MODIFICATION HISTORY

MODEL NAME : HMD-A100

SERVICE MANUAL

PARTS No. : 9-978-660-01

* Blue characters are linking.

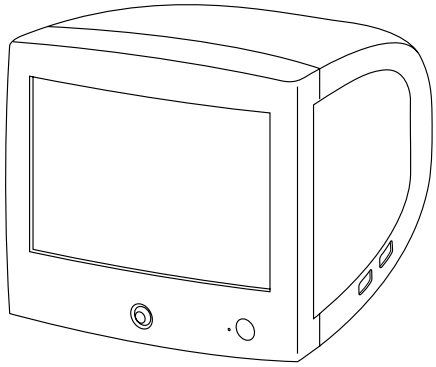
# No.	DATA	CONTENTS
#1	2000.2	Adds omitted parts numbers. (P.7-1, 7-2, 7-3, 7-4, 7-5, 7-6, 7-7, 7-8, 58)

HMD-A100

SERVICE MANUAL

US Model
Canadian Model
AEP Model

Chassis No. SCC-L27M-A



X11R CHASSIS

SPECIFICATIONS

CRT	0.24 mm aperture grille pitch 15 inches measured diagonally 90-degree deflection
Viewable image size	Approx. 285 × 215 mm (w/h) (11 1/4 × 8 1/2 inches) 14.0" viewing image
Resolution	Horizontal: Max. 1280 dots Vertical: Max. 1024 lines
Standard image area	Approx. 270 × 202 mm (w/h) (10 3/4 × 8 inches)
Deflection frequency*	Horizontal: 30 to 70 kHz Vertical: 48 to 120 Hz
AC input voltage/current	100 to 240 V, 50 – 60 Hz, 1.9 – 0.9 A
Power consumption	Max. 95 W (with no USB devices connected)
Operating temperature	10°C to 40°C
Dimensions	Approx. 373 × 372 × 425 mm (w/h/d) (14 3/4 × 14 3/4 × 16 3/4 inches)
Mass	Approx. 15 kg (33 lb 11 oz)
Plug and Play	DDC1/DDC2B
Supplied accessories	Power cord (1) USB cable (1) Windows Monitor Information Disk (1) Monitor stand (1) Hook (1) Warranty card (1) Notes on cleaning the screen's surface (1) This instruction manual (1)

* Recommended horizontal and vertical timing condition
- Horizontal sync width should be more than 1.0 µsec.
- Horizontal blanking width should be more than 3.6 µsec.
- Vertical blanking width should be more than 500 µsec.

Design and specifications are subject to change without notice.

