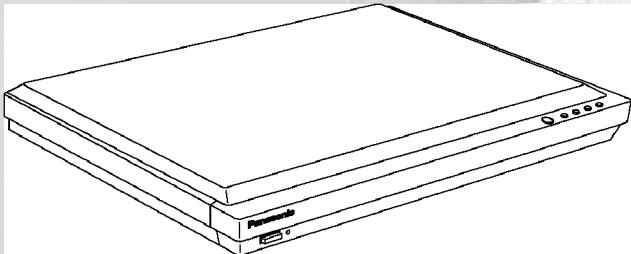


# Service Manual

**Receiver**



## TU-PT600E EURO-7TU Chassis

### Specifications

#### Power Source

220V-240V 50Hz/60Hz A.C.

#### Power Consumption

Average: 24W

Stand-by: 3W

Power-OFF: 0W

#### Receiving Systems/ Band name

##### PAL B, G, H, SECAM B, G SECAM L/L'

VHF E2-E12      VHF H1-H2 (ITALY)

VHF A-H (ITALY)      UHF E21-E69

CATV (S01-S05)      CATV S1-S10 (M1-M10)

CATV S11-S20  
(U1-U10)

CATV S21-S41  
(Hyperband)

##### PAL D, K, SECAM D, K

VHF R1-R2      VHF R3-R5

VHF R6-R12      UHF E21-E69

##### PAL 525/60

Playback of NTSC tape from some PAL video recorders  
(VCR)

##### M.NTSC

Playback from M.NTSC Video recorders (VCR)

##### NTSC

Playback from NTSC Video recorders (VCR)  
(AV INPUT ONLY)

#### OUTPUT

DISPLAY OUT:      D-SUB 26-pin

AUDIO OUT:      AUDIO L-R (Pin  
Jack Type×2):      0.5Vrms

#### INPUT

|            |                                  |  |
|------------|----------------------------------|--|
| AV3-Front: | VIDEO<br>(Pin Jack Type):        | 1.0Vp-p (75Ω)                          |
|            | S-VIDEO                          | Y: 1.0Vp-p (75Ω)                       |
|            | (MINI DIN 4-pin):                | C: 0.286Vp-p<br>(75Ω)                  |
|            | AUDIO L-R (Pin<br>Jack Type×2):  | 0.5Vrms                                |
| AV4C-Rear: | Y:                               | 1.0Vp-p (including<br>synchronization) |
|            | P <sub>B</sub> /P <sub>R</sub> : | ±0.35Vp-p                              |
|            | AUDIO L-R (Pin<br>Jack Type×2):  | 0.5Vrms                                |

#### INPUT/OUTPUT

|           |  |
|-----------|--|
| AV1-Rear: | 21 Pin socket (Audio/Video in, TV out,<br>RGB in)                      |
| AV2-Rear: | 21 Pin socket (Audio/Video in,<br>Audio/Video out, S-Video in, Q-Link) |
| AV4-Rear: | 21 Pin socket (Audio/Video in, TV out,<br>S-Video, RGB in)             |

#### ANT-Rear

UHF/VHF

#### Operating Conditions

Temperature: 34°F-104°F(0°C-40°C)

Humidity: 20%-80% RH (non-condensing)

#### Dimensions (W x H x D)

430mm x 52mm x 307mm

#### Mass (Weight)

3.5kg

#### Note:

Design and Specifications are subject to change without notice.  
Weight and Dimensions shown are approximate.

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## ⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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# 1 Safety Precautions

## 1.1. General Guidelines

- When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
- After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
- After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

## 1.2. Touch-Current Check

- Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
- Connect a measuring network for touch currents between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
- Use Leakage Current Tester (Simpson 228 or equivalent) to measure the potential across the measuring network.
- Check each exposed metallic part, and measure the voltage at each point.
- Reserve the AC plug in the AC outlet and repeat each of the above measure.
- The potential at any point (TOUGH CURRENT) expressed as voltage  $U_1$  and  $U_2$ , does not exceed the following values:

For a. c.:  $U_1 = 35 \text{ V (peak)}$  and  $U_2 = 0.35 \text{ V (peak)}$ ;

For d. c.:  $U_1 = 1.0 \text{ V}$ ,

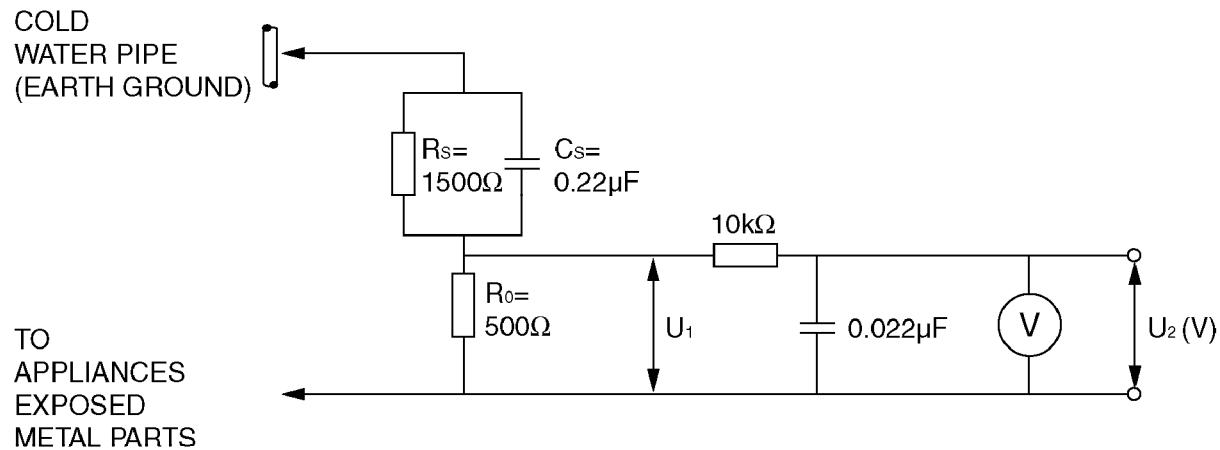
**Note:**

The limit value of  $U_2 = 0.35 \text{ V (peak)}$  for a. c. and  $U_1 = 1.0 \text{ V}$  for d. c. correspond to the values 0.7 mA (peak) a. c. and 2.0 mA d. c.

The limit value  $U_1 = 35 \text{ V (peak)}$  for a. c. correspond to the value 70 mA (peak) a. c. for frequencies greater than 100 kHz.

- In case a measurement is out of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

**Measuring network for TOUCH CURRENTS**



Resistance values in ohms ( $\Omega$ )

V: Voltmeter or oscilloscope  
(r.m.s. or peak reading)

Input resistance:  $\geq 1 \text{ M}\Omega$

Input capacitance:  $\leq 200 \text{ pF}$

Frequency range: 15 Hz to 1 MHz and d.c. respectively

NOTE - Appropriate measures should be taken to obtain the correct value in case of non-sinusoidal waveforms.

Figure 1

## 2 Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

### Caution

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

### IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety.

These parts are marked by  in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

### 3 About lead free solder (PbF)

Note: Lead is listed as (Pb) in the periodic table of elements.

In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder.

The Lead Free Solder used in our manufacturing process and discussed below is (Sn+Ag+Cu).

That is Tin (Sn), Silver (Ag) and (Cu) although other types are available.

This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be used.

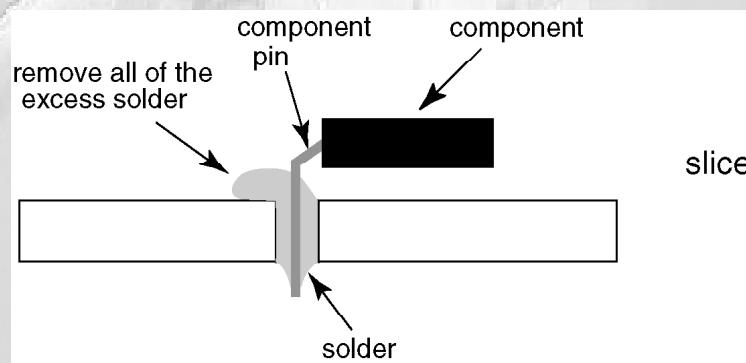
PCBs manufactured using lead free solder will have the PbF within a leaf Symbol  stamped on the back of PCB.

#### Caution

- Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 •F (30~40•C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 •F (370 ± 10 •C).
- Pb free solder will tend to splash when heated too high (about 1100 •F or 600•C).

If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.

- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)



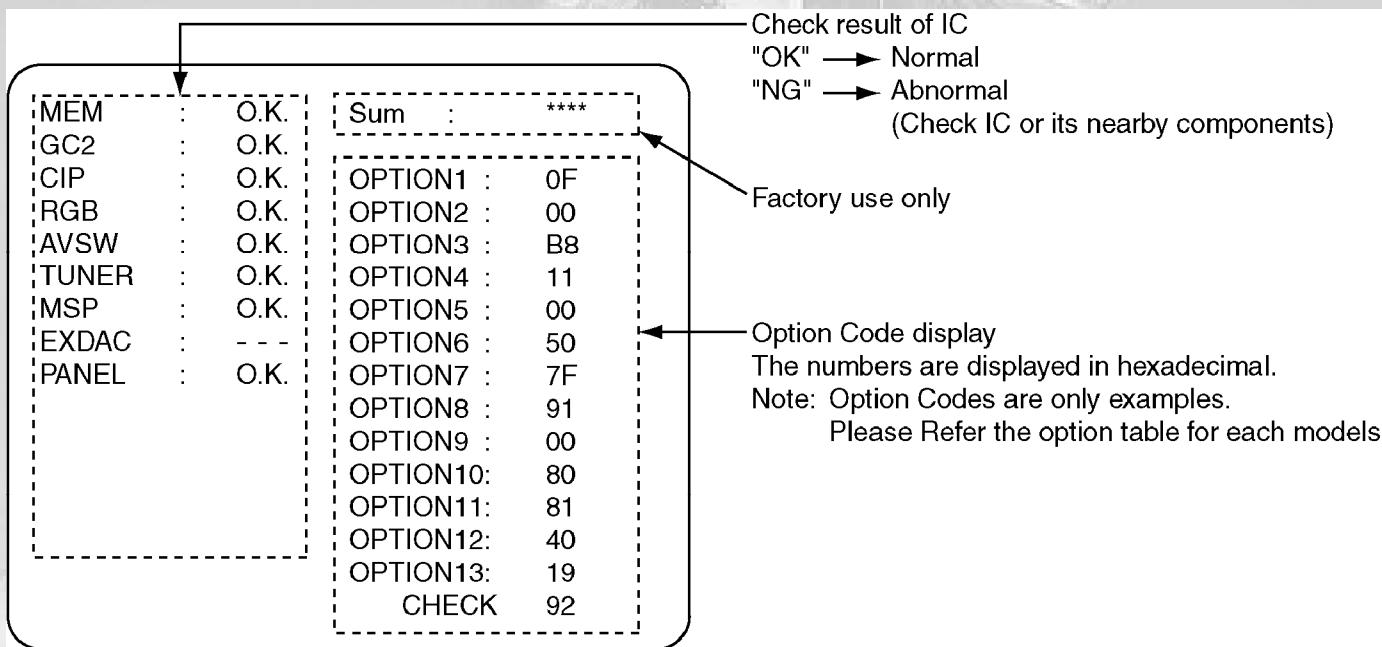
#### Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also be used.

| 0.3mm X 100g | 0.6mm X 100g | 1.0mm X 100g |
|--------------|--------------|--------------|
|              |              |              |

## 4 Self Check

1. Self-Check is used to automatically check the bus lines and hexadecimal code of the TV set.
2. To get into the Self -Check mode press the Down (—/V) button on the customer controls at the front of the set, at the same time pressing the Status  button on the remote control, and the screen will show :



|       |        |          |        |
|-------|--------|----------|--------|
| MEM   | : O.K. | Sum      | : **** |
| GC2   | : O.K. |          |        |
| CIP   | : O.K. | OPTION1  | : 0F   |
| RGB   | : O.K. | OPTION2  | : 00   |
| AVSW  | : O.K. | OPTION3  | : B8   |
| TUNER | : O.K. | OPTION4  | : 11   |
| MSP   | : O.K. | OPTION5  | : 00   |
| EXDAC | : ---  | OPTION6  | : 50   |
| PANEL | : O.K. | OPTION7  | : 7F   |
|       |        | OPTION8  | : 91   |
|       |        | OPTION9  | : 00   |
|       |        | OPTION10 | : 80   |
|       |        | OPTION11 | : 81   |
|       |        | OPTION12 | : 40   |
|       |        | OPTION13 | : 19   |
|       |        | CHECK    | : 92   |

Check result of IC  
 "OK" → Normal  
 "NG" → Abnormal  
 (Check IC or its nearby components)

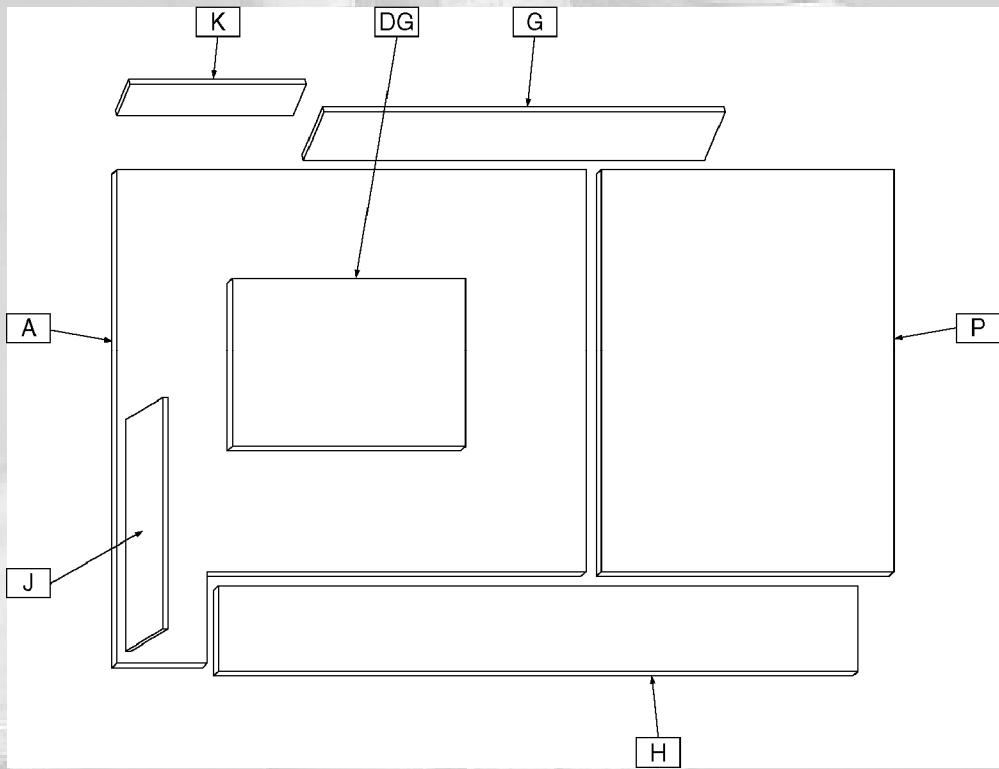
Factory use only

Option Code display  
 The numbers are displayed in hexadecimal.  
 Note: Option Codes are only examples.  
 Please Refer the option table for each models.

