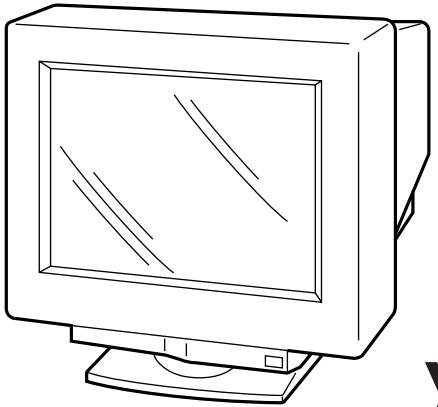
CPD-110GS/110EST

SERVICE MANUAL

REVISED



CPD-110GS

US Model

Canadian Model

Chassis No. SCC-L27A-A

CPD-110EST

AEP Model

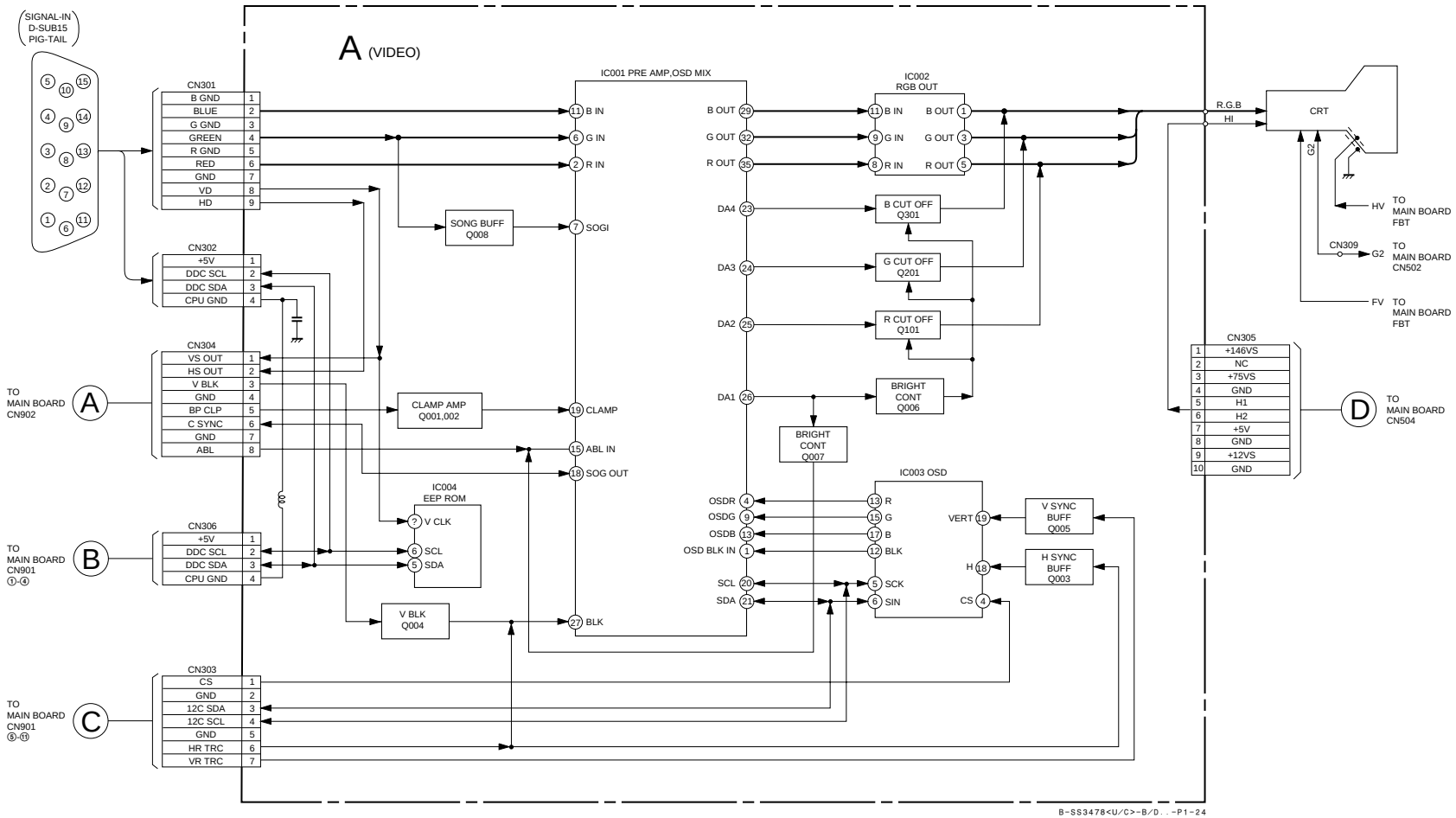
Chassis No. SCC-L27B-A

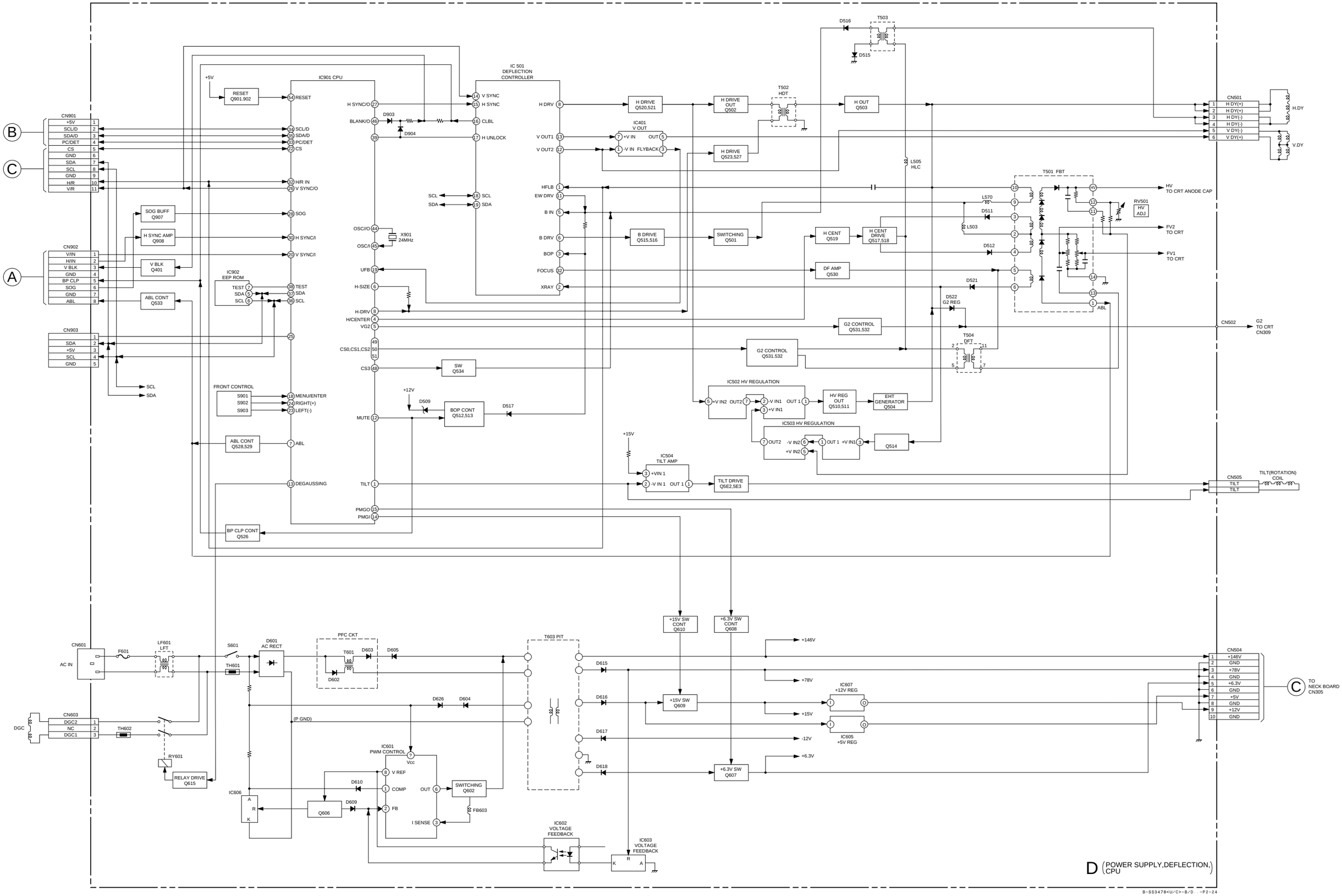
X-110 CHASSIS

SPECIFICATIONS

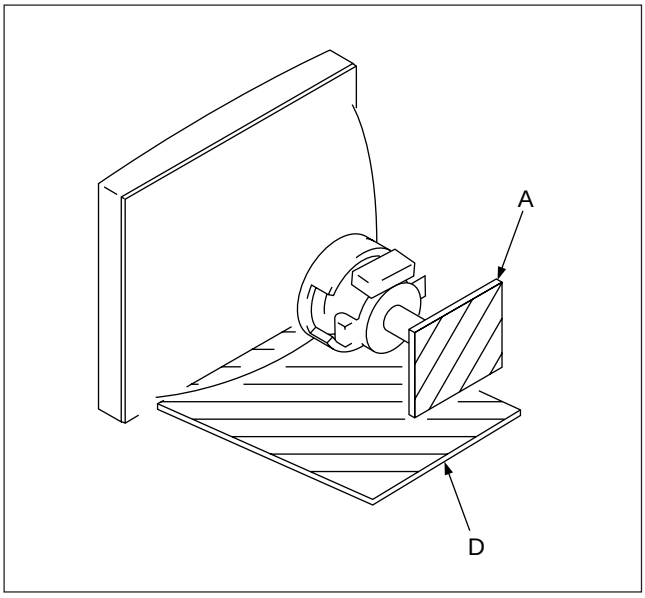
SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAMS (with FRAME SCHEMATIC DIAGRAM)




IC901 CPU
IC 501 DEFLECTION CONTROLLER
CN901
CN902
CN903
CN501
CN502
CN504
CN505
CN601
CN603
TO NECK BOARD CN306
TO NECK BOARD CN303
TO NECK BOARD CN304
RESET Q901.902
SOG BUFF Q907
H SYNC AMP Q908
V BLK Q401
ABL CONT Q533
IC902 EEP ROM
FRONT CONTROL
ABL CONT Q528,529
BP CLP CONT Q526
X901 24MHz
SW Q534
BOP CONT Q512,513
H DRIVE Q520,521
H DRIVE OUT Q502
H OUT Q503
