XR-4950X

SERVICE MANUAL

AEP Model

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MG-25F-136

SPECIFICATIONS

Cassette player section

Tape track	4-track 2-channel stereo
Wow and flutter	0.08 % (WRMS)
Frequency response	30 – 18,000 Hz
Signal-to-noise ratio	58 dB

Tuner section

FM

Tuning range	87.5 – 108.0 MHz
Aerial terminal	External aerial connector
Intermediate frequency	10.7 MHz / 450kHz
Usable sensitivity	8 dBf
Selectivity	75 dB at 400 kHz
Signal-to-noise ratio	66 dB (stereo), 72 dB (mono)
Harmonic distortion at 1 kHz	0.6 % (stereo), 0.3 % (mono)
Separation	35 dB at 1 kHz
Frequency response	30 – 15,000 Hz

AM

Tuning range	531 – 1,602 kHz
Aerial terminal	External aerial connector
Intermediate frequency	10.7 MHz / 450 kHz
Sensitivity	30 μV

Power amplifier section

Outputs	Speaker outputs (sure seal connectors)
Speaker impedance	4 – 8 ohms
Maximum power output	50 W × 4 (at 4 ohms)

General

Outputs	Audio output
	Power aerial relay control lead
	Power amplifier control lead
	Telephone ATT control lead
Tone controls	Bass ±9 dB at 100 Hz
	Treble ±9 dB at 10 kHz
Power requirements	12 V DC car battery (negative earth)
Dimensions	Approx. 178 × 50 × 183 mm (w/h/d)
Mounting dimensions	Approx. 182 × 53 × 162 mm (w/h/d)
Mass	Approx. 1.2 kg
Supplied accessories	Parts for installation and connections (1 set)
	Front panel case (1)

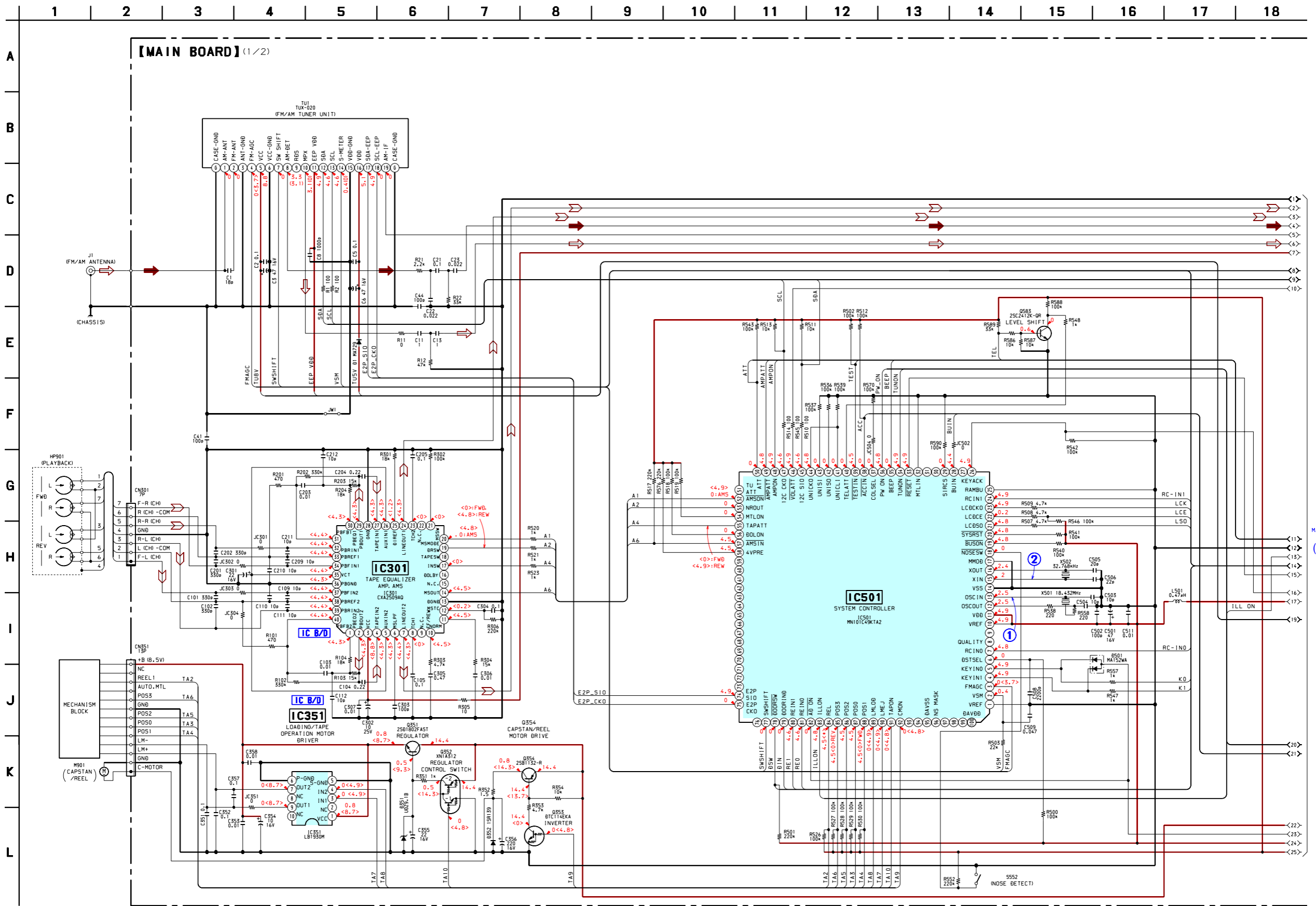*Design and specifications are subject to change without notice.*

