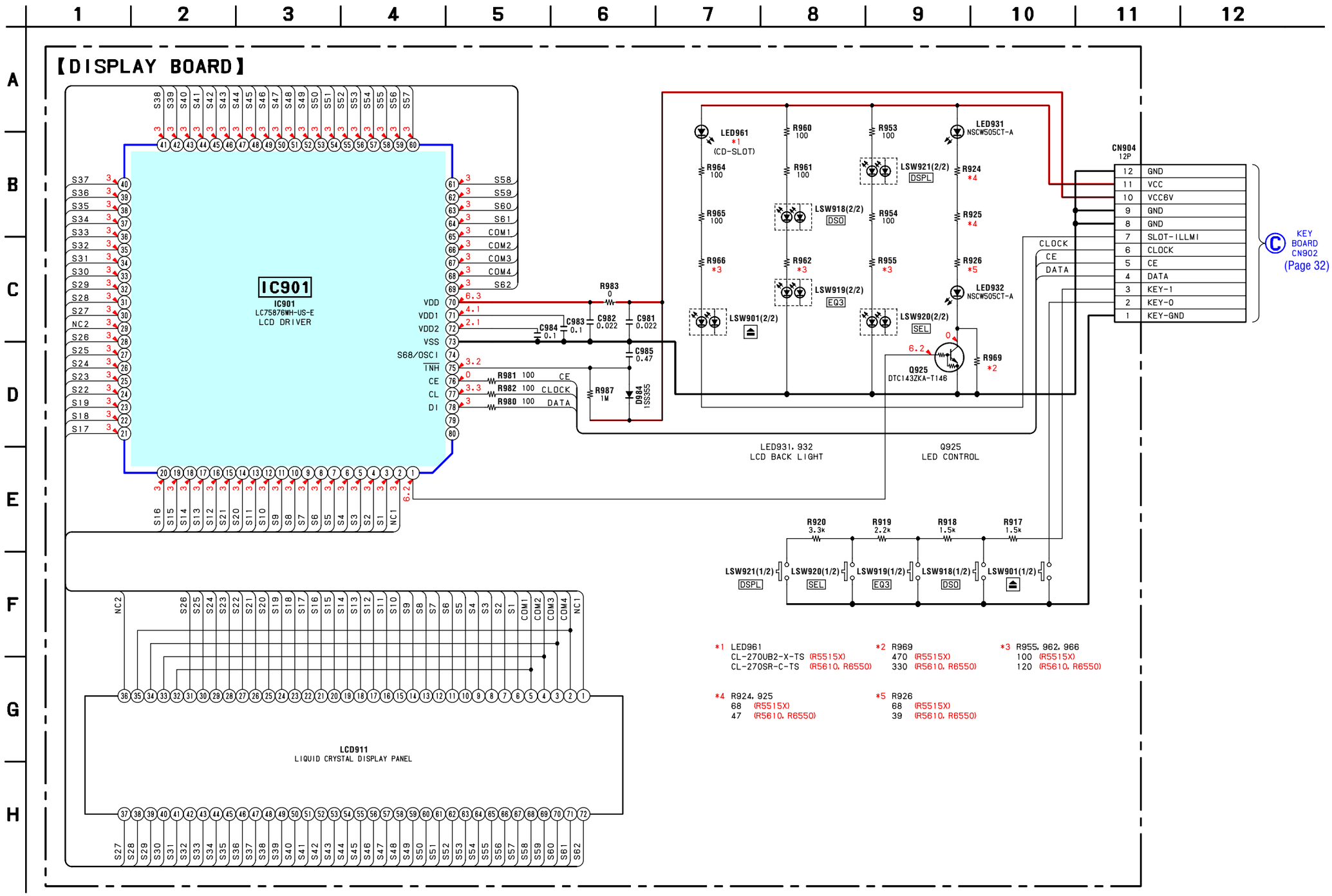
3-13. PRINTED WIRING BOARD — DISPLAY SECTION — • Refer to page 24 for Circuit Boards Location. : Uses unleaded solder.



