STR-K740P/K840P

SERVICE MANUAL

Ver 1.0 2002. 02

US Model
Canadian Model
AEP Model
UK Model
E Model

Photo : STR-K840P (SILVER model)

• STR-K740P/K840P are the tuner and the amplifier section in HT-DDW740/DDW840.

SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 8 ohm loads, both channels driven, from 40 – 20,000 Hz; rated 100 watts (STR-K840P only)/80 watts (STR-K740P only) per channel minimum RMS power, with no more than 0.09 % total harmonic distortion from 250 milliwatts to rated output (Models of area code U only).

Amplifier section

POWER OUTPUT
Models of area code U, CA
Rated Power Output at Stereo Mode
(8 ohms 40 Hz – 20 kHz, THD 0.09 %)

STR-K840P:	100 W + 100 W
STR-K740P:	80 W + 80 W

Reference Power Output
(8 ohms 1 kHz, THD 0.7 %)

STR-K840P:	FRONT[1]:100 W/ch
	CENTER[1]: 100 W
	SURR[1]: 100 W/ch
STR-K740P:	FRONT[1]: 80 W/ch
	CENTER[1]: 80 W
	SURR[1]: 80 W/ch

Models of area code CEL,CEK
Rated Power Output at Stereo Mode
(8 ohms 1 kHz, THD 0.7 %)

STR-K840P:	100 W + 100 W[2]
STR-K740P:	80 W + 80 W[2]

Reference Power Output[2]
(8 ohms 1 kHz, THD 0.7 %)

STR-K840P:	FRONT[1]: 100 W/ch
	CENTER[1]: 100 W
	SURR[1]: 100 W/ch
STR-K740P:	FRONT[1]: 80 W/ch
	CENTER[1]: 80 W
	SURR[1]: 80 W/ch

Models of area code AR, SP
Rated Power Output at Stereo Mode
(8 ohms 1 kHz, THD 0.7 %)

STR-K840P:	90 W + 90 W

Reference Power Output[2]
(8 ohms 1 kHz, THD 10 %)

STR-K840P:	FRONT[1]: 120 W/ch
	CENTER[1]: 120 W
	SURR[1]: 120 W/ch

Models of other area code
Rated Power Output at Stereo Mode
(8 ohms 1 kHz, THD 0.7 %)

STR-K840P:	100 W + 100 W[2]
STR-K740P:	80 W + 80 W[2]

Reference Power Output[2]
(8 ohms 1 kHz, THD 10 %)

STR-K840P:	FRONT[1]: 120 W/ch
	CENTER[1]: 120 W
	SURR[1]: 120 W/ch
STR-K740P:	FRONT[1]: 100 W/ch
	CENTER[1]: 100 W
	SURR[1]: 100 W/ch

1) Depending on the sound field settings and the source, there may be no sound output.
2) Measured under the following conditions:

Area code	Power requirements
E	240 V AC, 50 Hz
SP, CEL, CEK, AR	230 V AC, 50 Hz
MX	120 VAC, 60 Hz

— Continued on next page —

FM STEREO FM-AM RECEIVER

9-873-544-01
2002B1600-1

Sony Corporation
Home Audio Company
Published by Sony Engineering Corporation

SONY®

Frequency response

MULTI CH IN[3], CD, MD/TAPE, DVD/LD, VIDEO 1, 2	10 Hz – 50 kHz +0.5/–2 dB (with sound field, and tone bypassed)

Inputs (Analog)

MULTI CH IN[3], CD, MD/TAPE, DVD/LD, VIDEO 1, 2	Sensitivity: 250 mV Impedance: 50 kilohms S/N[4]: 96 dB (A, 250 mV[5])

3) HT-DDW840 only
4) INPUT SHORT (with sound field and tone bypassed).
5) Weighted network, input level.

Inputs (Digital)

DVD/LD (Coaxial)	Sensitivity: – Impedance: 75 ohms S/N: 100 dB (A, 20 kHz LPF)
VIDEO 2 (Optical)	Sensitivity: – Impedance: – S/N: 100 dB (A, 20 kHz LPF)

Outputs

MD/TAPE (OUT), VIDEO 1 (AUDIO OUT)	Voltage: 250 mV Impedance: 10 kilohms
SUB WOOFER	Voltage: 2 V Impedance: 1 kilohms

Tone
Gain levels: ±6 dB, 1 dB step

FM tuner section

Tuning range 87.5 - 108.0 MHz

Antenna terminals 75 ohms, unbalanced

Intermediate Frequency
10.7 MHz

Sensitivity
Mono: 18.3 dBf, 2.2 µV/75 ohms
Stereo: 38.3 dBf, 22.5 µV/75 ohms

Usable sensitivity 11.2 dBf, 1 µV/75 ohms

S/N
Mono: 76 dB
Stereo: 70 dB

Harmonic distortion at 1 kHz
Mono: 0.3%
Stereo: 0.5%

Separation 45 dB at 1 kHz

Frequency response 30 Hz – 15 kHz, +0.5/–2 dB

Selectivity 60 dB at 400 kHz

AM tuner section

Tuning range
Models of area code U, CA
With 10-kHz tuning scale: 530 – 1710 kHz[6]
With 9-kHz tuning scale: 531 – 1710 kHz[6]
Models of area code E, AR, MX
With 10-kHz tuning scale: 530 – 1610 kHz[6]
With 9-kHz tuning scale: 531 – 1602 kHz[6]
Models of area code MY, SP, CEL, CEK
With 9-kHz tuning scale: 531 – 1602 kHz

Antenna Loop antenna

Intermediate Frequency
450 kHz

Usable sensitivity 50 dB/m (at 1,000 kHz or 999 kHz)

S/N 54 dB (at 50 mV/m)

Harmonic distortion 0.5 % (50 mV/m, 400 Hz)

Selectivity
At 9 kHz: 35 dB
At 10 kHz: 40 dB

6) You can change the AM tuning scale to 9 kHz or 10 kHz. After tuning in any AM station, turn off the receiver. Hold down PRESET TUNING + and press . All preset stations will be erased when you change the tuning scale. To reset the scale to 10 kHz (or 9 kHz), repeat the procedure.

Video section

Inputs
Video: 1 Vp-p, 75 ohms

Outputs
Video: 1 Vp-p, 75 ohms

General

Power requirements

Area code	Power requirements
U, CA, MX	120 V AC, 60 Hz
CEL, CEK	230 V AC, 50/60 Hz
MY, SP, AR	220 – 230 V AC, 50/60 Hz
E	120/220/240 V AC, 50/60 Hz

Power consumption

Area code	Power consumption
U, MX	STR-K840P: 210 W STR-K740P: 180 W
CA	STR-K840P: 300 VA STR-K740P: 260 VA
CEL, CEK, MY, SP, E, AR	STR-K840P: 180 W STR-K740P: 155 W

Power consumption (during standby mode)
0.5 W

Dimensions 430 145 298 mm (16 7/8 5 6/8 11 6/8 inches) including projecting parts and controls

Mass (Approx.) 7.0 kg (15 lb 7 oz)

Design and specifications are subject to change without notice.

