

SEQ-711

SERVICE MANUAL

US Model
Canadian Model
AEP Model





SPECIFICATIONS


Inputs	LINE IN: Phono jacks, 245 mV (-10 dBs), 50 kilohms TAPE IN: Phono jacks, 245 mV (-10 dBs) 50 kilohms
Outputs	LINE OUT: Phono jacks, 245 mV (-10 dBs), Load impedance: more than 10 kilohms TAPE REC OUT: Phono jacks, 245 mV (-10 dBs), Load impedance: more than 10 kilohms
Graphic equalizer	Boost/cut range: ± 10 dB Center frequencies: 63 Hz, 160 Hz, 400 Hz, 1 kHz, 2.5 kHz, 6.3 kHz, 16 kHz
Frequency response (with EFFECT OFF)	LINE IN: 20 Hz to 50 kHz, ± 0.5 dB
Harmonic distortion	LINE IN: Less than 0.01 % (at 1 kHz, 1 V output)
Signal-to-noise ratio (with EFFECT OFF)	LINE IN: Better than 100 dB (A network, 1 V output)
Power requirements	120 V AC, 60 Hz
Power consumption	13W
AC outlet	1 unswitched, 120 W/1A
Dimensions	Approx. 430 X 95 X 265mm (w/h/d) (17 x 3 3/4 x 10 1/2 inches) including projecting parts and controls
Weight	Approx. 3.2 kg (7 lb 1 oz)
Accessories supplied	Audio connecting cords (2) Remote commander RM-J711(1) Sony batteries SUM-3 (NS) (2)

Design and specifications are subject to change without notice.

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 IDENTIFIÉS 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 PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.



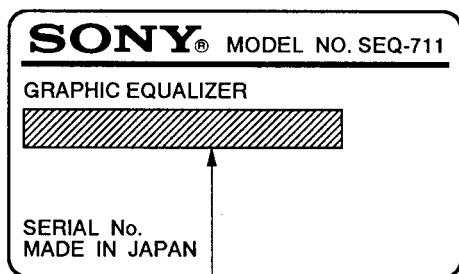
GRAPHIC EQUALIZER
SONY®

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
Specifications	1
1. GENERAL		
Location of Controls	3
Connections	4
Equalizing the Sound with Preset Settings (SELECT 10)	5
Obtaining a Desired Equalizer Curve	6
Storing Your Individual Settings	6
2. DIAGRAMS		
2-1. Block Diagram	8
2-2. Printed Wiring Boards	10
2-3. Schematic Diagram	13
3. EXPLODED VIEW	17
4. ELECTRICAL PARTS LIST	18

MODEL IDENTIFICATION

— Specification Label —



US, Canadian model: AC 120 V 60 Hz 13 W
 AEP, Germany model: AC 220 – 230 V ~50/60 Hz 13 W

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check 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 TEST

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)

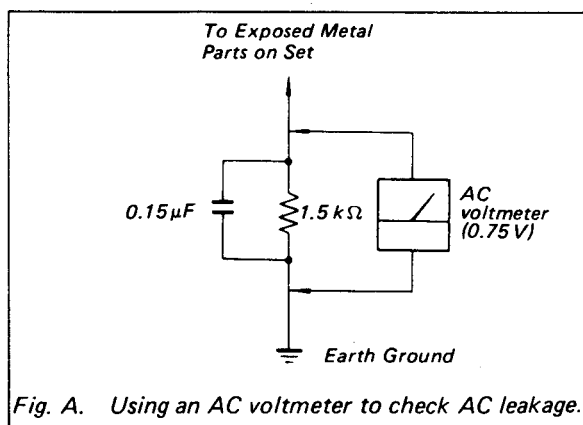
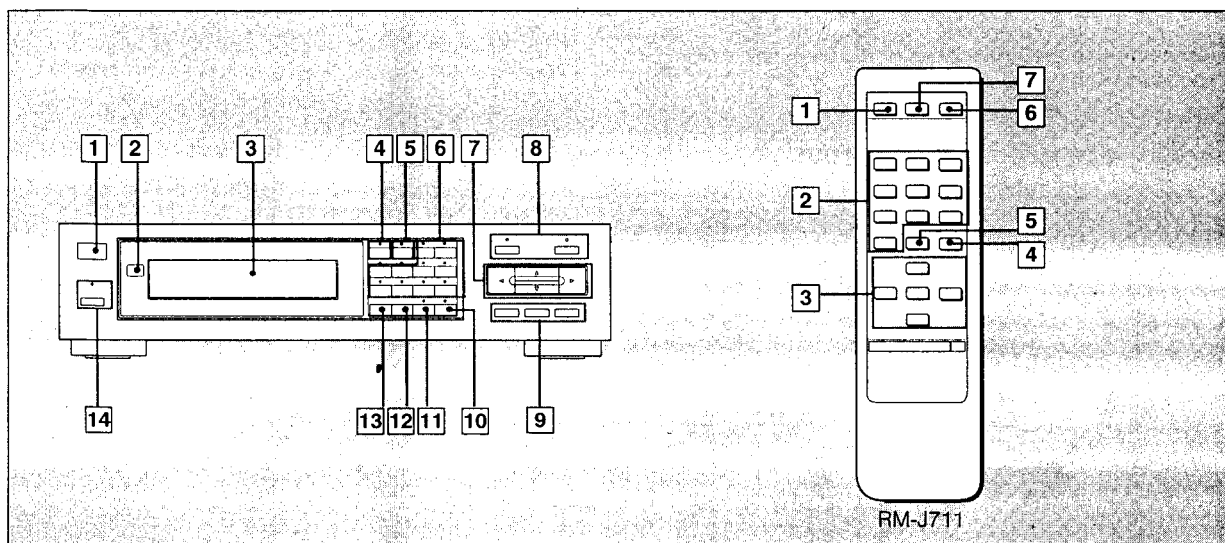


Fig. A. Using an AC voltmeter to check AC leakage.

This section is extracted from instruction manual.

SECTION 1 GENERAL

Location of Controls



Main unit

- 1 POWER switch
- 2 Remote sensor
- 3 Display window
- 4 SELECT 10 button and indicator
- 5 PERSONAL FILE 1-5 button and indicator
- 6 FLAT and numeric buttons and indicators
- 7 CURSOR CONTROL buttons
- 8 TAPE/LINE buttons and indicators
When the POWER is on, the LINE mode is selected.
- 9 CURSOR MODE LEFT, L+R. RIGHT buttons
- 10 DSC (Dynamic Sound Control) button and indicator
- 11 MEMORY button and indicator
- 12 REVERSE button
- 13 DISPLAY button
- 14 EFFECT button and indicator

Remote commander

- 1 SELECT 10 button
- 2 FLAT and numeric buttons
- 3 CURSOR CONTROL/CURSOR MODE buttons
Each time this button is pressed, the channel mode is changed in the following order:
→ L (left) + R (right) → L → R
- 4 DISPLAY button
- 5 REVERSE button
- 6 EFFECT button
- 7 P. FILE1-5 button

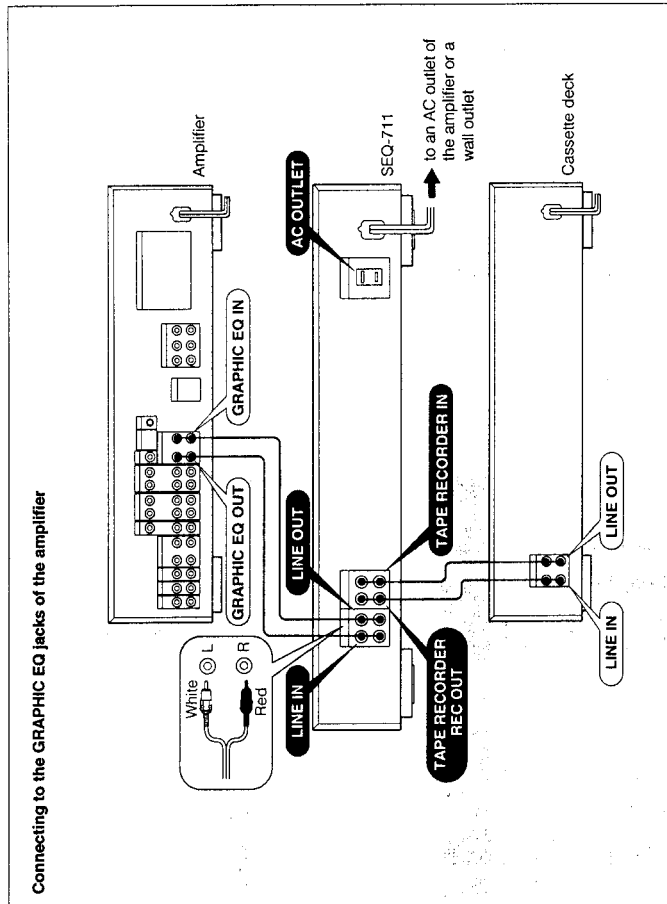
Connections

This section describes about the connections with the other audio equipments.

- Connect the AC power cord last. Make sure power is off.
- Fully insert cable connectors into jacks. Loose connections may cause hum or noise.
- The red jacks are for the right-channel (R) connections and the white jacks are for the left-channel (L).

Connecting to Your System

Connecting to the GRAPHIC EQ jacks of the amplifier



If your unit is supplied with an AC plug adaptor

Use it to connect the unit to a wall outlet. When making power connections among the Sony component, this adaptor is not needed.

Note

When SEQ-711 is connected to the system, always keep the power on, even when the sound is not to be equalized. If the power is off, the sound does not come out.