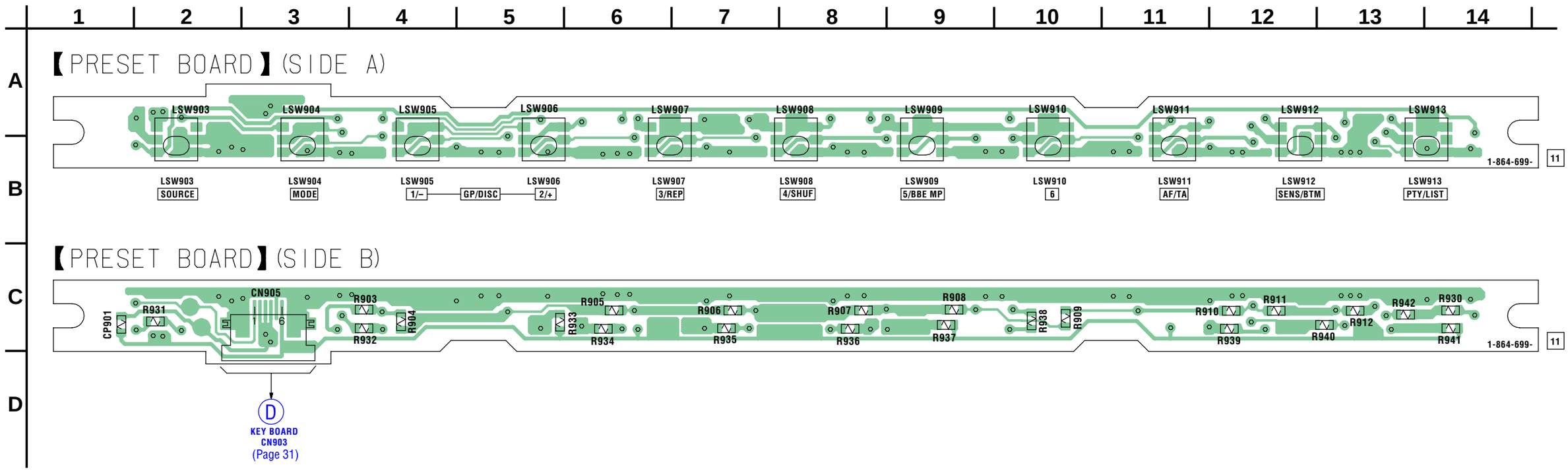
- **Semiconductor Location**

Ref. No.	Location
D984	F-5
IC901	F-7
LED931	B-12
LED932	B-3
LED961	G-7
Q925	G-4

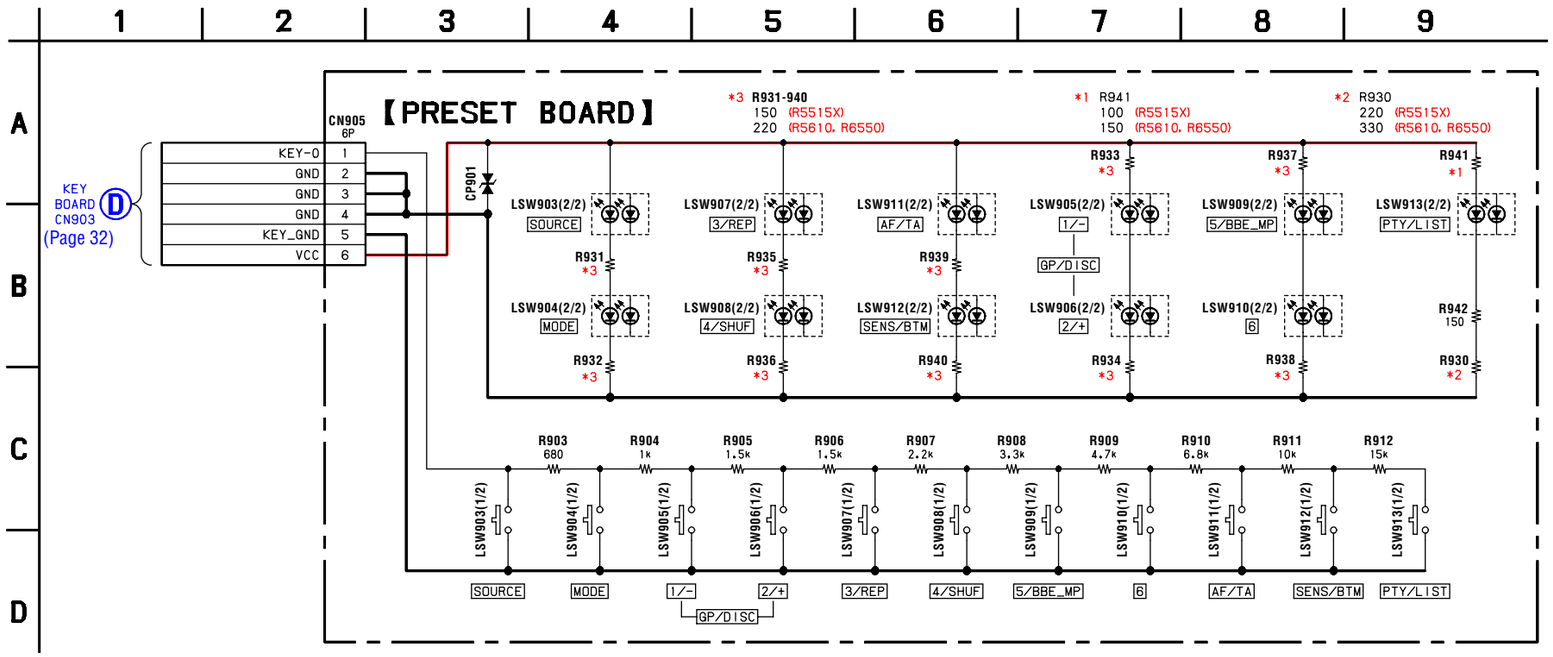
3-14. SCHEMATIC DIAGRAM — DISPLAY SECTION —



3-15. PRINTED WIRING BOARD — PRESET SECTION — • Refer to page 24 for Circuit Boards Location. : Uses unleaded solder.