If the CCU ports have been checked and found to be incorrect or not located then “--” will appear in place of “O.K.”.

| Display | Ref. No. | Description           | P.C.B.   |
|---------|----------|-----------------------|----------|
| MEM     | IC1102   | EEPROM                | A-Board  |
| GC2     | IC1304   | Global core           | DG-Board |
| CIP     | IC1307   | CIP                   | DG-Board |
| RGB     | IC3402   | RGB Processor         | A-Board  |
| AVSW    | IC3002   | AV switch             | J-Board  |
| TUNER   | TNR001   | Tuner                 | A-Board  |
| MSP     | IC2001   | Multi Sound Processor | A-Board  |
| EXDAC   | --       | EX DAC                | --       |
| PANEL   | --       | Plasma Display        | --       |

## 5 Chasis Board Layout



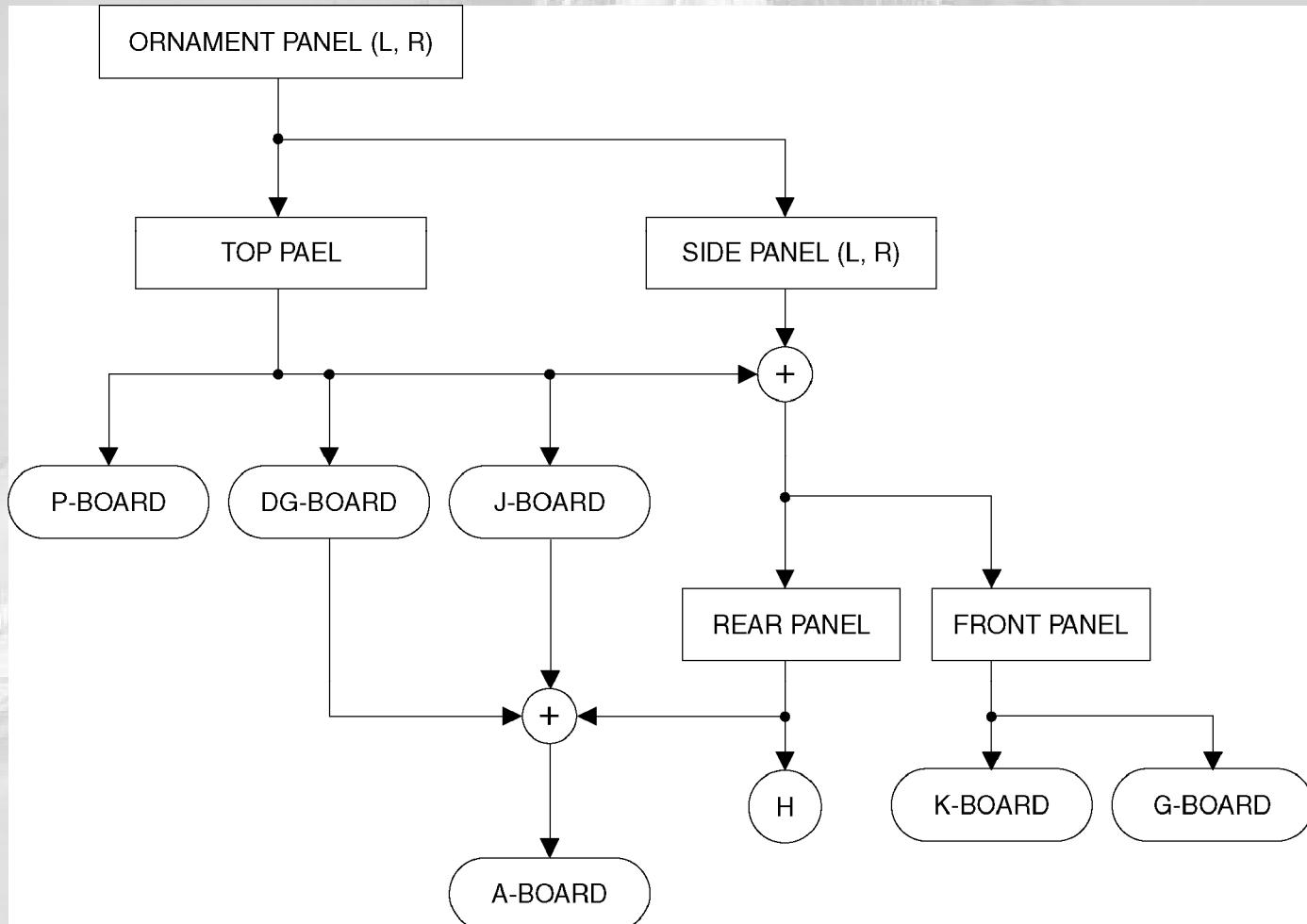
| Board Name | Function                             |
|------------|--------------------------------------|
| A-Board    | Main (AV SW, MSP, RGB, MEM, MCU)     |
| DG-Board   | Digital Processor (Global core, CIP) |
| G-Board    | Front AV Terminal                    |
| H-Board    | Rear AV Terminal                     |
| J-Board    | Tuner                                |
| K-Board    | Switch                               |
| P-Board    | Power                                |

# 6 Disassembly for Service

## Note:

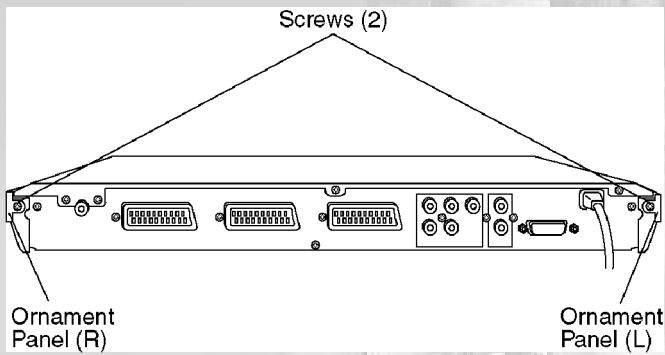
This flowchart indicates disassembly items of the cabinet parts and circuit boards in order to find the items necessary for servicing, when reassembling, perform the procedures in the reverse order.