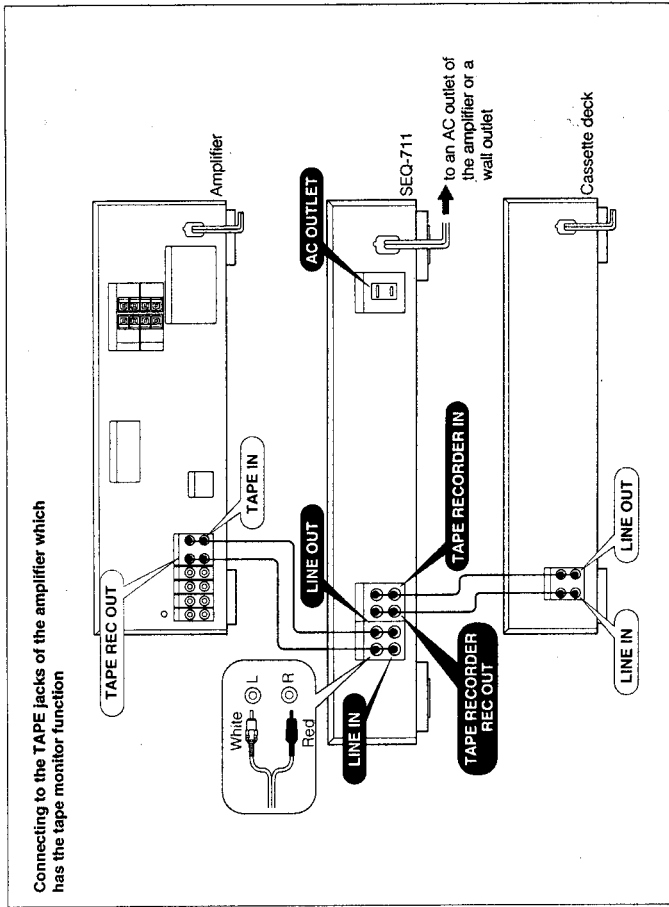
AC OUTLET (UNSWITCHED)

Use this outlet to power audio component whose power consumption is less than the wattage indicated on the AC outlets. The outlet is not controlled by the POWER switch on the front panel.

CAUTION

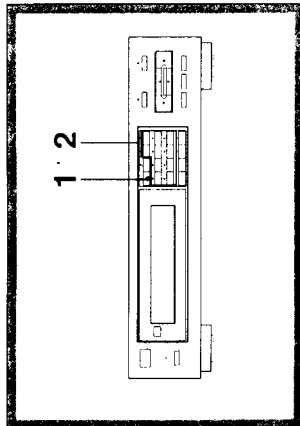
Do not connect any electrical home appliances such as an electric iron, fan, TV or other high wattage equipment to these AC outlets.

Connecting to the TAPE jacks of the amplifier which has the tape monitor function

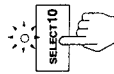


Equalizing the Sound with Preset Settings (SELECT 10)

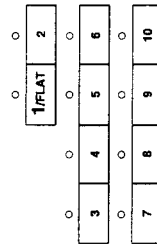
The SELECT 10 function allows you to equalize the sound, simply by choosing from 10 preset combinations of equalization and DSC (Dynamic Sound Control). See page 8 for details.



1 Press SELECT 10 so that the indicator lights up.



2 Select your desired equalizer curve.

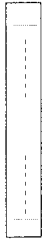


Equalizing the Sound with Preset Settings (SELECT 10)

SELECT 10 Settings

1/FLAT

Gives rich expansiveness to sources recorded with reverb, such as classical music.



2 Gives the atmosphere of a large hall with a deep reverb and emphasized middle-low frequencies.



3 Gives an atmosphere similar to a movie theater in which sound effects and a voluminous bass sound is emphasized.



4 Gives width to a monaural program source (TV, etc.) with different equalizer curves for each channel.



5 Gives an atmosphere similar to a jazz club in which the sound is heard brightly with expanding reverb.



6 Gives an atmosphere similar to a live concert in a gym. The DSC function (See page 10.) modifies the equalizer curve according to the sound level.



7 Gives an atmosphere similar to a disco in which bass sound is emphasized.



8 Improves sound at low listening levels by adding reverb.



9 Improves sound to be listened to with stereo headphones by emphasizing bass sound and spaciousness.



10 Improves sound to be listened to in noisy surroundings, such as in a car.



Checking the Equalization Results

By switching EFFECT on and off, compare the results. The spectrum analyzer can be used to visually confirm the need for and effect of equalizer adjustment.

Changing the Display

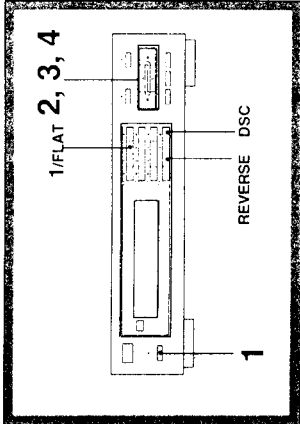
Each time you press DISPLAY, the display switches between the equalizer curve and spectrum analyzer. Equalizer curve: Shows how the sound you hear is adjusted. Spectrum analyzer: Shows the level of frequency band in real time.

Demo Mode

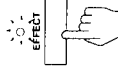
To start the demo mode, press DISPLAY twice within 1 second. After a variety of equalizer curves is displayed, each curve of the SELECT 10 function and the personal file is sequentially displayed. To stop the demo mode, press any other button except TAPE/LINE. In the demo mode, each equalizer curve of the SELECT 10 is displayed in the following order.
2 → 1 → 3 → 4 → 5 → → 10

Obtaining a Desired Equalizer Curve

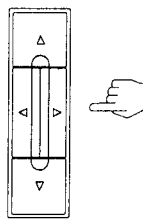
You can adjust the level of 7 frequency bands for both channels



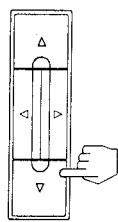
1 Press EFFECT so that the indicator lights up.



2 Press one of the CURSOR CONTROL buttons.



3 Press Δ or ∇ , so that the frequency range you wish to adjust blinks.



Obtaining a Desired Equalizer Curve

Characteristics of Each Frequency

- 63 Hz:** Boosts or cuts the bass.
- 160 Hz:** Governs the low-middle range and greatly influences the overall characteristics of the sound.
- 400 Hz:** Adjusts the power, spaciousness and warmth of the sound.
- 1 kHz:** Provides more presence for vocals.
- 2.5 kHz:** Boosts a brighter sound and reduces stridency.
- 6.3 kHz:** Affects the treble. Adjusts the brightness of the sound and reduces high frequency noise, such as tape hiss.
- 16 kHz:** Adjusts the general atmosphere rather than the sound itself. Highlights the delicate quality of instrumental sound.

To Flatten an Equalizer Curve

Press 1/FLAT.
Use this function when you want to make an equalizer curve from the beginning.

To Reverse an Equalizer Curve

Press REVERSE.
Use this function, for example, to listen to a tape recorded with the No.10 of the SELECT 10 function, in a room. To return to the original curve, press REVERSE again.

To flatten or reverse the equalizer curve of each channel independently

Press CURSOR MODE LEFT or RIGHT, then press 1/FLAT or REVERSE within 5 seconds.
(While the frequency ranges are blinking.)

To Have an Equalizer Curve Re-adjusted Automatically (DSC: Dynamic Sound Control)

Press DSC so that the indicator lights up.
The equalizer curve is displayed in the display window. When the input level of a sound increases, the DSC function automatically keeps down emphasized frequency ranges. This prevents distortion and damage to speakers. (The equalizer curve set under 0 position does not move.)

To cancel the DSC function

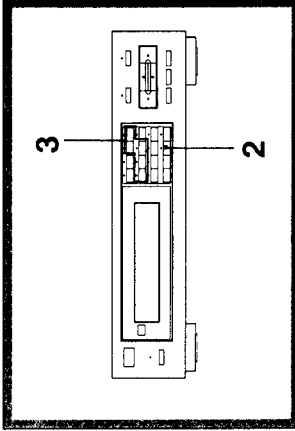
Press DSC again so that the indicator goes off.

When the DSC indicator is lit

The equalizer curve is displayed in the display window and the DISPLAY button does not function.

Storing Your Individual Settings (PERSONAL FILE)

You can store a combination of a desired equalizer curve. You can store up to 5 settings in the numeric buttons 1 to 5.

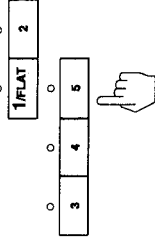


1 Adjust the sound to the setting you wish to store.

2 Press MEMORY so that the indicator lights up.



3 While the MEMORY indicator is lit (approximately 5 seconds), press the desired numeric button (1 to 5).



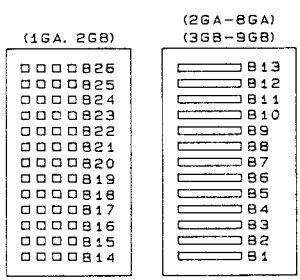
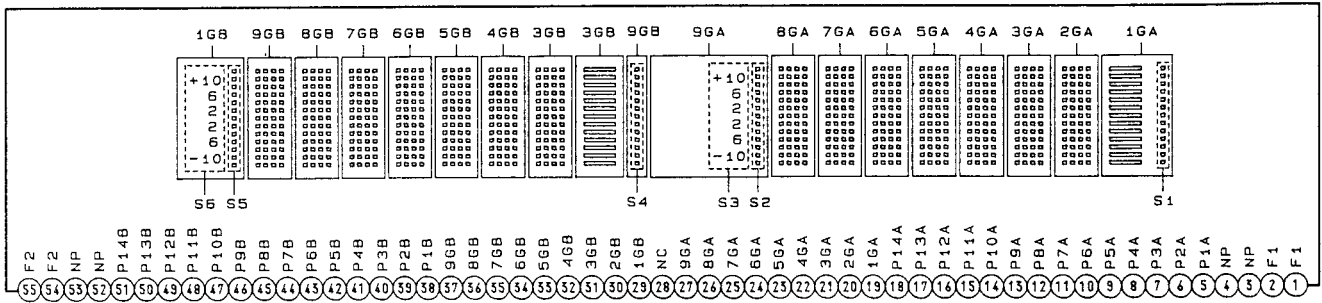
To Recall a Stored Setting

1 Press PERSONAL FILE 1-5 so that the indicator lights up.
2 Press the numeric button in which the desired setting is stored.
The settings are stored only in the numeric buttons 1 to 5.

To Clear the Stored Settings

Set the unit to the demo mode (see page 7.) and then press POWER to turn off the unit.