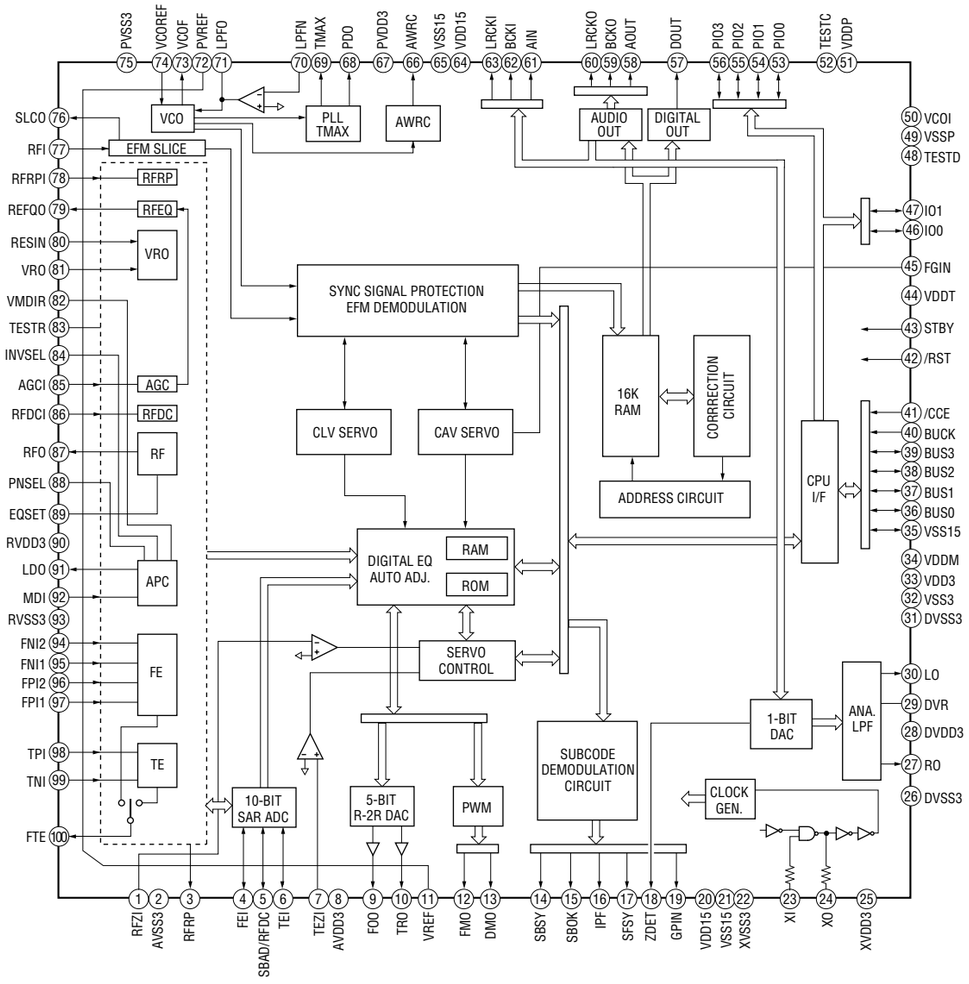


3-16. SCHEMATIC DIAGRAM — PRESET SECTION —

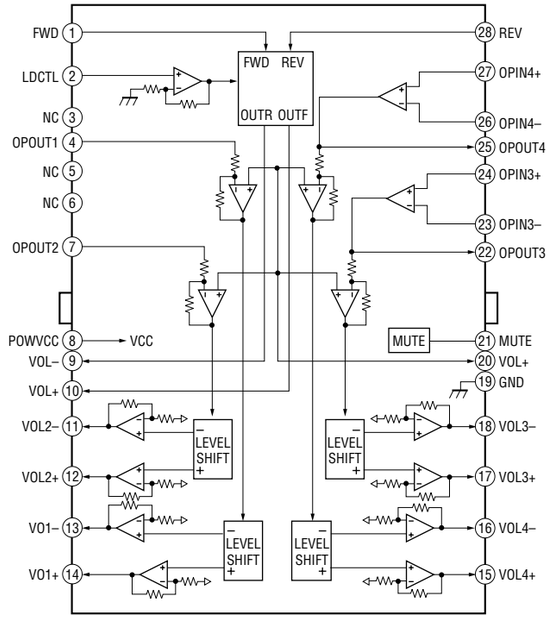