- Abbreviation
  U : US model.
  CA : Canadian model.
  CEL : AEP model.
  CEK : UK model.
  SP : Singapore model. (Malaysia model included.)
  MX : Mexican model.
  MY : Malaysia model.
  AR : Argentine model.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer: Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

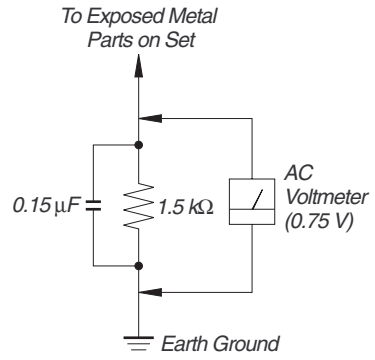


Fig. A. Using an AC voltmeter to check AC leakage.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

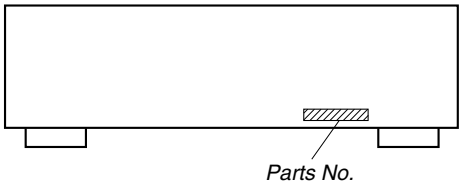
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

MODEL IDENTIFICATION
— BACK PANEL —



MODEL	PARTS No.
K740P : US	4-238-189-2☐
K740P : Canadian	4-238-189-3☐
K740P : Malaysia,Singapore	4-238-189-4☐
K740P : E	4-238-189-5☐
K740P : AEP	4-238-189-6☐
K740P : UK	4-238-189-7☐
K840P : US	4-238-193-0☐
K840P : Canadian	4-238-193-1☐
K840P : Malaysia, Singapore	4-238-193-2☐
K840P : E	4-238-193-3☐
K840P : AEP	4-238-193-4☐
K840P : UK	4-238-193-5☐
K840P : Argentine	4-238-193-8☐
K840P : Mexican	4-238-193-9☐

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SECTION 1
GENERAL

This section is extracted from instruction manual.

ALPHABETICAL ORDER

0 – 9

2 CH 26 (26)

A – D

A.DEC 28 (24, 26)
AM (Except for models of area code CEL, CEK) 32 (31, 32)
BASS +/– 25 (19, 30, 57)
CD 19 (22)
CINEMA STUDIO EX A, B, C 9 (25)
Digital Cinema Sound (indicator) 12 (24)
DIMMER 37 (23)
DISPLAY 2 (23, 34, 52)
Display 11 (23)
DVD/LD 21 (22)

E – L

ENTER 29 (36)
FM (Except for models of area code CEL, CEK) 33 (31, 32)
FM/AM (Models of area code CEL, CEK only) 32 (31, 32)
FM MODE (Models of area code CEL, CEK only) 33, (Except for models of area code CEL, CEK) 34 (32)
INPUT MODE 15 (22)
IR (receptor) 4 (39, 46, 52)
LEVEL 10 (16, 20, 28, 57)

M

MASTER VOLUME 23 (20, 50)
MD/TAPE 17 (22)
MEMORY 36 (31, 33)
MENU +/– 30 (16, 28, 36, 37, 57)
MENU </> 31 (16, 28, 36, 37, 57)
MODE 27 (25, 30, 51)
MULTI CHANNEL DECODING (indicator) (HT-DDW840 only) 7 (22)
MULTI CH IN (HT-DDW840 only) 14 (22)
MUTING 24 (22, 50)

N – S

NAME 8 (36)
PHONES (jack) 38 (22, 51)
PRESET/PTY SELECT +/– (Models of area code CEL, CEK only) 3 (33, 34)
PRESET TUNING +/– (Except for models of area code CEL, CEK) 3 (33, 54)
PTY (models of area code CEL, CEK only) 34 (34)
SET UP 6 (4, 16, 37, 57)
SHIFT 35 (33)
SLEEP (HT-DDW740 only) 14 (37)
SURR 13 (28, 57)

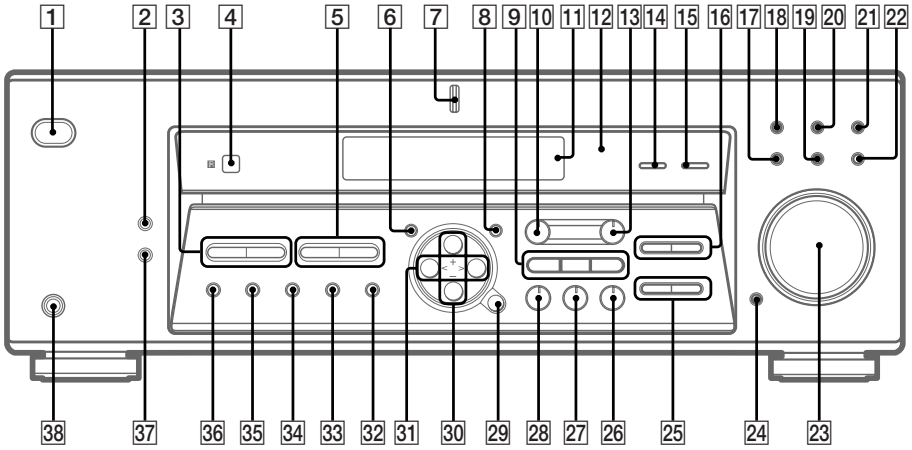
T – Z

TREBLE +/– 16 (30, 57)
TUNER 22 (22, 32, 33, 36)
TUNING +/– 5 (32)
VIDEO 1 18 (22)
VIDEO 2 20 (22)

BUTTON DESCRIPTIONS

I/⏻ (power) 1 (4, 15, 20, 21, 30, 31, 54)

- Abbreviation
  CEK : UK model.
  CEL : AEP model.



SECTION 2
TEST MODE

FACTORY PRESET MODE

* All preset contents are reset to the default setting.
* Procedure:
  While depressing the VIDEO 1 and the 2CH buttons simultaneously, press the power I/⏻ button to turn on the main power. The message "FACTORY" appears and switch off the set.
  While depressing the VIDEO 1 and the 2CH buttons simultaneously, press the power I/⏻ button again. The message "FACTORY" appears and the present contents are reset to the default values.

AM CHANNEL STEP 9 KHZ/10 KHZ SELECTION MODE

* Either the 9 kHz step or 10 kHz step can be selected for the AM channel step.
* Procedure:
  Set the FUNCTION to AM. Turn off the main power.
  While depressing the TUNING+ button or the PRESET+ button, press the power I/⏻ button to turn on the main power. Either the message "9 k STEP" or "10 k STEP" appears. Select the desired step.
* For US/Canadian/E model only

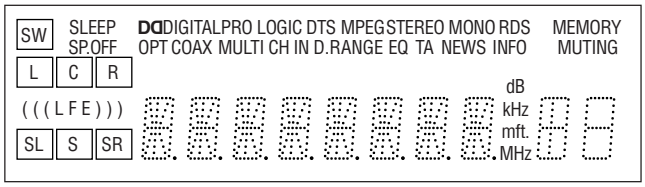
SPEAKER SIZE SELECTION MODE

*Either Normal Speaker or Micro Satellite Speaker can be selected.
*Procedure:
While depressing the LEVEL button, press the power I/⏻ button to turn the main power.
Either the message "NORM. SP." or "MICRO SP." is displayed. Select the desired speaker size.

FLUORESCENT INDICATOR TUBE TEST MODE

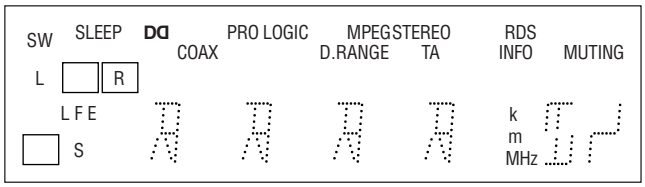
* All fluorescent segments are tested. When this test is activated, all segments turn on at the same time, then each segment turns on one after another.
* Procedure:
  While depressing the MD/TAPE and the SHIFT buttons simultaneously, press the power I/⏻ button to turn on the main power.