FL401 FLUORESCENT INDICATOR TUBE



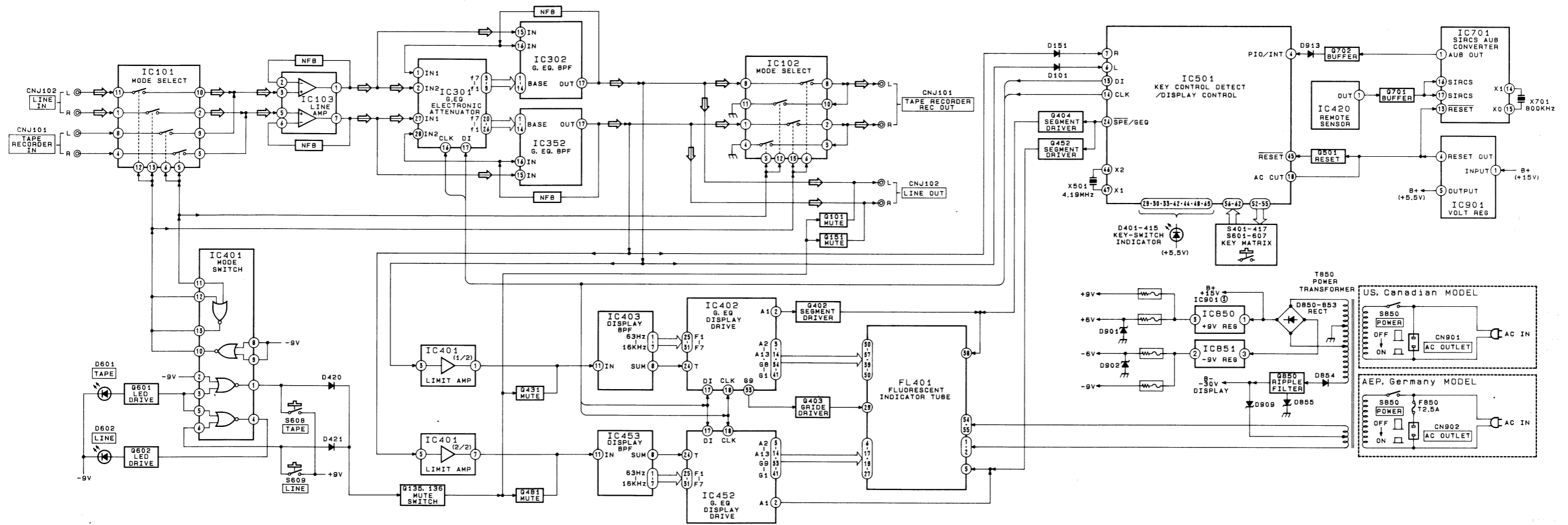
ANODE CONNECTION

	9GA	8GA	7GA	6GA	5GA	4GA	3GA	2GA	1GA
P1A	-	B1	B1	B1	B1	B1	B1	B1	B14
P2A	-	B2	B2	B2	B2	B2	B2	B2	B15
P3A	-	B3	B3	B3	B3	B3	B3	B3	B16
P4A	-	B4	B4	B4	B4	B4	B4	B4	B17
P5A	-	B5	B5	B5	B5	B5	B5	B5	B18
P6A	-	B6	B6	B6	B6	B6	B6	B6	B19
P7A	-	B7	B7	B7	B7	B7	B7	B7	B20
P8A	-	P8	P8	P8	P8	P8	P8	P8	B21
P9A	-	B9	B9	B9	B9	B9	B9	B9	B22
P10A	-	B10	B10	B10	B10	B10	B10	B10	B23
P11A	-	B11	B11	B11	B11	B11	B11	B11	B24
P12A	-	B12	B12	B12	B12	B12	B12	B12	B25
P13A	S3	B13	B13	B13	B13	B13	B13	B13	B26
P14A	S2	-	-	-	-	-	-	-	S1

	9GB	8GB	7GB	6GB	5GB	4GB	3GB	2GB	1GB
P1B	B1	B1	B1	B1	B1	B1	B1	B14	-
P2B	B2	B2	B2	B2	B2	B2	B2	B15	-
P3B	B3	B3	B3	B3	B3	B3	B3	B16	-
P4B	B4	B4	B4	B4	B4	B4	B4	B17	-
P5B	B5	B5	B5	B5	B5	B5	B5	B18	-
P6B	B6	B6	B6	B6	B6	B6	B6	B19	-
P7B	B7	B7	B7	B7	B7	B7	B7	B20	-
P8B	P8	P8	P8	P8	P8	P8	P8	B21	-
P9B	B9	B9	B9	B9	B9	B9	B9	B22	-
P10B	B10	B10	B10	B10	B10	B10	B10	B23	-
P11B	B11	B11	B11	B11	B11	B11	B11	B24	-
P12B	B12	B12	B12	B12	B12	B12	B12	B25	-
P13B	B13	B13	B13	B13	B13	B13	B13	B26	S6
P14B	S4	-	-	-	-	-	-	-	S5

SECTION 2
DIAGRAMS

2-1. BLOCK DIAGRAM

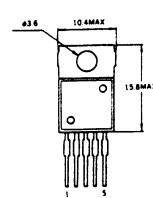


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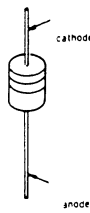
2-2. PRINTED WIRING BOARDS

• Semiconductor Lead Layouts

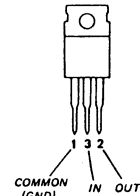
L78MR06



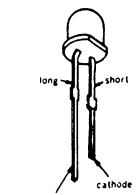
HZS6A1L
HZS6B1L
HZS30-2L
UZL-7M1
11ES2



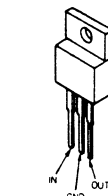
M5F7909L



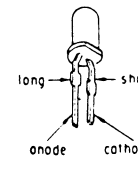
SEL2810A



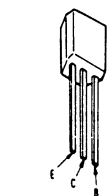
RC7809FA



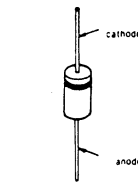
SEL2810A-C



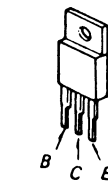
DTA114ES
DTC114ES
2SC2603-EF
2SC3622A-LK