• IC BLOCK DIAGRAMS

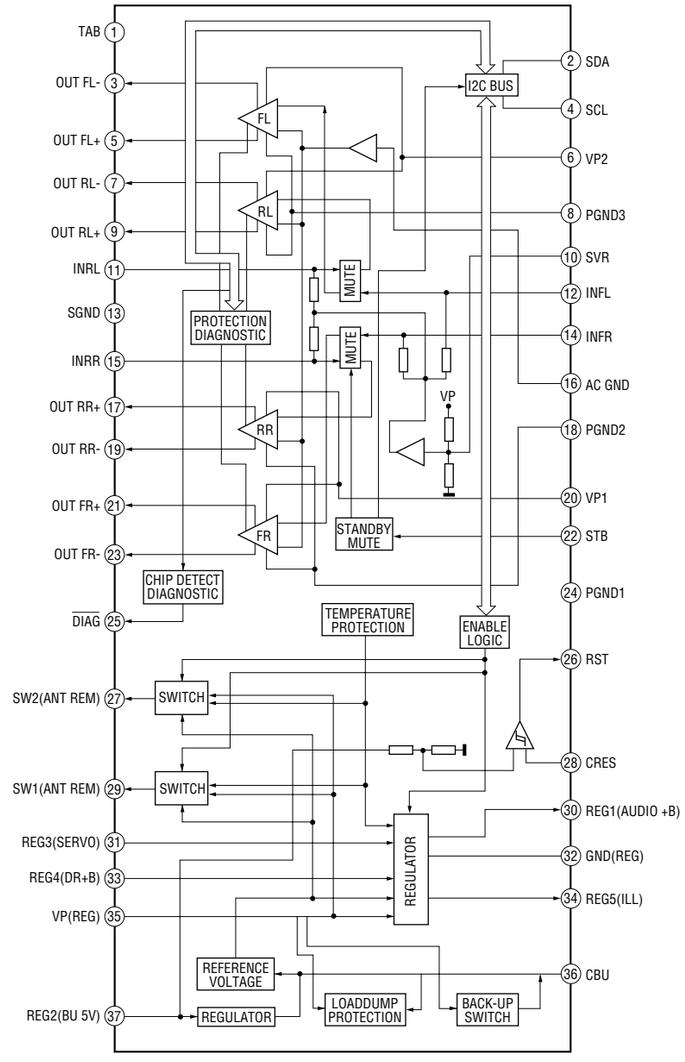
IC2 TC94A60MFG-301 (SERVO Board (1/2))