H DRIVE Q523,527
IC401 V OUT
B DRIVE Q515,516
SWITCHING Q501
H CENT Q519
H CENT DRIVE Q517,518
DF AMP Q530
G2 CONTROL Q531,532
IC502 HV REGULATION
IC503 HV REGULATION
HV REG OUT Q510,511
EHT GENERATOR Q504
Q514
IC504 TILT AMP
TILT DRIVE Q5E2,5E3
T501 FBT
T502 HDT
T503
T504 DFT
L505 HLC
HV TO CRT ANODE CAP
FV2 TO CRT
FV1 TO CRT
G2 TO CRT CN309
TILT(ROTATION) COIL
H.DY
V.DY
+15V SW CONT Q610
+6.3V SW CONT Q608
+15V SW Q609
+6.3V SW Q607
IC607 +12V REG
IC605 +5V REG
TO NECK BOARD CN305
AC IN
F601
LF601 LFT
S601
TH601
TH602
D601 AC RECT
PFC CKT
T603 PIT
RY601
RELAY DRIVE Q615
IC606
Q606
IC601 PWM CONTROL
SWITCHING Q602
FB603
IC602 VOLTAGE FEEDBACK
IC603 VOLTAGE FEEDBACK
+146V
+78V
+15V
-12V
+6.3V
D (POWER SUPPLY,DEFLECTION, CPU)
B-SS3478<U/C>-B/D..-P2-24

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.