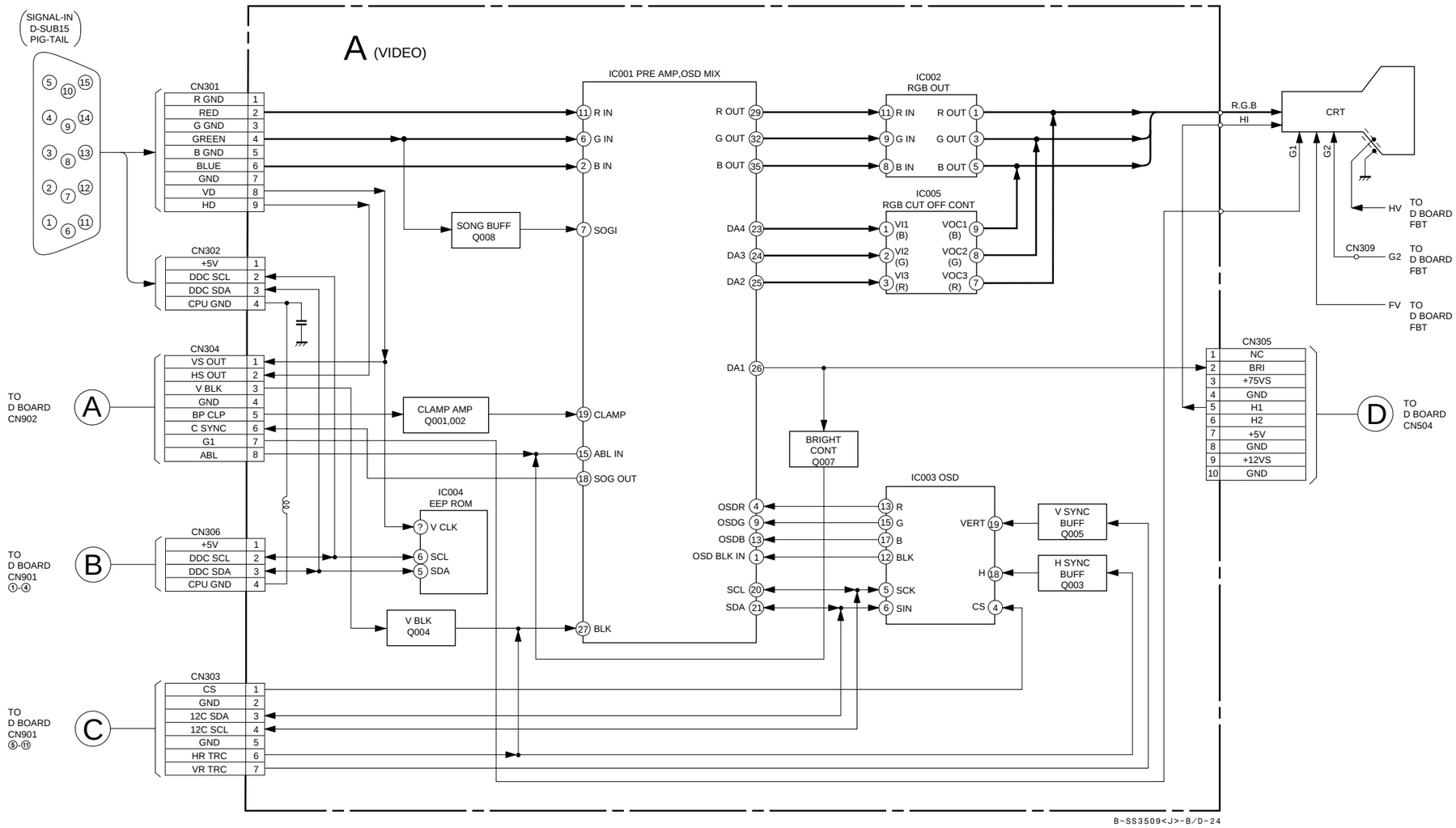
TRINITRON® COLOR COMPUTER DISPLAY

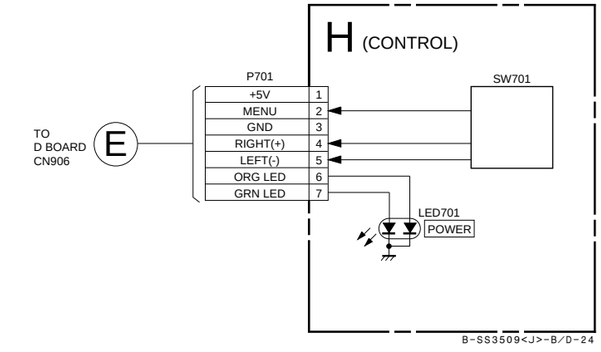
SONY®

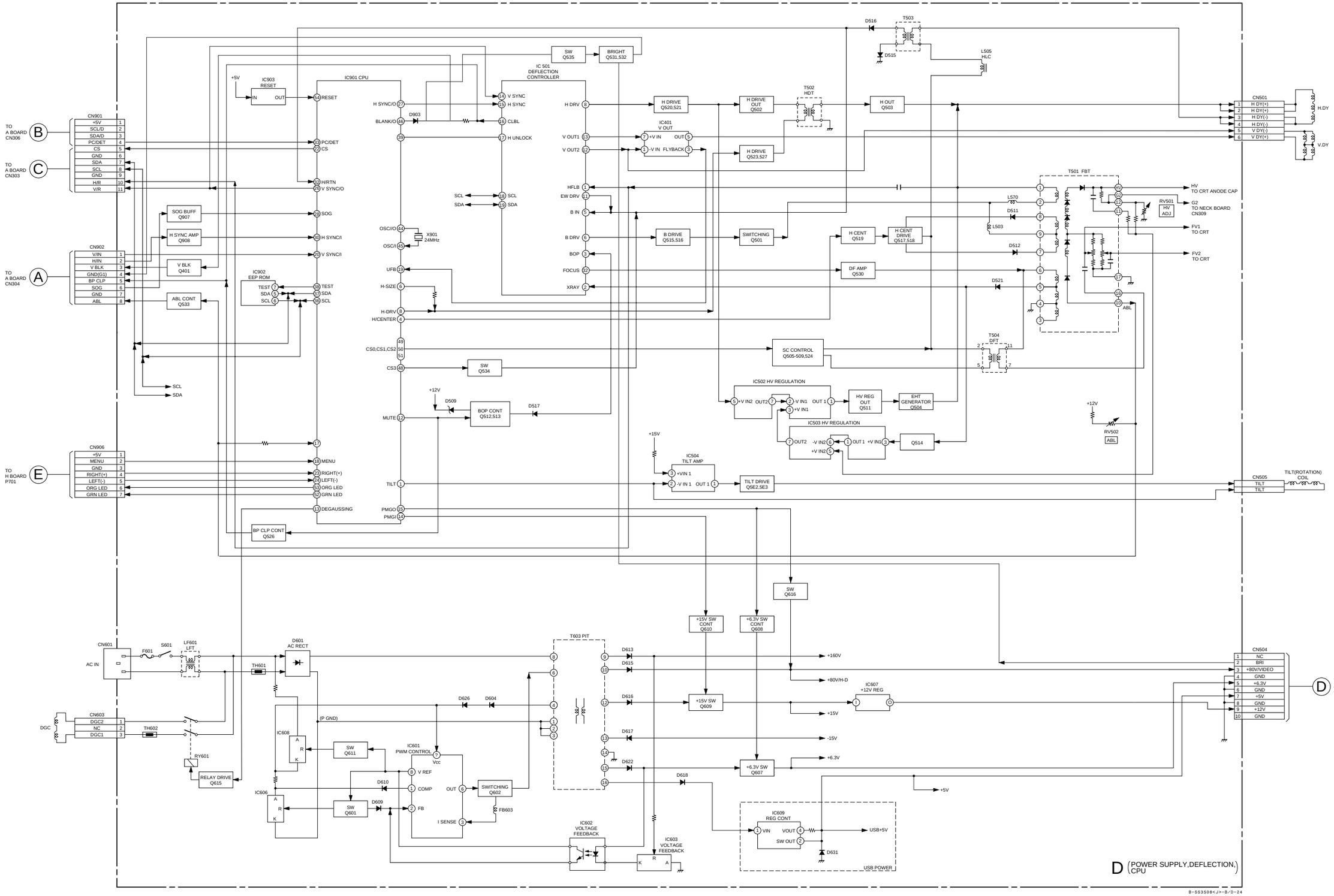
MICROFILM

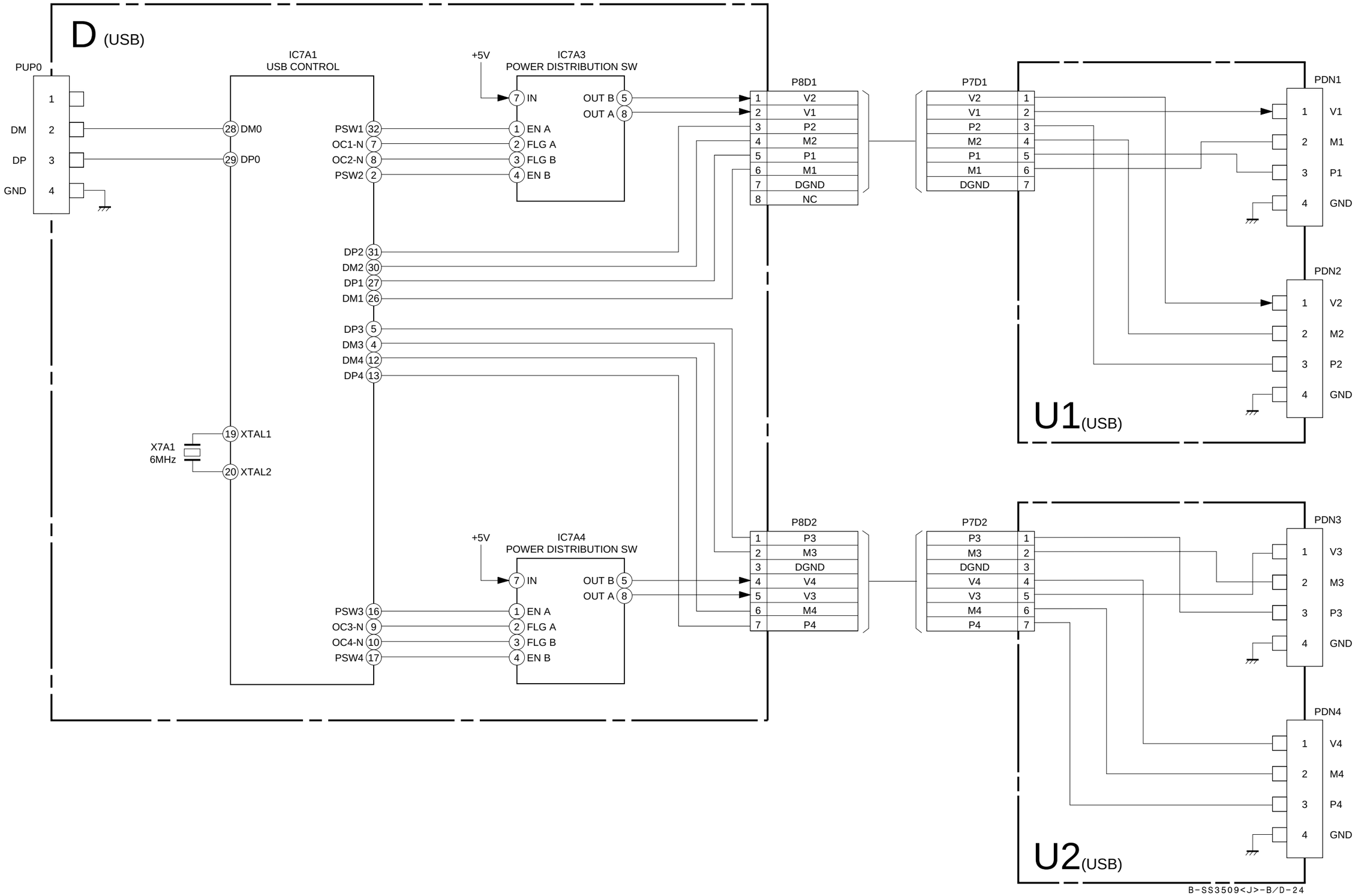
SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAMS

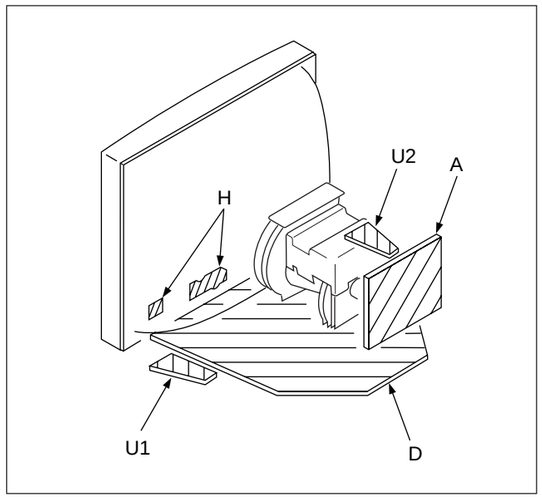





CN901
+5V
SCL/D
SDA/D
PC/DET
CS
GND
SDA
SCL
GND
H/R
V/R
TO A BOARD CN306
TO A BOARD CN303
CN902
V/IN
H/IN
V BLK
GND(G1)
BP CLP
SOG
GND
ABL
TO A BOARD CN304
CN906
+5V
MENU
GND
RIGHT(+)
LEFT(-)
ORG LED
GRN LED
TO H BOARD P701
CN603
DGC2
NC
DGC1
DGC
CN601
AC IN
F601
S601
LF601 LFT
TH601
TH602
RY601
RELAY DRIVE Q615
IC903 RESET
IC901 CPU
RESET
PC/DET
CS
H/RTN
V SYNC/O
SOG
H SYNC/I
V SYNC/I
TEST
SDA
SCL
IC902 EEP ROM
SOG BUFF Q907
H SYNC AMP Q908
V BLK Q401
ABL CONT Q533
SCL
SDA
MENU
RIGHT(+)
LEFT(-)
ORG LED
GRN LED
DEGAUSSING
BP CLP CONT Q526
H SYNC/O
BLANK/O
D903
H-SIZE
H-DRV
H/CENTER
CS0,CS1,CS2
CS3
SW Q534
MUTE
BOP CONT Q512,513
D509
D517
+12V
TILT
PMGO
PMGI
OSC/I
OSC/O
X901 24MHz
UFB
SW Q535
BRIGHT Q531,532
IC 501 DEFLECTION CONTROLLER
V SYNC
H SYNC
CLBL
H UNLOCK
SCL
SDA
H DRV
V OUT1
V OUT2
HFLB
EW DRV
B IN
B DRV
BOP
FOCUS
XRAY
H DRIVE Q520,521
H DRIVE OUT Q502
T502 HDT
H DRIVE Q523,527
IC401 V OUT
+V IN
-V IN
FLYBACK
B DRIVE Q515,516
SWITCHING Q501
H CENT Q519
H CENT DRIVE Q517,518
DF AMP Q530
SC CONTROL Q505-509,524
D516
T503
D515
L505 HLC
H OUT Q503
CN501
H DY(+)
H DY(+)
H DY(-)
H DY(-)
V DY(-)
V DY(+)
H.DY
V.DY
T501 FBT
HV TO CRT ANODE CAP
G2 TO NECK BOARD CN309
FV1 TO CRT
FV2 TO CRT
L570
D511
L503
D512
D521
RV501 HV ADJ
ABL
T504 DFT
IC502 HV REGULATION
+V IN2
OUT2
-V IN1
+V IN1
OUT 1
HV REG OUT Q511
EHT GENERATOR Q504
IC503 HV REGULATION
-V IN2
Q514
RV502
ABL
+15V
IC504 TILT AMP
TILT DRIVE Q5E2,5E3
CN505
TILT
TILT(ROTATION) COIL
SW Q616
+15V SW CONT Q610
+6.3V SW CONT Q608
T603 PIT
D613
D615
D616
D617
D622
D626
D604
(P GND)
IC608
SW Q611
IC601 PWM CONTROL
V REF
COMP
FB
I SENSE
OUT
SWITCHING Q602
FB603
D610
D609
SW Q601
IC606
IC602 VOLTAGE FEEDBACK
IC603 VOLTAGE FEEDBACK
+15V SW Q609
+6.3V SW Q607
+160V
+80V/H-D
+15V
-15V
+6.3V
+5V
D618
IC607 +12V REG
IC609 REG CONT
VIN
VOUT
SW OUT
USB+5V
D631
USB POWER
CN504
NC
BRI
+80V/V/VIDEO
GND
+6.3V
GND
+5V
GND
+12V
GND
TO A BOARD CN305
D (POWER SUPPLY,DEFLECTION,CPU)
B-SS3508<J>-B/D-24


D (USB)
PUP0
1
DM 2
DP 3
GND 4
IC7A1
USB CONTROL
28 DM0
29 DP0
19 XTAL1
X7A1
6MHz
20 XTAL2
+5V
IC7A3
POWER DISTRIBUTION SW
7 IN
OUT B 5
OUT A 8
PSW1 32
OC1-N 7
OC2-N 8
PSW2 2
1 EN A
2 FLG A
3 FLG B
4 EN B
DP2 31
DM2 30
DP1 27
DM1 26
DP3 5
DM3 4
DM4 12
DP4 13
P8D1
1 V2
2 V1
3 P2
4 M2
5 P1
6 M1
7 DGND
8 NC
P7D1
V2 1
V1 2
P2 3
M2 4
P1 5
M1 6
DGND 7
PDN1
1 V1
2 M1
3 P1
4 GND
PDN2
1 V2
2 M2
3 P2
4 GND
U1(USB)
+5V
IC7A4
POWER DISTRIBUTION SW
7 IN
OUT B 5
OUT A 8
PSW3 16
OC3-N 9
OC4-N 10
PSW4 17
1 EN A
2 FLG A
3 FLG B
4 EN B
P8D2
1 P3
2 M3
3 DGND
4 V4
5 V3
6 M4
7 P4
P7D2
P3 1
M3 2
DGND 3
V4 4
V3 5
M4 6
P4 7
PDN3
1 V3
2 M3
3 P3
4 GND
PDN4
1 V4
2 M4
3 P4
4 GND
U2(USB)
B-SS3509<J>-B/D-24

5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

- All capacitors are in µF unless otherwise noted. (pF: µµF) Capacitors without voltage indication are all 50 V.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

  Pitch: 5 mm
  Rating electrical power 1/4 W (CHIP : 1/10 W)

- All resistors are in ohms.
- : nonflammable resistor.
- : fusible resistor.
- △ : internal component.
- : panel designation, and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : earth-ground.
- : earth-chassis.
- All voltages are in V.
- Readings are taken with a 10 MΩ digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerances.
- ∗ : Can not be measured.
- Circled numbers are waveform references.
- : B + bus.
- : B – bus.
- The components identified by ⧓ in this basic schematic diagram have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation.
  Should replacement be required, replace only with the value originally used.
- When replacing components identified by ◪, make the necessary adjustments indicated. (See page 3-1)
- When replacing the part in below table, be sure to perform the related adjustment.

	Part Replaced (⧓)
HV ADJ	RV501

	Part Replaced (◪)
HV Regulator Circuit Check	D board IC502, IC503, Q511, D510, C535, R515, R554, R559, R560, R596, RV501, T501 (FBT)
HV Hold-down Circuit Check	D board IC501, R598, R599, T501 (FBT)
Beam Current Protector Circuit Check	D board T501 (FBT)