## 6.1. Disassembly flowchart

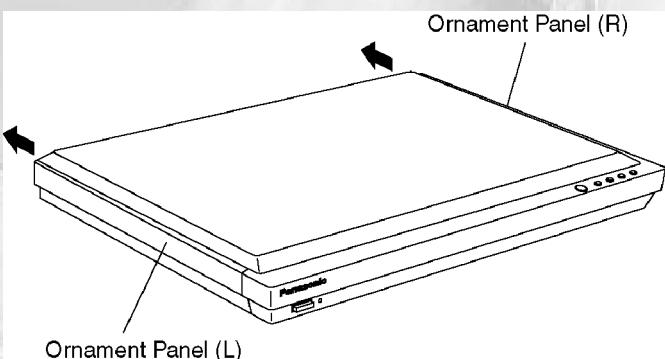


## 6.2. Ornament Panel (L, R)

1. Remove (2) screws.

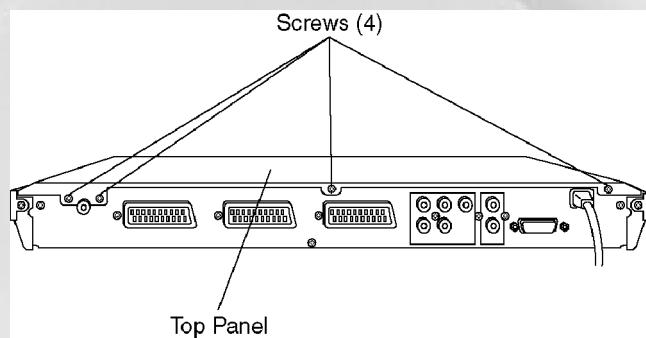


2. Remove the Ornament Panel toward the direction of an arrow.

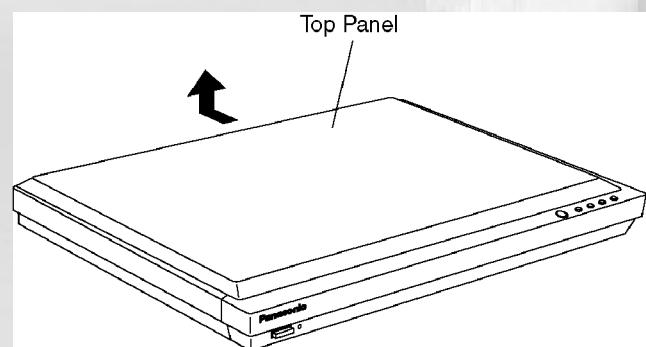


## 6.3. Top Panel

1. Remove (4) screws.

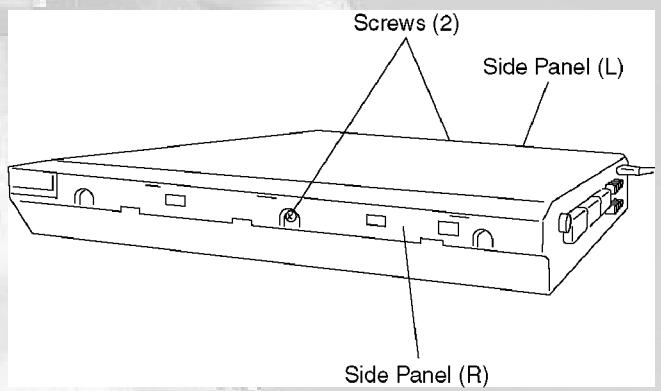


2. Remove the Top Panel toward the direction of an arrow.

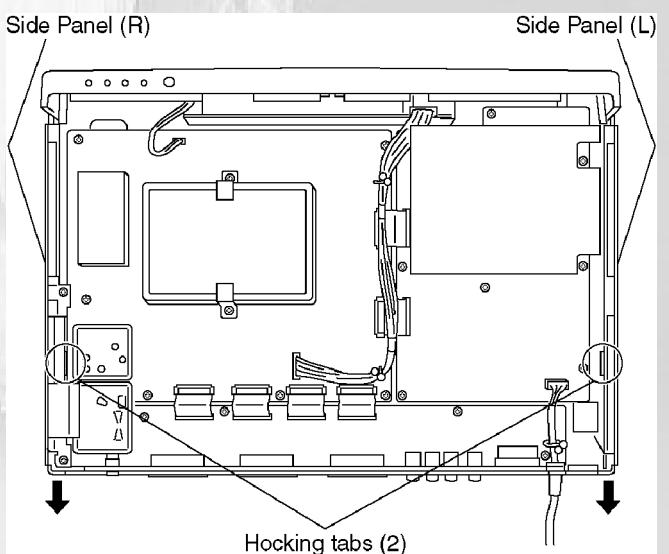


## 6.4. Side Panel (L, R)

1. Remove (2) screws.

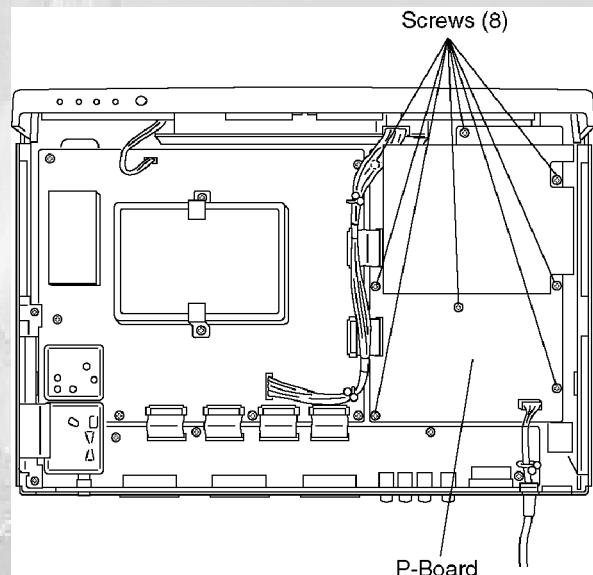


2. Remove the Side Panel while releasing the hooking tab.



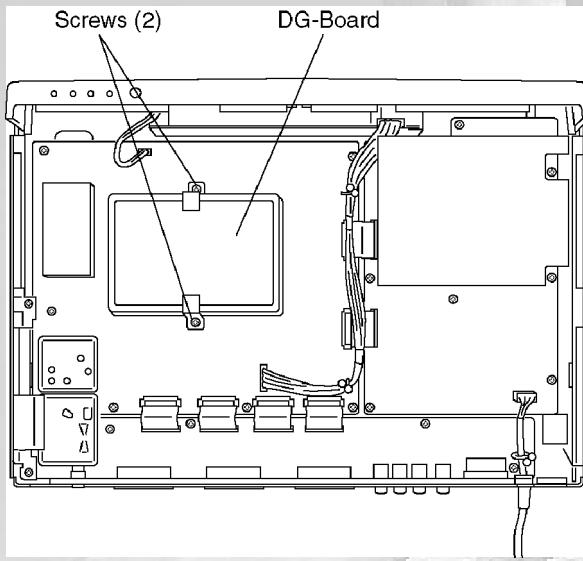
## 6.5. P-Board

1. Remove (8) screws.



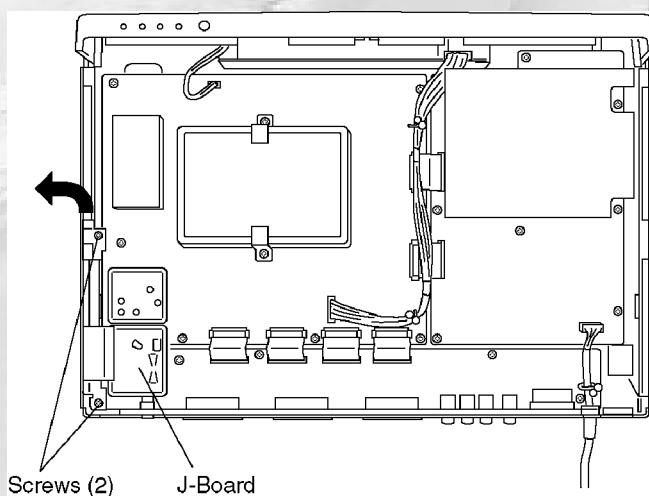
## 6.6. DG-Board

1. Remove (2) screws.



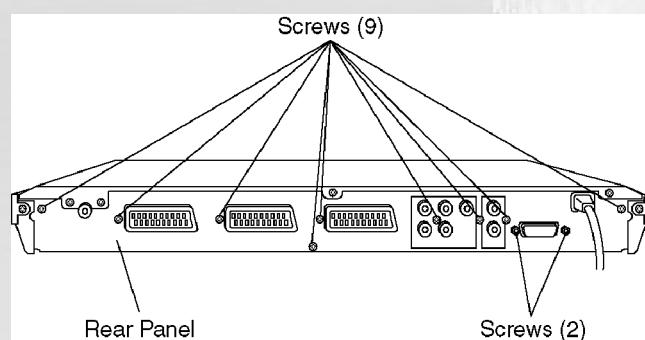
## 6.7. J-Board

1. Remove (2) screws.
2. Remove the J-Board toward the direction of an arrow.



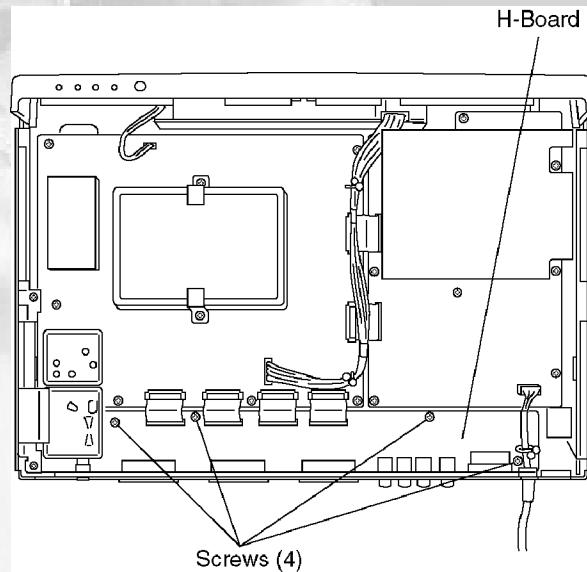
## 6.8. Rear Panel

1. Remove (9) screws.
2. Remove (2) screws.



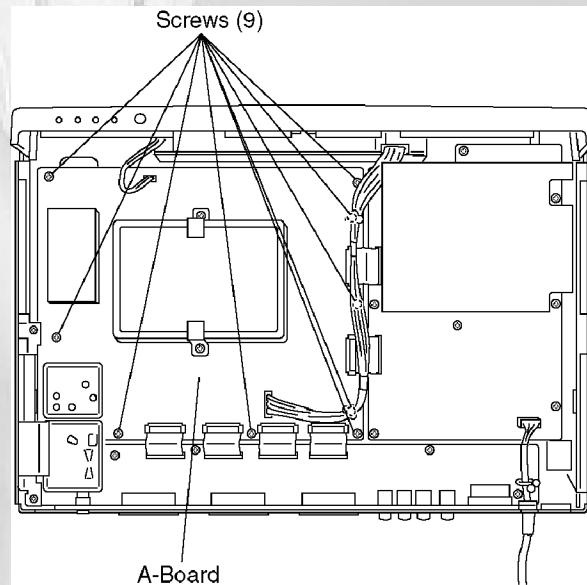
## 6.9. H-Board

1. Remove (4) screws.



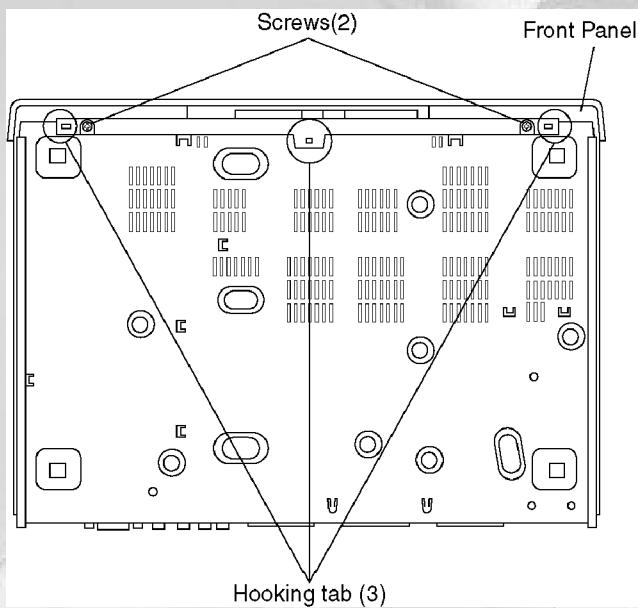
## 6.10. A-Board

1. Remove (9) screws.

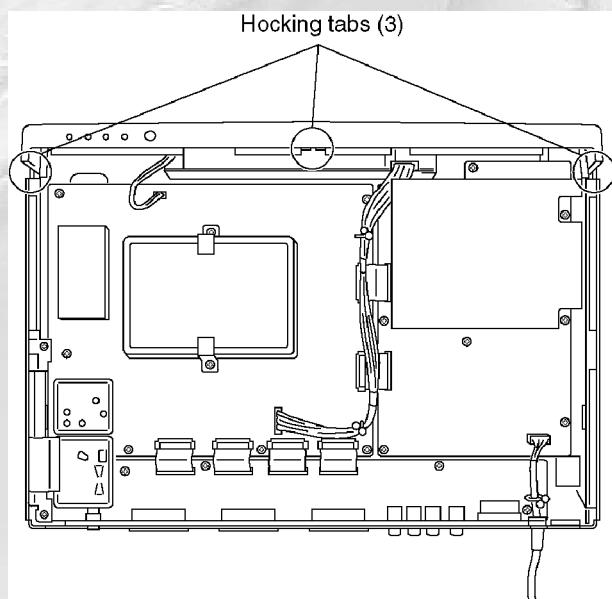


## 6.11. Front Panel

1. Remove (2) screws.
2. Remove (3) hocking tab.

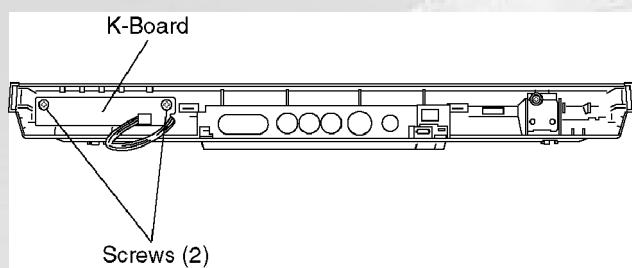


3. Remove (3) hocking tab.



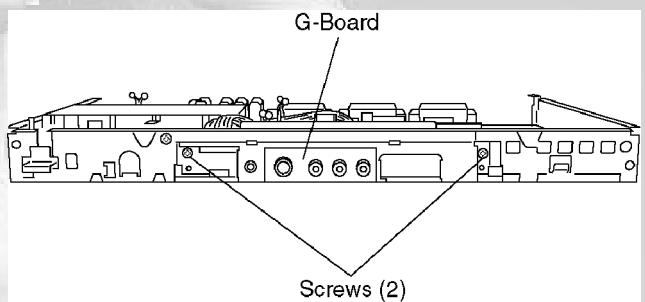
## 6.12. K-Board

1. Remove (2) screws.



## 6.13. G-Board

1. Remove (2) screws.



## 7 Service Mode Function

MPU controls the functions switching for each IICs through IIC bus in this chassis. The following setting and adjustment can be adjusted by remote control in Service Mode.

### 7.1. How to enter SERVICE 1

1. In sound menu, set BASS to MAX, and set TREBLE to MINIMUM.
2. Simultaneously press INDEX button on remote control and VOLUME DOWN button [ - ] on the TV set.
3. Set the channel to CH99

### 7.2. How to enter SERVICE 2

1. Set the channel to CH99.
2. Access R-Y Axis Angle in service 1 mode.
3. Press HOLD button on remote control.

**Note:**

To exit to Service mode, press N or Power button on remote control.

SERVICE 1

| Function        | Average Data |
|-----------------|--------------|
| Y/C Delay       | 6            |
| Sub-Bright      | 128          |
| Sub-Contrast    | 208          |
| Sub-Colour      | 16           |
| Sub-NTSC Tint   | 143          |
| SECAM B-Y       | 192          |
| SECAM R-Y       | 72           |
| RGBCT           | 31           |
| USAT            | 77           |
| VSAT            | 120          |
| Sub-Colour 5394 | 62           |
| Sub-Tint 5394   | 62           |
| R-Drive         | 107          |
| G-Drive         | 96           |
| B-Drive         | 99           |
| B-Y Axis Gain   | 41           |
| R-Y Axis Angle  | 0            |

- Press the RED/GREEN button to step up/down through the functions.
  - Press the YELLOW/BLUE button to change the function values.
  - Press the STR button after each adjustment has been made to store the required values.
- ① Set the Aspect mode 16:9.
- a. Receive PAL signal and adjust each item.
  - b. Next, receive NTSC signal (AV INPUT) and adjust each time.
- ② Set the Aspect mode 4:3.
- a. Receive PAL signal and confirm the picture.  
Adjust each item if necessary.
  - b. Next, receive NTSC signal (AV INPUT) and confirm the picture.  
Adjust each item if necessary.



SERVICE 2

| Function |    | Function  |    |
|----------|----|-----------|----|
| OPTION 1 | 0F | OPTION 8  | 91 |
| OPTION 2 | 00 | OPTION 9  | 00 |
| OPTION 3 | B8 | OPTION 10 | 80 |
| OPTION 4 | 11 | OPTION 11 | 81 |
| OPTION 5 | 00 | OPTION 12 | 40 |
| OPTION 6 | 50 | OPTION 13 | 19 |
| OPTION 7 | 7F | Hours     |    |

# 8 Adjustment Procedure

## 8.1. Sub Contrast

### Preparation

Colour Balance: Normal

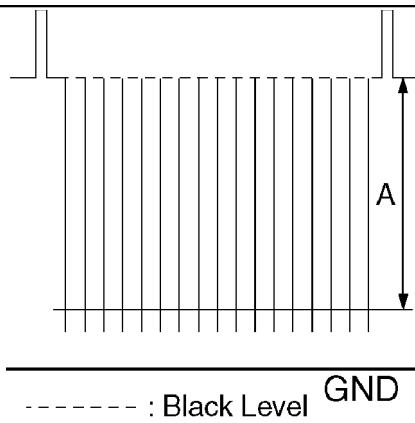
Picture Menu: Normal AI=OFF

Signal Generator:

- Crosshatch Pattern

- Cross Dot

- Sub Contrast Adjustment

| Adjustment Procedure   | Waveform   |
|--|--|
| <ol style="list-style-type: none"> <li>1. Connect Oscilloscope: TPHA46 (G out)</li> <li>2. Into Service 1 G-Drive</li> <li>3. Recieve Crosshatch Pattern</li> <li>4. Adjust G-Drive: <math>A=0.7V\pm0.02V</math></li> <li>5. Connect Oscilloscope: TPHA47 (R out)</li> <li>6. Adjust R-Drive: <math>A=0.7V\pm0.02V</math></li> <li>7. Connect Oscilloscope: TPHA45 (B out)</li> <li>8. Adjust B-Drive: <math>A=0.7\pm0.02V</math></li> </ol> |  |

## 8.2. Sub Colour

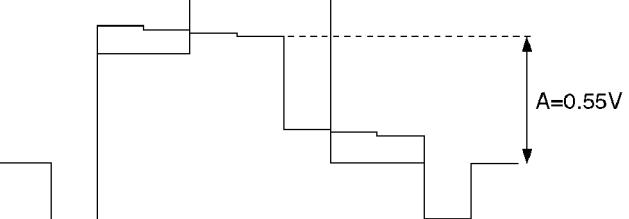
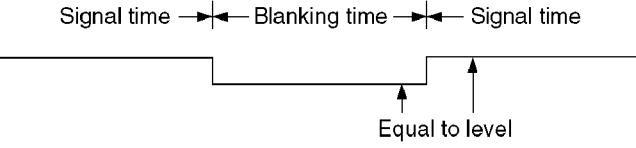
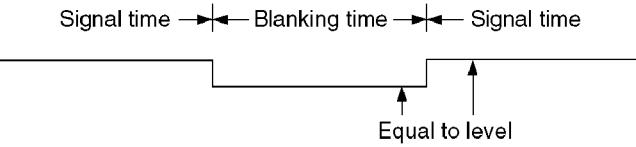
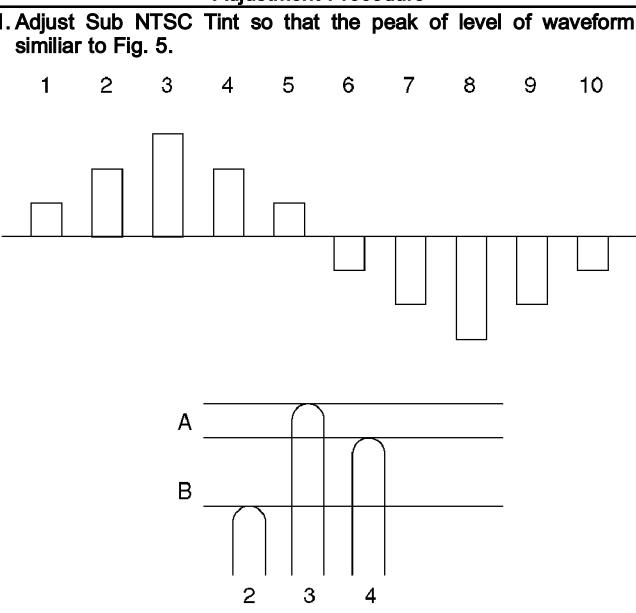
| Item/Preparation   | Adjustment Procedure   |
|--|--|
| <ol style="list-style-type: none"> <li>1. Receive PAL colour bar pattern.</li> <li>2. Connect oscilloscope to TPHA46 (G).</li> </ol> | <p>1. Adjust Sub Colour :<br/> <math>A=0.55V</math></p>  |

Fig. 2.