FM/AM CASSETTE CAR STEREO

SONY®

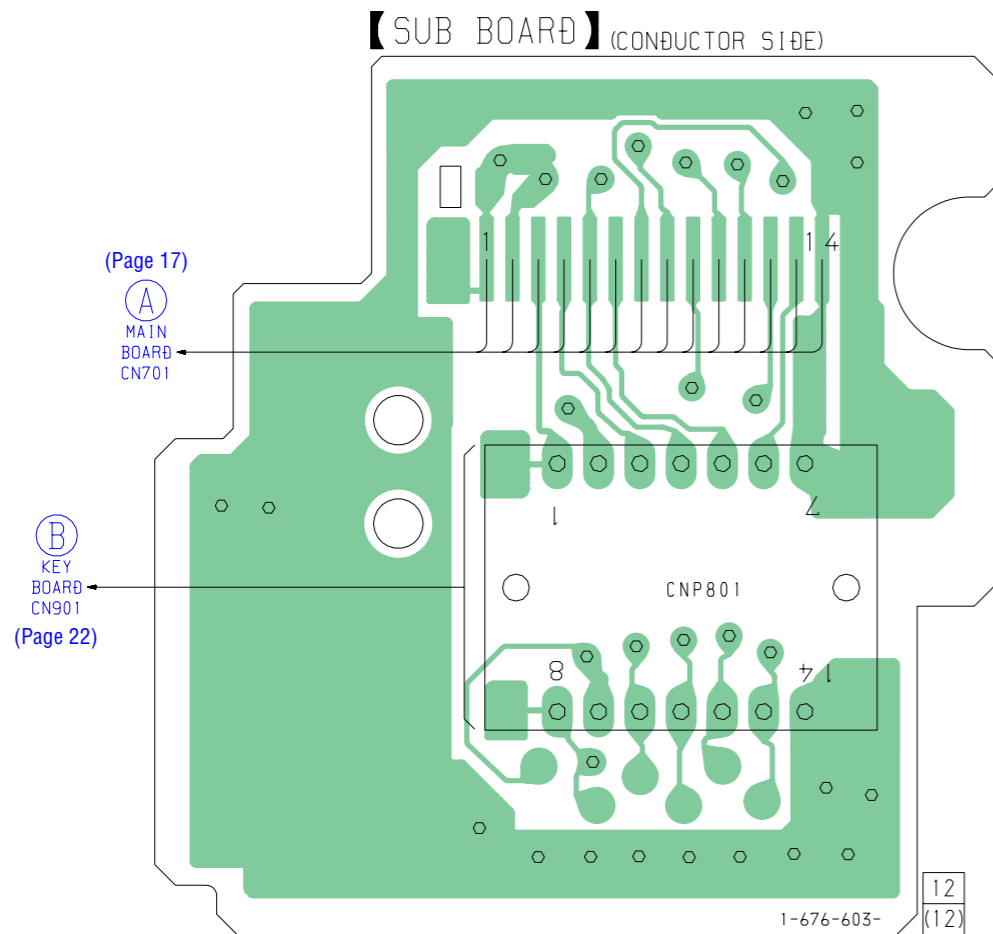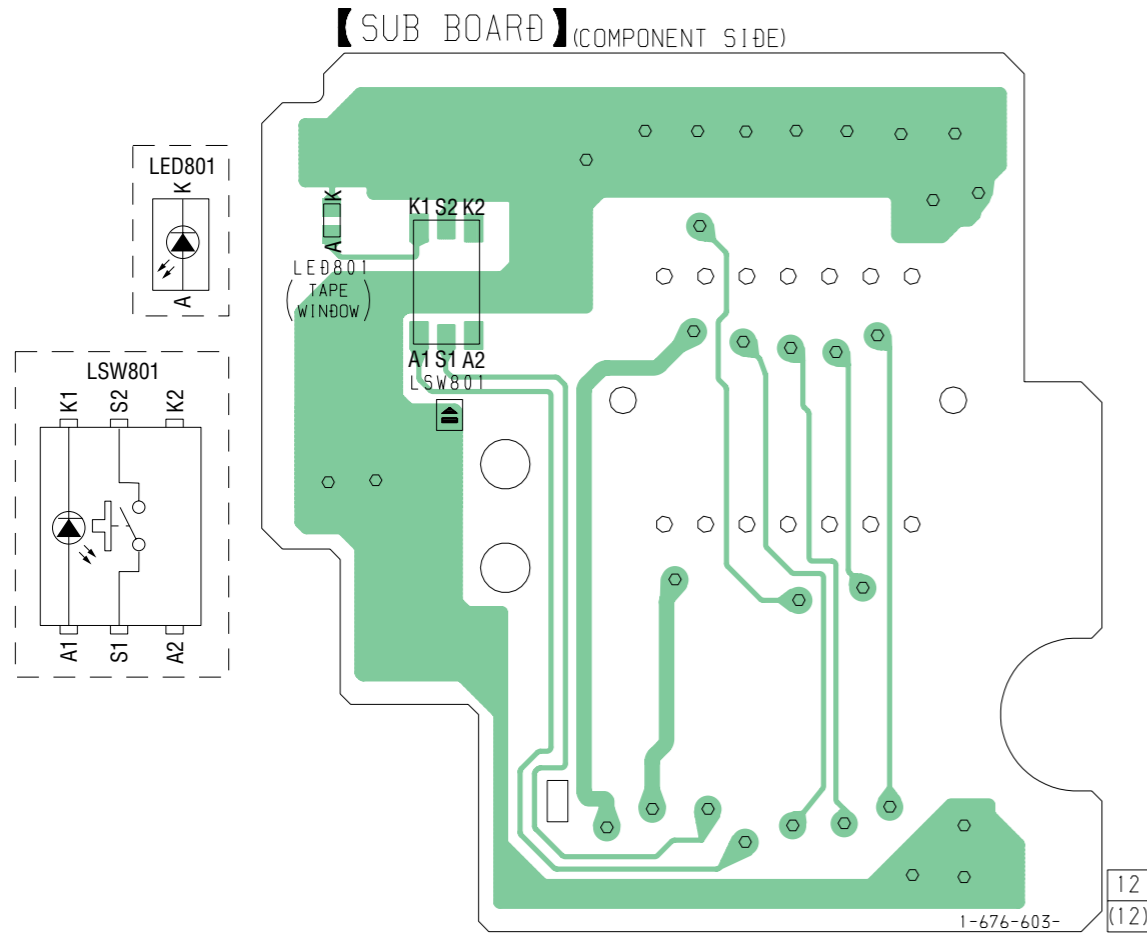6-3. SCHEMATIC DIAGRAM – MAIN Board (1/2) –   • See page 15 for Waveforms.   • See page 21 for IC Block Diagrams.