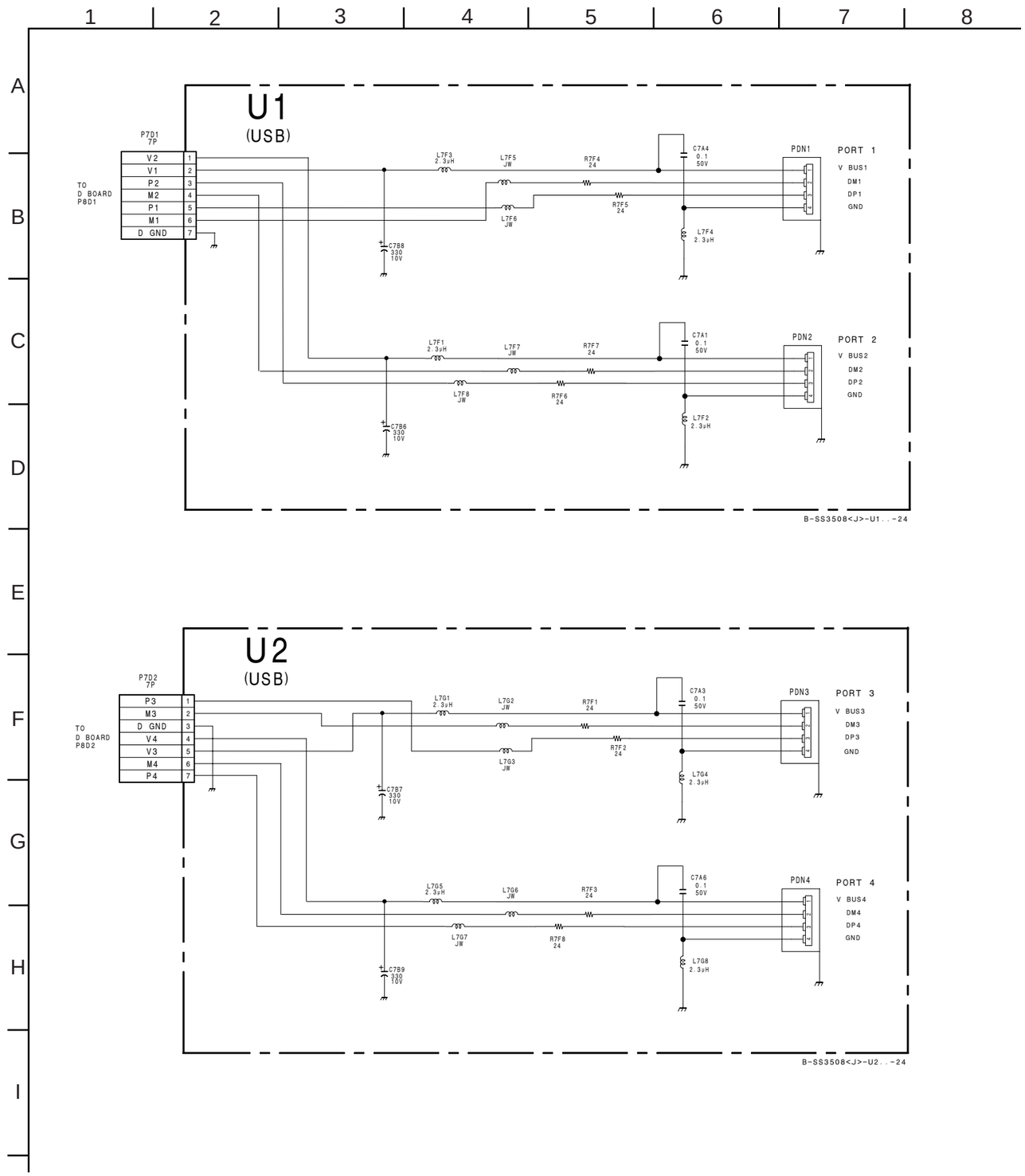
- Divided circuit diagram
  One sheet of D board circuit diagram is divided into three sheets, each having the code D-ⓐ to D-ⓒ . For example, the destination ⓐb1 on the D-ⓐ sheet is connected to ⓐb1 on the D-ⓑ sheet.

  a b 1
  - 1 : Ref. No.
  - a b : Circuit diagram division code

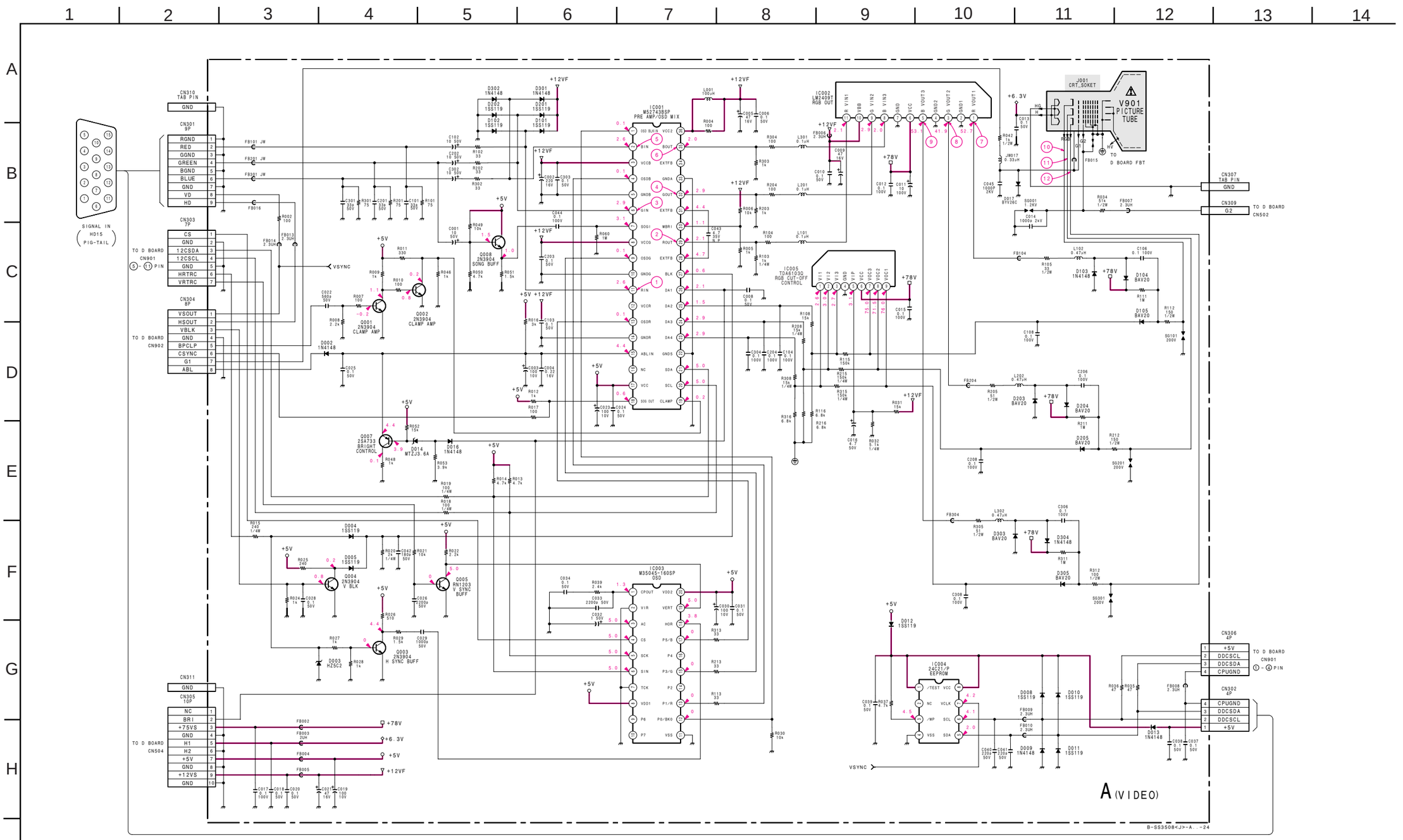
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

(1) Schematic Diagram of U1 and U2 Boards



(2) Schematic Diagram of A Board



• **A BOARD WAVEFORMS**

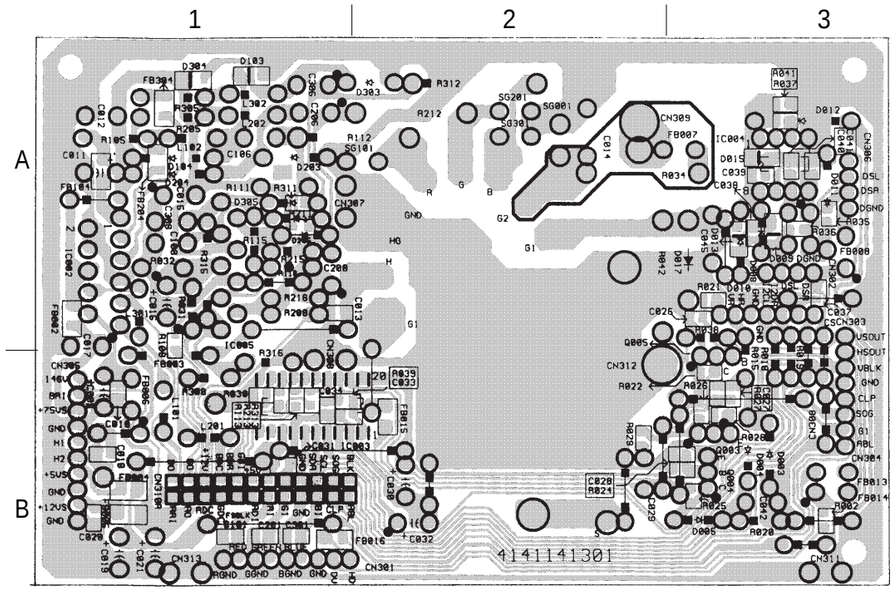
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫
0.7 Vp-p (H)	3.7 Vp-p (H)	1.0 Vp-p (H)	4.6 Vp-p (H)	0.7 Vp-p (H)	3.6 Vp-p (H)	52.0 Vp-p (H)	64.0 Vp-p (H)	52.0 Vp-p (H)	52.0 Vp-p (H)	64.0 Vp-p (H)	52.0 Vp-p (H)