### 8.3. SECAM BLACK LEVEL

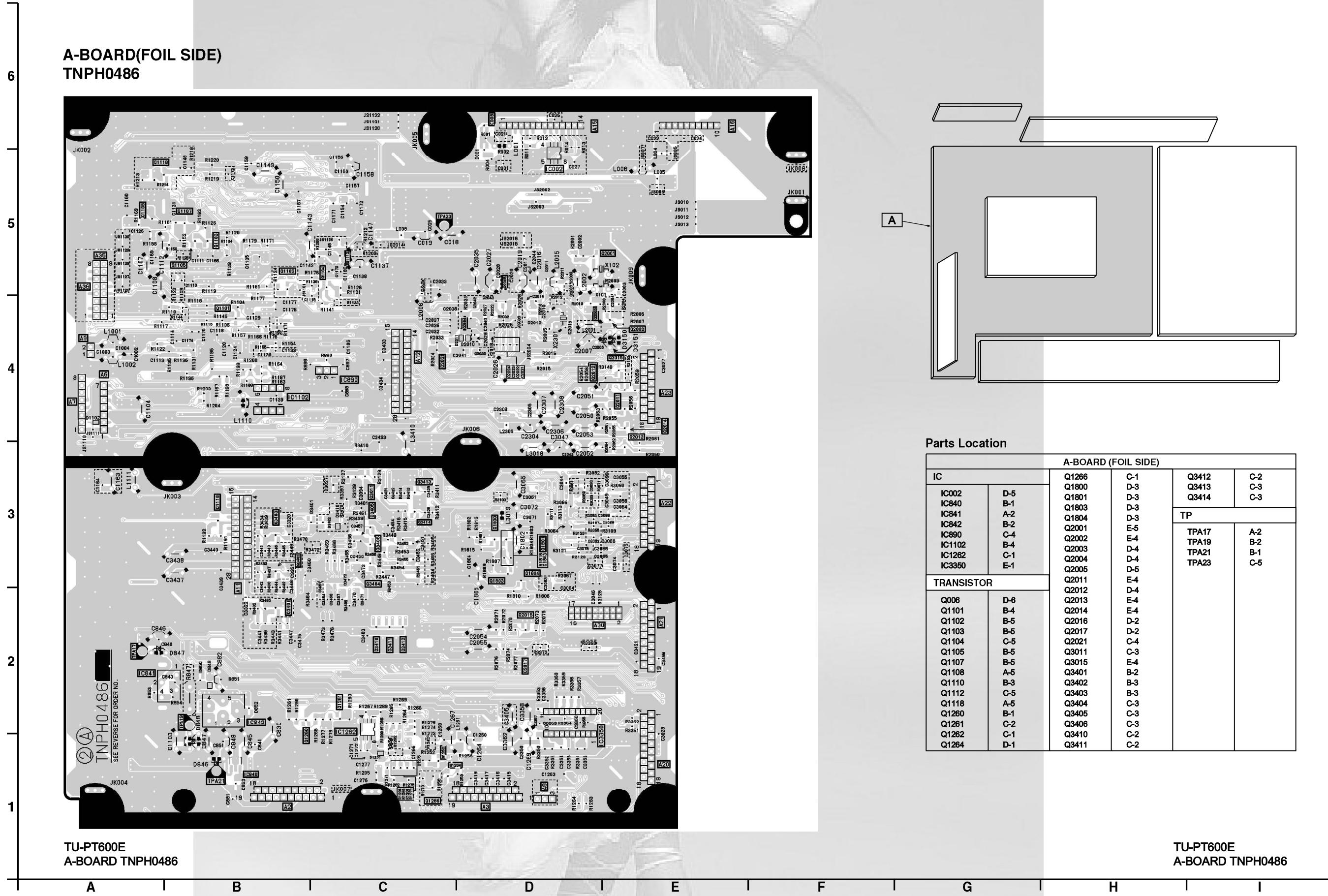
| Item/Preparation  | Adjustment Procedure  |
|---|---|
| <p>1. Receive SECAM white pattern.<br/>2. Connect oscilloscope to TPHA45 (B).</p> | <p>1. Adjust SECAM B-Y so that H-blanking time and colour center are equal level.</p>  <p>Fig. 3.</p> <p>2. Connect oscilloscope to TPHA47 (R).</p> <p>3. Adjust SECAM R-Y OUT so that H-blanking time and colour center are equal level.</p>  <p>Fig. 4.</p> |

### 8.4. Sub Tint

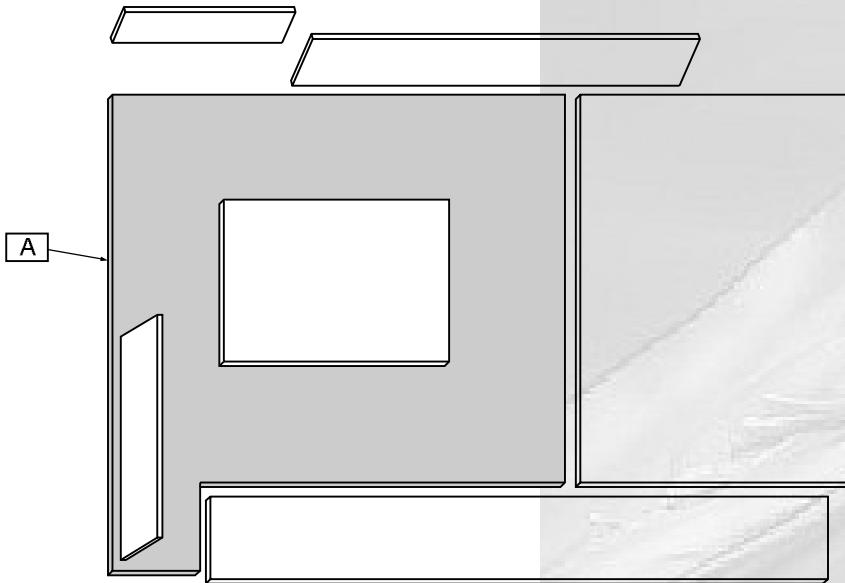
| Item/Preparation   | Adjustment Procedure  |
|--|---|
| <p>1. Receive 3.58MHz NTSC pattern.<br/>2. Connect oscilloscope to TPHA47 (R).</p> | <p>1. Adjust Sub NTSC Tint so that the peak of level of waveform is similar to Fig. 5.</p>  <p>A: B = 2:3</p> <p>Fig. 5.</p> |

## 9 Conductor Views

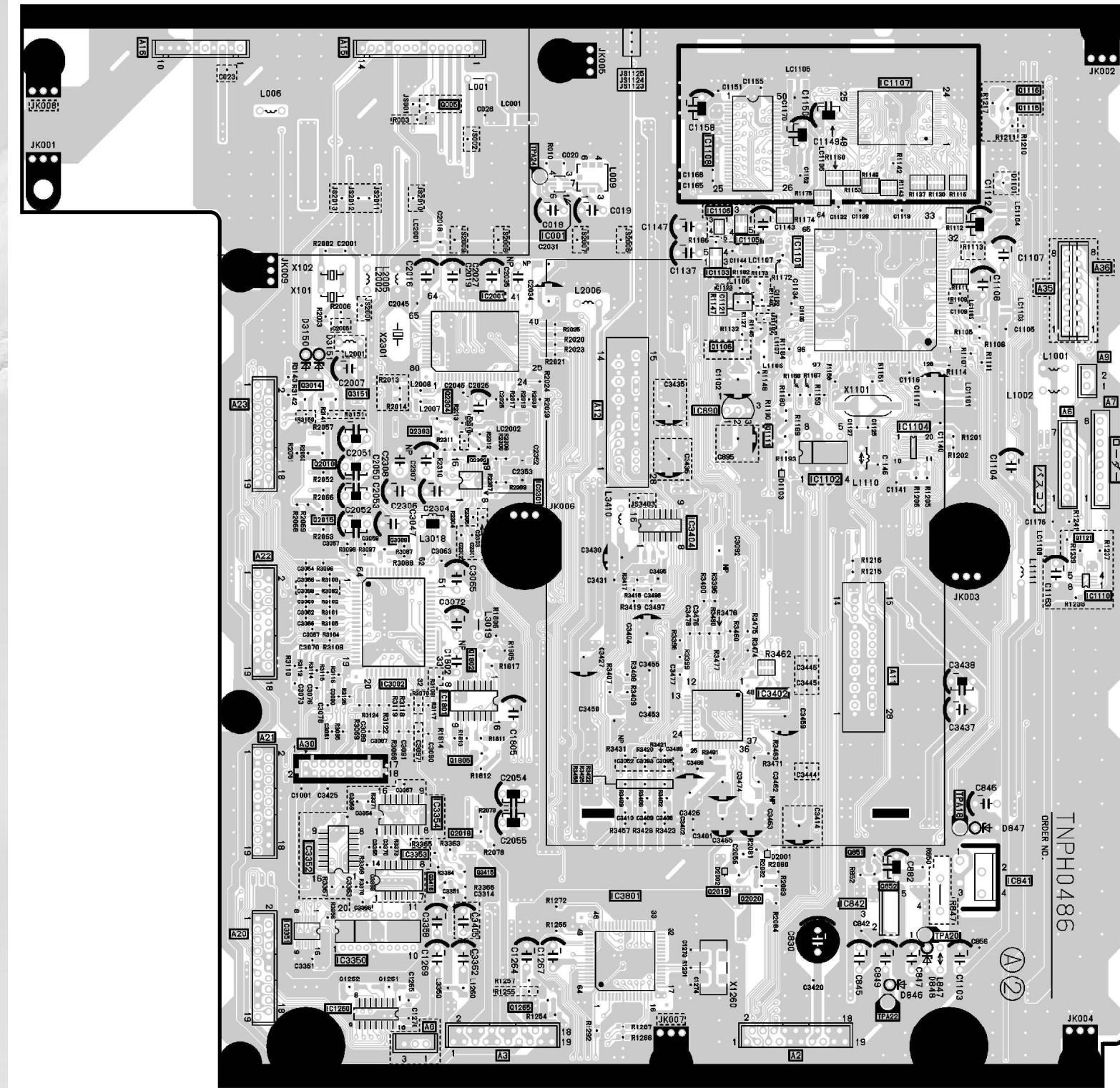
### 9.1. A-Board



**A-BOARD(COMPONENT SIDE)**  
**TNPH0486**

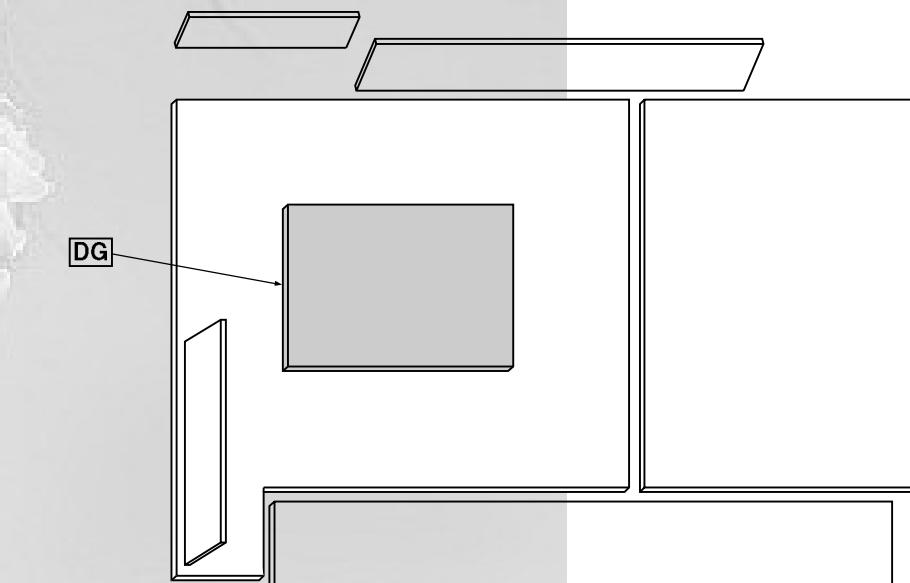
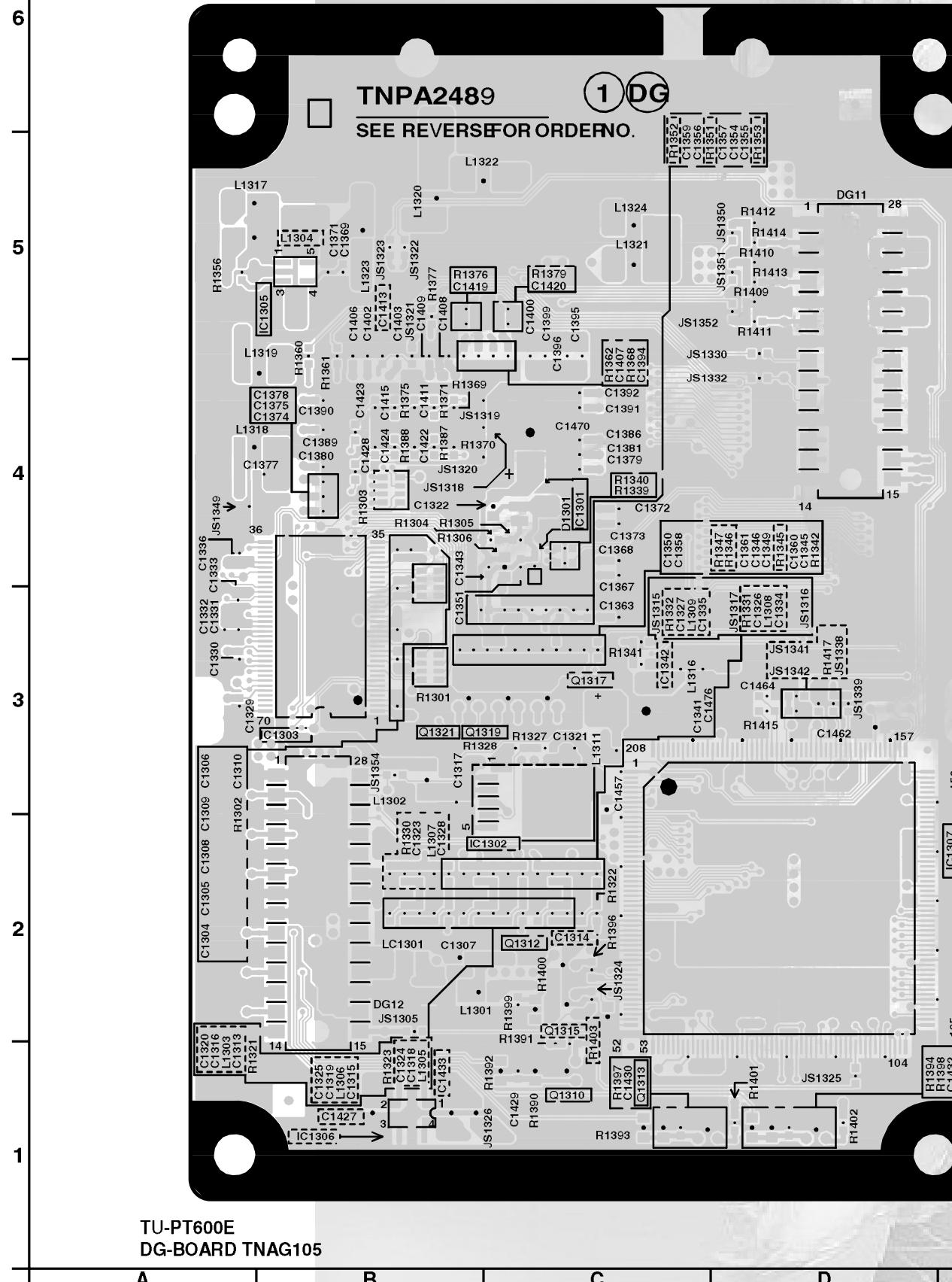
**Parts Location**