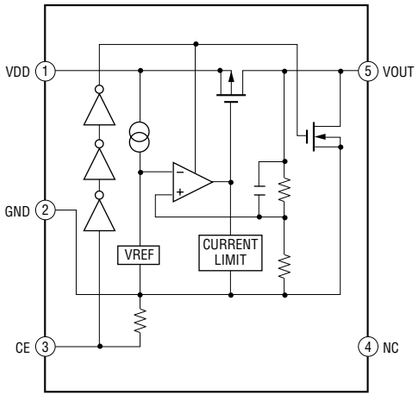
IC1 BA5968FP-E2 (SERVO Board (2/2))



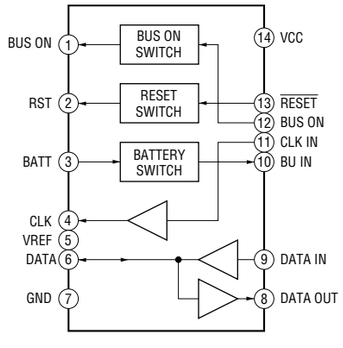
IC300 TDA8588AJ/N2/R1 (MAIN Board (1/2))



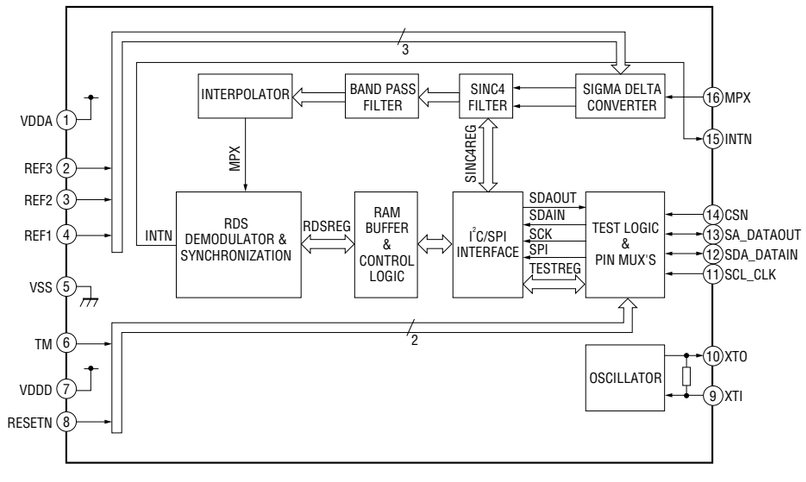
IC6 R1114N151D-TR-FA (SERVO Board (1/2))