1. All segments turn on.



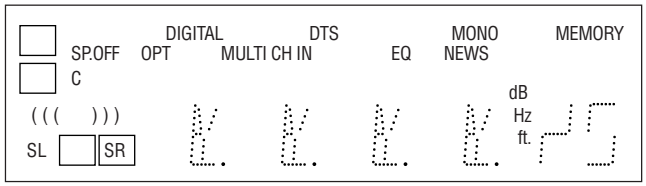
MULTI CHANNEL DECODING, Digital Cinema Sound, A.F.D., MODE, 2CH and SET UP LED turn on.

2. Press the VIDEO button, confirm display.



A.F.D., MODE, LEVEL, SET UP, and Digital Cinema Sound LED turn on.

3. Press the VIDEO button, confirm display



MULTI CHANNEL DECODING, 2CH, SURR and NAME LED turn on.

4. Press the VIDEO button, All segments turn off.

5. Every pressing of the VIDEO button turns on each segment and LED one after another in the same order. (Not only the VIDEO button, but also the other buttons such as DVD/LD, TV/SAT, MD/TAPE, CD, TUNER and AUX can be used.)

SOUND FIELD CLEAR MODE

* The preset sound field is cleared when this mode is activated. Use this mode before returning the product to clients upon completion of repair.
* Procedure:
  While depressing the MODE button, press the power I/⏻ button to turn on the main power.
  The message "SURR. CLR." appears and initialization is performed.

DEMONSTRATION MODE

* Demonstration is performed.
* Procedure :
  While depressing the SET UP button, press the power I/⏻ button. The message appears and demonstration is performed.
* To finish DEMONSTRATION MODE, press the power I/⏻ button while the introduction message appears in the display.

SOFTWARE VERSION DISPLAY MODE

* The software version is displayed.
* Procedure:
  While depressing the ENTER and the A.F.D buttons simultaneously, press the power I/⏻ button to turn on the main power. The model name, destination and the software version are displayed.

KEY CHECK MODE

* Button check
* Procedure:
  While depressing the VIDEO 1 and the SHIFT buttons simultaneously, press the power I/⏻ button to turn on the main power.
  "REST 39" appears. (AEP, UK, model: "RESET 38")
  Every pressing of any button other than I/⏻ and SPEAKERS counts down the buttons. The buttons which are already counted once are not counted again. When all buttons are pressed "REST 00" appears.
  When MASTER VOLUME is rotated in clockwise direction, "VOL MIN", "VOL 1" to "VOL 48", "VOL MAX" appear.

AUTO BETICAL MODE

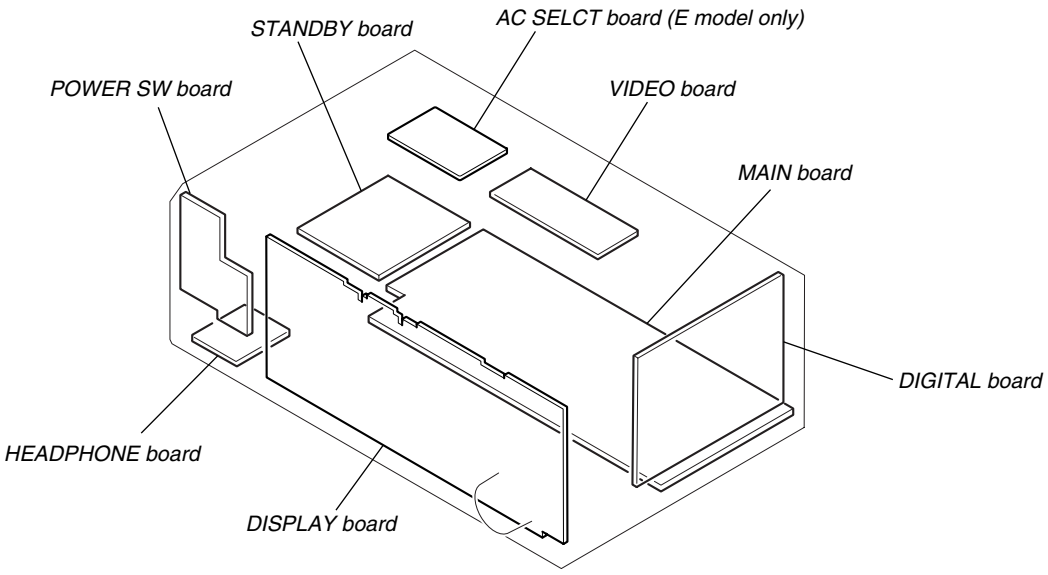
* This mode is installed in the Europe models only. When this mode is used, the receiver scans the broadcasts that can be received by the tuner, and sets up the broadcasts. Be sure to start scanning after connecting the antenna.

* Procedure:

1. Check that the antenna is connected.
2. Press the I/⏻ button to turn on the power while pressing the MEMORY button.
3. The message “AUTO-BETICAL SELECT” appears and the receiver starts scanning.

SECTION 3
DIAGRAMS

3-1. Circuit Board Location



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

For schematic diagrams.
Note:

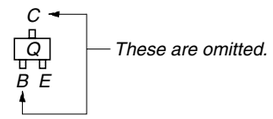
- All capacitors are in µF unless otherwise noted. p : pF. 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- : nonflammable resistor.
- : fusible resistor.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

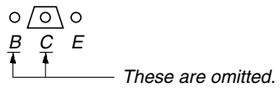
Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- : B+ Line.
- : B– Line.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  No mark : FM
- 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.
- Circled numbers refer to waveforms.
- Signal path.
  - : FM
  - : CD (ANALOG)
  - : DVD (DIGITAL)
- Abbreviation
  CND : Canadian model
  MY : Malaysia model
  SP : Singapore model
  AR : Argentine model
  MX : Mexican model

For printed wiring boards.
Note:

- : parts extracted from the component side.
- ○ : Through hole.
- △ : internal component.
- : Pattern from the side which enables seeing.



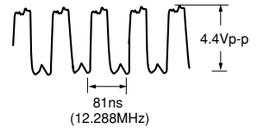


Caution:	
Pattern face side: (Side A)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side B)	Parts on the parts face side seen from the parts face are indicated.

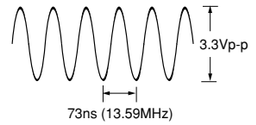
• Waveform

DIGITAL Board

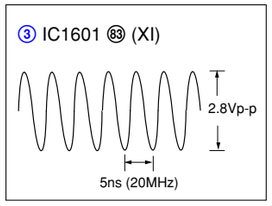
① IC1101 ㉑ (XOUT)