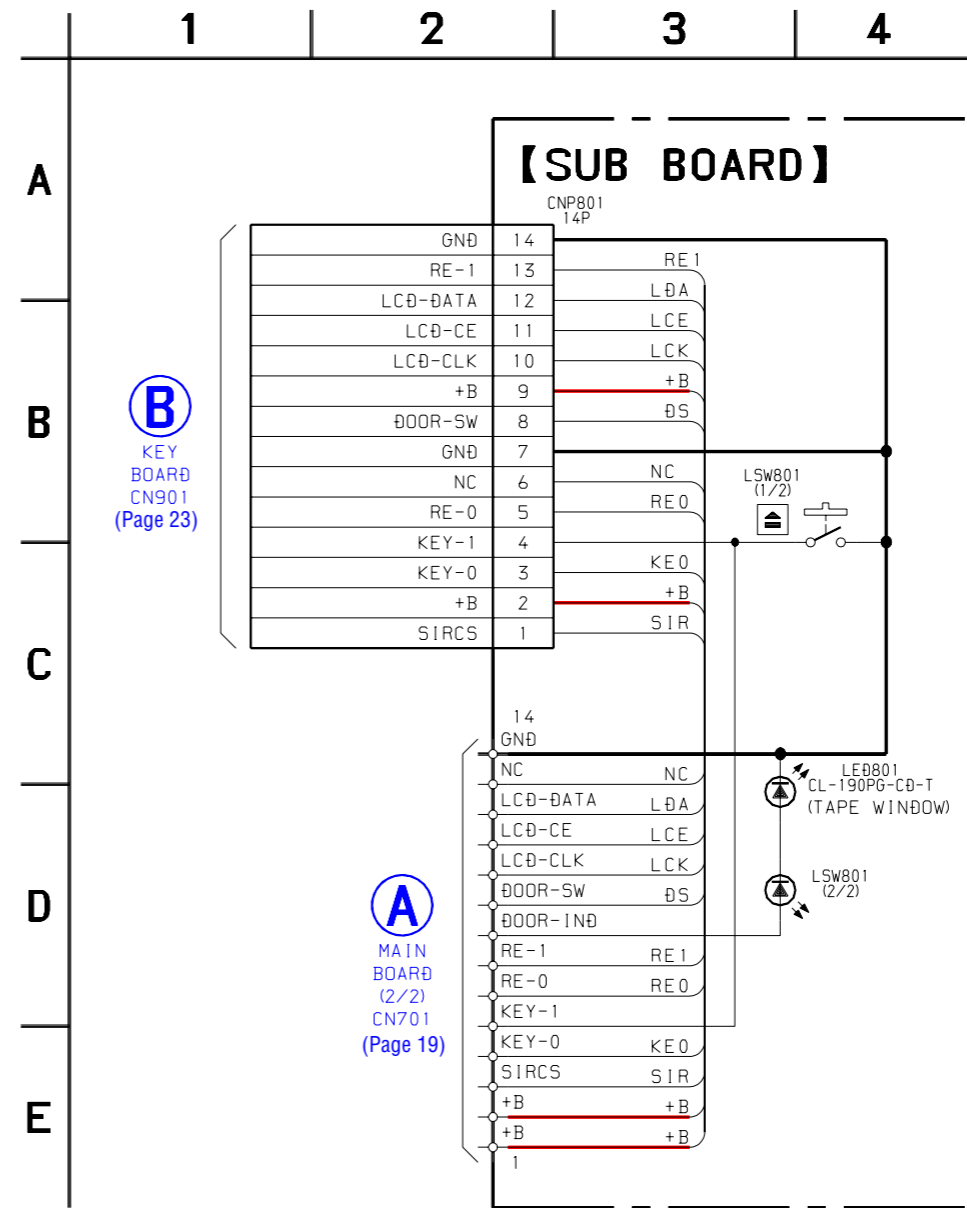6-4. SCHEMATIC DIAGRAM – MAIN Board (2/2) – • See page 21 for IC Block Diagrams.