1N4148M



2SB1094-LK

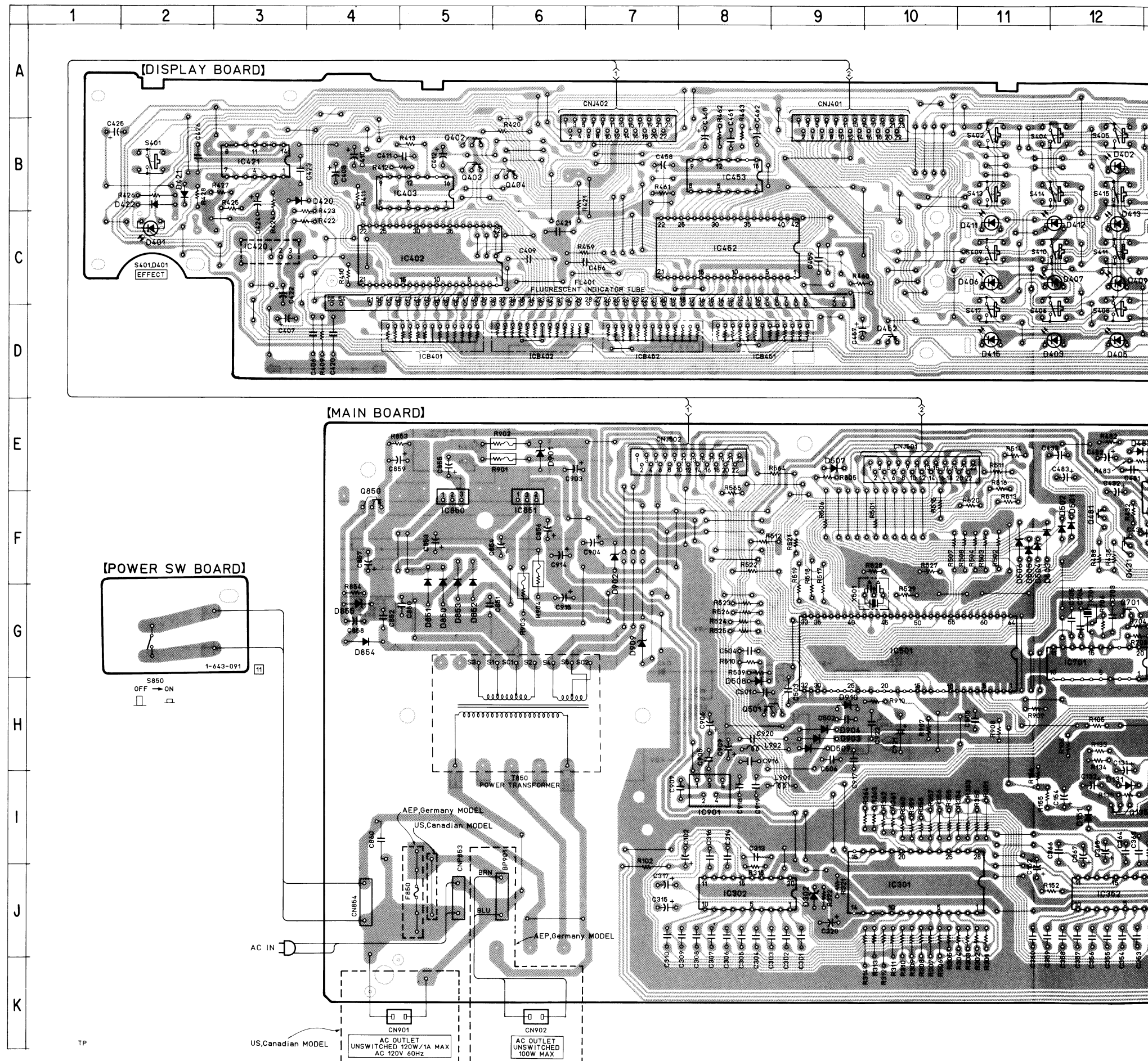


• Semiconductor Location

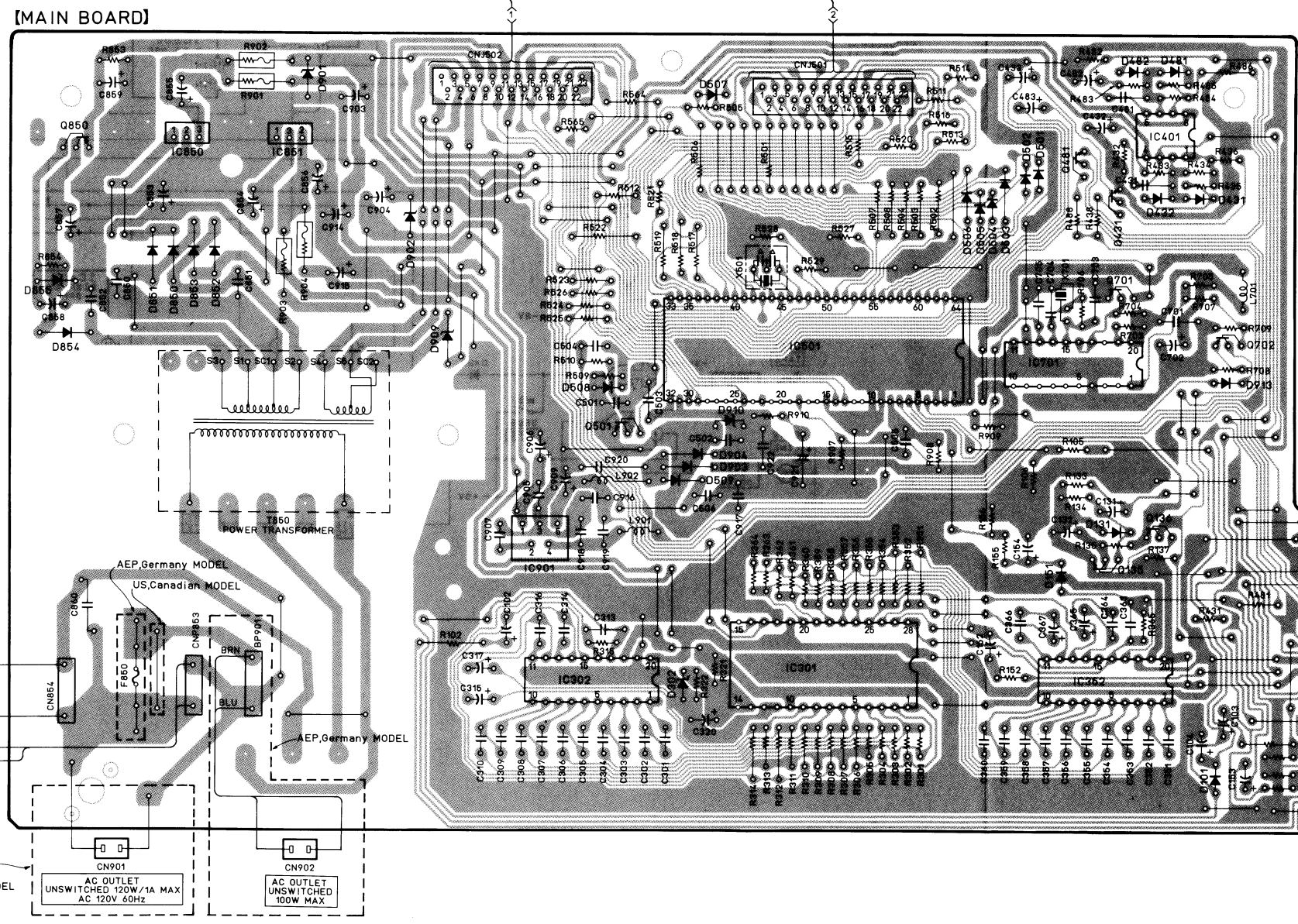
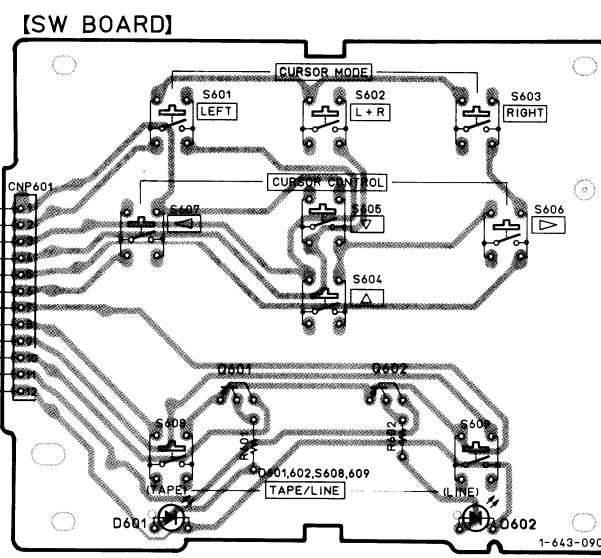
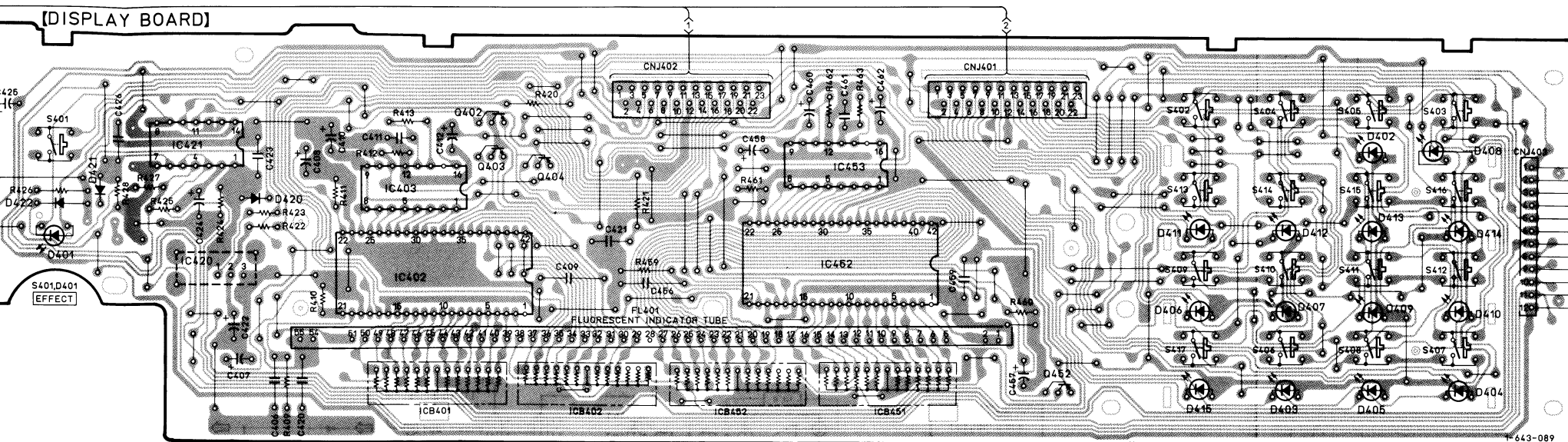
Ref. No.	Location	Ref. No.	Location
D101	K-13	D901	E-6
D131	I-12	D902	F-7
D151	I-12	D903	H-9
D302	J-9	D904	H-9
D401	C-2	D909	G-7
D402	B-12	D910	H-9
D403	D-12	D913	G-13
D404	D-13		
D405	D-12	IC101	J-16
D406	C-11	IC102	J-15
D407	C-12	IC103	I-15
D408	B-13	IC301	J-10
D409	C-12	IC302	J-8
D410	C-13	IC352	J-12
D411	C-11	IC401	F-13
D412	C-12	IC402	C-5
D413	C-12	IC403	B-5
D414	C-13	IC420	C-3
D415	D-11	IC421	B-3
D420	B-3	IC452	C-8
D421	B-2	IC453	B-8
D422	B-2	IC501	G-10
D431	F-13	IC701	G-12
D432	F-13	IC850	F-5
D481	E-13	IC851	F-6
D482	E-12	IC901	I-8
D501	F-12		
D502	F-12	Q101	J-16
D503	F-11	Q135	I-12
D504	F-11	Q136	I-13
D505	F-11	Q151	K-15
D506	F-11	Q402	B-5
D507	E-9	Q403	B-5
D508	H-8	Q404	B-6
D509	H-9	Q431	F-12
D601	D-15	Q452	D-10
D602	D-17	Q481	F-12
D850	G-5	Q501	H-8
D851	G-5	Q601	C-15
D852	G-5	Q602	C-16
D853	G-5	Q701	G-12
D854	G-4	Q702	G-13
D855	G-4	Q850	F-4

Note:

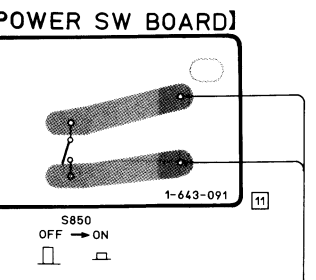
- ○ : parts extracted from the component side.
- ■ : Pattern on the side which is seen.



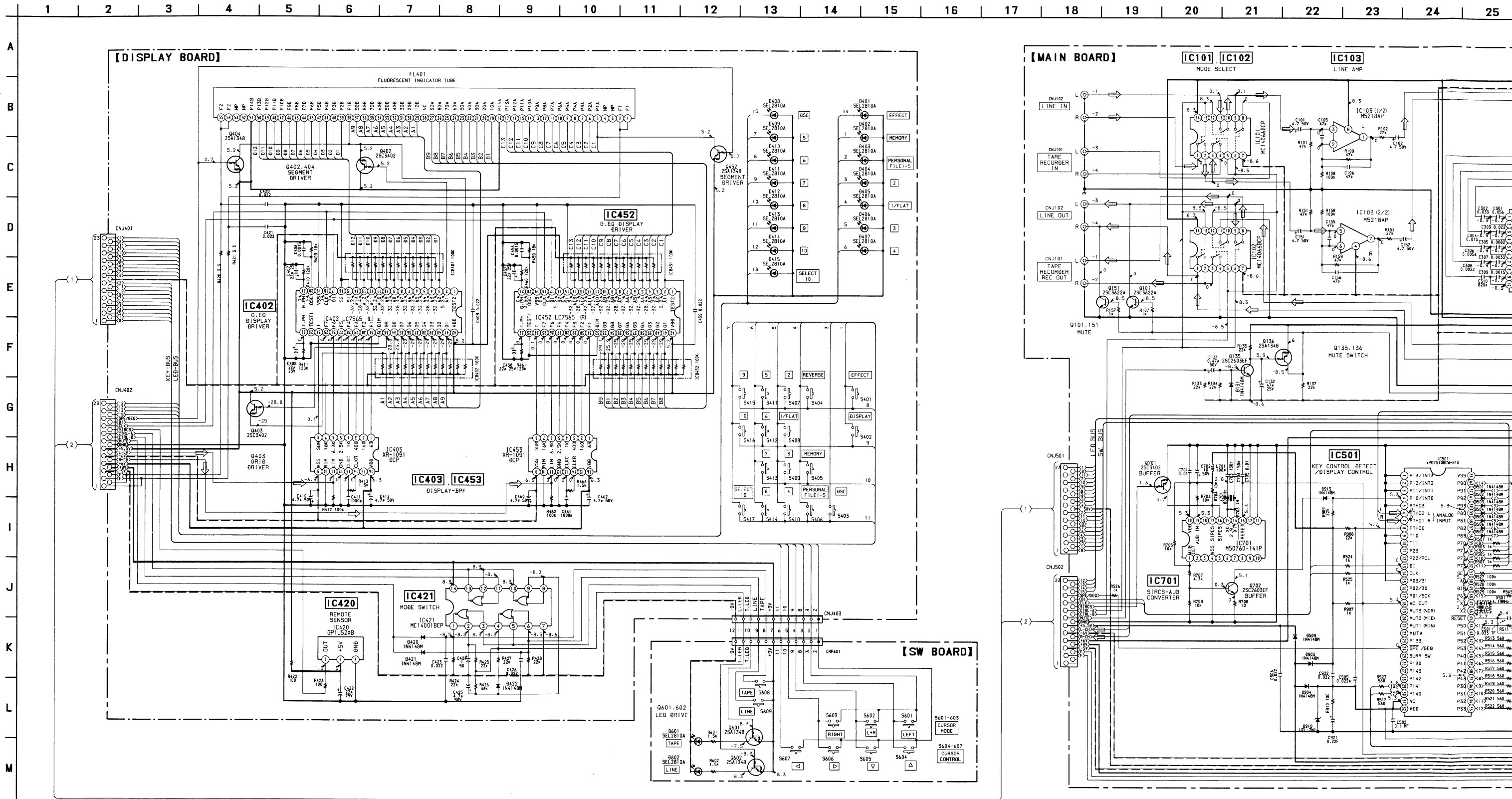
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