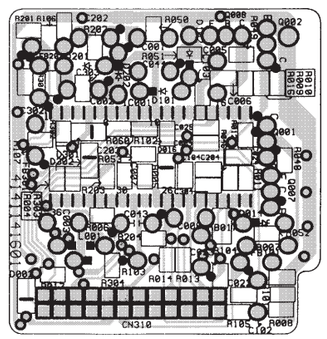
Schematic diagram
← U1 U2 boards

Schematic diagram
A board →

A [VIDEO]

— A BOARD (Conductor Side) —





• A BOARD SEMICONDUCTOR LOCATION

IC	(Conductor Side)	(Component Side)
IC001	C–1	C–1
IC002	A–1	A–3
IC003	B–1	B–2
IC004	A–3	A–1
IC005	A–1	A–3

TRANSISTOR	(Conductor Side)	(Component Side)
Q001	C–1	C–1
Q002	C–1	C–1
Q003	B–3	B–1
Q004	B–3	B–1
Q005	B–3	B–1
Q007	C–1	C–1
Q008	C–1	C–1

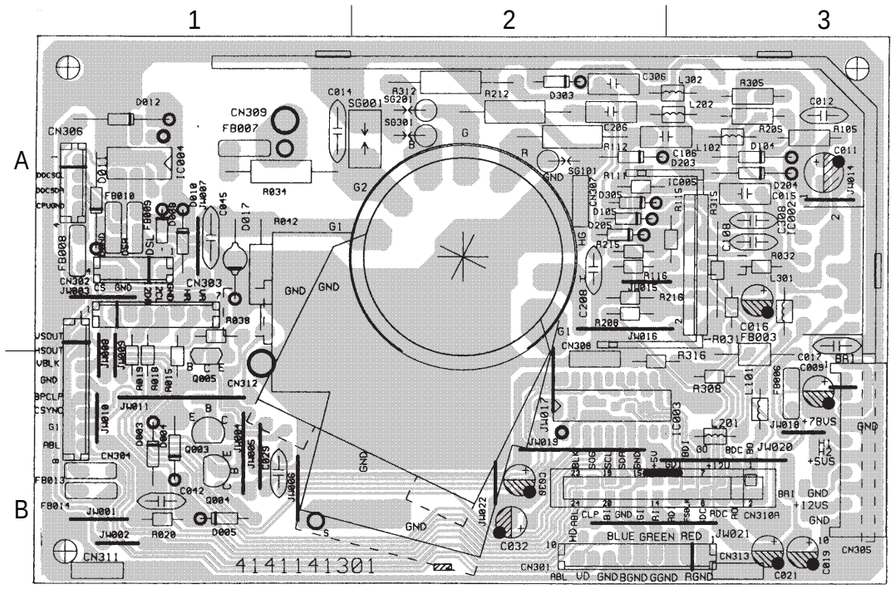
DIODE	(Conductor Side)	(Component Side)
D002	C–1	
D003	B–3	B–1
D004	B–3	B–1
D005	B–3	B–1
D008	A–3	A–1
D009	A–3	
D010	A–3	A–1
D011	A–3	A–1
D012	A–3	A–1
D013	A–3	
D014	C–1	C–1
D016	C–1	
D017	A–3	A–1
D101	C–1	C–1
D102	C–1	C–1
D103	A–1	
D104	A–1	A–3
D105	A–1	A–2
D201	C–1	C–1
D202	C–1	C–1
D203	A–1	A–2
D204	A–1	A–3
D205	A–1	A–2
D301	C–1	
D302	C–1	
D303	A–2	A–2
D304	A–1	
D305	A–1	A–2

Cathode

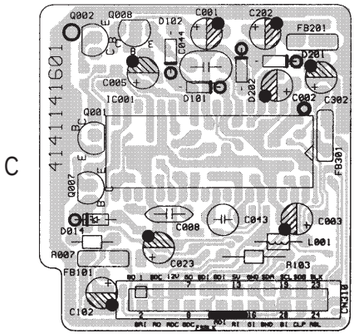
Anode

NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

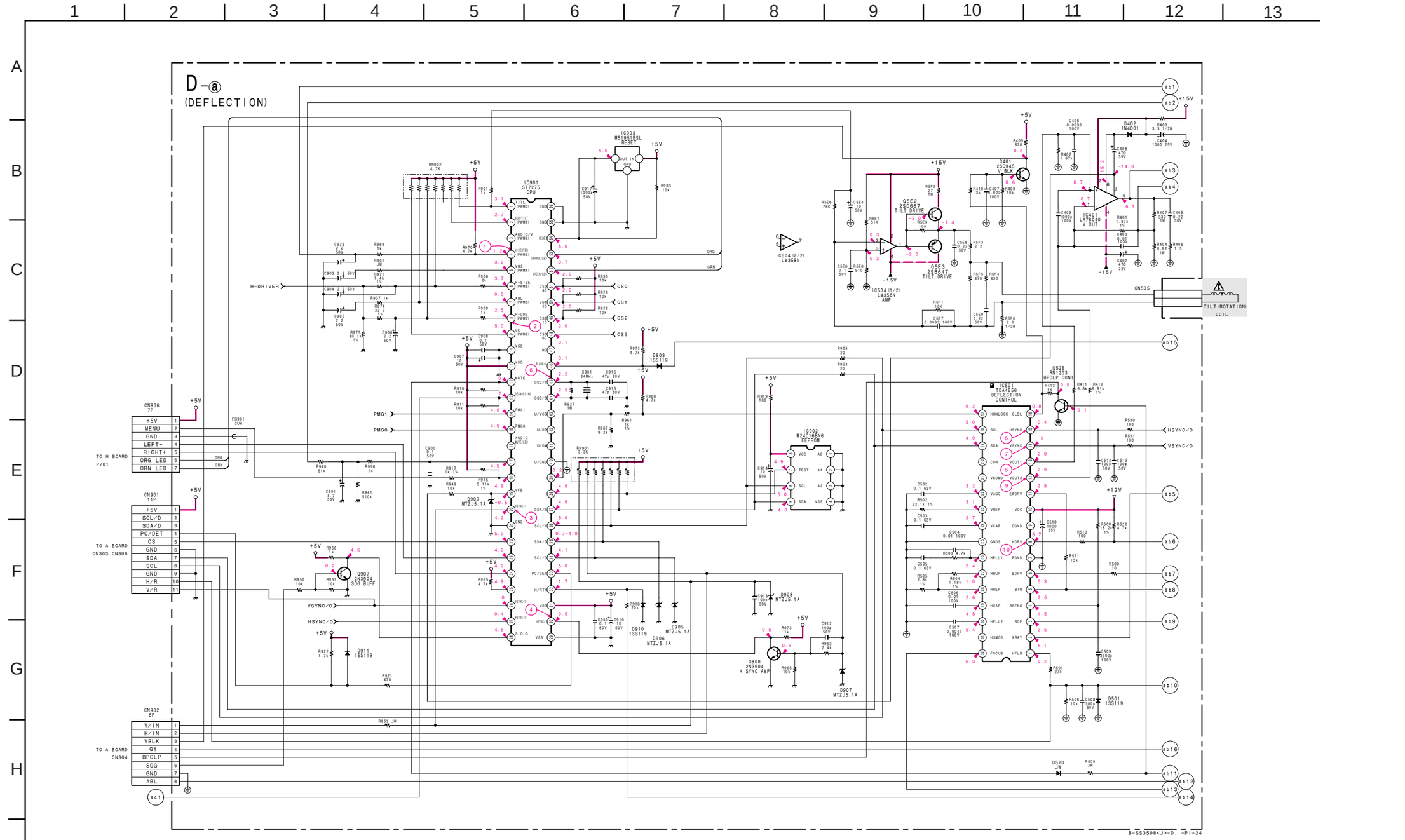
— A BOARD (Component Side) —



• Pattern of the rear side.