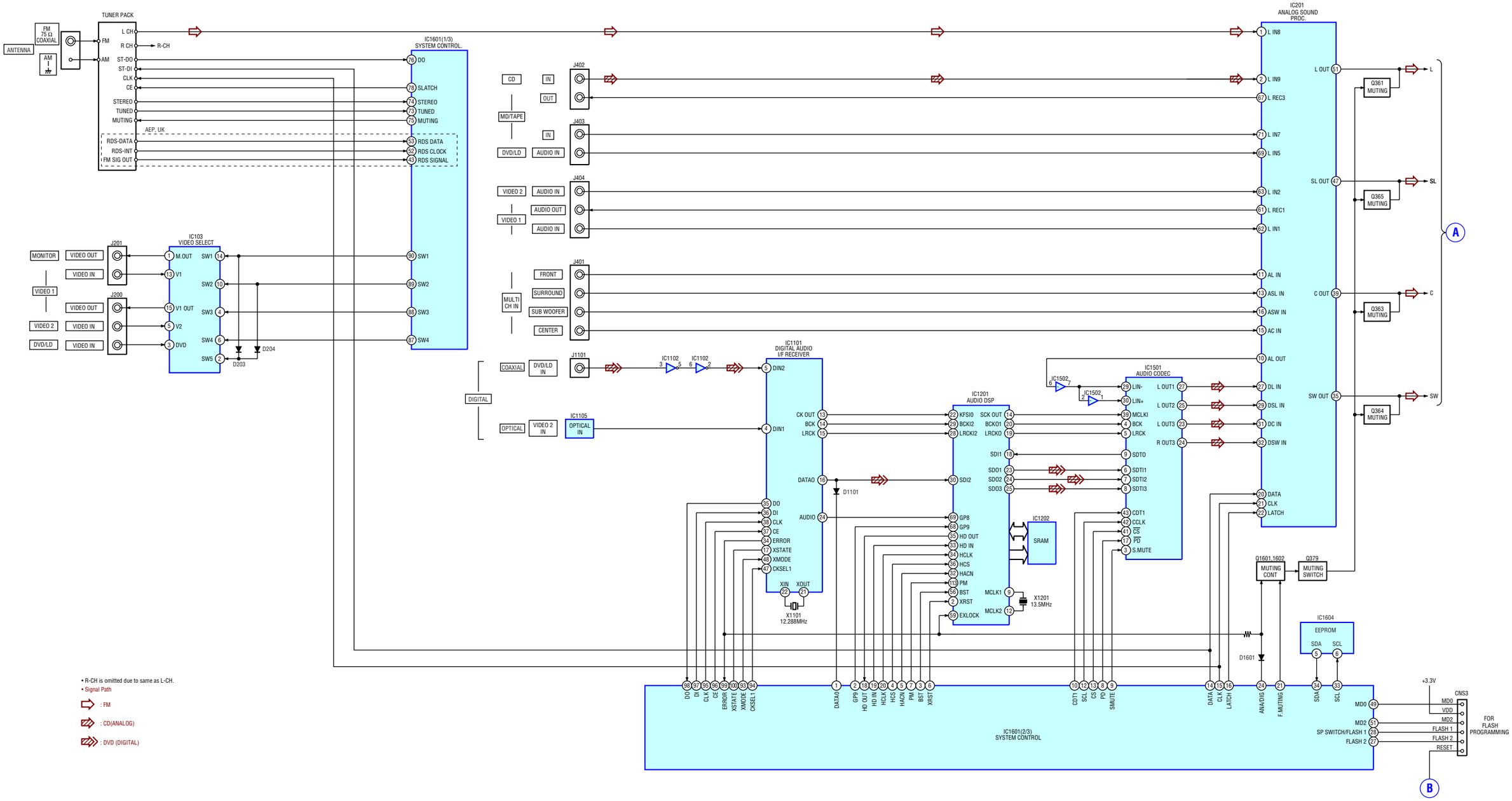
② IC1201 ⑨ (MCLK1)



③ IC1601 ㉝ (XI)



3-2. Block Diagrams – MAIN Section –



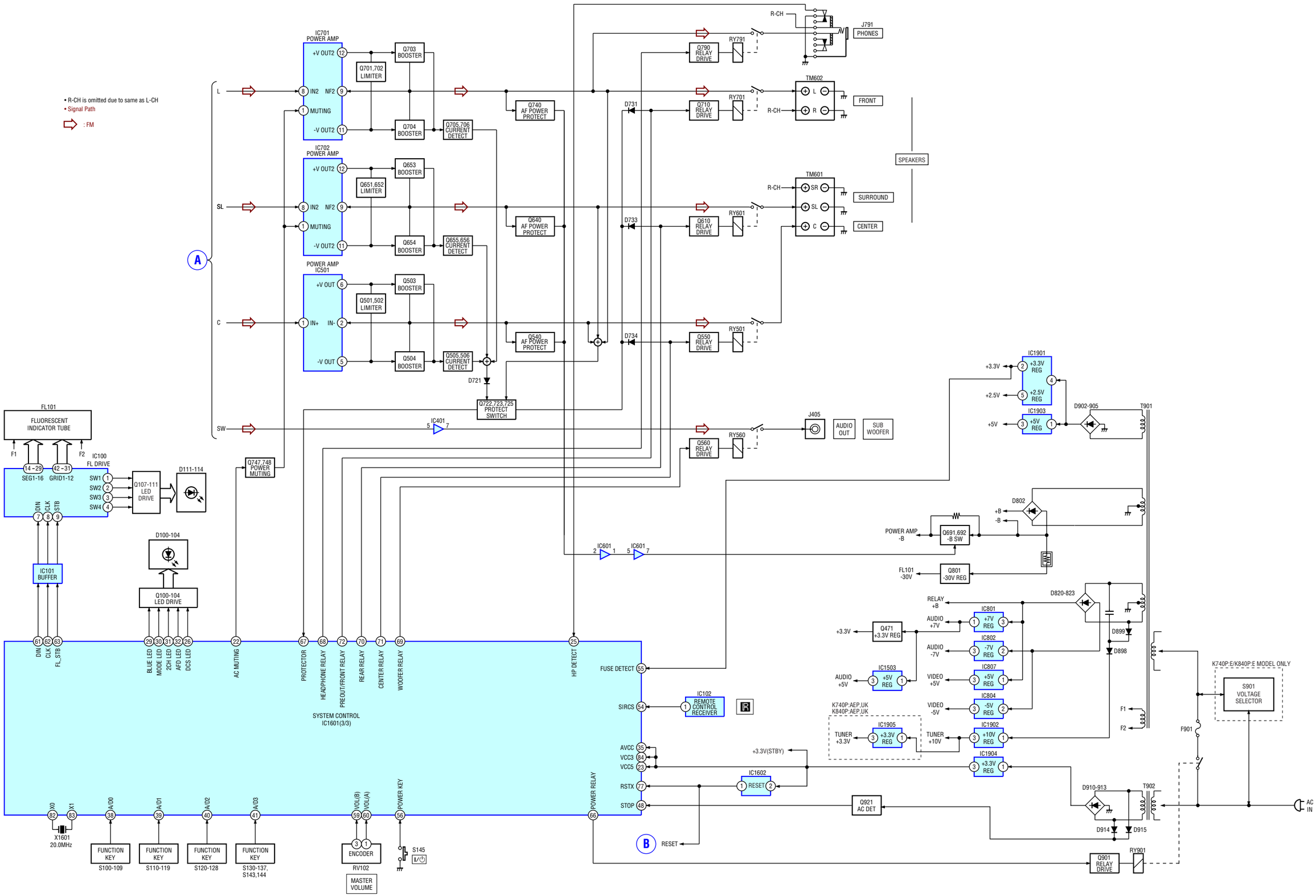
• R-CH is omitted due to same as L-CH.
• Signal Path

: FM

: CD(ANALOG)