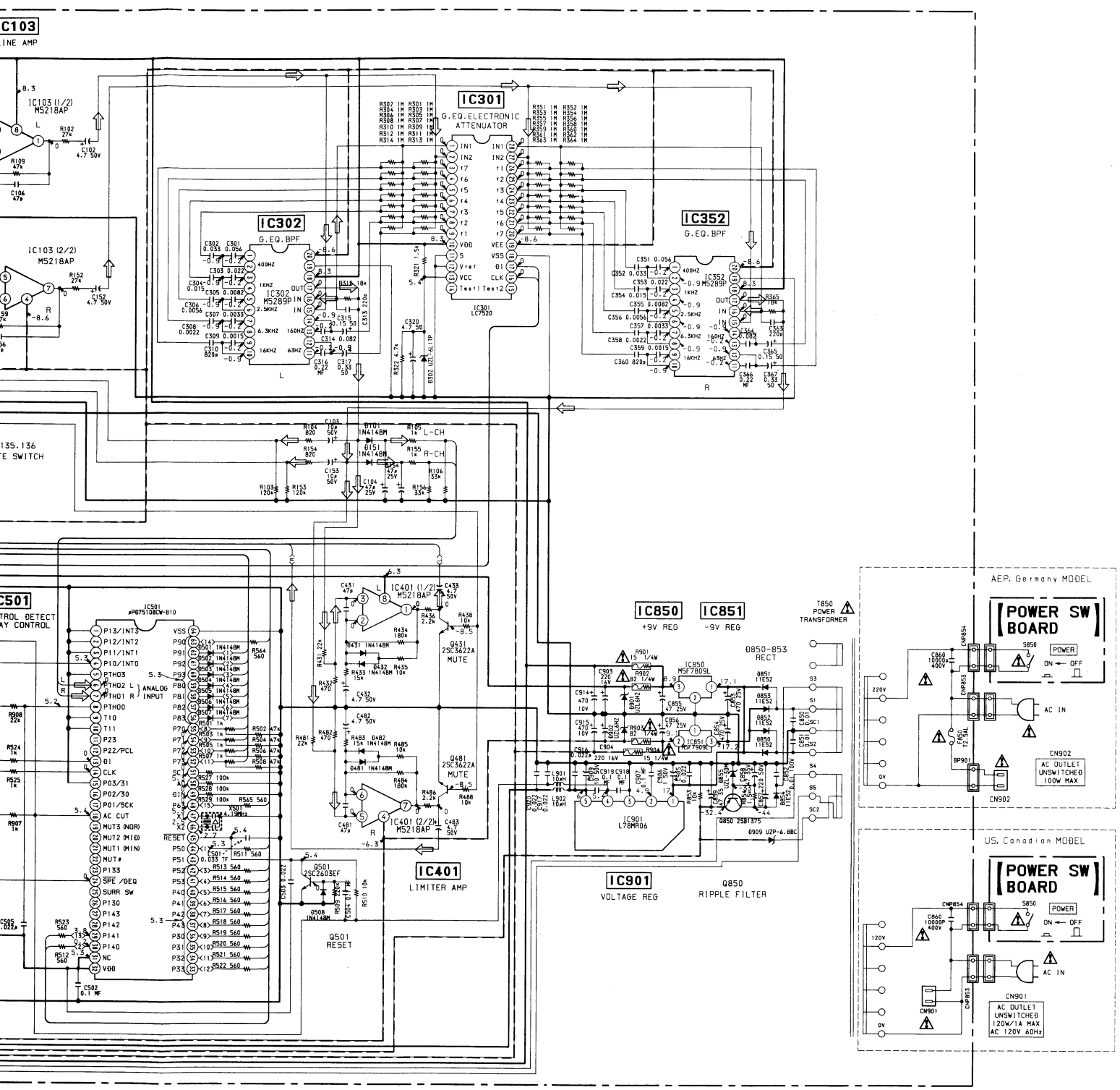


S402 DISPLAY	S404 REVERSE	D402,S405 MEMORY	D408,S403 DSC
D411,S413 7	D412,S414 8	D413,S416 9	D414,S416 10
D406,S409 3	D407,S410 4	D409,S411 5	D410,S412 6
D415,S417 SELECT 10	D403,S406 PERSONAL FILE1-5	D405,S408 1/FLAT	D404,S407 2

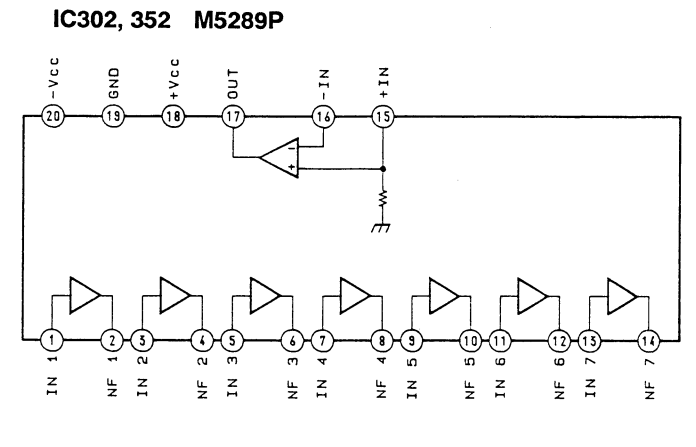
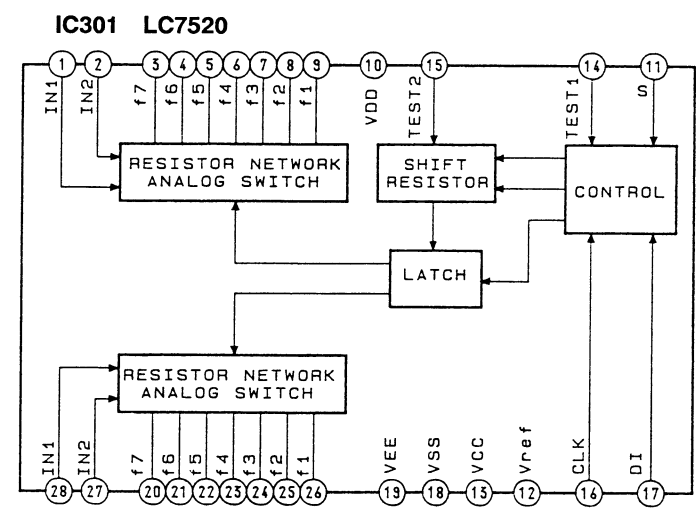