(3) Schematic Diagram of D (ⓐ-ⓒ) / D (USB) Boards



- Divided circuit diagram
  One sheet of D board circuit diagram is divided into three sheets, each having the code D-ⓐ to D-ⓒ . For example, the destination ab1 on the D-ⓐ sheet is connected to ab1 on the D-ⓑ sheet.

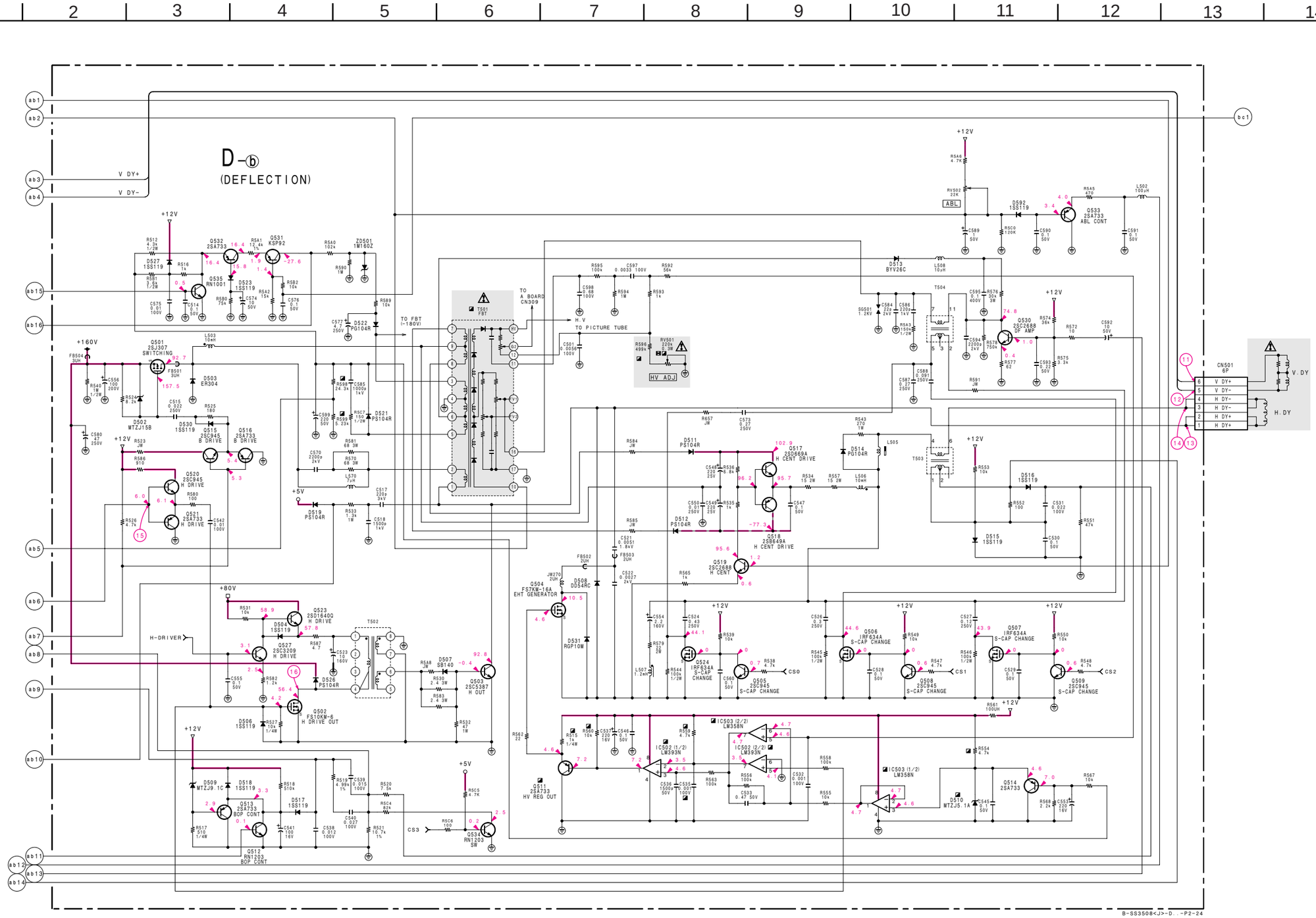
  a b 1 — 1: Ref. No.; a b: Circuit diagram division code

• D - ⓐ BOARD WAVEFORMS

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
3.2 Vp-p (H)	3.4 Vp-p (H)	4.0 Vp-p (V)	5.0 Vp-p (H)	2.8 Vp-p (24MHz)	5.0 Vp-p (H)	5.0 Vp-p (V)	3.0 Vp-p (V)	2.0 Vp-p (V)	12.0 Vp-p (H)

Schematic diagram

D -ⓐ board ➡

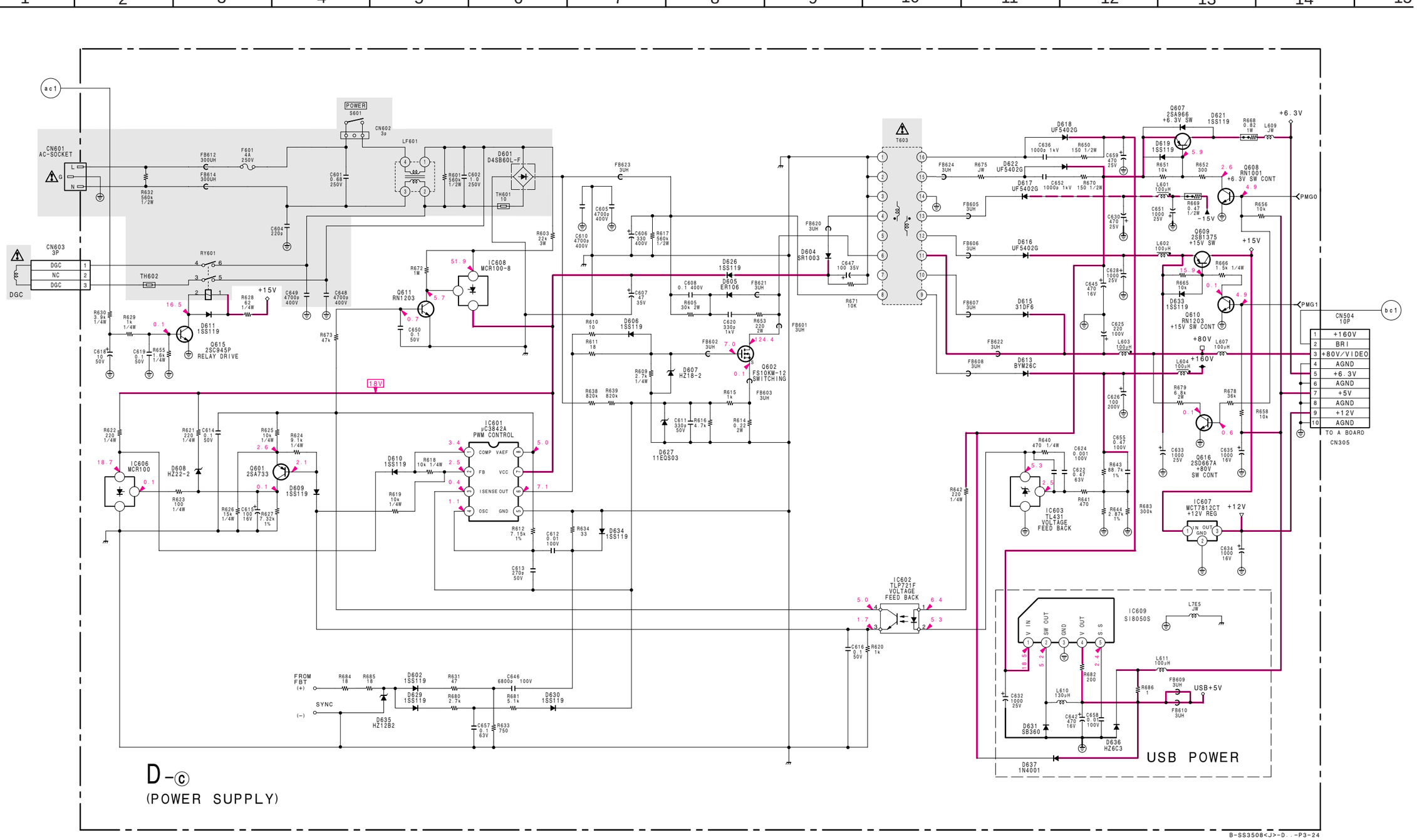


- Divided circuit diagram
  One sheet of D board circuit diagram is divided into three sheets, each having the code D-ⓐ to D-ⓒ . For example, the destination ab1 on the D-ⓐ sheet is connected to ab1 on the D-ⓑ sheet.