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

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

	Part replaced (⋈)
HV ADJ	RV501

	Part replaced (◪)	
HV Regulator Circuit Check	D Board	IC502, IC503, C501 C535, C553, C597 C598, R592, R593 R596, RV501, T501 (FBT)
HV Hold-down Circuit Check	D Board	IC501, D521, C585 C599, R598, R599 R5C7, T501 (FBT)
Beam Current Protector Circuit Check	D Board	Q533, D592, C590 C591, C598, R5A5 R5C0, R5C3, L502 T501 (FBT)

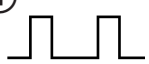
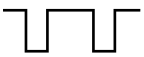
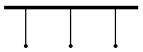
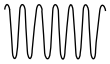
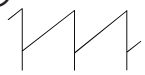
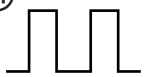
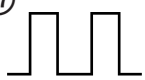
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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

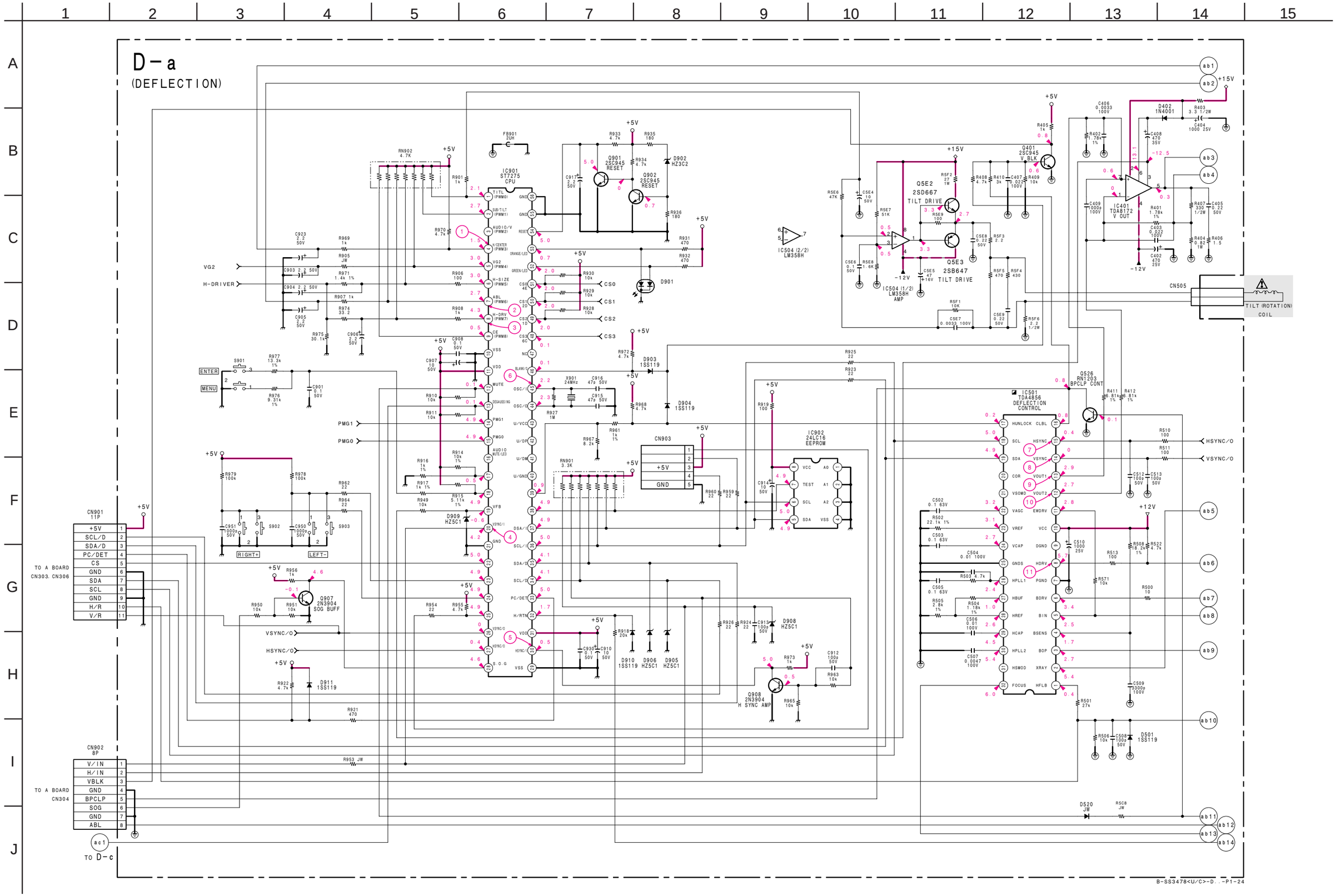
- Divided circuit diagram
  One sheet of D board circuit diagram is divided into three sheets, each having the code D-a to D-c . For example, the destination (ab1) on the D-a sheet is connected to (ab1) on the D-b sheet.