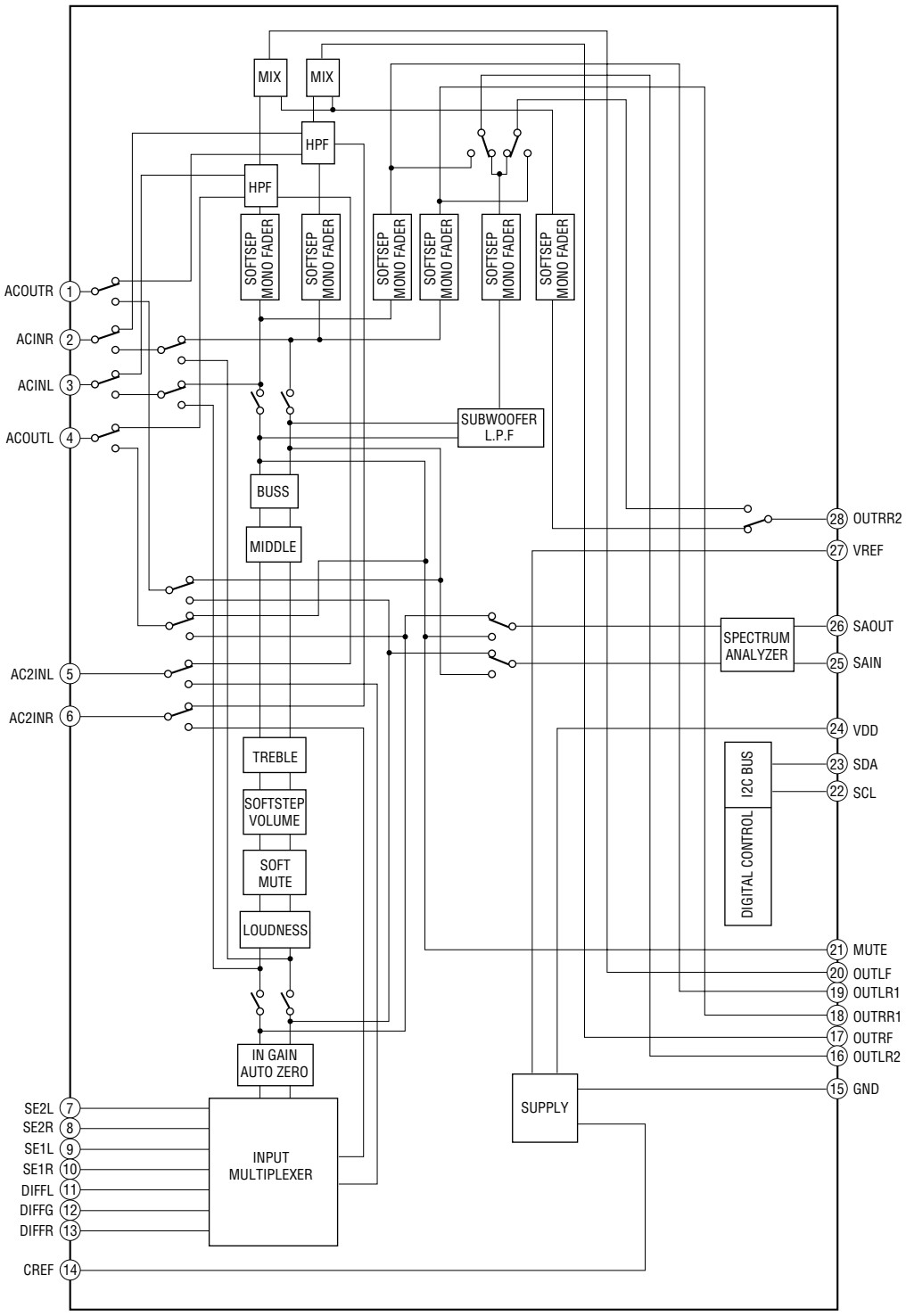
IC601 BA8271F-E2 (MAIN Board (1/2))



IC50 TDA7333013TR (MAIN Board (1/2))



IC401 TDA7419TR (MAIN Board (1/2))



• IC PIN DESCRIPTIONS

• IC3 MB90487APFV-G-131-BNDE1 (CD SYSTEM CONTROL) (SERVO BOARD (2/2))