【MAIN BOARD】(2/2)

19   19
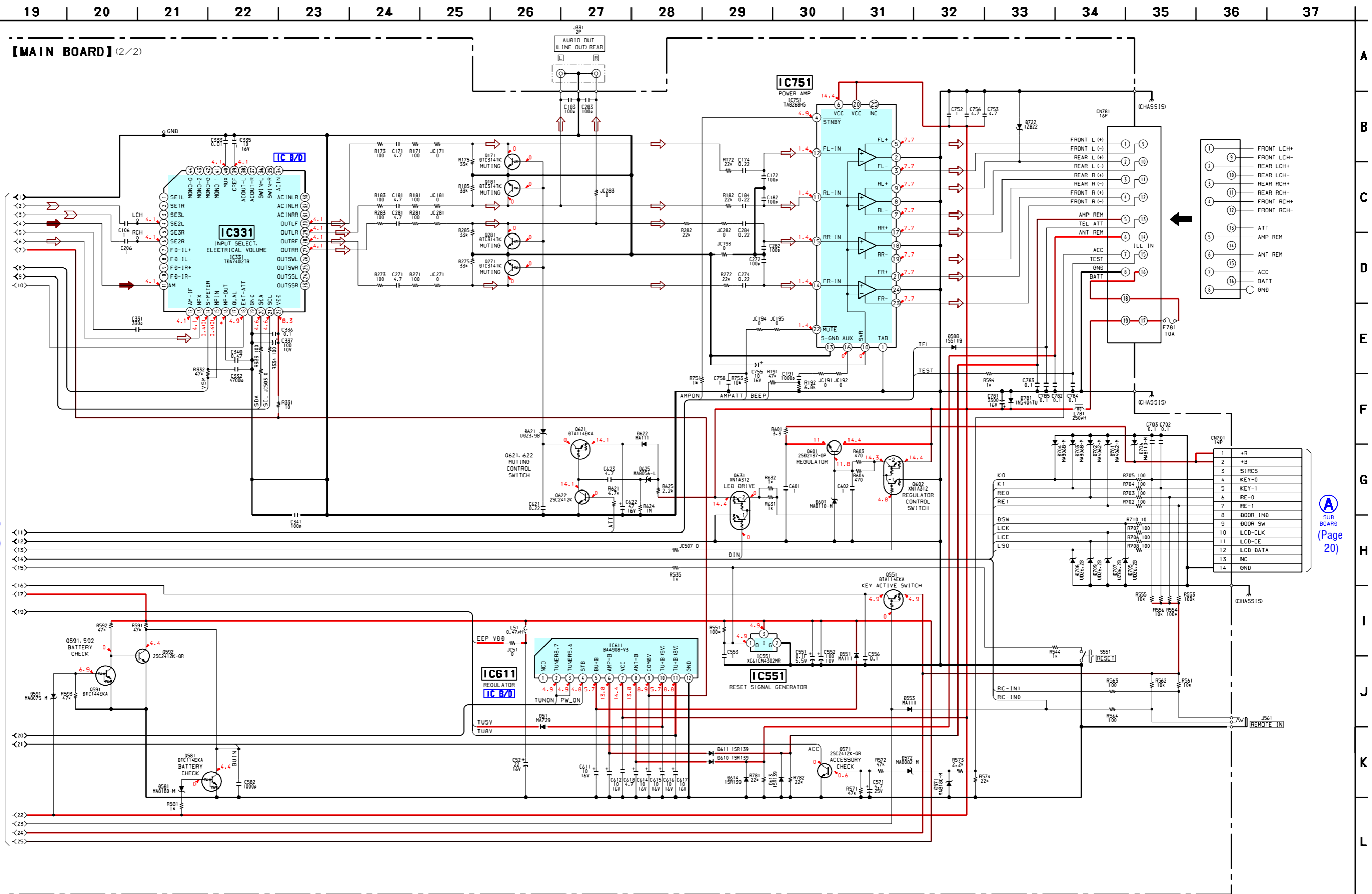
6-5. PRINTED WIRING BOARD – SUB Board –

【SUB BOARD】(COMPONENT SIDE)

LED801

K

A

LSW801

K1 S2 K2

A1 S1 A2

K1 S2 K2

LED801
(TAPE
WINDOW)

A1 S1 A2
LSW801

1-676-603-

12
(12)

6-6. SCHEMATIC DIAGRAM – SUB Board –

	1	2	3	4

【SUB BOARD】

CNP801
14P

GND	14	RE1
RE-1	13	LDA
LCD-DATA	12	LCE
LCD-CE	11	LCK
LCD-CLK	10	+B
+B	9	DS
DOOR-SW	8	
GND	7	NC
NC	6	RE0
RE-0	5	
KEY-1	4	KE0
KEY-0	3	+B
+B	2	SIR
SIRCS	1	

Ⓑ
KEY
BOARD
CN901
(Page 23)

LSW801
(1/2)

14
GND

NC	NC
LCD-DATA	LDA
LCD-CE	LCE
LCD-CLK	LCK
DOOR-SW	DS
DOOR-IND	
RE-1	RE1
RE-0	RE0
KEY-1	
KEY-0	KE0
SIRCS	SIR
+B	+B
+B	+B
1	

Ⓐ
MAIN
BOARD
(2/2)
CN701
(Page 19)