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

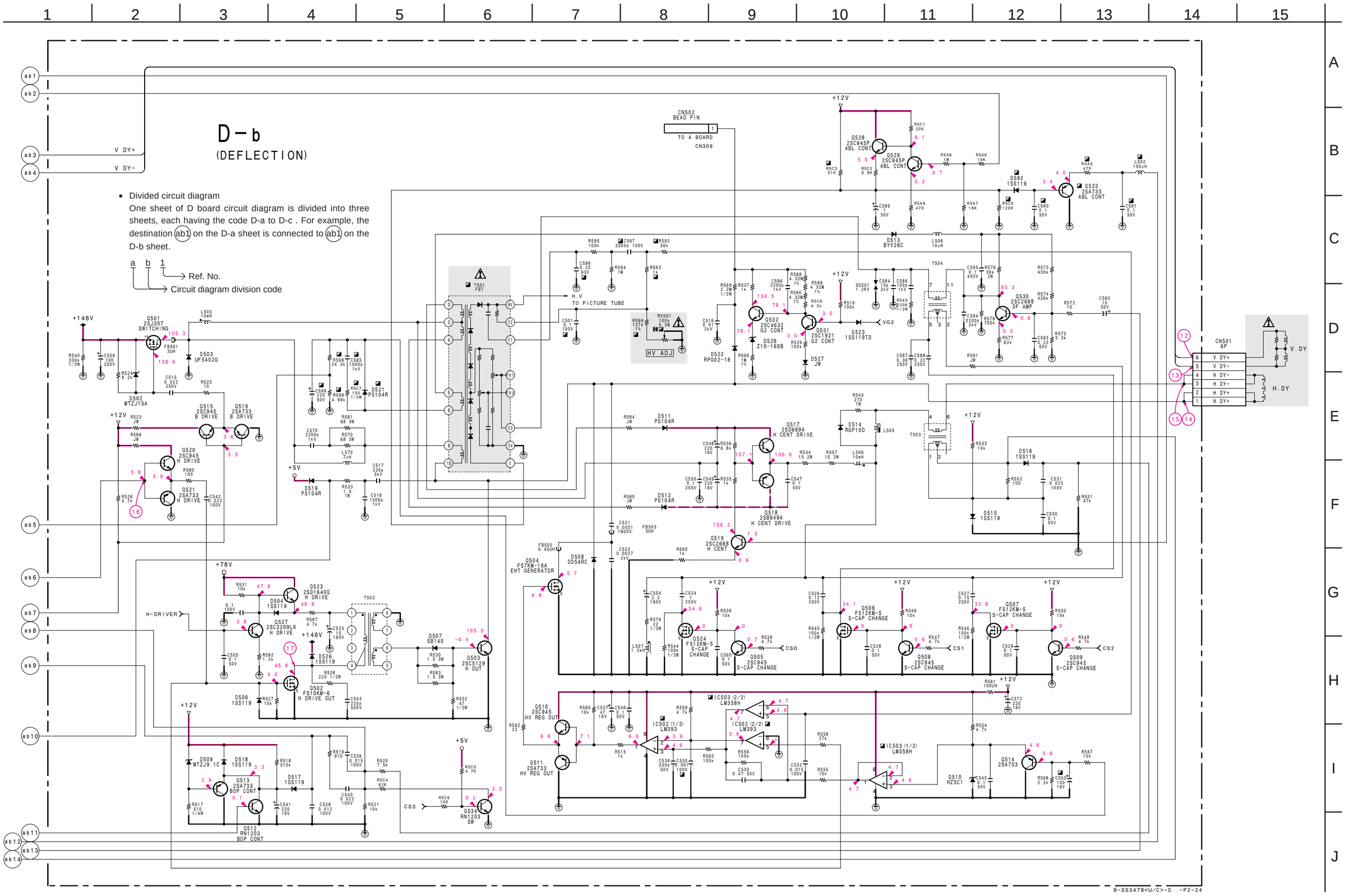
- **D BOARD WAVEFORMS**

①  3.0 Vp-p (H)	② 3.0 Vp-p (H)	③  3.4 Vp-p (H)
④  4.8 Vp-p (V)	⑤ 5.0 Vp-p (H)	⑥  1.2 Vp-p (24MHz)
⑦ 5.0 Vp-p (H)	⑧ 5.0 Vp-p (V)	⑨ 2.8 Vp-p (V)
⑩  2.0 Vp-p (V)	⑪  12.0 Vp-p (H)	⑫ 50.0 Vp-p (V)
⑬ 1.2 Vp-p (V)	⑭ 1k Vp-p (H)	⑮ 60.0 Vp-p (H)
⑯ 12.0 Vp-p (H)	⑰  100 Vp-p (H)	