| A-BOARD (COMPONENT SIDE) |  |        |     |       |     |
|--------------------------|--|--------|-----|-------|-----|
| IC                       |  | IC3351 | E-2 | Q2010 | E-4 |
| IC001                    |  | IC3352 | E-2 | Q2015 | E-4 |
| IC841                    |  | IC3353 | F-2 | Q2018 | F-2 |
| IC842                    |  | IC3354 | F-2 | Q2019 | G-2 |
| IC890                    |  | IC3402 | G-3 | Q2020 | G-2 |
| IC1101                   |  | IC3404 | G-3 | Q2303 | F-4 |
| IC1102                   |  | IC3801 | G-2 | Q2304 | F-4 |
| IC1103                   |  |        |     | Q3009 | F-3 |
| IC1104                   |  |        |     | Q3014 | E-4 |
| IC1105                   |  | Q005   | F-5 | Q3151 | F-4 |
| IC1106                   |  | Q851   | H-2 | Q3415 | F-2 |
| IC1107                   |  | Q852   | H-2 | Q3416 | F-2 |
| IC1108                   |  | Q1106  | G-4 |       |     |
| IC1110                   |  | Q1111  | H-4 |       |     |
| IC1260                   |  | Q1115  | I-5 |       |     |
| IC1801                   |  | Q1116  | I-6 |       |     |
| IC2001                   |  | Q1121  | I-3 |       |     |
| IC2301                   |  | Q1265  | F-1 |       |     |
| IC3002                   |  | Q1802  | F-2 |       |     |
| IC3350                   |  | Q1805  | F-2 |       |     |
| TRANSISTOR               |  |        |     |       |     |
| IC1104                   |  | Q005   | F-5 |       |     |
| IC1105                   |  | Q851   | H-2 |       |     |
| IC1106                   |  | Q852   | H-2 |       |     |
| IC1107                   |  | Q1106  | G-4 |       |     |
| IC1108                   |  | Q1111  | H-4 |       |     |
| IC1110                   |  | Q1115  | I-5 |       |     |
| IC1260                   |  | Q1116  | I-6 |       |     |
| IC1801                   |  | Q1121  | I-3 |       |     |
| IC2001                   |  | Q1265  | F-1 |       |     |
| IC2301                   |  | Q1802  | F-2 |       |     |
| IC3002                   |  | Q1805  | F-2 |       |     |
| TP                       |  |        |     |       |     |
| IC1104                   |  | TPA18  | H-2 |       |     |
| IC1105                   |  | TPA20  | H-2 |       |     |
| IC1106                   |  | TPA22  | H-1 |       |     |
| IC1107                   |  | TPA24  | F-5 |       |     |



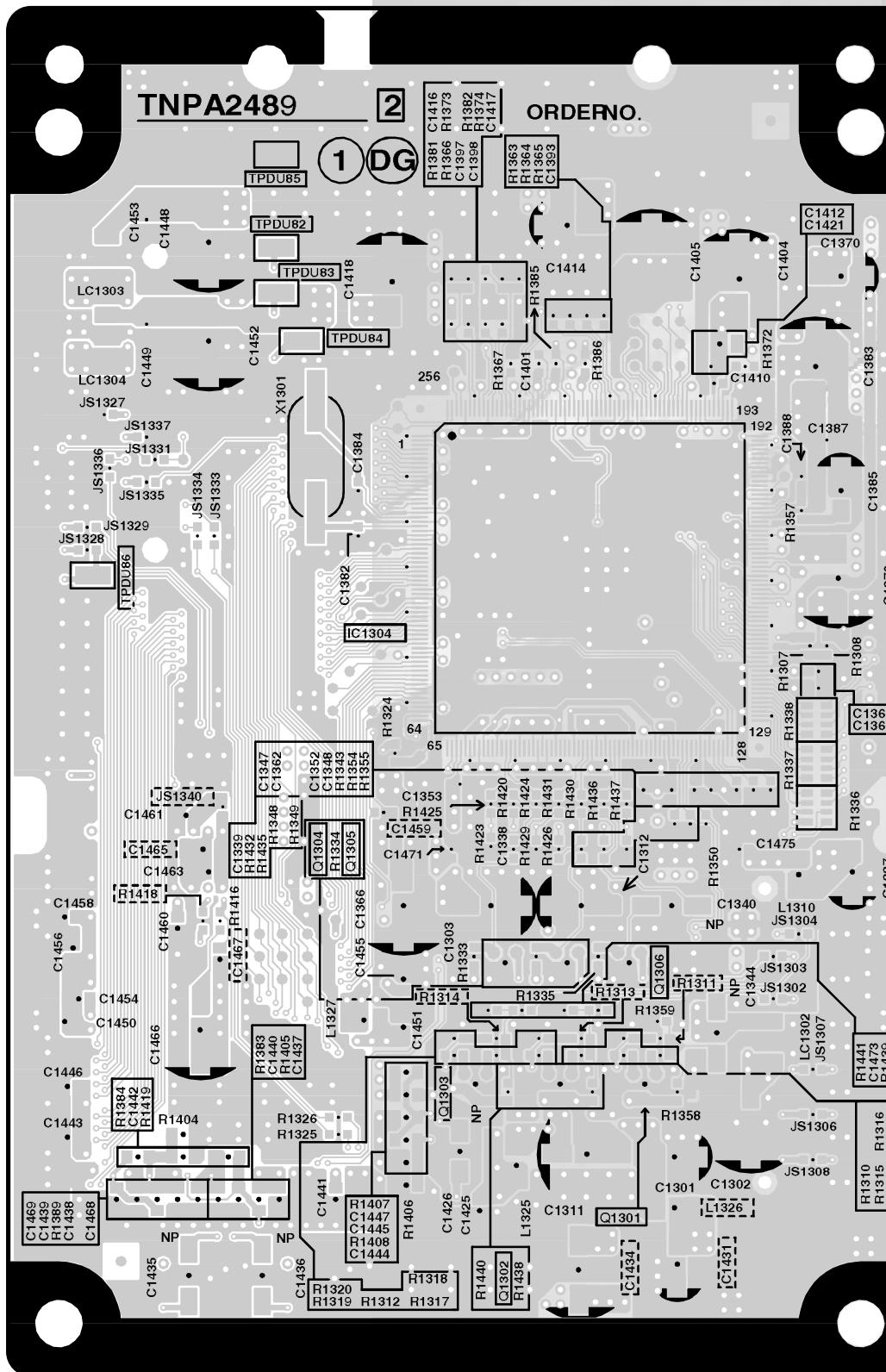
## 9.2. DG-Board

DG-BOARD(FOIL SIDE)  
TNAG105

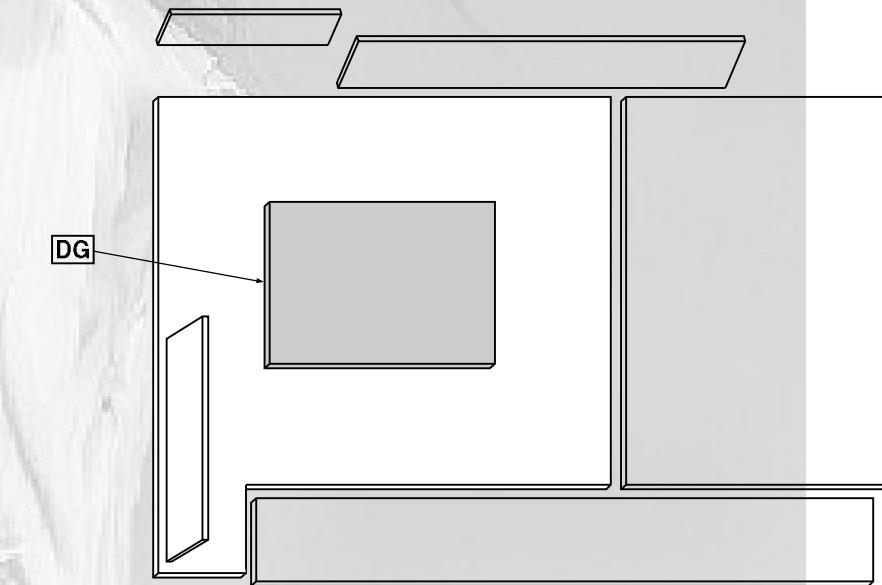


TU-PT600E  
DG-BOARD TNAG105

**DG-BOARD(COMPONENT SIDE)**  
**TNAG105**



TU-PT600E  
DG-BOARD TNAG105

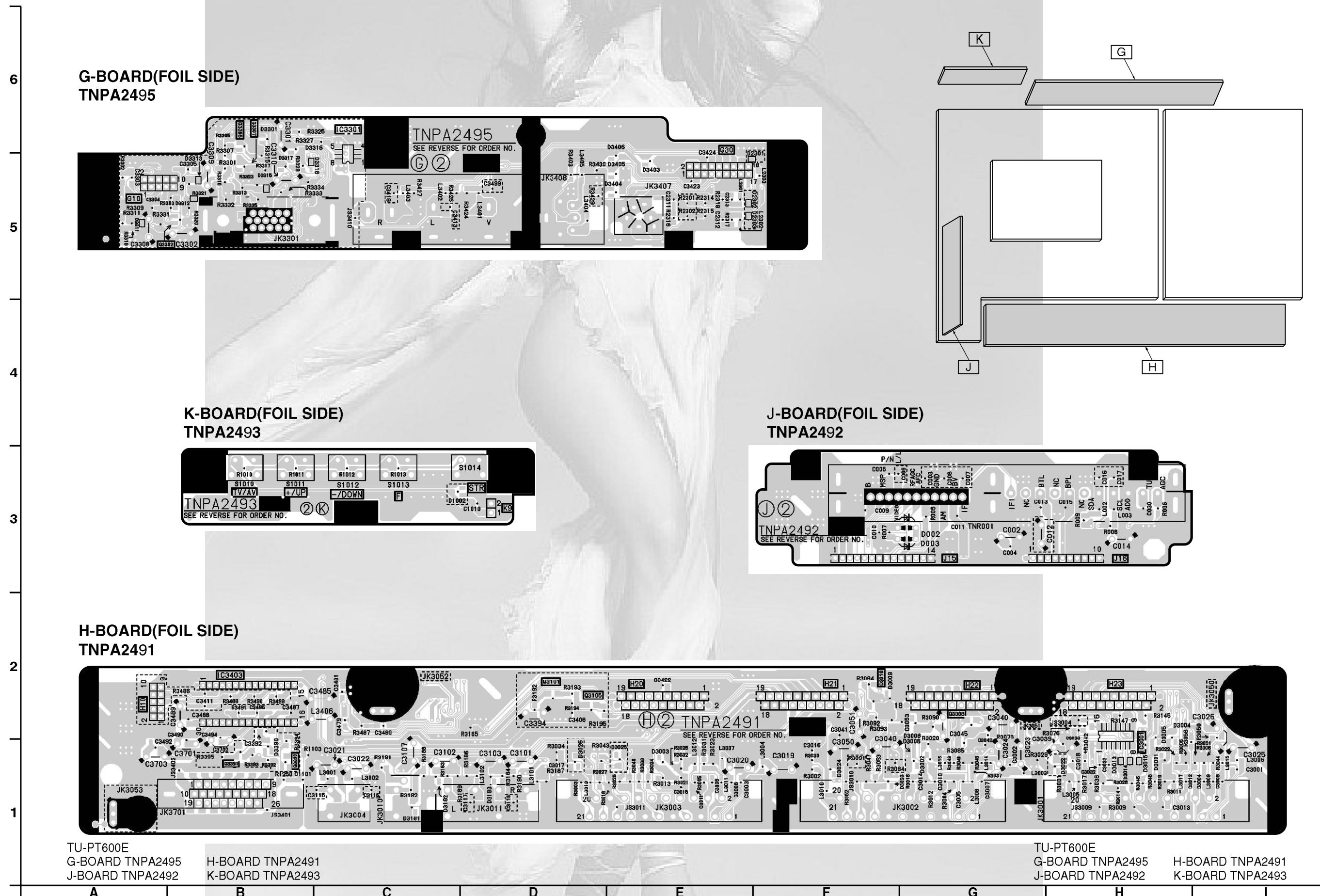


Parts Location

| DG-BOARD (COMPONENT SIDE) |     |
|---------------------------|-----|
| IC                        | TP  |
| IC1304                    | C-4 |
| TRANSISTOR                |     |
| Q1301                     | D-1 |
| Q1302                     | C-1 |
| Q1303                     | C-2 |
| Q1304                     | B-3 |
| Q1305                     | C-3 |
| TPDUs                     |     |
| TPDU82                    | B-5 |
| TPDU83                    | B-5 |
| TPDU84                    | B-5 |
| TPDU85                    | B-5 |
| TPDU86                    | B-4 |