2-3. SCHEMATIC DIAGRAM

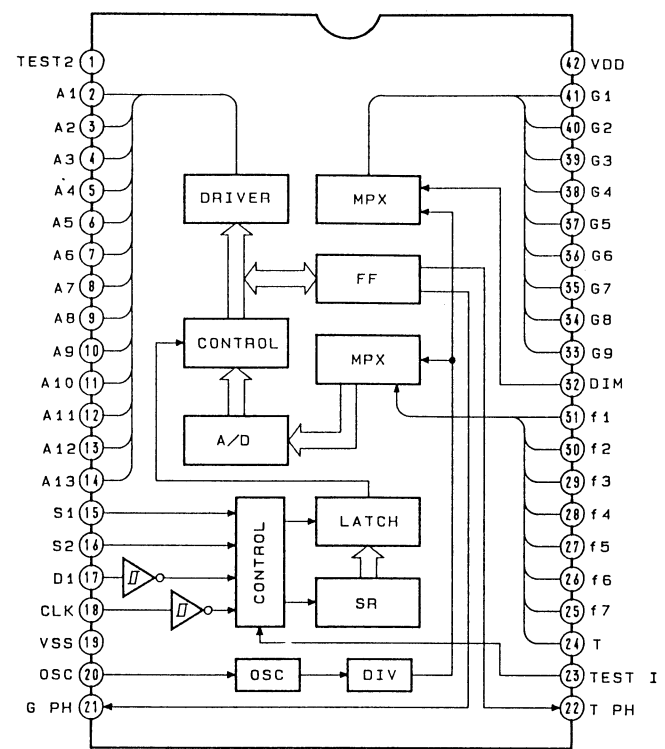




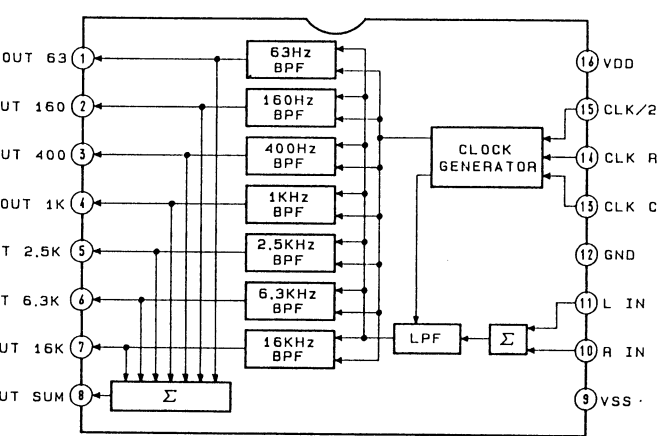
• IC Block Diagrams



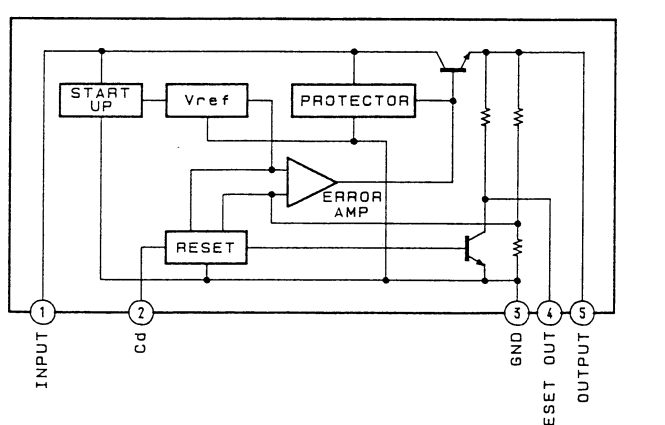
IC402, 452 LC7565K



IC403, 453 XR1091



IC901 L78MR06



- Note:**
- All capacitors are in μF unless otherwise noted. pF : μpF
 - 50 WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $\frac{1}{4}$ W or less unless otherwise specified.
 - Δ : internal component.
 - --- : fusible resistor.

- Note:**
- The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.
- Note:**
- Les composants identifiés par une marque Δ 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. PERSONAL FILE 1 - 5 SW : ON
- Voltages are taken with a VOM (input impedance 10 M Ω). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- --- : LINE IN

DISPLAY

SECTION 4 ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA ..: μ A.. uPA..: μ PA..
uPB..: μ PB.. uPC..: μ PC.. uPD..: μ PD..
- CAPACITORS
uF: μ F
- COILS
uH: μ H

When indicating parts by reference number, please include the board.

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-4347-423-A	DISPLAY BOARD, COMPLETE *****		D406	8-719-301-52	LED SEL2810A-C	
*	4-933-621-01	HOLDER (EQ), FL		D407	8-719-301-52	LED SEL2810A-C	
*	4-934-823-01	HOLDER, LED		D408	8-719-301-52	LED SEL2810A-C	
		< CAPACITOR >		D409	8-719-301-52	LED SEL2810A-C	
C406	1-161-374-11	CERAMIC	0.0015uF 20% 50V	D410	8-719-301-52	LED SEL2810A-C	
C407	1-126-233-11	ELECT	22uF 20% 50V	D411	8-719-301-52	LED SEL2810A-C	
C408	1-126-233-11	ELECT	22uF 20% 50V	D412	8-719-301-52	LED SEL2810A-C	
C409	1-161-494-00	CERAMIC	0.022uF 25V	D413	8-719-301-52	LED SEL2810A-C	
C410	1-124-927-11	ELECT	4.7uF 20% 100V	D414	8-719-301-52	LED SEL2810A-C	
C411	1-130-471-00	MYLAR	0.001uF 5% 50V	D415	8-719-301-52	LED SEL2810A-C	
C412	1-124-927-11	ELECT	4.7uF 20% 100V	D420	8-719-987-63	DIODE 1N4148M	
C420	1-161-494-00	CERAMIC	0.022uF 25V	D421	8-719-987-63	DIODE 1N4148M	
C421	1-161-494-00	CERAMIC	0.022uF 25V	D422	8-719-987-63	DIODE 1N4148M	
C422	1-126-233-11	ELECT	22uF 20% 50V			< FILTER >	
C423	1-161-494-00	CERAMIC	0.022uF 25V	FL401	B1-519-733-11	INDICATOR TUBE, FLUORESCENT	
C424	1-124-903-11	ELECT	1uF 20% 50V			< IC >	
C425	1-124-927-11	ELECT	4.7uF 20% 100V	IC402	8-759-820-59	IC LC7565	
C426	1-161-494-00	CERAMIC	0.022uF 25V	IC403	8-759-991-11	IC XR1091DCP	
C456	1-161-374-11	CERAMIC	0.0015uF 20% 50V	IC420	8-749-920-83	IC GP1U52XB	
C457	1-126-233-11	ELECT	22uF 20% 50V	IC421	8-759-040-01	IC MC14001BCP	
C458	1-126-233-11	ELECT	22uF 20% 50V	IC452	8-759-820-59	IC LC7565	
C459	1-161-494-00	CERAMIC	0.022uF 25V	IC453	8-759-991-11	IC XR1091DCP	
C460	1-124-927-11	ELECT	4.7uF 20% 100V			< COMPOSITION CIRCUIT BLOCK >	
C461	1-130-471-00	MYLAR	0.001uF 5% 50V	ICB401	1-233-198-11	IC COMPOSITION CIRCUIT BLOCK	
C462	1-124-927-11	ELECT	4.7uF 20% 100V	ICB402	1-233-198-11	IC COMPOSITION CIRCUIT BLOCK	
		< JACK >		ICB451	1-233-198-11	IC COMPOSITION CIRCUIT BLOCK	
CNJ401	1-691-652-11	SOCKET, CONNECTOR 23P		ICB452	1-233-198-11	IC COMPOSITION CIRCUIT BLOCK	
CNJ402	1-691-652-11	SOCKET, CONNECTOR 23P				< TRANSISTOR >	
* CNJ403	1-565-488-11	CONNECTOR, BOARD TO BOARD 12P		Q402	8-729-900-80	TRANSISTOR DTC114ES	
		< DIODE >		Q403	8-729-900-80	TRANSISTOR DTC114ES	
D401	8-719-301-49	LED SEL2810A		Q404	8-729-900-61	TRANSISTOR DTA114ES	
D402	8-719-301-52	LED SEL2810A-C		Q452	8-729-900-61	TRANSISTOR DTA114ES	
D403	8-719-301-52	LED SEL2810A-C					
D404	8-719-301-52	LED SEL2810A-C					
D405	8-719-301-52	LED SEL2810A-C					

Ref. No.	Part No.	Description	Remark
< RESISTOR >			
R409	1-249-432-11	CARBON 18K 5%	1/4W
R410	1-247-881-00	CARBON 120K 5%	1/4W
R411	1-247-881-00	CARBON 120K 5%	1/4W
R412	1-249-441-11	CARBON 100K 5%	1/4W
R413	1-249-419-11	CARBON 1.5K 5%	1/4W
R420	1-249-387-11	CARBON 3.3 5%	1/4W
R421	1-249-387-11	CARBON 3.3 5%	1/4W
R422	1-249-405-11	CARBON 100 5%	1/4W
R423	1-249-405-11	CARBON 100 5%	1/4W
R424	1-249-433-11	CARBON 22K 5%	1/4W
R425	1-249-433-11	CARBON 22K 5%	1/4W
R426	1-249-435-11	CARBON 33K 5%	1/4W
R427	1-249-433-11	CARBON 22K 5%	1/4W
R428	1-249-433-11	CARBON 22K 5%	1/4W
R459	1-249-432-11	CARBON 18K 5%	1/4W
R460	1-247-881-00	CARBON 120K 5%	1/4W
R461	1-247-881-00	CARBON 120K 5%	1/4W
R462	1-249-441-11	CARBON 100K 5%	1/4W
R463	1-249-419-11	CARBON 1.5K 5%	1/4W
< SWITCH >			
S401	1-554-303-21	SWITCH, TACTILE	
S402	1-554-303-21	SWITCH, TACTILE	
S403	1-554-303-21	SWITCH, TACTILE	
S404	1-554-303-21	SWITCH, TACTILE	
S405	1-554-303-21	SWITCH, TACTILE	
S406	1-554-303-21	SWITCH, TACTILE	
S407	1-554-303-21	SWITCH, TACTILE	
S408	1-554-303-21	SWITCH, TACTILE	
S409	1-554-303-21	SWITCH, TACTILE	
S410	1-554-303-21	SWITCH, TACTILE	
S411	1-554-303-21	SWITCH, TACTILE	
S412	1-554-303-21	SWITCH, TACTILE	
S413	1-554-303-21	SWITCH, TACTILE	
S414	1-554-303-21	SWITCH, TACTILE	
S415	1-554-303-21	SWITCH, TACTILE	
S416	1-554-303-21	SWITCH, TACTILE	
S417	1-554-303-21	SWITCH, TACTILE	

*	A-4347-422-A	MAIN BOARD, COMPLETE (AEP, Germany)	
*	A-4347-425-A	MAIN BOARD, COMPLETE (US, Canadian)	