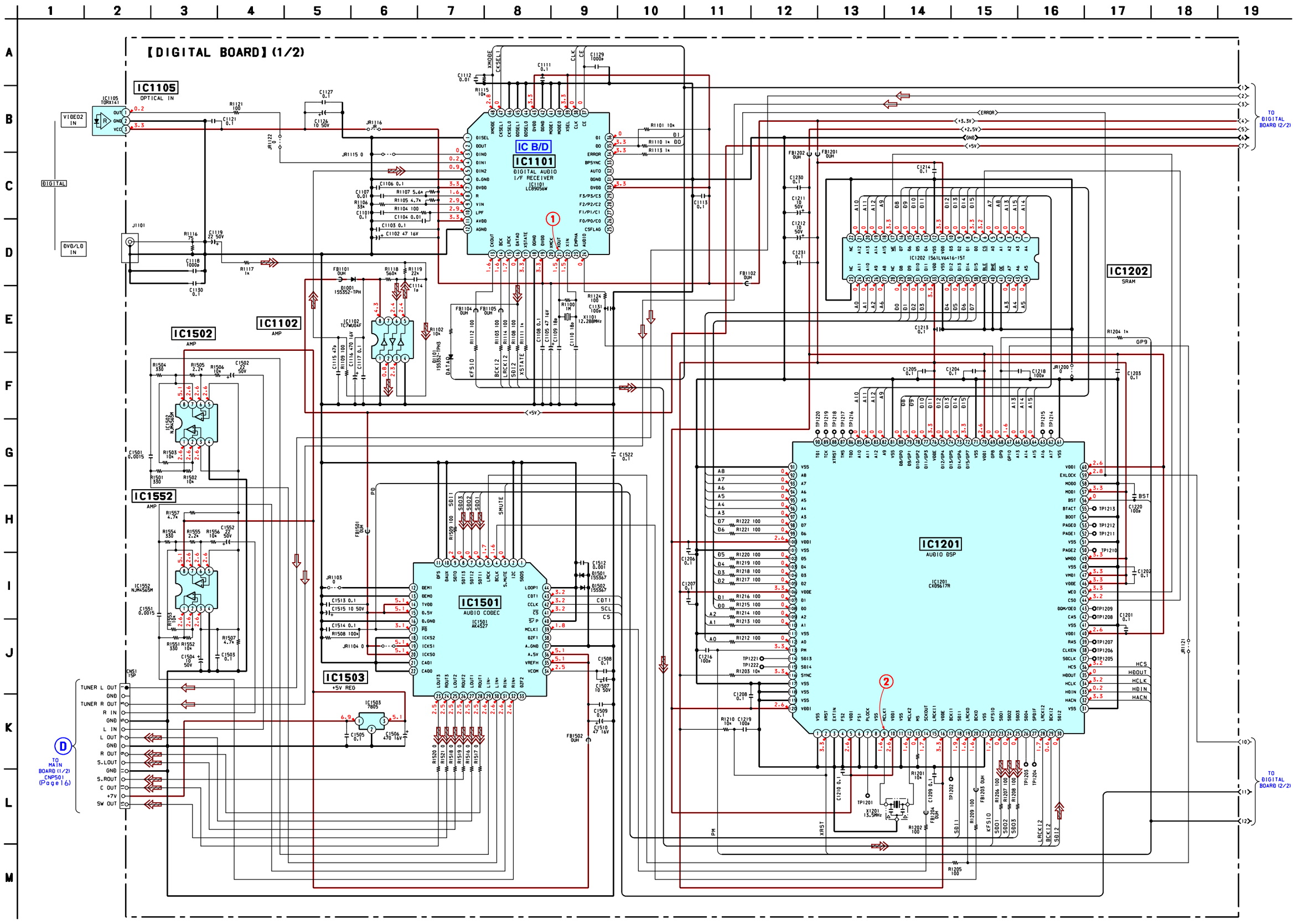
: DVD (DIGITAL)

– DISPLAY/POWER Section –



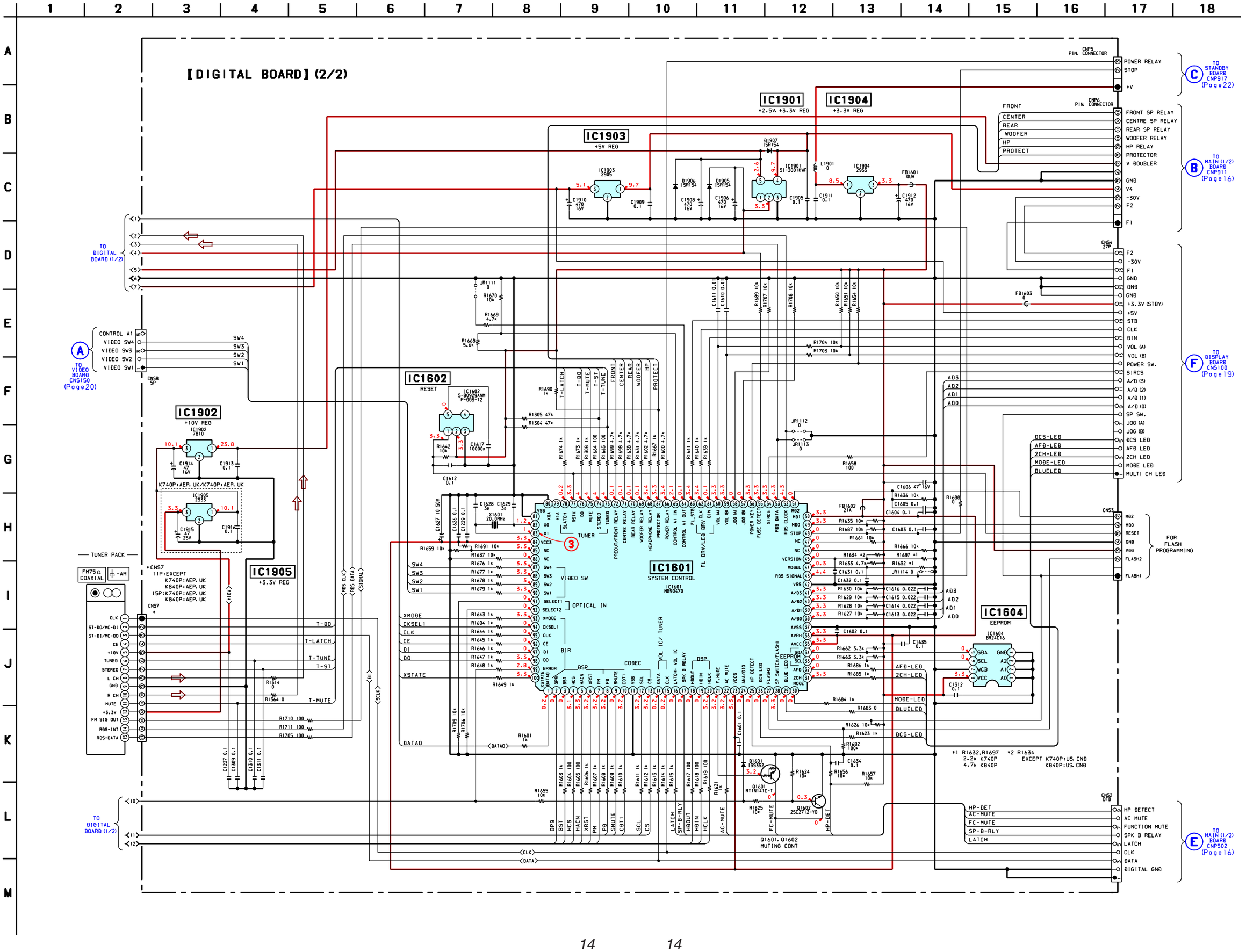
3-4. Schematic Diagram – DIGITAL Section (1/2) –

• See page 9 for Waveform. • See page 23 for IC Block Diagrams.