a b 1
- 1 → Ref. No.
- a b → Circuit diagram division code

- **D - ⓑ BOARD WAVEFORMS**

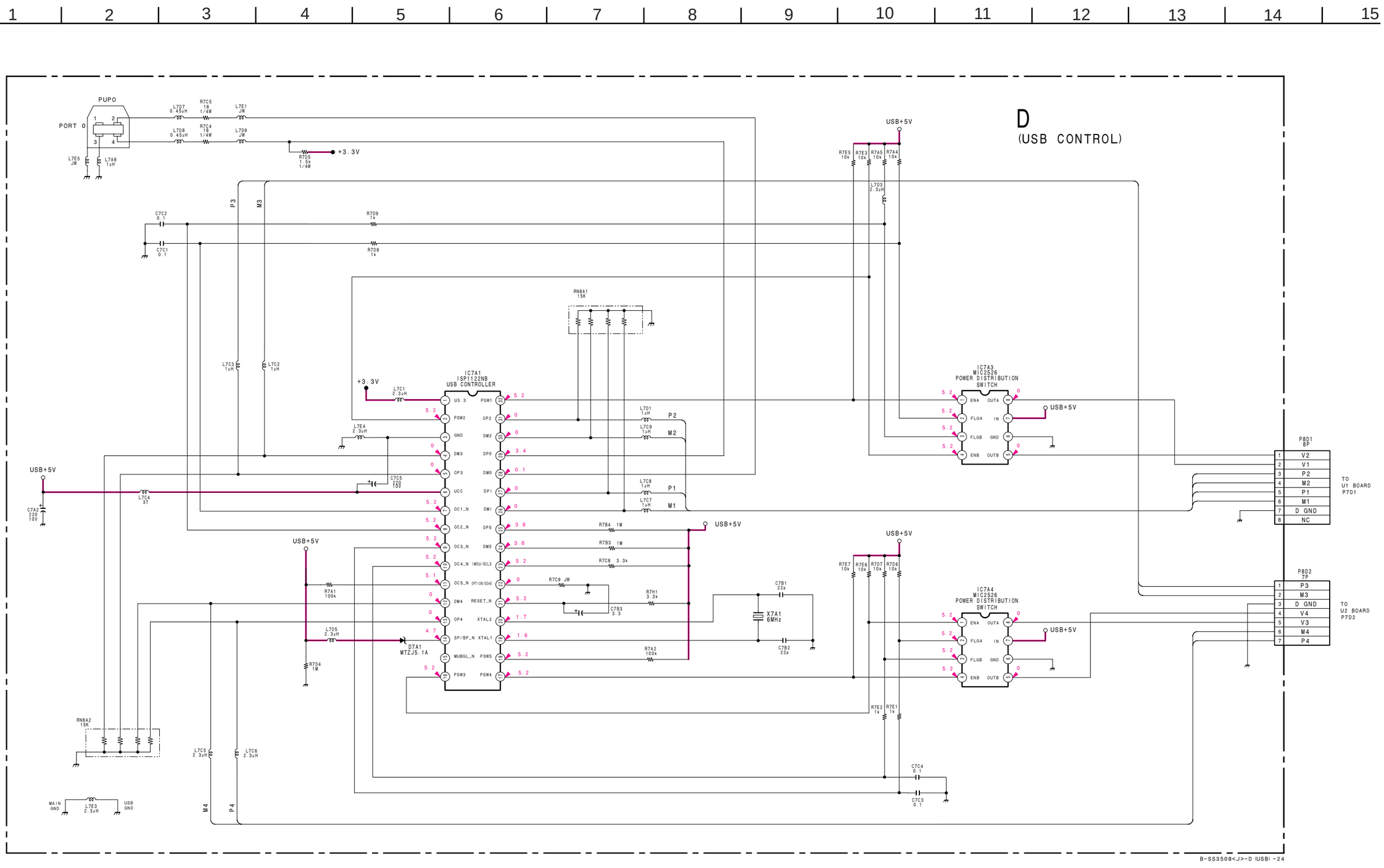
⑪	⑫	⑬	⑭	⑮	⑯
58.0 Vp-p (V)	1.8 Vp-p (V)	1k Vp-p (H)	62.0 Vp-p (H)	12.0 Vp-p (H)	120 Vp-p (H)



- Divided circuit diagram
  One sheet of D board circuit diagram is divided into three sheets, each having the code D-ⓐ to D-ⓒ . For example, the destination (ab1) on the D-ⓐ sheet is connected to (ab1) on the D-ⓑ sheet.

a b 1
- 1 → Ref. No.
- a b → Circuit diagram division code

D
(USB CONTROL)