*	1-643-091-11	POWER SW BOARD	

Ref. No.	Part No.	Description	Remark
*	1-533-213-31	HOLDER, FUSE (AEP, Germany)	
*	3-309-144-21	HEAT SINK	
< BASE POST >			
BP901	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P	(AEP, Germany)
< CAPACITOR >			
C101	1-124-927-11	ELECT 4.7uF	20% 100V
C102	1-124-927-11	ELECT 4.7uF	20% 100V
C103	1-124-907-11	ELECT 10uF	20% 50V
C104	1-124-477-11	ELECT 47uF	20% 25V
C105	1-162-215-31	CERAMIC 47PF	5% 50V
C106	1-162-215-31	CERAMIC 47PF	5% 50V
C131	1-124-902-00	ELECT 0.47uF	20% 50V
C132	1-124-477-11	ELECT 47uF	20% 25V
C151	1-124-927-11	ELECT 4.7uF	20% 100V
C152	1-124-927-11	ELECT 4.7uF	20% 100V
C153	1-124-907-11	ELECT 10uF	20% 50V
C154	1-124-477-11	ELECT 47uF	20% 25V
C155	1-162-215-31	CERAMIC 47PF	5% 50V
C156	1-162-215-31	CERAMIC 47PF	5% 50V
C301	1-130-492-11	MYLAR 0.056uF	5% 50V
C302	1-161-057-00	CERAMIC 0.033uF	10% 50V
C303	1-161-055-00	CERAMIC 0.022uF	10% 50V
C304	1-161-053-00	CERAMIC 0.015uF	10% 50V
C305	1-161-050-00	CERAMIC 0.0082uF	10% 25V
C306	1-161-048-00	CERAMIC 0.0056uF	10% 25V
C307	1-161-045-00	CERAMIC 0.0033uF	10% 50V
C308	1-161-043-00	CERAMIC 0.0022uF	10% 50V
C309	1-164-087-11	CERAMIC 0.0015uF	10% 50V
C310	1-164-084-11	CERAMIC 820PF	10% 50V
C313	1-162-286-31	CERAMIC 220PF	10% 50V
C314	1-136-164-00	FILM 0.082uF	5% 50V
C315	1-124-250-00	ELECT 0.15uF	20% 50V
C316	1-136-169-00	FILM 0.22uF	5% 50V
C317	1-124-252-00	ELECT 0.33uF	20% 50V
C320	1-124-927-11	ELECT 4.7uF	20% 100V
C351	1-130-492-11	MYLAR 0.056uF	5% 50V
C352	1-161-057-00	CERAMIC 0.033uF	10% 50V
C353	1-161-055-00	CERAMIC 0.022uF	10% 50V
C354	1-161-053-00	CERAMIC 0.015uF	10% 50V
C355	1-161-050-00	CERAMIC 0.0082uF	10% 25V
C356	1-161-048-00	CERAMIC 0.0056uF	10% 25V
C357	1-161-045-00	CERAMIC 0.0033uF	10% 50V
C358	1-161-043-00	CERAMIC 0.0022uF	10% 50V
C359	1-164-087-11	CERAMIC 0.0015uF	10% 50V
C360	1-164-084-11	CERAMIC 820PF	10% 50V

MAIN

POWER SW

Ref. No.	Part No.	Description		Remark
C363	1-162-286-31	CERAMIC	220PF	10% 50V
C364	1-136-164-00	FILM	0.082uF	5% 50V
C365	1-124-250-00	ELECT	0.15uF	20% 50V
C366	1-136-169-00	FILM	0.22uF	5% 50V
C367	1-124-252-00	ELECT	0.33uF	20% 50V
C431	1-162-215-31	CERAMIC	47PF	5% 50V
C432	1-124-927-11	ELECT	4.7uF	20% 100V
C433	1-124-927-11	ELECT	4.7uF	20% 100V
C481	1-162-215-31	CERAMIC	47PF	5% 50V
C482	1-124-927-11	ELECT	4.7uF	20% 100V
C483	1-124-927-11	ELECT	4.7uF	20% 100V
C501	1-130-489-00	MYLAR	0.033uF	5% 50V
C502	1-136-165-00	FILM	0.1uF	5% 50V
C503	1-161-494-00	CERAMIC	0.022uF	25V
C504	1-136-165-00	FILM	0.1uF	5% 50V
C505	1-161-055-00	CERAMIC	0.022uF	10% 50V
C506	1-161-055-00	CERAMIC	0.022uF	10% 50V
C701	1-161-379-00	CERAMIC	0.01uF	20% 25V
C702	1-124-907-11	ELECT	10uF	20% 50V
C703	1-162-284-31	CERAMIC	150PF	10% 50V
C704	1-162-284-31	CERAMIC	150PF	10% 50V
C705	1-161-379-00	CERAMIC	0.01uF	20% 25V
C850	1-164-096-11	CERAMIC	0.01uF	50V
C851	1-164-096-11	CERAMIC	0.01uF	50V
C852	1-106-367-00	MYLAR	0.01uF	5% 200V
C853	1-124-480-11	ELECT	470uF	20% 25V
C854	1-124-480-11	ELECT	470uF	20% 25V
C855	1-124-477-11	ELECT	47uF	20% 25V
C856	1-124-477-11	ELECT	47uF	20% 25V
C857	1-124-911-11	ELECT	220uF	20% 50V
C858	1-124-910-11	ELECT	47uF	20% 50V
C859	1-124-910-11	ELECT	47uF	20% 50V
△C860	1-161-744-00	CERAMIC	0.01uF	400V
C903	1-124-120-11	ELECT	220uF	20% 25V
C904	1-124-120-11	ELECT	220uF	20% 25V
C905	1-161-055-00	CERAMIC	0.022uF	10% 50V
C906	1-124-903-11	ELECT	1uF	20% 50V
C907	1-136-165-00	FILM	0.1uF	5% 50V
C909	1-124-907-11	ELECT	10uF	20% 50V
C914	1-124-472-11	ELECT	470uF	20% 10V
C915	1-124-472-11	ELECT	470uF	20% 10V
C916	1-161-055-00	CERAMIC	0.022uF	10% 50V
C917	1-161-055-00	CERAMIC	0.022uF	10% 50V
C918	1-136-165-00	FILM	0.1uF	5% 50V
C919	1-136-165-00	FILM	0.1uF	5% 50V
C920	1-161-494-00	CERAMIC	0.022uF	25V
C921	1-125-486-11	DOUBLE LAYERS	0.22F	5.5V
C922	1-161-494-00	CERAMIC	0.022uF	25V

Ref. No.	Part No.	Description	Remark
< CONNECTOR >			
△CN901	1-540-057-11	OUTLET, AC (POLAR) (US, Canadian)	
△CN902	1-526-794-11	OUTLET, AC (AEP, Germany)	
< JACK >			
CNJ101	1-565-258-11	JACK, PIN 4P	
CNJ102	1-565-258-11	JACK, PIN 4P	
* CNJ501	1-568-839-11	SOCKET, CONNECTOR 23P	
* CNJ502	1-568-839-11	SOCKET, CONNECTOR 23P	
< CONNECTOR >			
* CNP853	1-564-321-00	PIN, CONNECTOR 2P	
CNP854	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P	
< DIODE >			
D101	8-719-987-63	DIODE 1N4148M	
D131	8-719-987-63	DIODE 1N4148M	
D151	8-719-987-63	DIODE 1N4148M	
D302	8-719-933-33	DIODE HZS6A1L	
D431	8-719-987-63	DIODE 1N4148M	
D432	8-719-987-63	DIODE 1N4148M	
D481	8-719-987-63	DIODE 1N4148M	
D482	8-719-987-63	DIODE 1N4148M	
D501	8-719-987-63	DIODE 1N4148M	
D502	8-719-987-63	DIODE 1N4148M	
D503	8-719-987-63	DIODE 1N4148M	
D504	8-719-987-63	DIODE 1N4148M	
D505	8-719-987-63	DIODE 1N4148M	
D506	8-719-987-63	DIODE 1N4148M	
D507	8-719-987-63	DIODE 1N4148M	
D508	8-719-987-63	DIODE 1N4148M	
D509	8-719-987-63	DIODE 1N4148M	
D850	8-719-200-82	DIODE 11ES2	
D851	8-719-200-82	DIODE 11ES2	
D852	8-719-200-82	DIODE 11ES2	
D853	8-719-200-82	DIODE 11ES2	
D854	8-719-200-82	DIODE 11ES2	
D855	8-719-934-22	LED HZS30-2L	
D901	8-719-933-36	DIODE HZS6B1L	
D902	8-719-933-36	DIODE HZS6B1L	
D903	8-719-987-63	DIODE 1N4148M	
D904	8-719-987-63	DIODE 1N4148M	
D909	8-719-014-88	DIODE UZP-6.8BC	
D910	8-719-000-84	DIODE UZL-7M1	
D913	8-719-987-63	DIODE 1N4148M	
< FUSE >			
△F850	1-532-286-00	FUSE (2.5A) (AEP, Germany)	

<p>The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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Ref. No.	Part No.	Description	Remark
< IC >			
IC101	8-759-000-49 IC	MC14066BCP	
IC102	8-759-000-49 IC	MC14066BCP	
IC103	8-759-634-51 IC	M5218AP	
IC301	8-759-820-60 IC	LC7520	
IC302	8-759-633-78 IC	M5289P	
IC352	8-759-633-78 IC	M5289P	
IC401	8-759-634-51 IC	M5218AP	
IC501	8-759-149-01 IC	uPD75108CW-B10	
IC701	8-759-634-73 IC	M50760-141P	
IC850	8-759-982-10 IC	RC7809FA	
IC851	8-759-604-49 IC	M5F7909	
IC901	8-759-820-13 IC	L78MR06	
< COIL >			
L701	1-410-521-11 INDUCTOR	100uH	
L901	1-410-509-11 INDUCTOR	10uH	
L902	1-410-509-11 INDUCTOR	10uH	
< TRANSISTOR >			
Q101	8-729-141-26 TRANSISTOR	2SC3622A-LK	
Q135	8-729-620-05 TRANSISTOR	2SC2603-EF	
Q136	8-729-900-61 TRANSISTOR	DTA114ES	
Q151	8-729-141-26 TRANSISTOR	2SC3622A-LK	
Q431	8-729-141-26 TRANSISTOR	2SC3622A-LK	
Q481	8-729-141-26 TRANSISTOR	2SC3622A-LK	
Q501	8-729-620-05 TRANSISTOR	2SC2603-EF	
Q701	8-729-900-80 TRANSISTOR	DTC114ES	
Q702	8-729-620-05 TRANSISTOR	2SC2603-EF	
Q850	8-729-141-83 TRANSISTOR	2SB1094-LK	
< RESISTOR >			
R101	1-249-437-11 CARBON	47K 5%	1/4W
R102	1-249-434-11 CARBON	27K 5%	1/4W
R103	1-247-881-00 CARBON	120K 5%	1/4W
R104	1-249-416-11 CARBON	820 5%	1/4W
R105	1-249-417-11 CARBON	1K 5%	1/4W
R106	1-249-435-11 CARBON	33K 5%	1/4W
R107	1-249-417-11 CARBON	1K 5%	1/4W
R108	1-249-441-11 CARBON	100K 5%	1/4W
R109	1-249-437-11 CARBON	47K 5%	1/4W
R133	1-249-433-11 CARBON	22K 5%	1/4W
R134	1-249-433-11 CARBON	22K 5%	1/4W
R135	1-249-433-11 CARBON	22K 5%	1/4W
R137	1-249-433-11 CARBON	22K 5%	1/4W
R151	1-249-437-11 CARBON	47K 5%	1/4W
R152	1-249-434-11 CARBON	27K 5%	1/4W