LED801
CL-190PG-CD-T
(TAPE WINDOW)

LSW801
(2/2)

【SUB BOARD】(CONDUCTOR SIDE)

(Page 17)
Ⓐ
MAIN
BOARD
CN701

Ⓑ
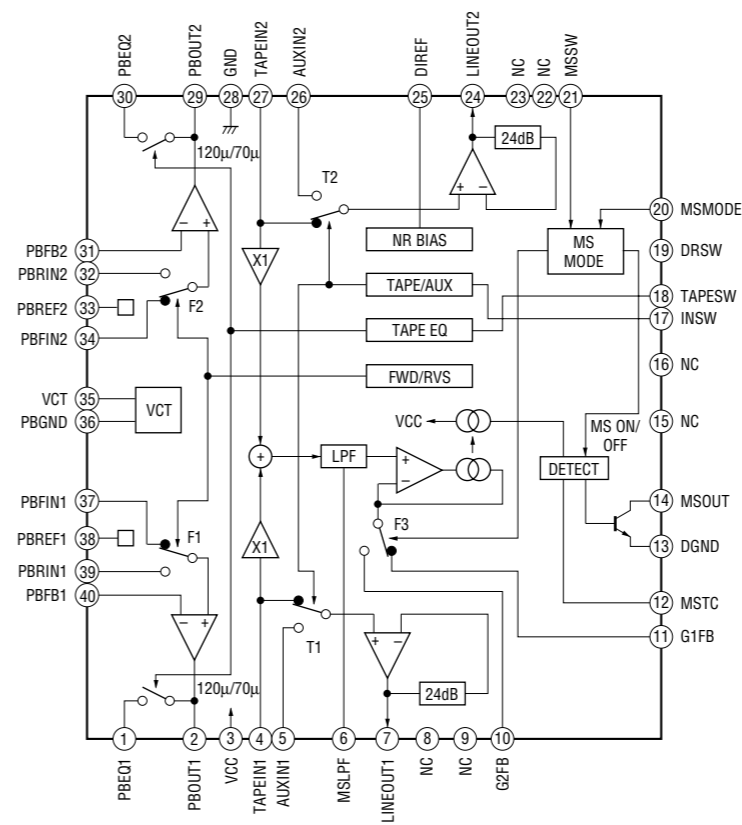KEY
BOARD
CN901

(Page 22)

CNP801

1-676-603-

12
(12)