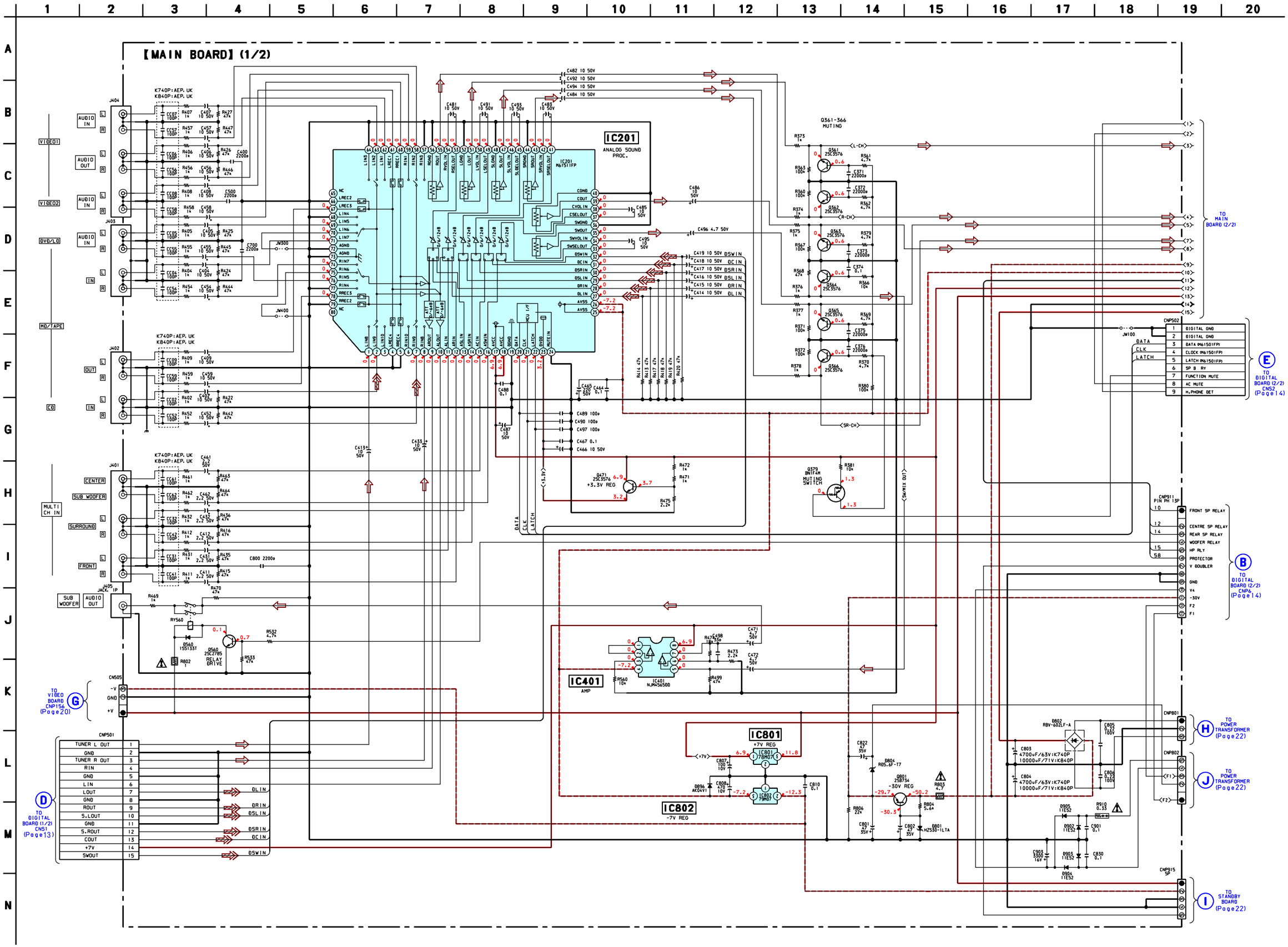
3-5. Schematic Diagram – DIGITAL Section (2/2) –

• See page 9 for Waveform. • See page 25 for IC Pin Function Description.



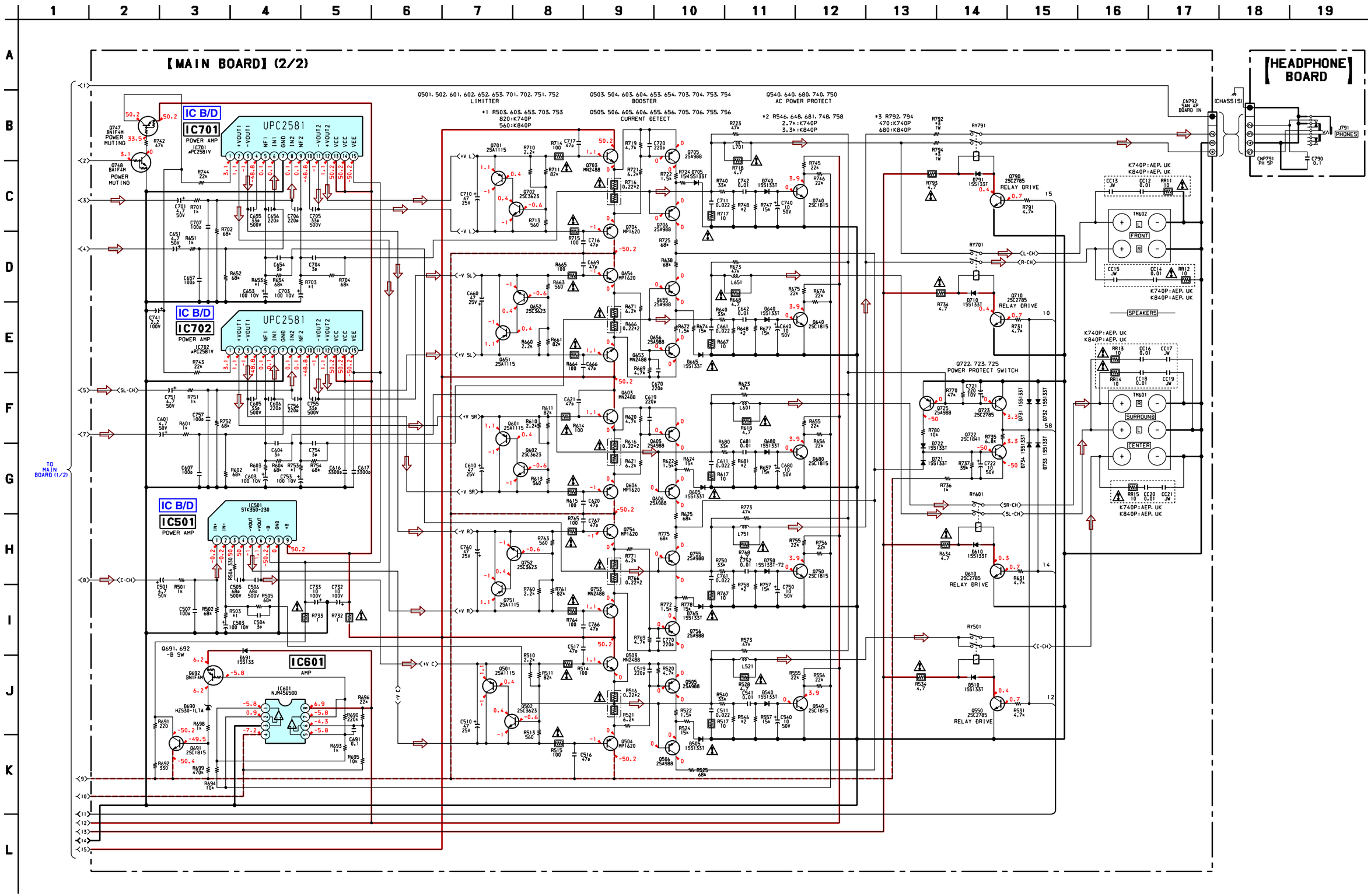
3-7. Schematic Diagram – MAIN Section (1/2) –

• See page 23 for IC Block Diagrams.