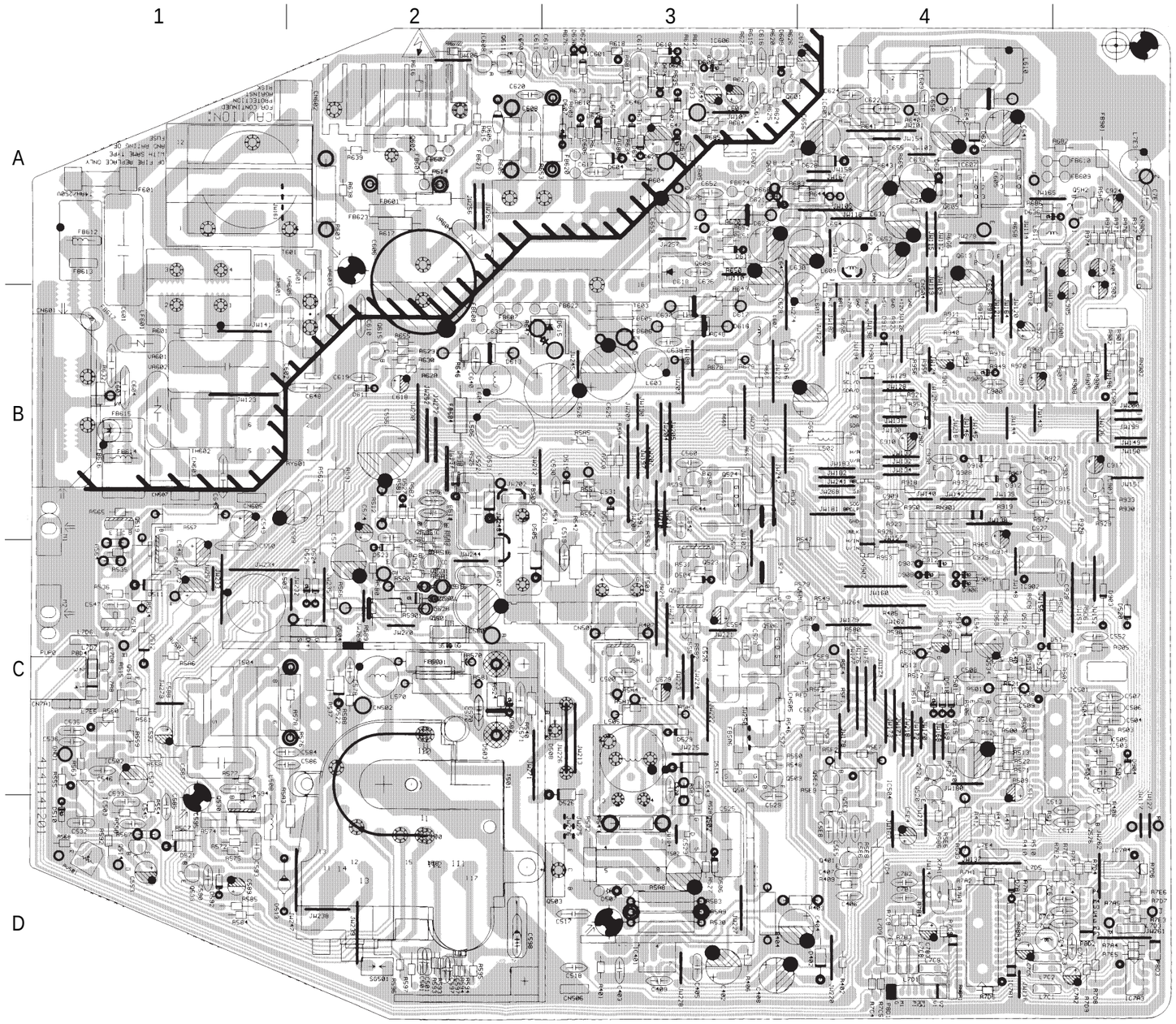


B-SS3508<J>-D (USB) -24

D [DEDFLECTION, POWER SUPPLY, USB CONTROL]

NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

— D BOARD —



- **D BOARD SEMICONDUCTOR LOCATION**

IC		IC		D	
IC401	D-3	Q401	D-4	D503	C-2
IC501	C-4	Q501	C-2	D504	C-3
IC502	C-1	Q502	C-3	D506	D-3
IC503	C-1	Q503	D-2	D507	D-3
IC504	C-4	Q504	C-2	D508	C-2
IC601	A-3	Q505	B-3	D509	C-4
IC602	A-3	Q506	C-3	D510	C-1
IC603	A-4	Q507	C-3	D511	C-1
IC606	A-3	Q508	C-3	D512	C-1
IC607	A-4	Q509	C-3	D513	D-1
IC608	A-2	Q511	C-1	D514	C-3
IC609	A-4	Q512	C-4	D515	B-3
IC7A1	D-4	Q513	C-4	D516	B-3
IC7A3	D-4	Q514	D-1	D517	C-4
IC7A4	D-4	Q515	C-4	D518	C-4
IC901	B-4	Q516	C-4	D519	C-4
IC902	C-4	Q517	B-1	D521	D-1
IC903	B-4	Q518	C-1	D522	C-2
TRANSISTOR		Q519	B-1	D523	B-2
		Q520	C-4	D526	C-2
		Q521	C-4	D527	B-2
		Q523	B-3	D530	B-2
		Q524	B-3	D531	B-2
		Q526	D-4	D592	D-1
		Q527	C-3	D601	A-2
		Q530	C-1	D602	A-3
		Q531	C-2	D604	A-3
		Q532	C-2	D605	A-2
		Q533	D-1	D606	A-3
		Q534	C-4	D607	A-2
		Q535	B-2	D608	A-3
		Q5E2	C-4	D609	A-3
		Q5E3	C-4	D610	A-3
		Q601	A-3	D611	B-2
		Q602	A-2	D613	B-2
		Q607	A-3	D615	B-2
		Q608	A-3	D616	B-3
		Q609	A-4	D617	B-3
		Q610	A-4	D618	B-3
		Q611	A-2	D619	A-3
		Q615	B-2	D621	A-3
		Q616	A-3	D622	A-3
		Q907	B-4	D626	A-3
		Q908	B-4	D627	A-3
DIODE				D629	A-3
				D630	A-3
D402	D-3			D631	A-4
D501	C-4			D633	A-4
D502	C-2			D634	A-3
				D635	A-3
				D636	A-4
				D637	A-4
				D7A1	D-4
				D903	C-4
				D905	C-4
				D906	C-4
				D907	C-4
				D908	C-4
				D909	B-4
				D910	B-4
				D911	B-4
				ZD501	C-2

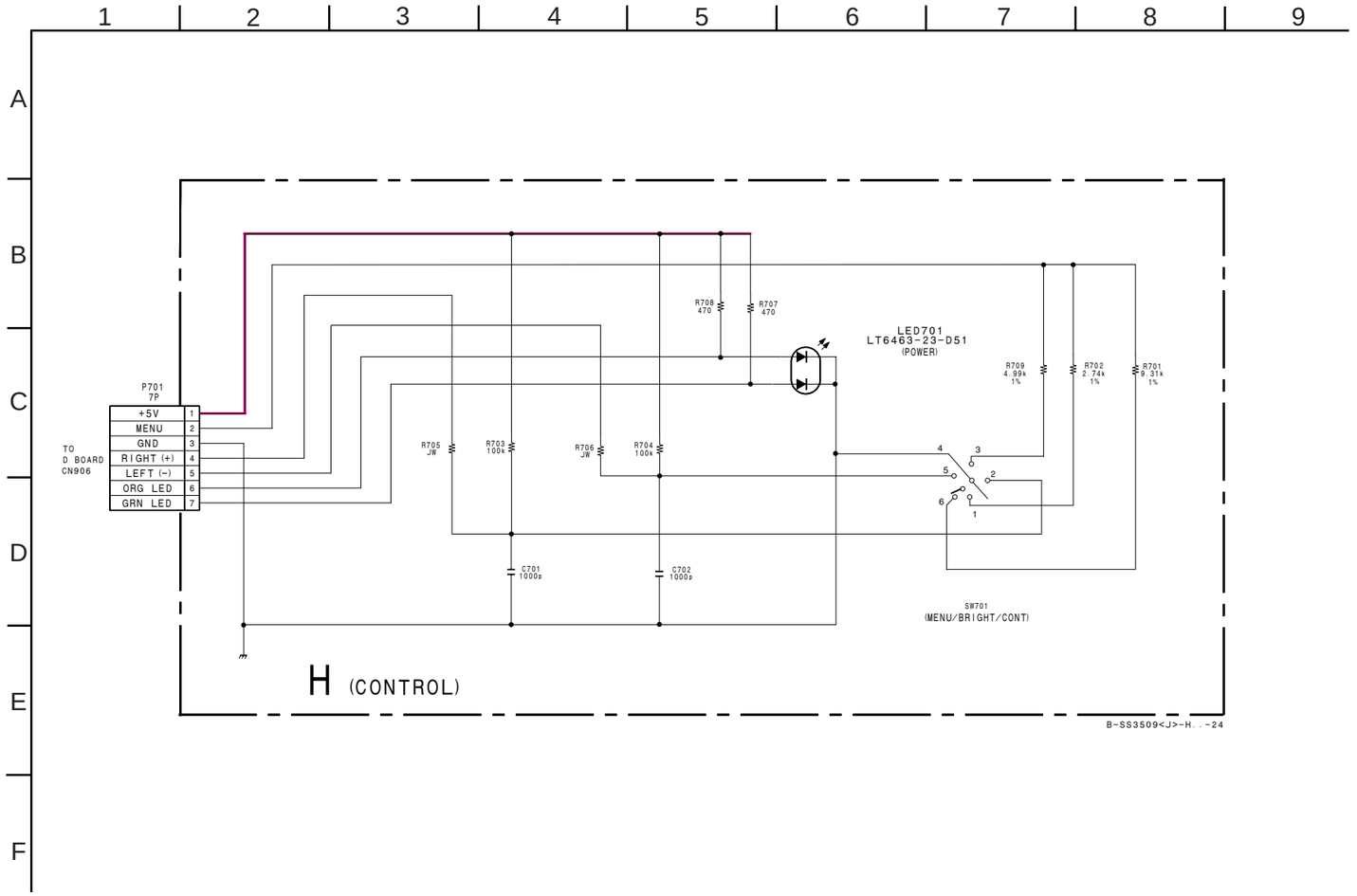
VARIABLE RESISTOR	
RV501	D-1
RV502	C-1

CRYSTAL	
X7A1	D-4
X901	B-4

Schematic diagram

← D **(USB) board**

(3) Schematic Diagram of H Board



H ［USER CONTROL, LED］