- **IC Block Diagrams**
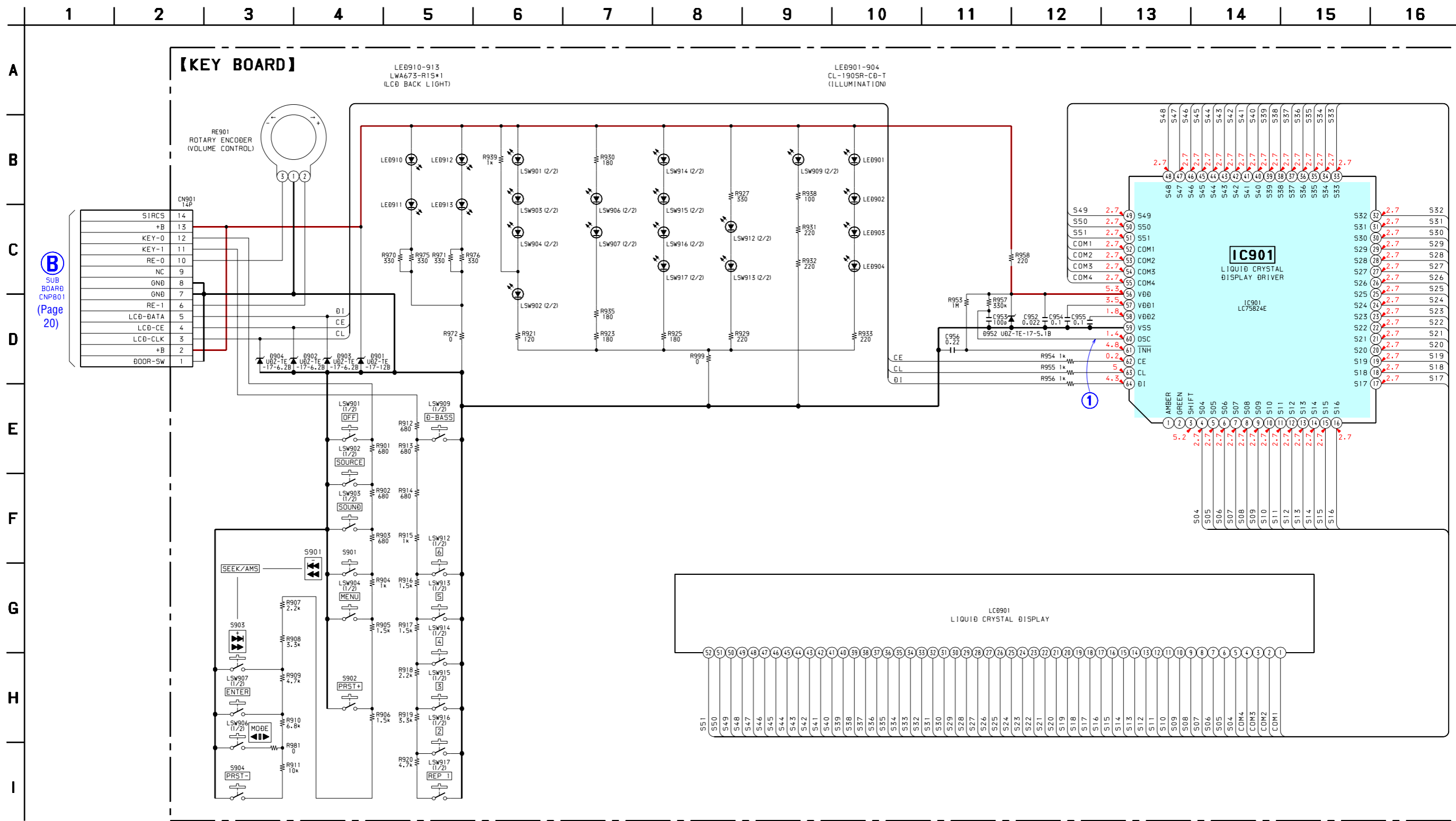– MAIN Board –

IC331 TDA7402TR
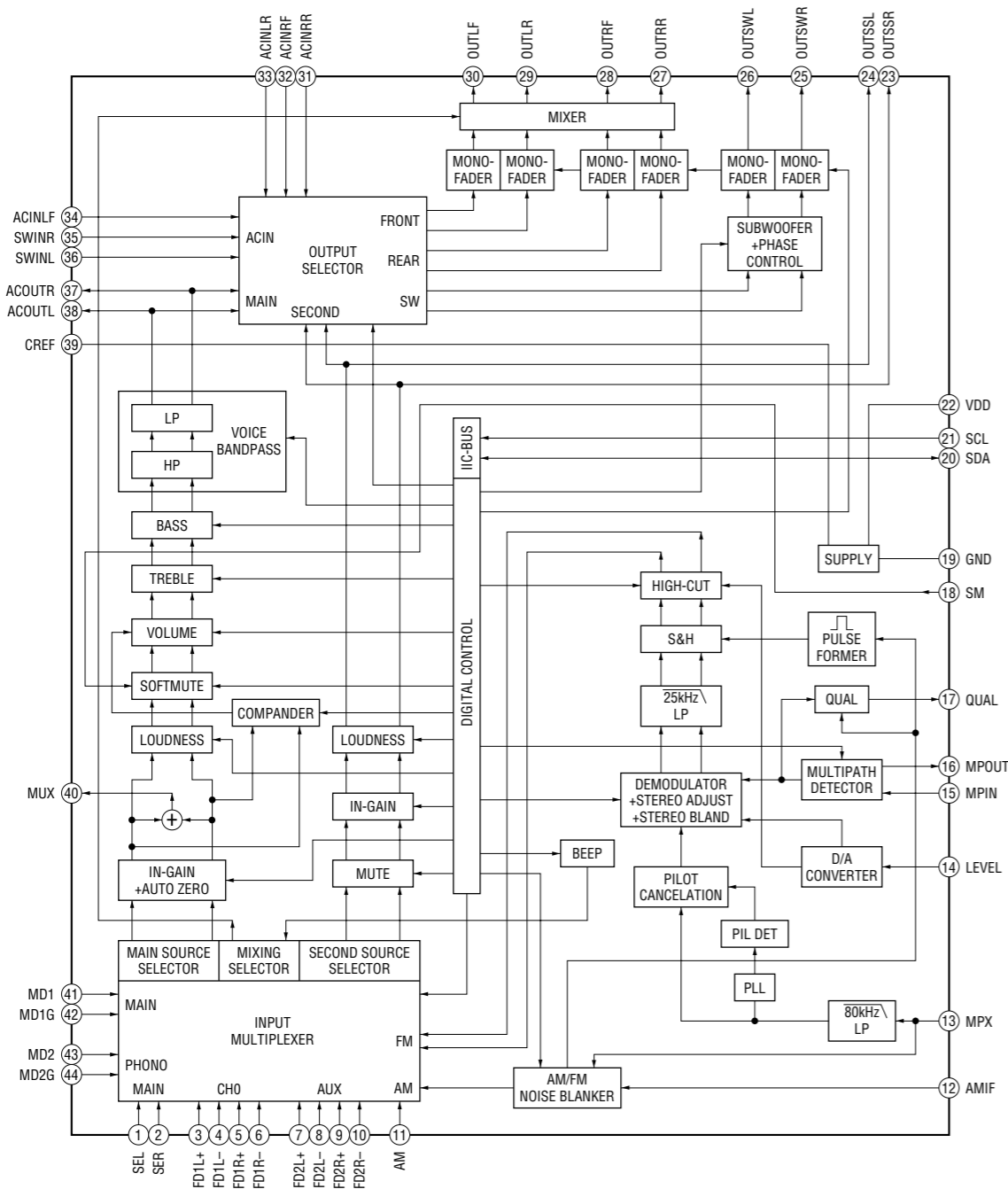
IC301 CXA2509AQ-T4

IC351 LB1930M-TLM

IC611 BA4908-V3
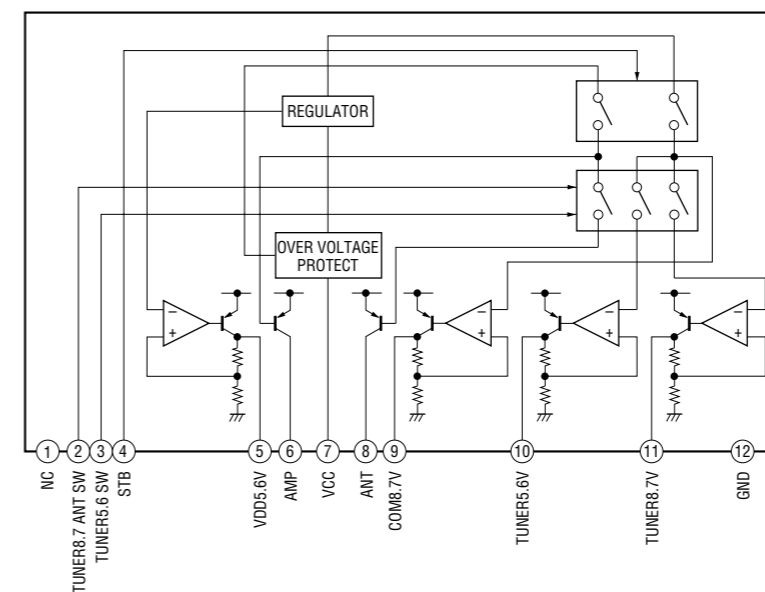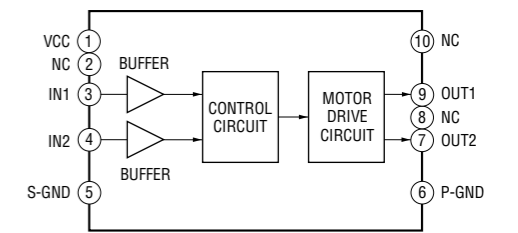
6-8. SCHEMATIC DIAGRAM — KEY Board — • See page 15 for Waveform.

【KEY BOARD】

6-9. IC PIN FUNCTION DESCRIPTION

● MAIN BOARD IC501 MN101C49KTA2 (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1	VREF	I	Reference voltage (0V) input terminal (for A/D converter)
2	VSM	I	FM and AM signal meter voltage detection input from the FM/AM tuner unit (TU1) (A/D input)
3	FMAGC	I	FM AGC level detection signal input from the FM/AM tuner unit (TU1) (A/D input)
4	KEYIN1	I	Key input terminal (A/D input) (LSW801, LSW909, LSW912 to LSW917) ▲, D-BASS, 6, 5, 4, 3, 2, REP 1 keys input
5	KEYIN0	I	Key input terminal (A/D input) (LSW901 to LSW907, S901 to S904) OFF, SOURCE, SOUND, MENU, MODE ◄I►, ENTER, SEEK/AMS – I◄◄ ◄◄,PRST +, SEEK/AMS + ►►I ►►, PRST – keys input
6	DSTSEL	I	Destination setting terminal (fixed at "H" in this set)
7	RCIN0	I	Rotary remote commander key input terminal (A/D input)
8	QUALITY	I	Noise level detection signal input at SEEK mode (A/D input) Not used (open)
9	—	O	Not used (open)
10	VREF	I	Reference voltage (+5V) input terminal (for A/D converter)
11	VDD	—	Power supply terminal (+5V) (for A/D converter)
12	OSCOUT	O	Main system clock output terminal (18.432 MHz)
13	OSCIN	I	Main system clock input terminal (18.432 MHz)
14	VSS	—	Ground terminal (for A/D converter)
15	XIN	I	Sub system clock input terminal (32.768 kHz)
16	XOUT	O	Sub system clock output terminal (32.768 kHz)
17	MMOD	I	Not used (fixed at "L")
18	$\overline{\text{NOSESW}}$	I	Front panel block remove/attach detection signal input "L": front panel is attached, "H": front panel is removed