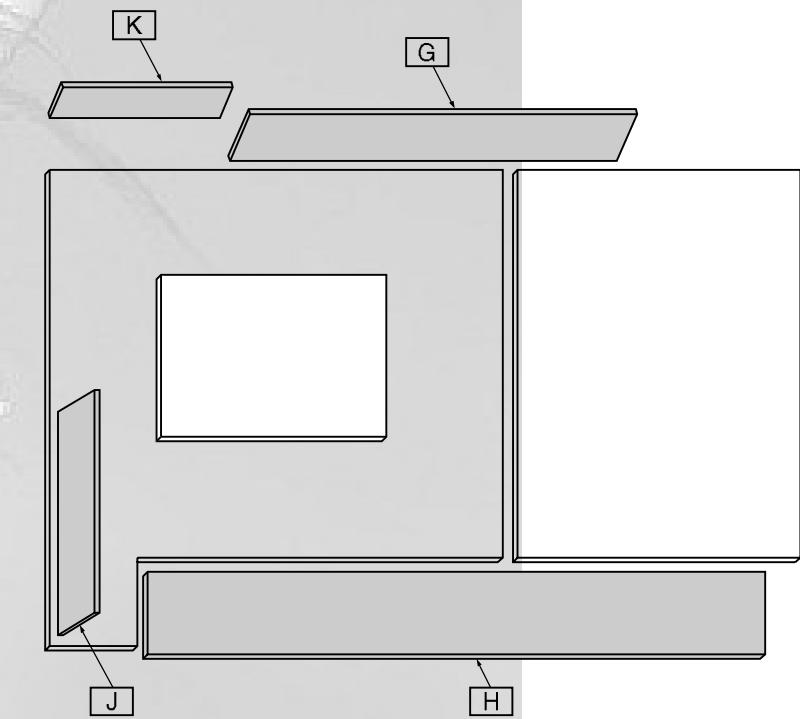
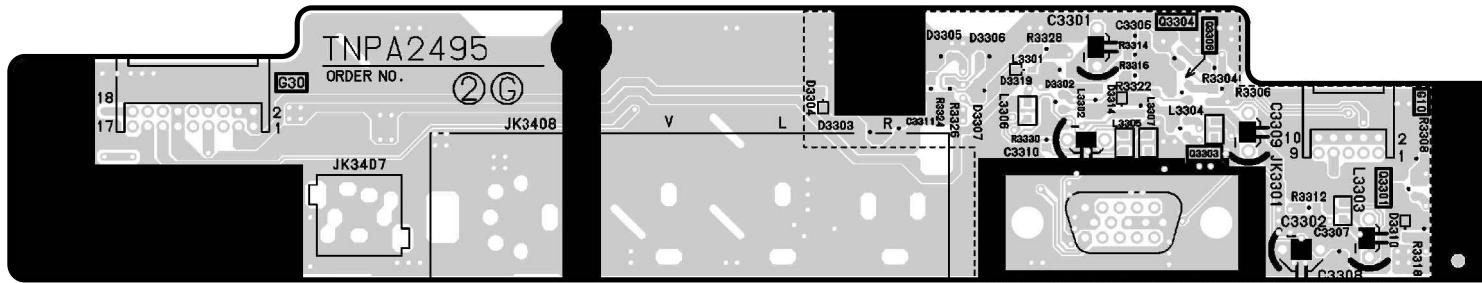
TU-PT600E  
DG-BOARD TNAG105

### 9.3. G, H, J and K-Board

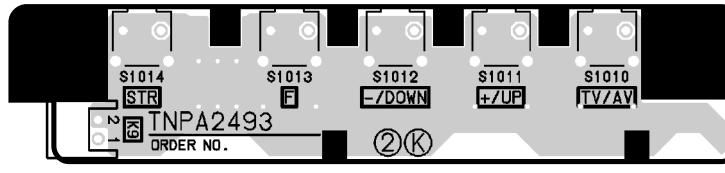


6  
5  
4  
3  
2  
1

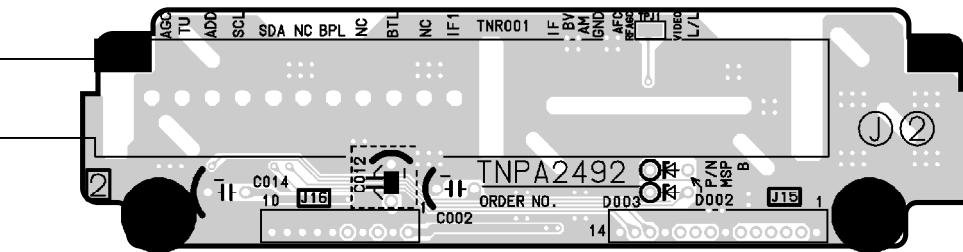
G-BOARD(COMPONENT SIDE)  
TNPA2495



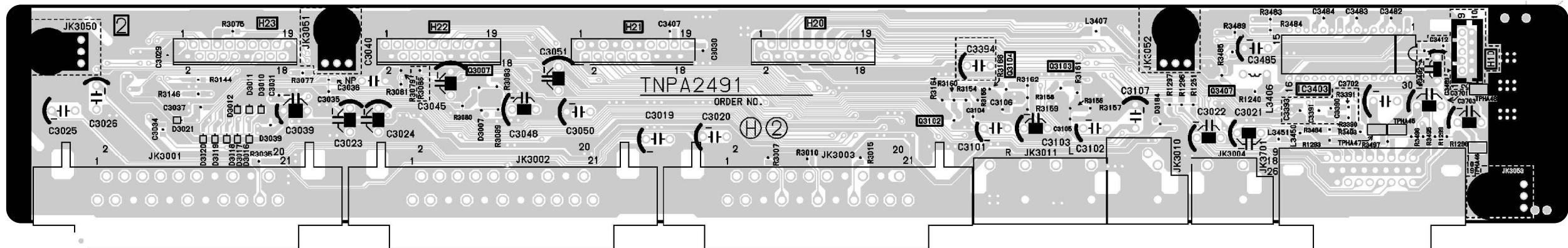
K-BOARD(COMPONENT SIDE)  
TNPA2493



J-BOARD(COMPONENT SIDE)  
TNPA2492



H-BOARD(COMPONENT SIDE)  
TNPA2491

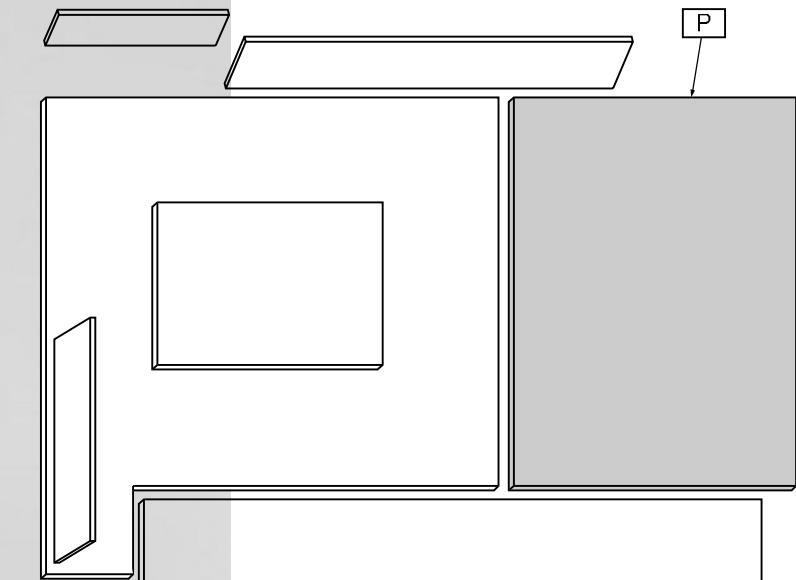
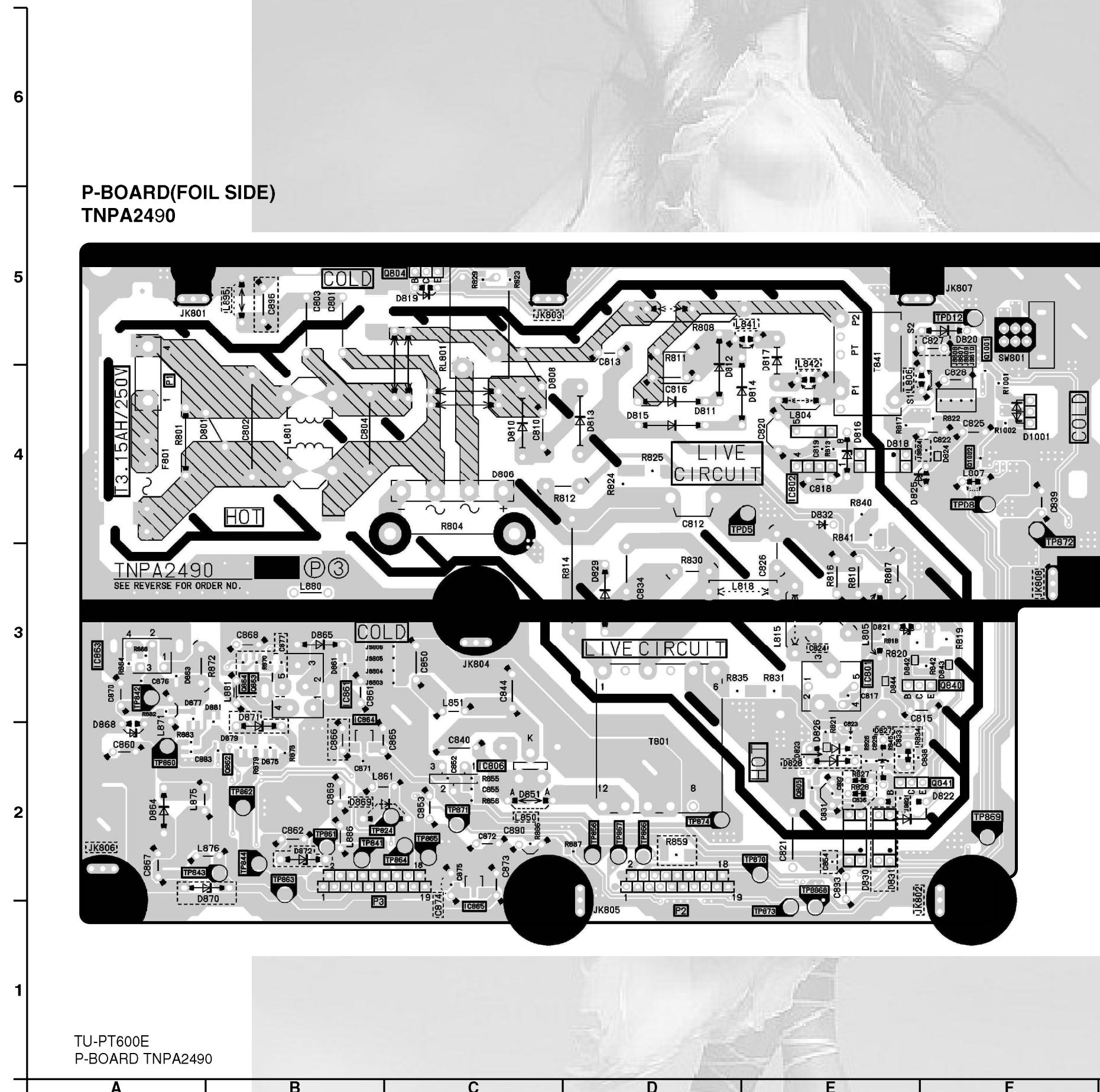


TU-PT600E  
G-BOARD TNPA2495 H-BOARD TNPA2491 J-BOARD TNPA2492 K-BOARD TNPA2493

TU-PT600E  
G-BOARD TNPA2495 H-BOARD TNPA2491 J-BOARD TNPA2492 K-BOARD TNPA2493

A B C D E F G H I

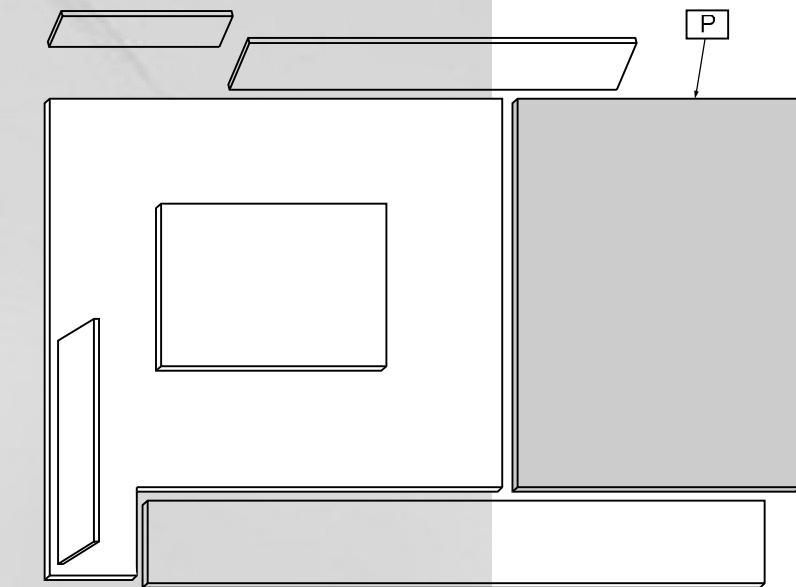
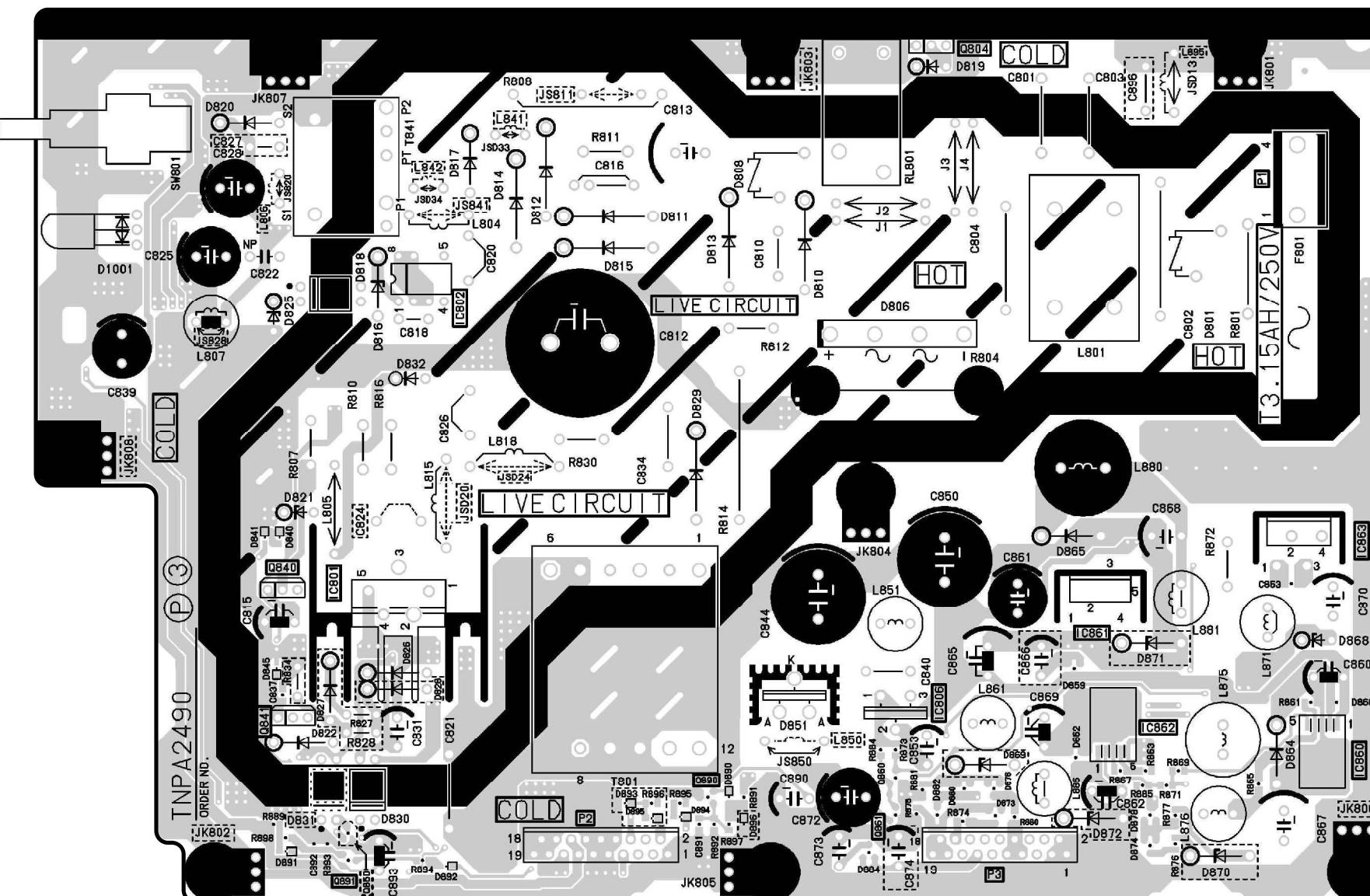
## 9.4. P-Board