Pin No.	Pin Name	I/O	Pin Description
1	NC	O	Servo 1.5 V power supply control signal output
2 to 6	NC	—	Not used. (Open)
7	CD BUS0	I/O	Bus data signal input/output 0
8	CD BUS1	I/O	Bus data signal input/output 1
9	VSS	—	Ground pin
10	CD BUS2	I/O	Bus data signal input/output 2
11	CD BUS3	I/O	Bus data signal input/output 3
12	CD BUCK	O	Bus clock signal output
13	CD XCCE	O	Chip enable signal output
14	CD XRST	O	Reset signal output
15	CD ZDET	I	Zero detection signal input
16 to 20	NC	—	Not used. (Open)
21	VCC	—	Power supply pin (+3.3 V)
22	DAC ZDETL	I	Zero data detection signal input (L-ch)
23	DAC ZDETR	I	Zero data detection signal input (R-ch)
24	NC	—	Not used. (Open)
25	RXD	I	UART RXD data signal input (MCBUS/Flash data input)
26	TXD	O	UART TXD data signal output (MCBUS/Flash data output)
27	DEC SSTBY	O	SRAM STANDBY mode control signal output
28, 29	NC	—	Not used. (Open)
30	DEC INT	I	Request signal input
31, 32	NC	—	Not used. (Open)
33	AVCC	—	Power supply pin (+3.3 V) for A/D converter
34	AVRH	—	External reference voltage for A/D converter
35	AVSS	—	Ground pin
36	NC	—	Not used. (Open)
37	DEC XMUTE	O	Mute signal output L: mute
38, 39	NC	—	Not used. (Open)
40	VSS	—	Ground pin
41	NC	—	Not used. (Open)
42	MEC LIMIT	I	Sled limit in detection switch signal input
43	MEC LOAD	O	Loading motor signal output (Load direction)
44	MEC EJECT	O	Loading motor signal output (Eject direction)
45	MEC INSW	I	Pack-in detection signal input
46	MEC DSW	I	Chucking end detection switch signal input
47, 48	MD0, MD1	I	CPU operation mode designation signal input (Connect to Vcc.)
49	MD2	I	CPU operation mode designation signal input (Connect to Vss.)
50	$\overline{\text{BUS ON}}$	I	Bus on signal input L: bus on
51	BU IN	I	Backup on/off signal input H: backup on, L: backup off
52	$\overline{\text{CD SBSY}}$	I	SUBQ sync signal input L: interruption
53	$\overline{\text{MEC SELFSW}}$	I	Disc insert detection switch signal input L: disc in interruption
54, 55	NC	—	Not used. (Open)
56	UNISI	I	Serial data signal input
57	UNISO	O	Serial data signal output
58	UNICKI	I	Serial clock signal input
59	LINEOFF	O	Line off signal output
60	A ATT	O	Audio attenuation signal output H: ATT on
61	EJECT OK	I	Front panel open signal input H: eject
62	OPEN REQ	O	Front panel open/close request signal output H: open request
63	MECON	O	Mechanism deck power supply control signal output
64	CDON	O	Servo power supply control signal output

Pin No.	Pin Name	I/O	Pin Description
65	XUART	I	Sony-Bus/MC-Bus change signal input H: Sony-Bus, L: MC-Bus
66	ZMUTE	O	Zero detection mute signal output
67	MECON CHK	I	MECON rising detection signal input
68	CDON CHK	I	CDON rising detection signal input
69 to 74	NC	—	Not used. (Open)
75	$\overline{\text{RSTX}}$	I	System reset signal input
76	NC	—	Not used. (Open)
77	X1A	—	Sub-clock connect pin Not used in this set. (Open)
78	X0A	—	Sub-clock connect pin Not used in this set. (Connect to Vss.)
79	VSS	—	Ground pin
80	X0	I	Main-clock connect pin (12 MHz)
81	X1	O	Main-clock connect pin (12 MHz)
82	VCC	—	Power supply pin (+3.3 V)
83	XTS	I	Not used in this set. (Open)
84	XINIT3	I	Not used in this set. (Open)
85	NC	—	Not used. (Open)
86	XSJIG	I	Not used in this set. (Open)
87 to 89	XINIT0 to 2	I	Not used in this set. (Open)
90 to 97	NC	—	Not used. (Open)
98	XLINE	I	Not used in this set. (Open)
99, 100	NC	—	Not used. (Open)

• IC501 MB90488BPF-G-119-BNDE1 (SYSTEM CONTROL) (MAIN BOARD (2/2))