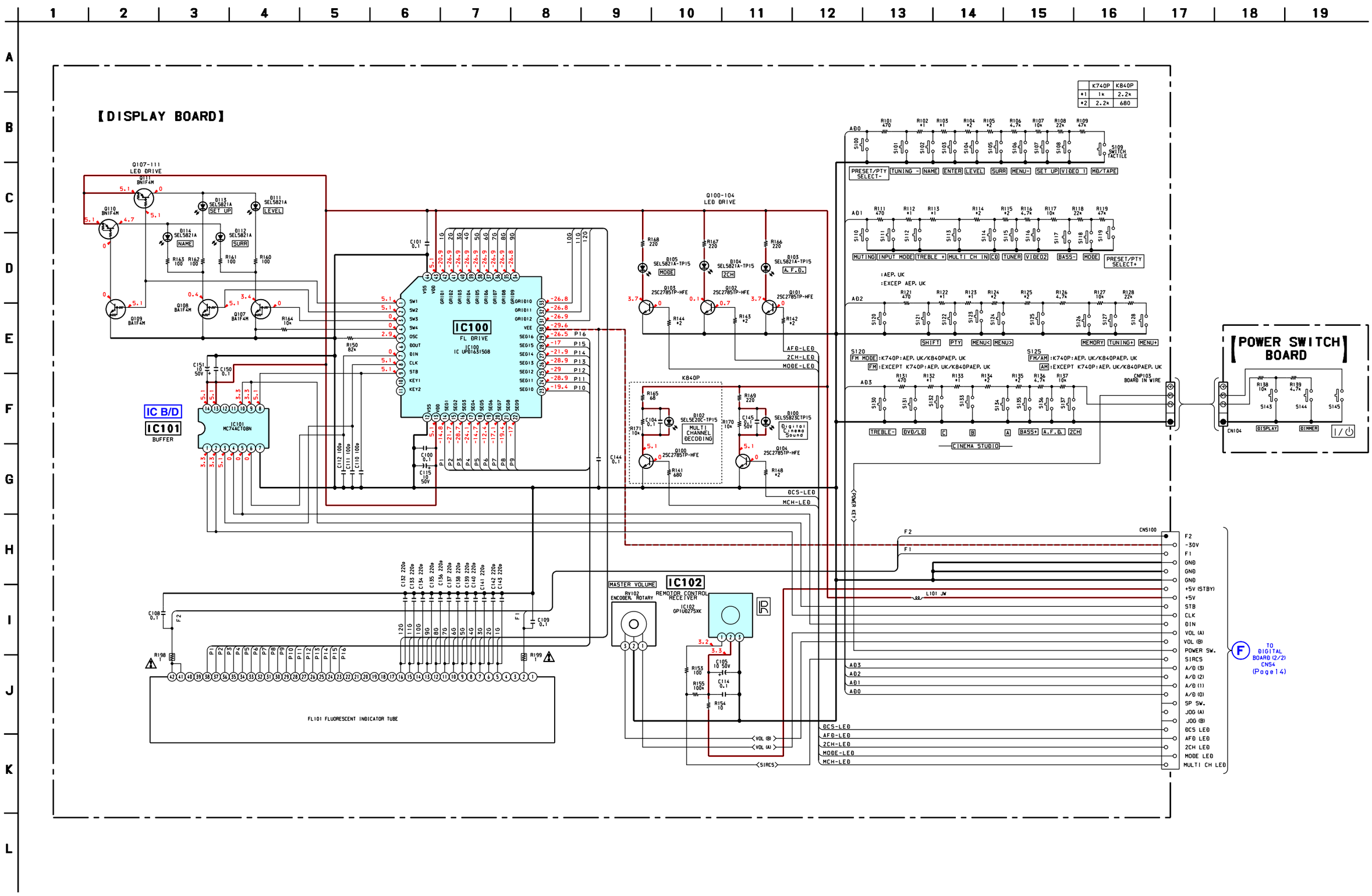
3-8. Schematic Diagram – MAIN Section (2/2) –

• See page 23 for IC Block Diagrams.



3-10. Schematic Diagram – DISPLAY Section –

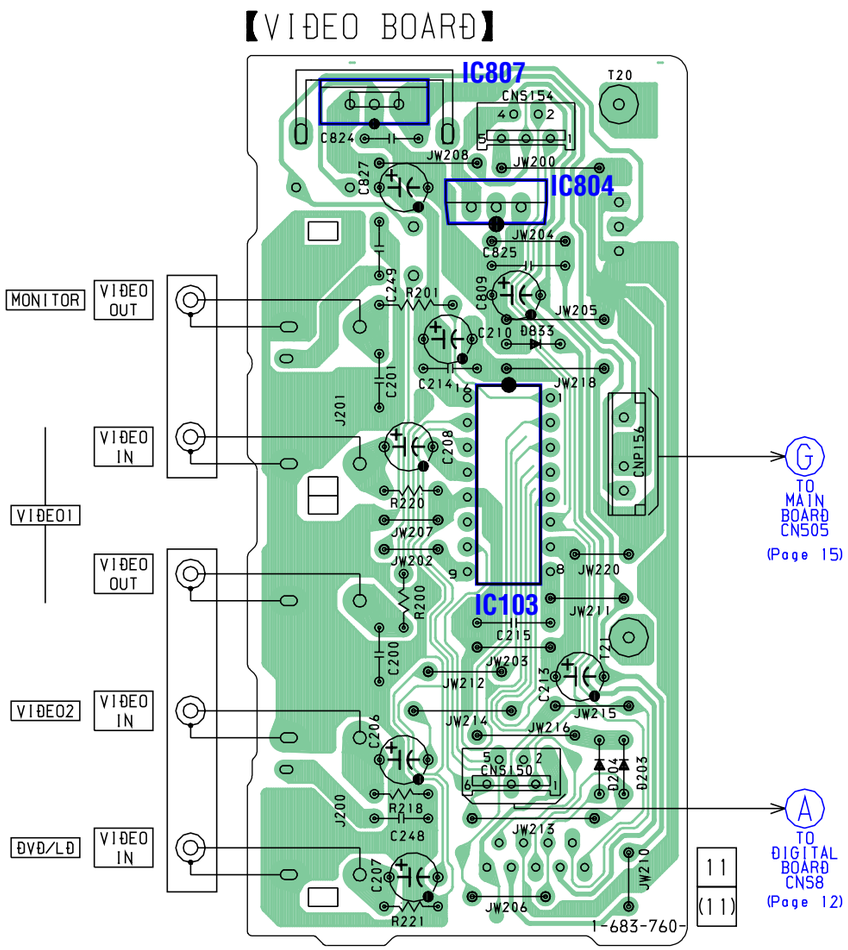
• See page 24 for IC Block Diagrams.