Parts Location

| P-BOARD (FOIL SIDE) |     |        |     |
|---------------------|-----|--------|-----|
| IC                  |     | TP     |     |
| IC801               | E-3 | TP824  | B-2 |
| IC802               | E-4 | TP841  | B-2 |
| IC806               | C-2 | TP842  | A-3 |
| IC861               | B-3 | TP843  | A-2 |
| IC863               | A-3 | TP844  | B-2 |
| IC864               | B-3 | TP856  | D-2 |
| IC865               | C-1 | TP860  | A-2 |
| <b>TRANSISTOR</b>   |     |        |     |
| Q804                | C-5 | TP861  | B-2 |
| Q805                | E-2 | TP862  | B-2 |
| Q840                | F-3 | TP863  | C-2 |
| Q841                | F-2 | TP864  | C-2 |
| Q862                | B-2 | TP865  | C-2 |
| Q863                | B-3 | TP866  | D-2 |
| Q864                | B-3 | TP867  | D-2 |
| Q1001               | F-5 | TP869  | F-2 |
| Q1002               | F-4 | TP870  | E-2 |
|                     |     | TP871  | C-2 |
|                     |     | TP872  | F-4 |
|                     |     | TP873  | E-1 |
|                     |     | TP874  | D-2 |
|                     |     | TP8868 | E-1 |
|                     |     | TPD5   | E-4 |
|                     |     | TPD8   | F-4 |
|                     |     | TPD12  | F-5 |

P-BOARD(COMPONENT SIDE)  
TNPA2490



#### Parts Location

| P-BOARD (COMPONENT SIDE) |     | TRANSISTOR |     |
|--------------------------|-----|------------|-----|
| IC                       |     |            |     |
| IC801                    | B-3 | Q804       | E-5 |
| IC802                    | C-4 | Q840       | B-3 |
| IC806                    | E-2 | Q841       | B-2 |
| IC860                    | F-2 | Q850       | B-1 |
| IC861                    | E-3 | Q860       | D-2 |
| IC862                    | F-2 | Q861       | D-2 |
| IC863                    | F-3 | Q890       | D-2 |
|                          |     | Q891       | B-1 |

# 10 Block and Schematic Diagrams

## 10.1. Schematic Diagram Notes

### Important Safety Notice

Components identified by  $\Delta$  mark have special characteristics important for safety.  
When replacing any of these components, use only manufacturer's specified parts.

#### Notes:

##### 1. Resistor

All resistors are carbon 1/4W resistor, unless marked as follows:

Unit of resistance is OHM [ $\Omega$ ] ( $K=1,000$ ,  $M=1,000,000$ ).

|                |                |                |               |
|----------------|----------------|----------------|---------------|
| $\bigcirc$     | : Nonflammable | $\blacksquare$ | : Metal Oxide |
| $\triangle$    | : Solid        | $\odot$        | : Metal Film  |
| $\blacksquare$ | : Wire Wound   | $\otimes$      | : Fuse:       |

##### 2. Capacitor

All capacitors are ceramic 50V capacitor, unless marked as follows:

Unit of capacitance is  $\mu F$ , unless otherwise noted.

|                |                            |  |                   |
|----------------|----------------------------|--|-------------------|
| $\otimes$      | : Temperature Compensation | $\begin{matrix} + \\ \text{H} \\ - \end{matrix}$ | : Electrolytic    |
| $\text{M}$     | : Polyester                | $\text{NP}$                                      | : Bipolar         |
| $\text{m}$     | : Metallized Polyester     | $\text{D}$                                       | : Dipped Tantalum |
| $\blacksquare$ | : Polypropylene            | $\text{Z}$                                       | : Z-Type          |

##### 3. Coil

Unit of inductance is  $\mu F$ , unless otherwise noted.

##### 4. Test Point

$\bigcirc$  : Test Point position

##### 5. Earth Symbol

$\text{H}$  : Chassis Earth (Cold)

##### 6. Voltage Measurement

Voltage is measured by a DC voltmeter.

Conditions of the measurement are the following:

Power Source ..... AC 220-240V, 50/60Hz

Receiving Signal ..... Colour Bar signal (RF)

All customer's controls ..... Maximum positions

##### 7. Number in red circle indicates waveform number.

(See waveform pattern table.)

##### 8. When arrow mark (↗) is found, connection is easily found from the direction of arrow

##### 9. Indicates the major signal flow. $\rightarrow$ : Video $\Rightarrow$ Audio $\Rightarrow$

##### 10. This schematic diagram is the latest at the time of printing and subject to change without notice.

### Remarks:

- The Power Circuit contains a circuit area which uses a separate power supply to isolate the earth connection.

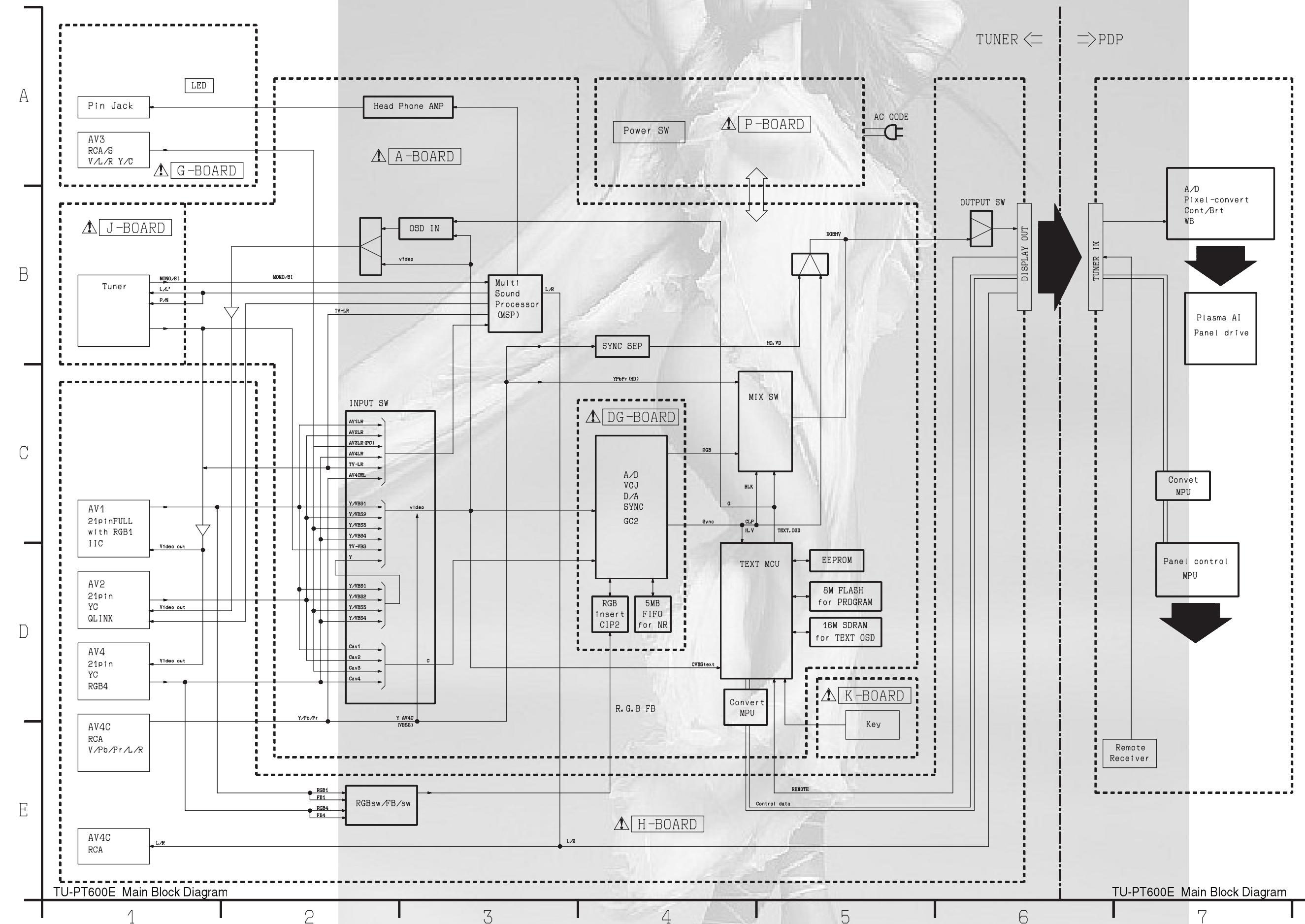
The circuit is defined by HOT and COLD indications in the schematic diagram. Take the following precautions.

All circuits, except the Power Circuit, are cold.

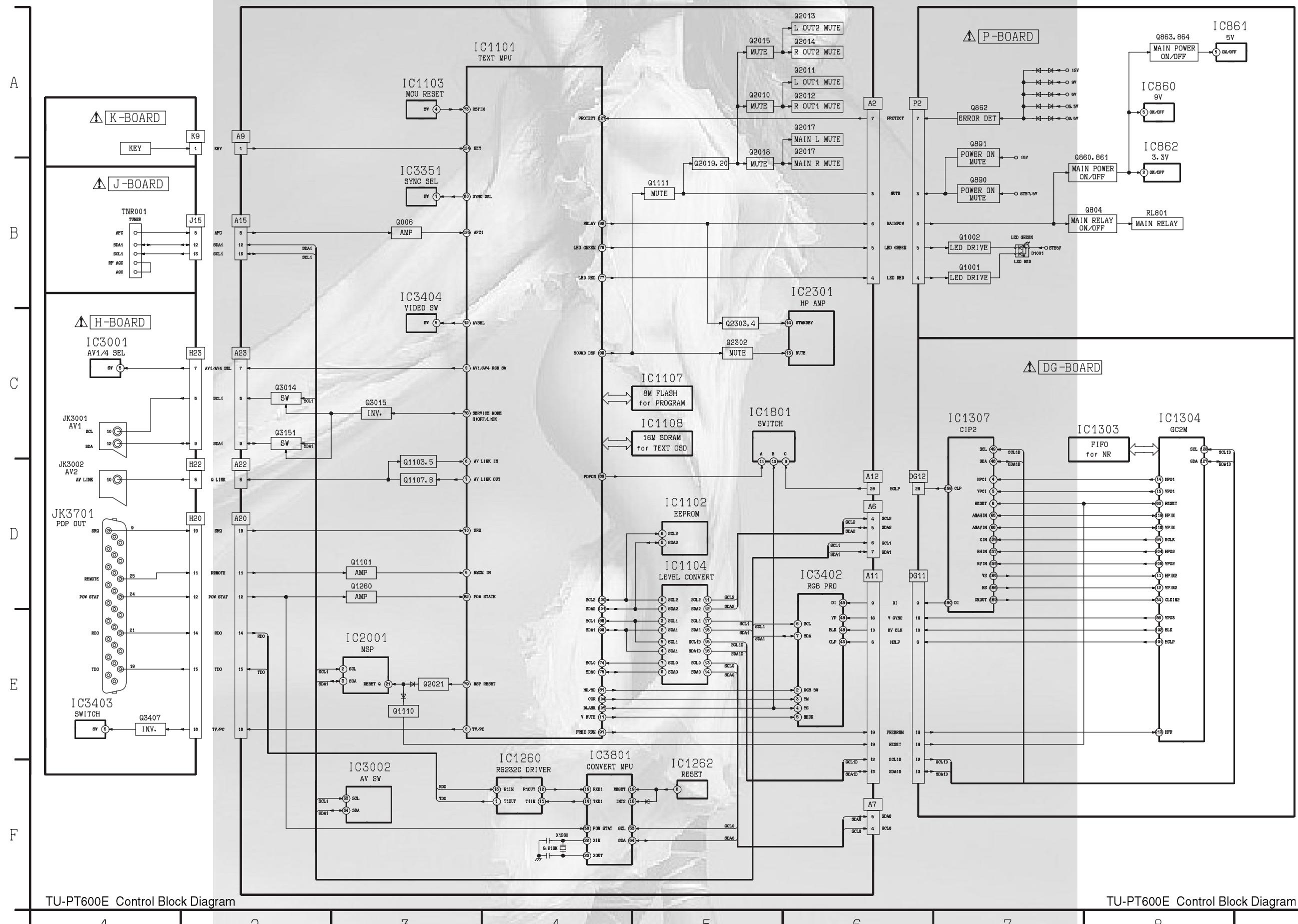
#### Precautions

- Do not touch the hot part or the hot and cold parts at the same time or you may be shocked.
  - Do not short-circuit the hot and cold circuits or a fuse may blow and parts may break.
  - Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously or a fuse may blow.  
Connect the earth of instruments to the earth connection of the circuit being measured.
  - Make sure to disconnect the power plug before removing the chassis.
- Following diodes are interchangeable.  
MA150- MA162 (Replacement part)