(1) Schematic Diagram of D-a Board



(2) Schematic Diagram of D-b Board



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

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

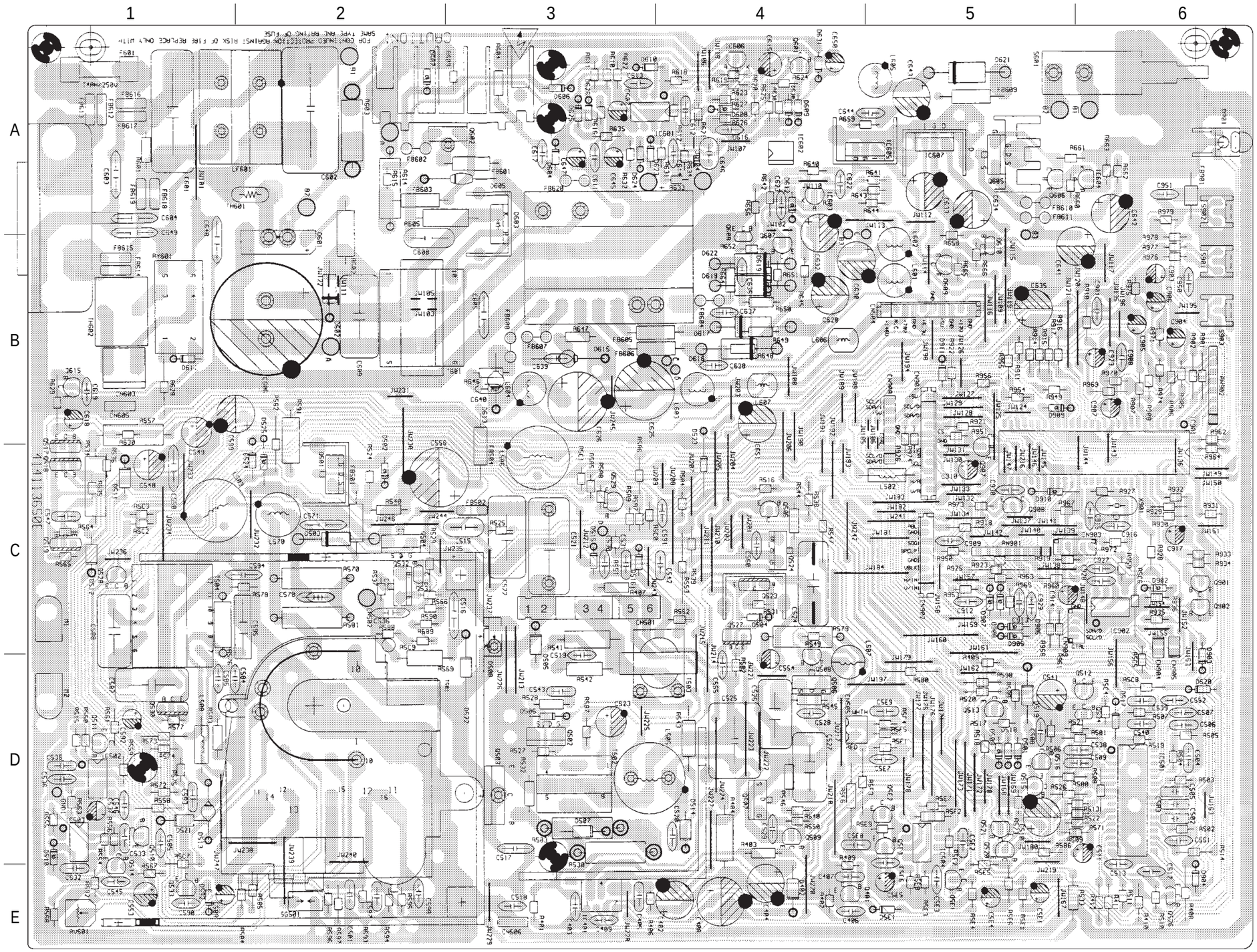
B-SS3478<U/C>-D...-P2-24

D [POWER, DEFLECTION]