Pin No.	Pin Name	I/O	Pin Description
1	AREA SEL2	I	Destination setting pin
2	AREA SEL1	I	Destination setting pin
3	AREA SEL0	I	Destination setting pin
4	NCO	I	Not used
5	BEEP	O	Beep signal output
6	NCO	I	Not used
7	NOSE SW	I	Front panel open/close detect signal input
8	DIAG	I	Power AMP status signal input
9	VOL ATT	O	Electronic volume attenuate control signal output
10	NCO	O	Not used
11	VSS	—	Ground
12	TU ATT	O	Tuner mute control signal output
13	NS MASK	O	Noise mask signal output
14	ILLUMI SEL1	I	Illumination voltage setting pin
15	ILLUMI SEL2	I	Illumination voltage setting pin
16	NCO	O	Not used
17	AUX IN	O	Not used
18	NCO	O	Not used
19	NCO	O	Not used
20	NCO	O	Not used
21	NCO	O	Not used
22	NCO	O	Not used
23	VCC5	—	Power supply pin (+3.3V)
24	EEP SIO	I/O	EEPROM bus serial data input/output
25	EEP CKO	O	EEPROM bus serial clock output
26	AMP STB	O	Power AMP satandby signal output
27	LCD CE	O	LCD driver chip enable output
28	LCD SO	O	LCD driver serial data output
29	LCD SCK	O	LCD driver serial clock output
30	RDS ON	O	RDS ON signal output
31	NCO	O	Not used
32	NCO	O	Not used
33	I2C SCK	O	I2C bus serial clock output
34	I2C SIO	I/O	I2C bus serial data input/output
35	DAVDD	—	A/D converter power supply pin (+3.3V)
36	AVRH	—	A/D converter reference power supply pin (+3.3V)
37	DAVSS	—	Ground
38	QUALITY	I	Noise detect signal input
39	VSM	I	S-meter voltage detect signal input
40	KEY IN1	I	Key signal input
41	KEY IN0	I	Key signal input
42	VSS	—	Ground
43	RC IN0	I	Rotary commander key signal input
44	SA_IN	I	Spectrum analyzer data signal input
45	SA_CKO	O	Spectrum analyzer clock signal output
46	NCO	O	Not used
47	NCO	O	Not used
48	NCO	O	Not used
49	MD0	I	Operation mode setting pin
50	MD1	I	Operation mode setting pin
51	MD2	I	Operation mode setting pin
52	KEY ACK	I	Key acknowledgment detect signal input

Pin No.	Pin Name	I/O	Pin Description
53	TU ATT IN	I	Tuner mute zero cross detect signal input
54	BU IN	I	Back-up power supply detect signal input
55	NCO	O	Not used
56	DAVN	I	RDS data block synchronized detect signal input
57	NCO	O	Not used
58	UNI SI	I	SONY bus data input
59	UNI SO	O	SONY bus data output
60	UNI SCK	O	SONY bus clock output
61	NCO	O	Not used
62	NCO	O	Not used
63	NCO	O	Not used
64	SIRCS	I	Remote control signal input
65	NCO	O	Not used
66	NCO	O	Not used
67	NCO	O	Not used
68	FLASH W	I	Memory mode select signal input
69	NCO	O	Not used
70	SYNCHRO SW	I	Synchro CD door open/close detect signal input
71	RC IN1	I	Rotary commander shift key signal input
72	ACC IN	I	Accessory power supply detect signal input
73	TEST IN	I	Test mode detect signal input
74	TEL ATT	I	Telephone attenuate detect signal input
75	ILLU IN	I	Illumination detect signal input
76	XKEY ON	O	A/D converter power supply control signal output
77	RESET	I	CPU reset input
78	NCO	O	Not used
79	XIN	—	Sub-clock input (32.768kHz)
80	XOUT	—	Sub-clock output (32.768kHz)
81	VSS1	—	Ground
82	OSC IN	—	Main-clock input (3.68MHz)
83	OSC OUT	—	Main-clock output (3.68MHz)
84	VCC3	—	Power supply pin (+3.3V)
85	DEMO SEL	I	Demo select signal input
86	ATT	O	Audio mute control signal output
87	BUS ON	O	Bus ON signal output
88	SYS RST	O	System reset output
89	EJECT OK SW	O	Eject OK signal output
90	NCO	O	Not used
91	NCO	O	Not used
92	NCO	O	Not used
93	Z-MUTE	I	Z-Mute signal input
94	NCO	O	Not used
95	NCO	O	Not used
96	NCO	O	Not used
97	NCO	O	Not used
98	CD ON	I	CD servo power control request signal input
99	CDM ON	I	CD deck power control request signal input
100	NCO	O	Not used