3-11. Printed Wiring Board – VIDEO Section –

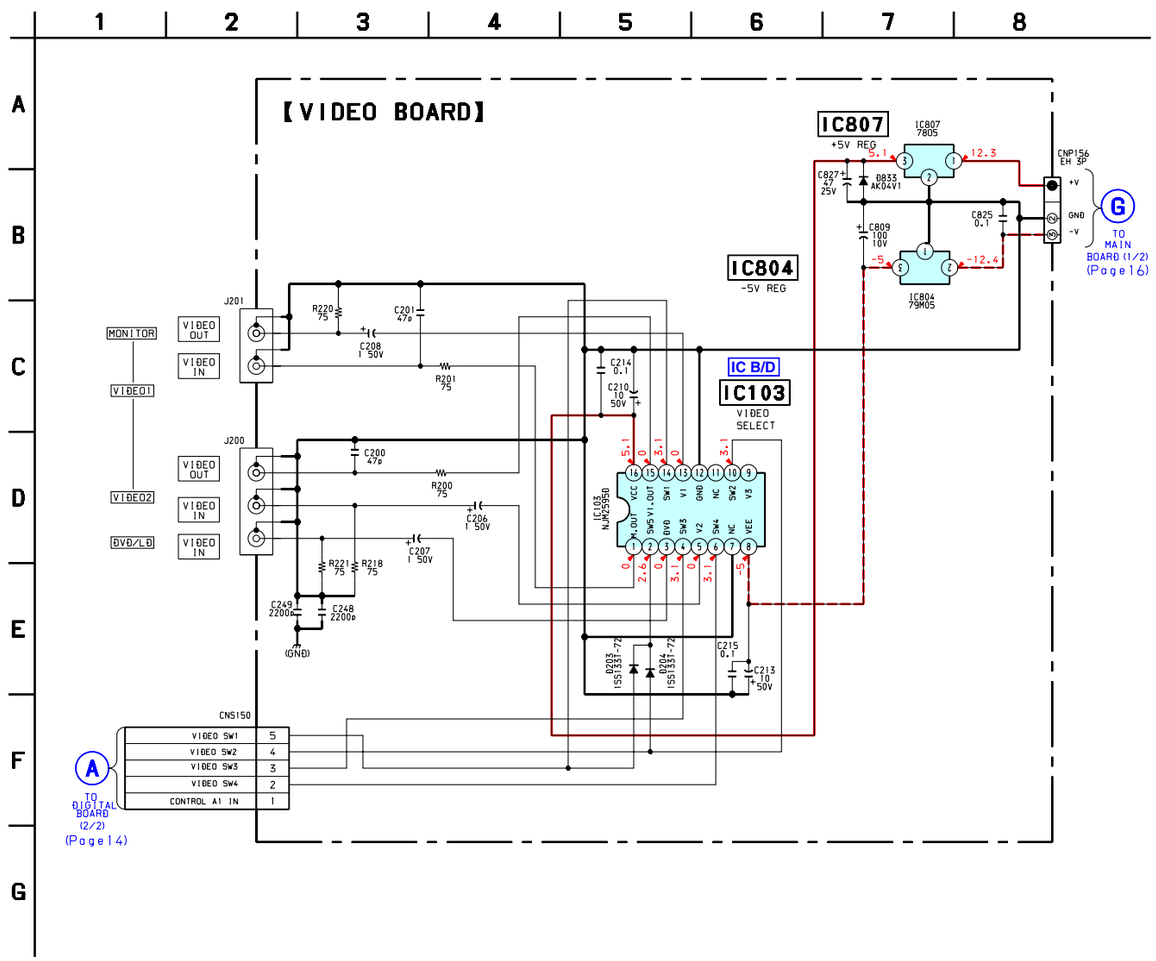
• See page 8 for Circuit Boards Location.

• : Uses unleaded solder.



3-12. Schematic Diagram – VIDEO Section –

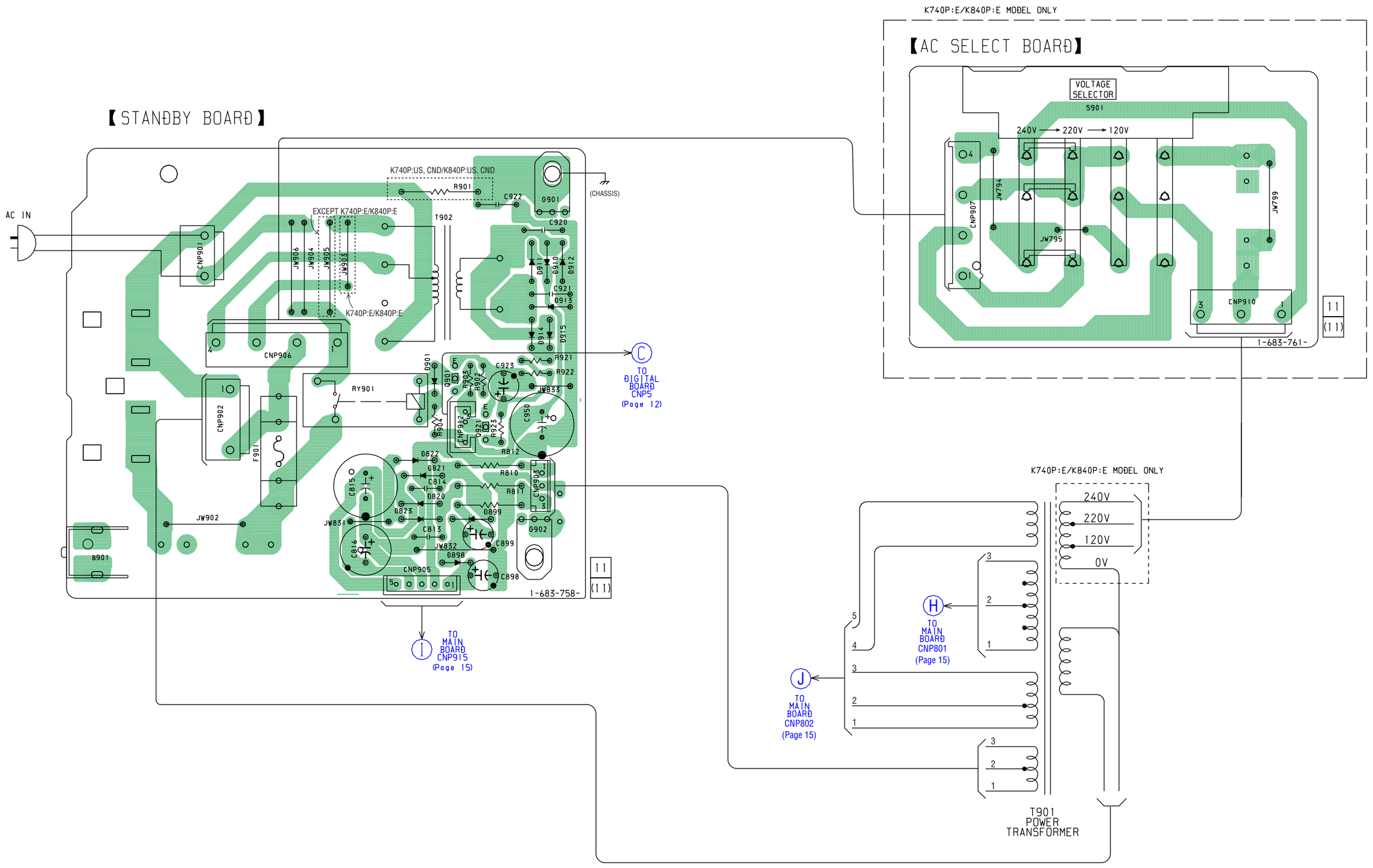
• See page 24 for IC Block Diagrams.



3-13. Printed Wiring Board – POWER Section –

• : Uses unleaded solder.

• See page 8 for Circuit Boards Location.



3-14. Schematic Diagram – POWER Section –