19	$\overline{\text{BUSON}}$	O	Bus on/off control signal output terminal "L": bus on Not used (fixed at "H")
20	$\overline{\text{SYSRST}}$	O	Reset signal output terminal "L": reset Not used (fixed at "H")
21	LCDSO	O	Serial data output to the liquid crystal display driver (IC901)
22	LCDCE	O	Chip enable signal output to the liquid crystal display driver (IC901) "H" active
23	LCDCKO	O	Serial data transfer clock signal output to the liquid crystal display driver (IC901)
24	RCIN1	I	Rotary remote commander shift key input terminal "L": shift
25	RAMBU	I	Internal RAM reset detection signal input terminal Input terminal to check that RAM data are not destroyed due to low voltage This checking is made within 50 msec after reset Not used (fixed at "L")
26	KEYACK	I	Input of acknowledge signal for the key entry Acknowledge signal is input to accept function and eject keys in the power off status On at input of "H"
27	—	O	Not used (open)
28	BUIN	I	Battery detect signal input from the battery detect circuit "L" is input at low voltage
29	SIRCS	I	Sircs remote control signal input terminal Not used (fixed at "L")
30, 31	—	O	Not used (open)
32	MTLIN	I	Auto metal detection signal input terminal "H": auto metal Not used (fixed at "L")
33	$\overline{\text{RESET}}$	I	System reset signal input from the reset signal generator (IC551) and reset switch (S551) "L": reset "L" is input for several 100 msec after power on, then it changes to "H"
34	TUNON	O	Tuner system power supply on/off control signal output to the BA4908 (IC611) "H": tuner power on
35	BEEP	O	Beep sound drive signal output to the power amplifier (IC751)
36	PW ON	O	Main system power supply on/off control signal output to the BA4908 (IC611) "H": power on
37	COLSEL	I	Setting terminal for the illumination color "L": amber, "H": green Fixed at "L" in this set