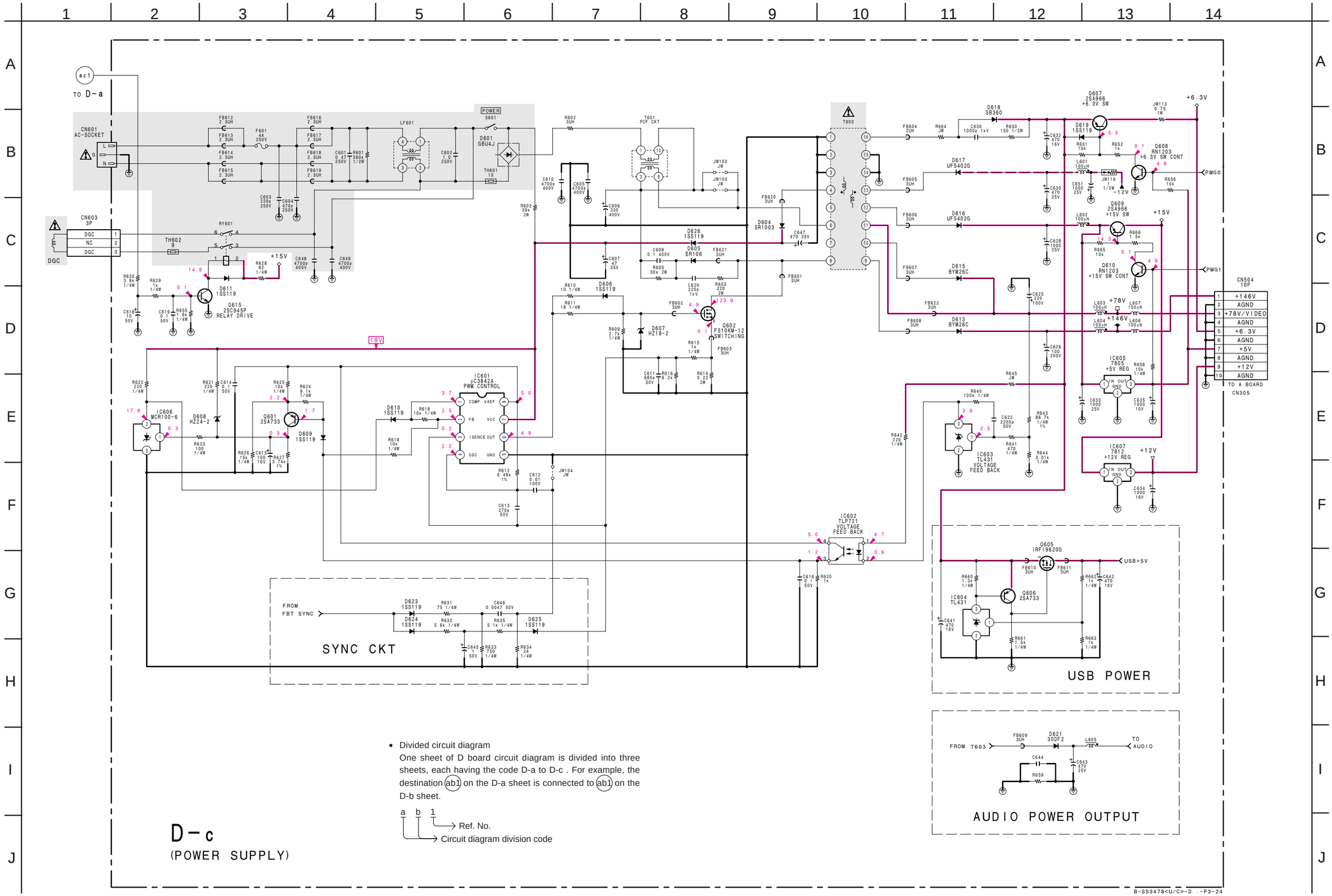
- **D BOARD SEMICONDUCTOR LOCATION**

IC		DIODE	
IC401	E-3	D402	E-4
IC501	D-6	D501	D-5
IC502	D-1	D502	C-2
IC503	D-1	D503	C-2
IC504	D-5	D504	C-4
IC601	A-4	D506	D-3
IC602	A-4	D507	D-3
IC603	A-4	D508	C-3
IC605	A-5	D509	D-5
IC606	A-4	D510	D-1
IC607	A-5	D511	C-1
IC901	B-6	D512	C-1
IC902	C-6	D513	D-1
		D514	D-4
TRANSISTOR		D515	C-3
		D516	C-3
		D517	D-6
Q401	E-4	D518	D-5
Q501	C-2	D519	D-5
Q502	D-3	D520	D-6
Q503	D-3	D521	D-1
Q504	C-2	D522	D-2
Q505	C-4	D523	C-4
Q506	D-4	D592	E-1
Q507	D-4	D601	A-2
Q508	D-4	D604	A-3
Q509	D-4	D605	A-3
Q510	D-1	D606	A-3
Q511	D-1	D607	A-2
Q512	D-6	D608	A-4
Q513	D-5	D609	A-4
Q514	E-1	D610	A-3
Q515	D-5	D611	B-1
Q516	D-5	D612	A-4
Q517	B-1	D613	B-3
Q518	C-1	D615	B-3
Q519	C-1	D616	B-4
Q520	D-5	D617	B-4
Q521	D-5	D618	B-4
Q523	C-4	D626	A-3
Q524	C-4	D901	A-6
Q526	E-6	D902	C-6
Q527	C-4	D903	C-6
Q528	C-1	D904	E-6
Q529	C-3	D905	C-5
Q530	D-1	D906	C-5
Q531	C-2	D907	C-5
Q532	C-2	D908	C-5
Q533	E-1	D909	B-5
Q534	D-6	D910	C-5
Q5E2	D-5		
Q5E3	D-5	**VARIABLE RESISTOR**	
Q601	A-4		
Q602	A-3		
Q607	B-4	RV501	E-1
Q608	A-4		
Q609	B-5	**CRYSTAL**	
Q610	B-5		
Q615	B-1	X901	C-6
Q901	C-6		
Q902	C-6		
Q907	C-5		
Q908	C-5		

— D BOARD (Component Side) —



(3) Schematic Diagram of D-c Board



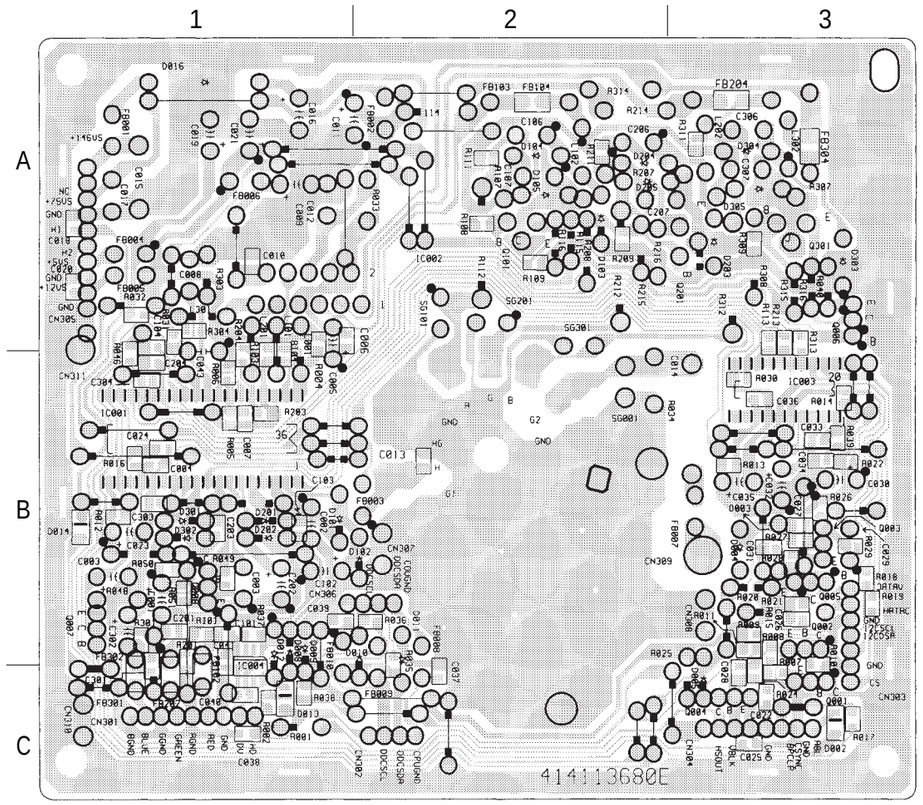
- Divided circuit diagram
  One sheet of D board circuit diagram is divided into three sheets, each having the code D-a to D-c . For example, the destination (ab1) on the D-a sheet is connected to (ab1) on the D-b sheet.