Ref. No.	Part No.	Description	Remark
R153	1-247-881-00 CARBON	120K 5%	1/4W
R154	1-249-416-11 CARBON	820 5%	1/4W
R155	1-249-417-11 CARBON	1K 5%	1/4W
R156	1-249-435-11 CARBON	33K 5%	1/4W
R157	1-249-417-11 CARBON	1K 5%	1/4W
R158	1-249-441-11 CARBON	100K 5%	1/4W
R159	1-249-437-11 CARBON	47K 5%	1/4W
R301	1-247-903-00 CARBON	1M 5%	1/4W
R302	1-247-903-00 CARBON	1M 5%	1/4W
R303	1-247-903-00 CARBON	1M 5%	1/4W
R304	1-247-903-00 CARBON	1M 5%	1/4W
R305	1-247-903-00 CARBON	1M 5%	1/4W
R306	1-247-903-00 CARBON	1M 5%	1/4W
R307	1-247-903-00 CARBON	1M 5%	1/4W
R308	1-247-903-00 CARBON	1M 5%	1/4W
R309	1-247-903-00 CARBON	1M 5%	1/4W
R310	1-247-903-00 CARBON	1M 5%	1/4W
R311	1-247-903-00 CARBON	1M 5%	1/4W
R312	1-247-903-00 CARBON	1M 5%	1/4W
R313	1-247-903-00 CARBON	1M 5%	1/4W
R314	1-247-903-00 CARBON	1M 5%	1/4W
R315	1-249-432-11 CARBON	18K 5%	1/4W
R321	1-249-419-11 CARBON	1.5K 5%	1/4W
R322	1-249-425-11 CARBON	4.7K 5%	1/4W
R351	1-247-903-00 CARBON	1M 5%	1/4W
R352	1-247-903-00 CARBON	1M 5%	1/4W
R353	1-247-903-00 CARBON	1M 5%	1/4W
R354	1-247-903-00 CARBON	1M 5%	1/4W
R355	1-247-903-00 CARBON	1M 5%	1/4W
R356	1-247-903-00 CARBON	1M 5%	1/4W
R357	1-247-903-00 CARBON	1M 5%	1/4W
R358	1-247-903-00 CARBON	1M 5%	1/4W
R359	1-247-903-00 CARBON	1M 5%	1/4W
R360	1-247-903-00 CARBON	1M 5%	1/4W
R361	1-247-903-00 CARBON	1M 5%	1/4W
R362	1-247-903-00 CARBON	1M 5%	1/4W
R363	1-247-903-00 CARBON	1M 5%	1/4W
R364	1-247-903-00 CARBON	1M 5%	1/4W
R365	1-249-432-11 CARBON	18K 5%	1/4W
R431	1-249-433-11 CARBON	22K 5%	1/4W
R432	1-249-413-11 CARBON	470 5%	1/4W
R433	1-249-431-11 CARBON	15K 5%	1/4W
R434	1-247-885-00 CARBON	180K 5%	1/4W
R435	1-249-429-11 CARBON	10K 5%	1/4W
R436	1-249-421-11 CARBON	2.2K 5%	1/4W
R438	1-249-429-11 CARBON	10K 5%	1/4W
R481	1-249-433-11 CARBON	22K 5%	1/4W
R482	1-249-413-11 CARBON	470 5%	1/4W
R483	1-249-431-11 CARBON	15K 5%	1/4W

MAIN

POWER SW

SW

Ref. No.	Part No.	Description	Remark
R484	1-247-885-00	CARBON	180K 5% 1/4W
R485	1-249-429-11	CARBON	10K 5% 1/4W
R486	1-249-421-11	CARBON	2.2K 5% 1/4W
R488	1-249-429-11	CARBON	10K 5% 1/4W
R501	1-249-417-11	CARBON	1K 5% 1/4W
R502	1-249-437-11	CARBON	47K 5% 1/4W
R503	1-249-417-11	CARBON	1K 5% 1/4W
R504	1-249-437-11	CARBON	47K 5% 1/4W
R505	1-249-417-11	CARBON	1K 5% 1/4W
R506	1-249-437-11	CARBON	47K 5% 1/4W
R507	1-249-417-11	CARBON	1K 5% 1/4W
R508	1-249-437-11	CARBON	47K 5% 1/4W
R509	1-247-887-00	CARBON	220K 5% 1/4W
R510	1-249-429-11	CARBON	10K 5% 1/4W
R511	1-249-414-11	CARBON	560 5% 1/4W
R512	1-249-414-11	CARBON	560 5% 1/4W
R513	1-249-414-11	CARBON	560 5% 1/4W
R514	1-249-414-11	CARBON	560 5% 1/4W
R515	1-249-414-11	CARBON	560 5% 1/4W
R516	1-249-414-11	CARBON	560 5% 1/4W
R517	1-249-414-11	CARBON	560 5% 1/4W
R518	1-249-414-11	CARBON	560 5% 1/4W
R519	1-249-414-11	CARBON	560 5% 1/4W
R520	1-249-414-11	CARBON	560 5% 1/4W
R521	1-249-414-11	CARBON	560 5% 1/4W
R522	1-249-414-11	CARBON	560 5% 1/4W
R523	1-249-414-11	CARBON	560 5% 1/4W
R524	1-249-417-11	CARBON	1K 5% 1/4W
R525	1-249-417-11	CARBON	1K 5% 1/4W
R526	1-249-417-11	CARBON	1K 5% 1/4W
R527	1-249-441-11	CARBON	100K 5% 1/4W
R528	1-249-441-11	CARBON	100K 5% 1/4W
R529	1-249-441-11	CARBON	100K 5% 1/4W
R564	1-249-414-11	CARBON	560 5% 1/4W
R565	1-249-414-11	CARBON	560 5% 1/4W
R703	1-249-429-11	CARBON	10K 5% 1/4W
R704	1-249-429-11	CARBON	10K 5% 1/4W
R705	1-249-429-11	CARBON	10K 5% 1/4W
R706	1-247-903-00	CARBON	1M 5% 1/4W
R707	1-249-425-11	CARBON	4.7K 5% 1/4W
R708	1-249-393-11	CARBON	10 5% 1/4W
R709	1-249-429-11	CARBON	10K 5% 1/4W
R853	1-249-429-11	CARBON	10K 5% 1/4W
R854	1-249-419-11	CARBON	1.5K 5% 1/4W
R901	1-212-861-11	FUSIBLE	15 5% 1/4W F
R902	1-212-879-11	FUSIBLE	82 5% 1/4W F

Ref. No.	Part No.	Description	Remark
R903	1-212-879-11	FUSIBLE	82 5% 1/4W F
R904	1-212-861-11	FUSIBLE	15 5% 1/4W F
R907	1-249-417-11	CARBON	1K 5% 1/4W
R908	1-249-433-11	CARBON	22K 5% 1/4W
R909	1-249-433-11	CARBON	22K 5% 1/4W
R910	1-249-405-11	CARBON	100 5% 1/4W
		< SWITCH >	
S850	1-554-920-21	SWITCH, PUSH (AC POWER) (1 KEY)	
		< TRANSFORMER >	
△T850	1-450-844-11	TRANSFORMER, POWER (US, Canadian)	
△T850	1-450-119-11	TRANSFORMER, POWER (AEP, Germany)	
		< VIBRATOR >	
X501	1-577-359-21	VIBRATOR, CERAMIC (4.19MHz)	
X701	1-578-699-11	OSCILLATOR, CERAMIC (800KHz)	

*	1-643-090-11	SW BOARD	*****
		< CONNECTOR >	
* CNP601	1-573-148-11	PLUG, CONNECTOR 12P	
		< DIODE >	
D601	8-719-301-49	LED SEL2810A	
D602	8-719-301-49	LED SEL2810A	
		< TRANSISTOR >	
Q601	8-729-900-61	TRANSISTOR DTA114ES	
Q602	8-729-900-61	TRANSISTOR DTA114ES	
		< RESISTOR >	
R601	1-249-419-11	CARBON	1.5K 5% 1/4W
R602	1-249-419-11	CARBON	1.5K 5% 1/4W
		< SWITCH >	
S601	1-554-303-21	SWITCH, TACTILE	
S602	1-554-303-21	SWITCH, TACTILE	
S603	1-554-303-21	SWITCH, TACTILE	
S604	1-554-303-21	SWITCH, TACTILE	
S605	1-554-303-21	SWITCH, TACTILE	
S606	1-554-303-21	SWITCH, TACTILE	
S607	1-554-303-21	SWITCH, TACTILE	
S608	1-554-303-21	SWITCH, TACTILE	
S609	1-554-303-21	SWITCH, TACTILE	

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.
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Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS *****	
15	1-575-903-11	WIRE, FLAT TYPE (23 CORE)	
△18	1-575-651-11	CORD, POWER (AEP, Germany)	
△18	1-590-551-11	CORD, POWER (US, Canadian)	
△CN901	1-540-057-11	OUTLET, AC (POLAR) (US, Canadian)	
△CN902	1-526-794-11	OUTLET, AC (AEP, Germany)	
△F850	1-532-286-00	FUSE (2.5A) (AEP, Germany)	
FL401	1-519-733-11	INDICATOR TUBE, FLUORESCENT	
△T850	1-450-119-11	TRANSFORMER, POWER (AEP, Germany)	
△T850	1-450-844-11	TRANSFORMER, POWER (US, Canadian)	

ACCESSORIES & PACKING MATERIALS

1-558-271-11 CORD, CONNECTION
 1-693-021-11 COMMANDER (STANDARD) (RM-J711)
 2-128-529-01 CASE, BATTERY

3-755-053-11 MANUAL, INSTRUCTION (ENGLISH, FRENCH,
 SPANISH, PORTUGUESE) (Canadian, AEP)
 3-755-053-21 MANUAL, INSTRUCTION (ENGLISH) (US)
 3-755-053-41 MANUAL, INSTRUCTION (GERMAN, DUTCH,
 SWEDISH, ITALIAN) (AEP, Germany)

* 4-931-987-01 CUSHION
 * 4-931-988-51 INDIVIDUAL CARTON

HARDWARE LIST

#1 7-685-646-79 SCREW +BVTP 3X8 TYPE2 N-S
 #2 7-682-548-04 SCREW +BVTT 3X8 (S)
 #3 7-682-549-04 SCREW +BVTT 3X10 (S)
 #5 7-621-849-00 SCREW (BV/RING)

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.
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