Pin No.	Pin Name	I/O	Description
38	$\overline{\text{ACC IN}}$	I	Accessory detection signal input "L": accessory on
39	$\overline{\text{TESTIN}}$	I	Setting terminal for the test mode "H": test mode, Normally: fixed at "L"
40	TELATT	I	Telephone muting signal input terminal At input of "H", the signal is attenuated by –20 dB
41	UNICLI	I	Serial data transfer clock signal input terminal Not used (fixed at "L")
42	UNISO	O	Serial data output terminal Not used (fixed at "L")
43	UNISI	I	Serial data input terminal Not used (fixed at "L")
44	UNICKO	O	Serial data transfer clock signal output terminal Not used (fixed at "L")
45	I2C SIO	I/O	Two-way data bus with the electrical volume (IC331) and FM/AM tuner unit (TU1)
46	$\overline{\text{VOLATT}}$	O	Muting on/off control signal output to the electrical volume (IC331) "L": muting on
47	I2C CKO	O	Clock signal output to the electrical volume (IC331) and FM/AM tuner unit (TU1)
48	AMPON	O	Standby on/off control signal output to the power amplifier (IC751) "L": standby mode, "H": amplifier on
49	$\overline{\text{AMPATT}}$	O	Muting on/off control signal output to the power amplifier (IC751) "L": muting on
50	ATT	O	Audio line muting on/off control signal output "H": muting on
51	TU ATT	O	Muting on/off control signal output of the FM and AM tuner signal "H": muting on Not used (open)
52	$\overline{\text{AMSON}}$	O	Tape auto music sensor control signal output to the CXA2509AQ (IC301) "L" is output to lower the gain for audio level at FF/REW mode
53	NROUT	O	Forward/reverse direction control signal output to the CXA2509AQ (IC301) "L": forward direction, "H": reverse direction
54	MTLON	I/O	METAL control in/out terminal At initial mode: auto/manual mode selection input of METAL function (manual at "L" input) At manual mode: METAL on/off control signal output terminal (METAL on at "H" output) At auto mode: input at MTLIN (pin ㉜)
55	TAPATT	O	Tape muting on/off control signal output to the CXA2509AQ (IC301) "H": muting on Active at ATA, FF/REW mode
56	DOLON	I/O	Dolby control in/out terminal At initial mode: valid/invalid selection input of dolby function (valid at "L" input) At normal mode: dolby on/off control signal output terminal (dolby on at "H" output) Not used this function (fixed at "H")
57	$\overline{\text{AMSIN}}$	I	Whether a music is present or not from CXA2509AQ (IC301) is detected at auto music sensor "L": music is present, "H": music is not present
58	4VPRE	I	4VPREOUT model setting terminal "L": 4VPREOUT model Fixed at "H" in this set
59 to 73	—	O	Not used (open)
74	E2P SIO	I/O	Two-way data bus with the FM/AM tuner unit (TU1)
75	E2P CKO	O	Clock signal output to the FM/AM tuner unit (TU1)
76	—	O	Not used (open)
77	SWSHIFT	O	AM filter control signal output to the FM/AM tuner unit (TU1) "L": SW mode
78	$\overline{\text{DOORSW}}$	I	Front panel open/close detection signal input "L" is input when the front panel is closed
79	DOORIND	O	LED drive signal output of the tape window and ▲ indicator (LED801, LSW801) "H": LED on "H" is output to turn on LED when front panel is opened
80	REIN1	I	Dial pulse input of the rotary encoder (RE901) (for volume control)
81	REIN0	I	
82	$\overline{\text{AD ON}}$	O	A/D converter power control signal output When the KEYACK (pin ㉖) that controls reference voltage power for key A/D conversion input is active, "L" is output from this terminal to enable the input
83	ILLON	O	Power on/off control signal output of the illumination LED and liquid crystal display driver (IC901) "H": power on

Pin No.	Pin Name	I/O	Description
84	REL	I	Rotation detection signal input from supply reel sensor and take-up reel sensor on the deck mechanism
85	POS3	I	Tape position (EJECT/FF/REW/ REV/FWD mode) detection signal input from the tape operation switch on the deck mechanism POS0: "L": EJECT mode, "H": others mode POS1: "L": FF and FWD mode, "H": others mode POS2: "L": REW mode, "H": others mode POS3: "L": REV and EJECT mode, "H": others mode
86	POS2	I	
87	POS0	I	
88	POS1	I	
89	LMLOD	O	Motor drive signal output to the loading/tape operation motor driver (IC351) "H" active (For the loading direction and forward side operation) *1
90	LMEJ	O	Motor drive signal output to the loading/tape operation motor driver (IC351) "H" active (For the eject direction and reverse side operation) *1
91	TAPON	O	Tape system power supply on/off control signal output "H": tape on
92	CMON	O	Capstan/reel motor (M901) drive signal output "H": motor on
93, 94	—	O	Not used (open)
95	DAVSS	—	Ground terminal (for D/A converter) Not used (open)
96	NS MASK	O	Discharge control signal output terminal "H": discharge Not used (open)
97 to 99	—	O	Not used (open)
100	DAVDD	—	Power supply terminal (+5V) (for D/A converter) Not used (open)

*1 Loading/tape operation motor control

Terminal \ Mode	STOP	LOADING/ FORWARD	EJECT/ REVERSE	BRAKE
LMLOD (pin ⑧⑨)	"L"	"H"	"L"	"H"
LMEJ (pin ⑨⓪)	"L"	"L"	"H"	"H"