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

D-c
(POWER SUPPLY)

A [VIDEO]

— A BOARD (Conductor Side) —



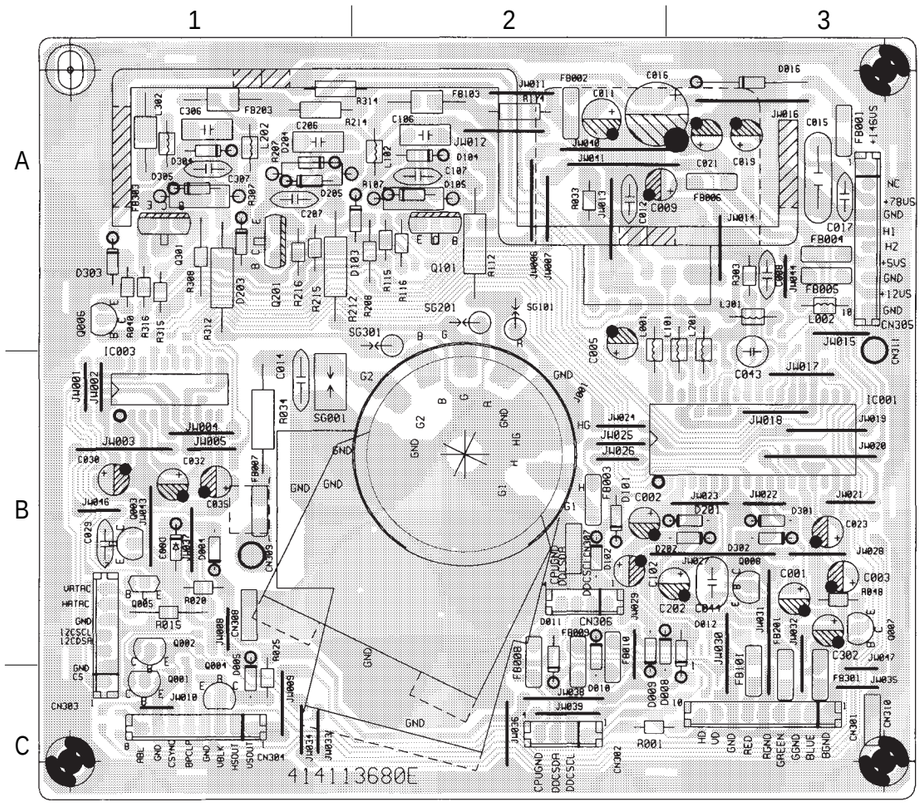
- **A BOARD SEMICONDUCTOR LOCATION**

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

TRANSISTOR	(Conductor Side)	(Component Side)
Q001	C–3	C–1
Q002	B–3	B–1
Q003	B–3	B–1
Q004	C–3	C–1
Q005	B–3	B–1
Q006	A–3	A–1
Q007	B–1	B–3
Q008	B–1	B–3
Q101	A–2	A–2
Q201	A–3	A–1
Q301	A–3	A–1

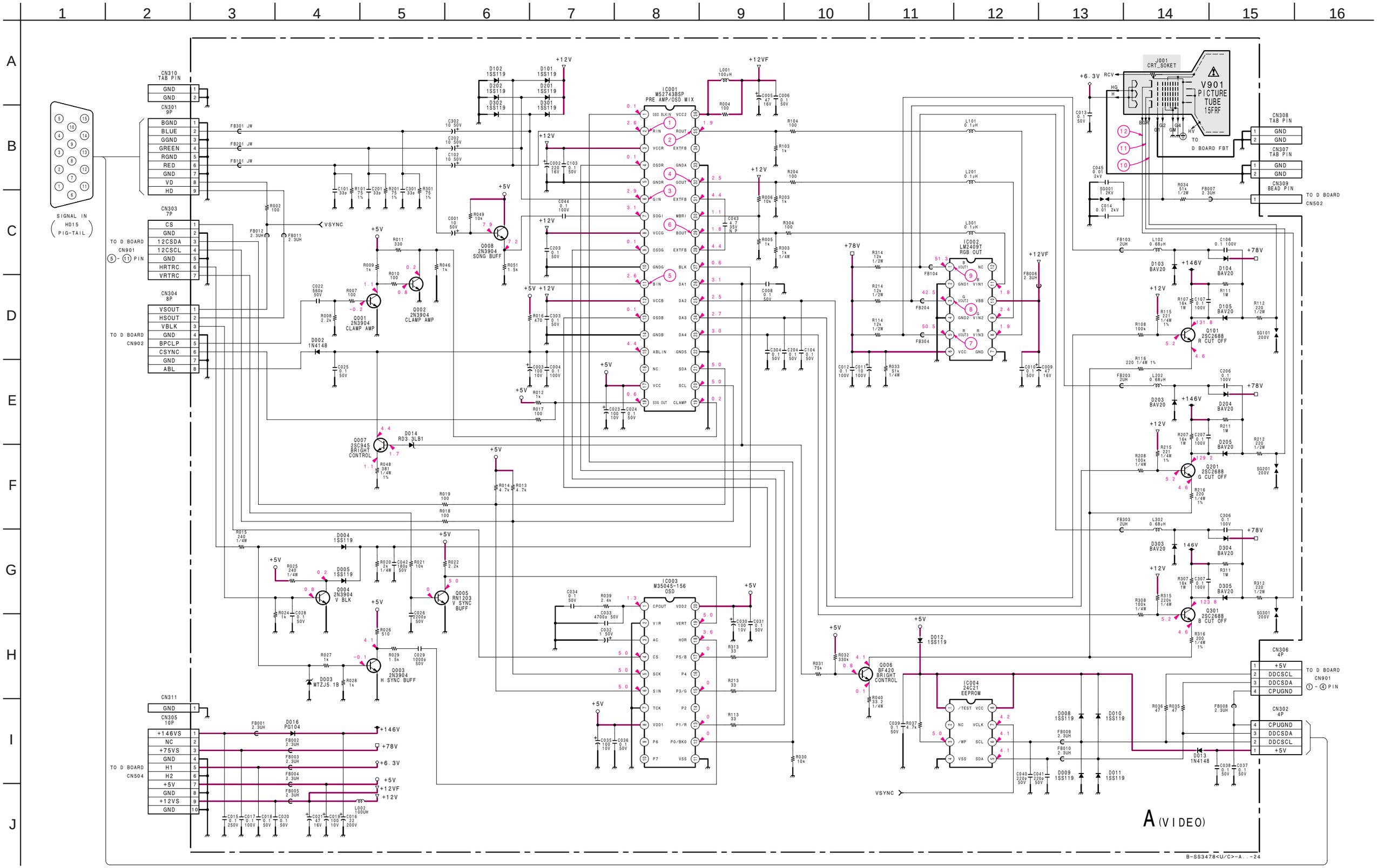
DIODE	(Conductor Side)	(Component Side)
D002	C–3	
D003	B–3	B–1
D004	B–3	B–1
D005	C–3	C–1
D008	B–1	B–2
D009	B–1	B–2
D010	B–1	B–2
D011	B–2	B–2
D012	B–1	B–3
D013	C–1	
D016	A–1	A–3
D101	B–1	B–2
D102	B–1	B–2
D103	A–2	A–1
D104	A–2	A–2
D105	A–2	A–2
D201	B–1	B–3
D202	B–1	B–3
D203	A–3	A–1
D204	A–2	A–1
D205	A–2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

— A BOARD (Component Side) —

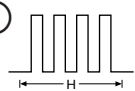
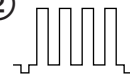
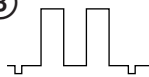
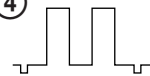
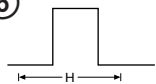
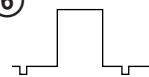
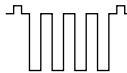
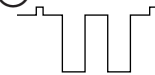
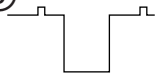
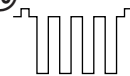
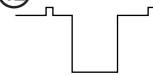


- **Pattern of the rear side.**

(4) Schematic Diagram of A Board

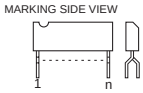


• A BOARD WAVEFORMS

①  0.7 Vp-p (H)	②  3.4 Vp-p (H)
③  1.0 Vp-p (H)	④  3.8 Vp-p (H)
⑤  0.7 V p-p (H)	⑥  3.4 Vp-p (H)
⑦  48.0 Vp-p (H)	⑧  55.0 Vp-p (H)
⑨  48.0 Vp-p (H)	⑩  48.0 Vp-p (H)
⑪ 55.0 Vp-p (H)	⑫  48.0 Vp-p (H)

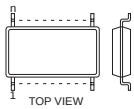
5-4. SEMICONDUCTORS

LM2409



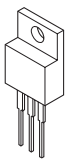
12 pin ZIP

LM358M
LM393M
24LC16BT/SN
24LC21T/SN

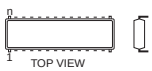


8 pin SOP

MCT7812CT
TA7805S

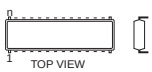


M35045



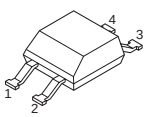
20 pin DIP

M52743BSP



36 pin DIP

PC123F2



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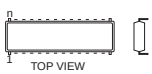

56 pin DIP

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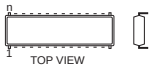

32 pin DIP

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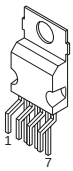

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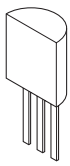

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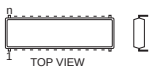

8 pin DIP

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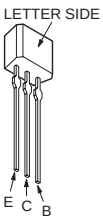

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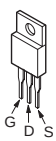

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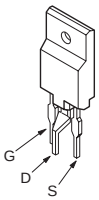

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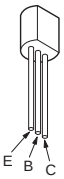

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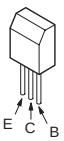

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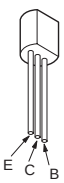

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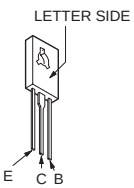

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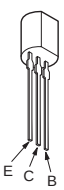

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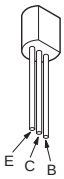

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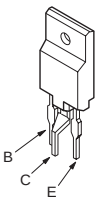

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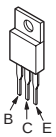

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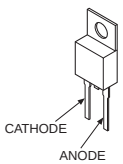

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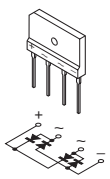

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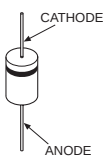

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MTZJ-5.1B
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RD5.1ESB2
RD9.1ESB3
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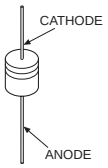

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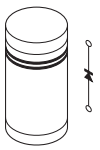
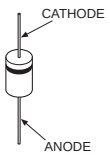
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