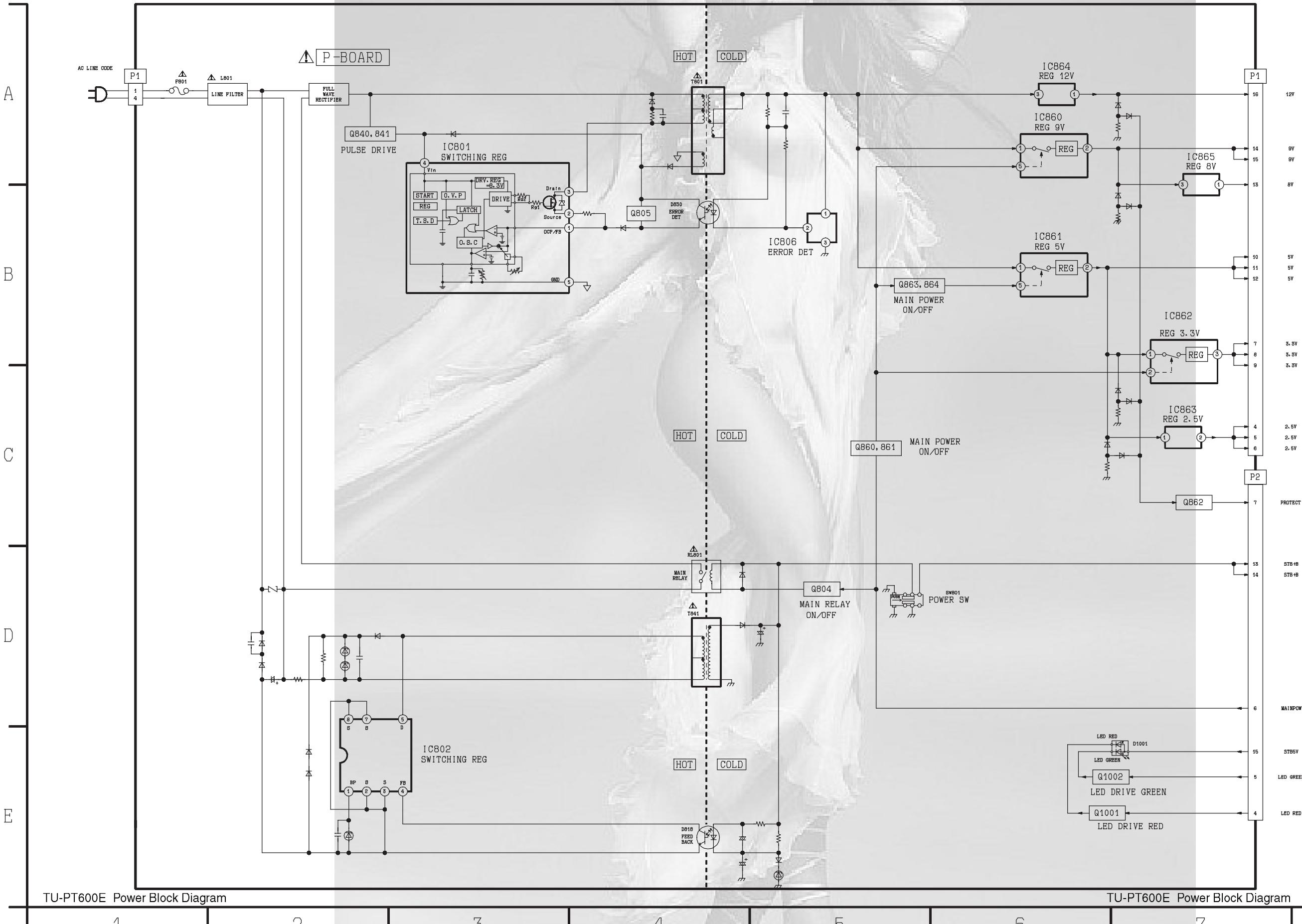
## 10.2. Main Block Diagram

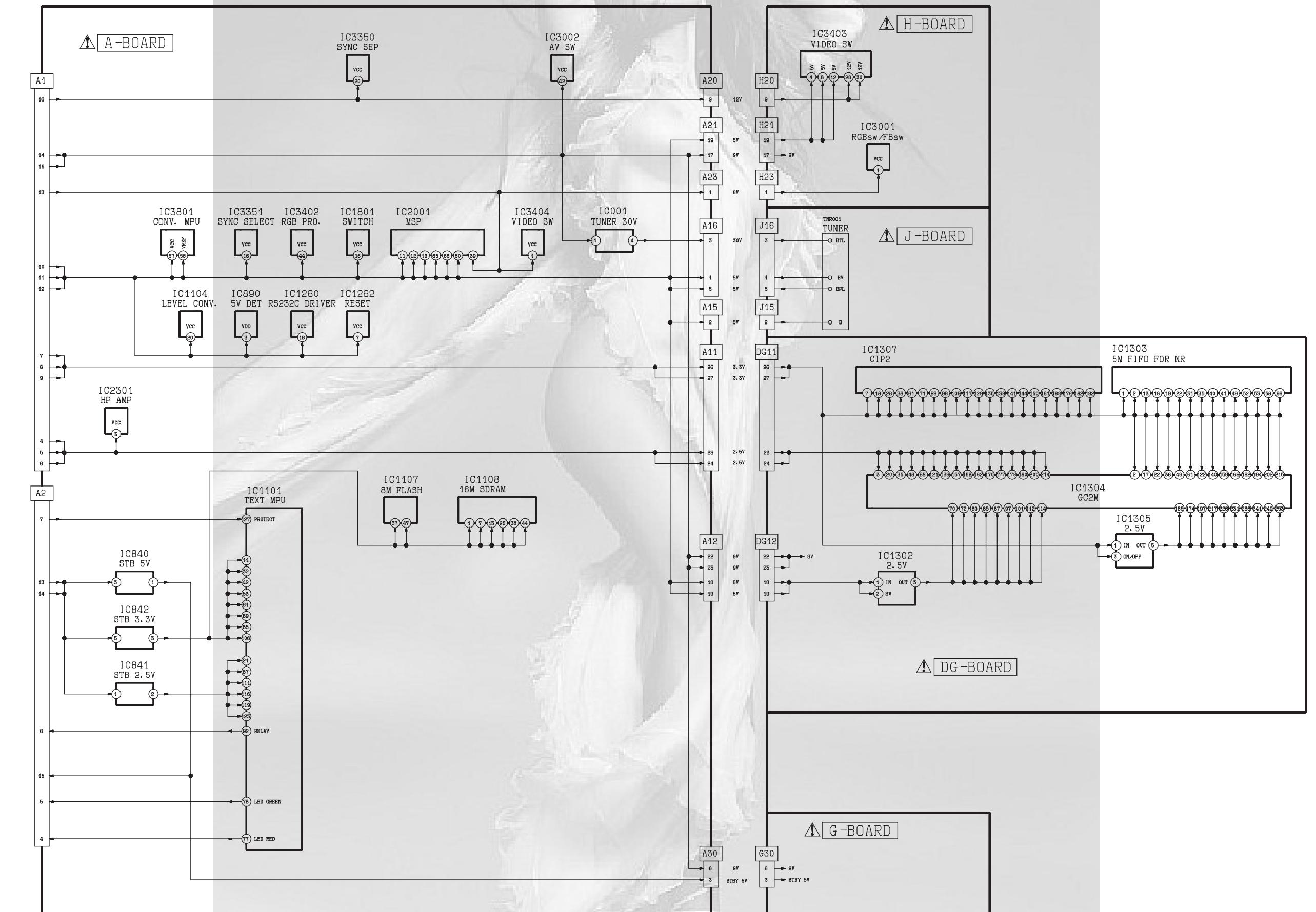


### 10.3. Control Block Diagram



## 10.4. Power Block Diagram

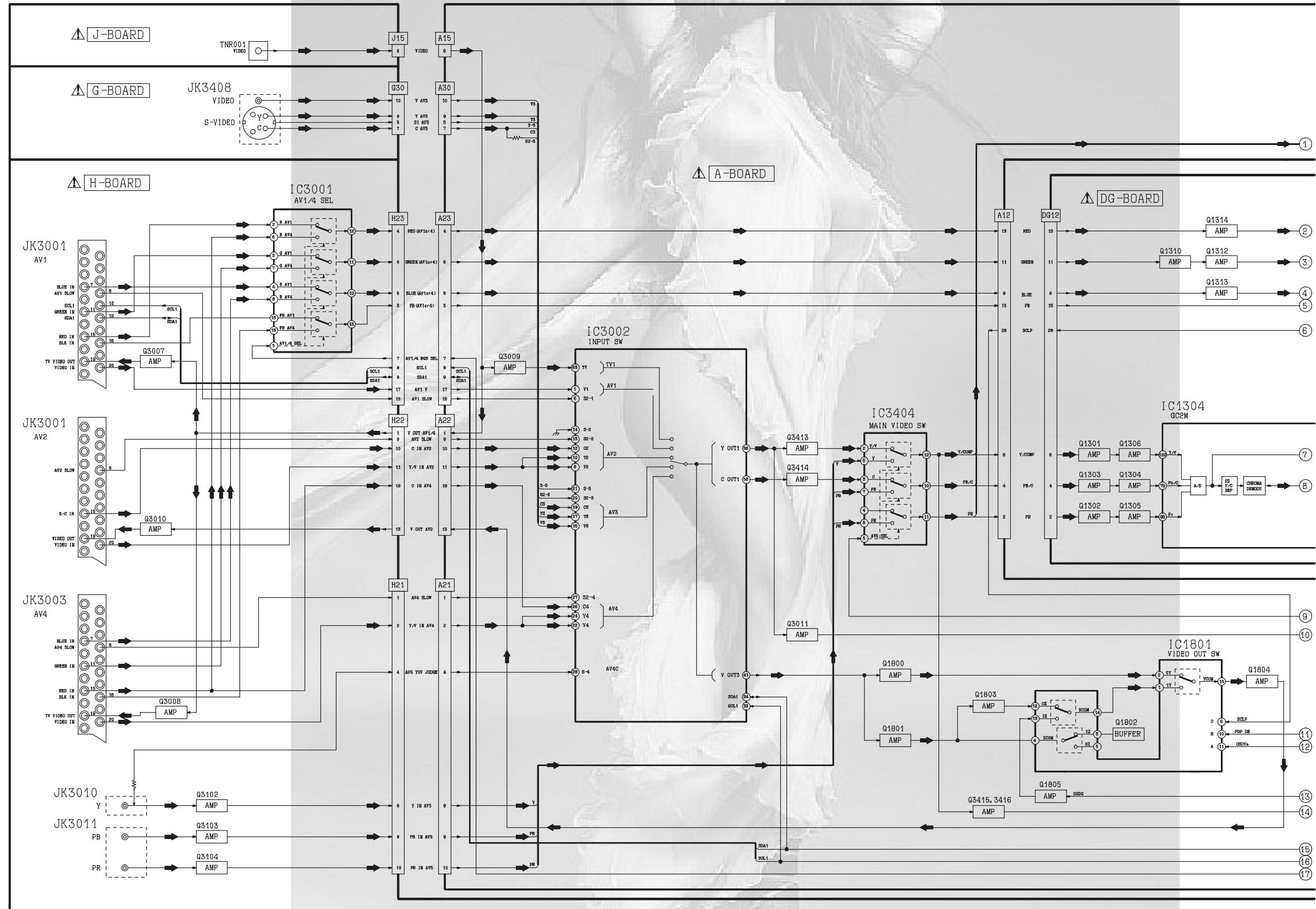


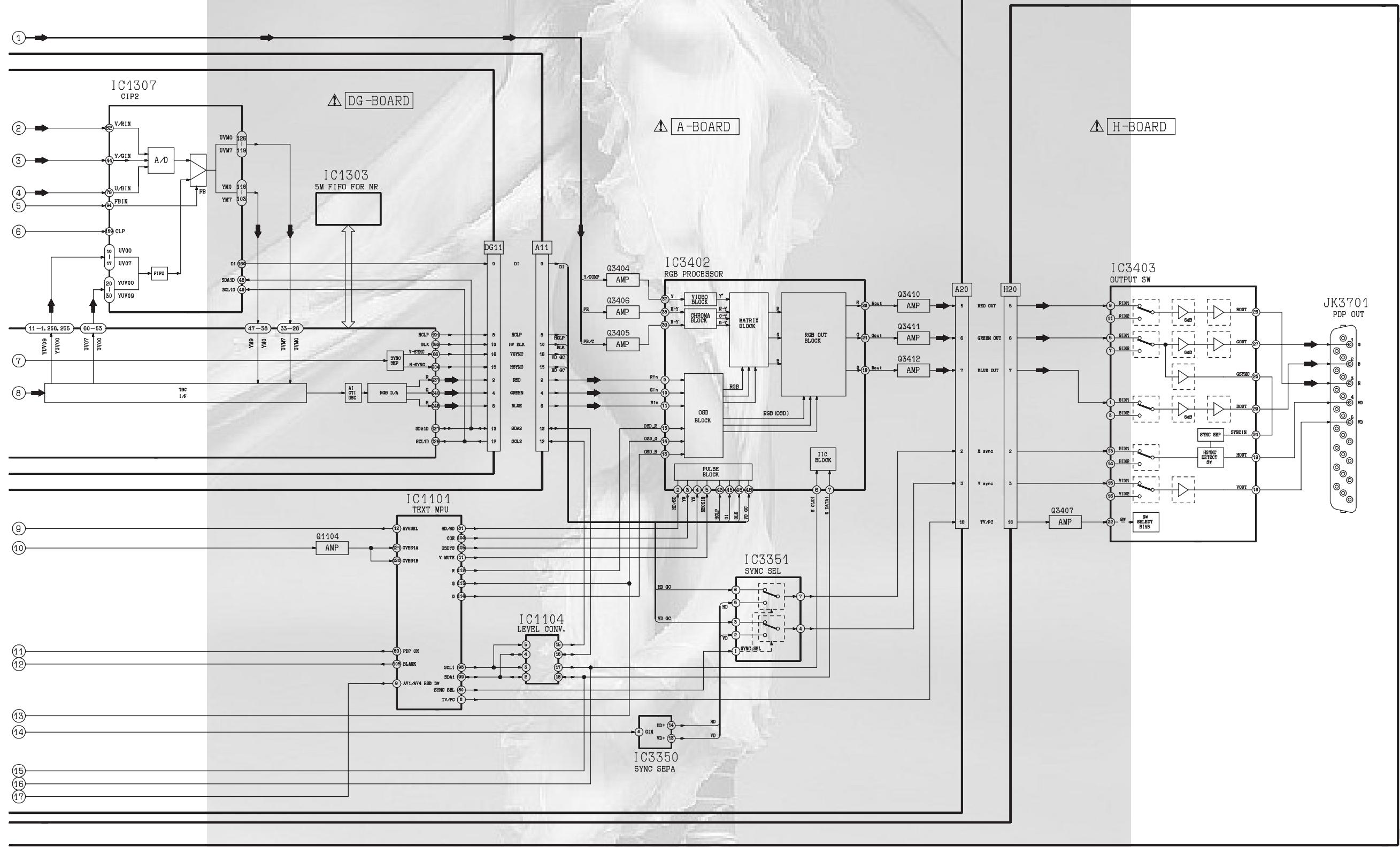


TU-PT600E Power Block Diagram

TU-PT600E Power Block Diagram

## 10.5. Video Block Diagram





TU-PT600E Video Block Diagram

TU-PT600E Video Block Diagram

9 10

11

12

13

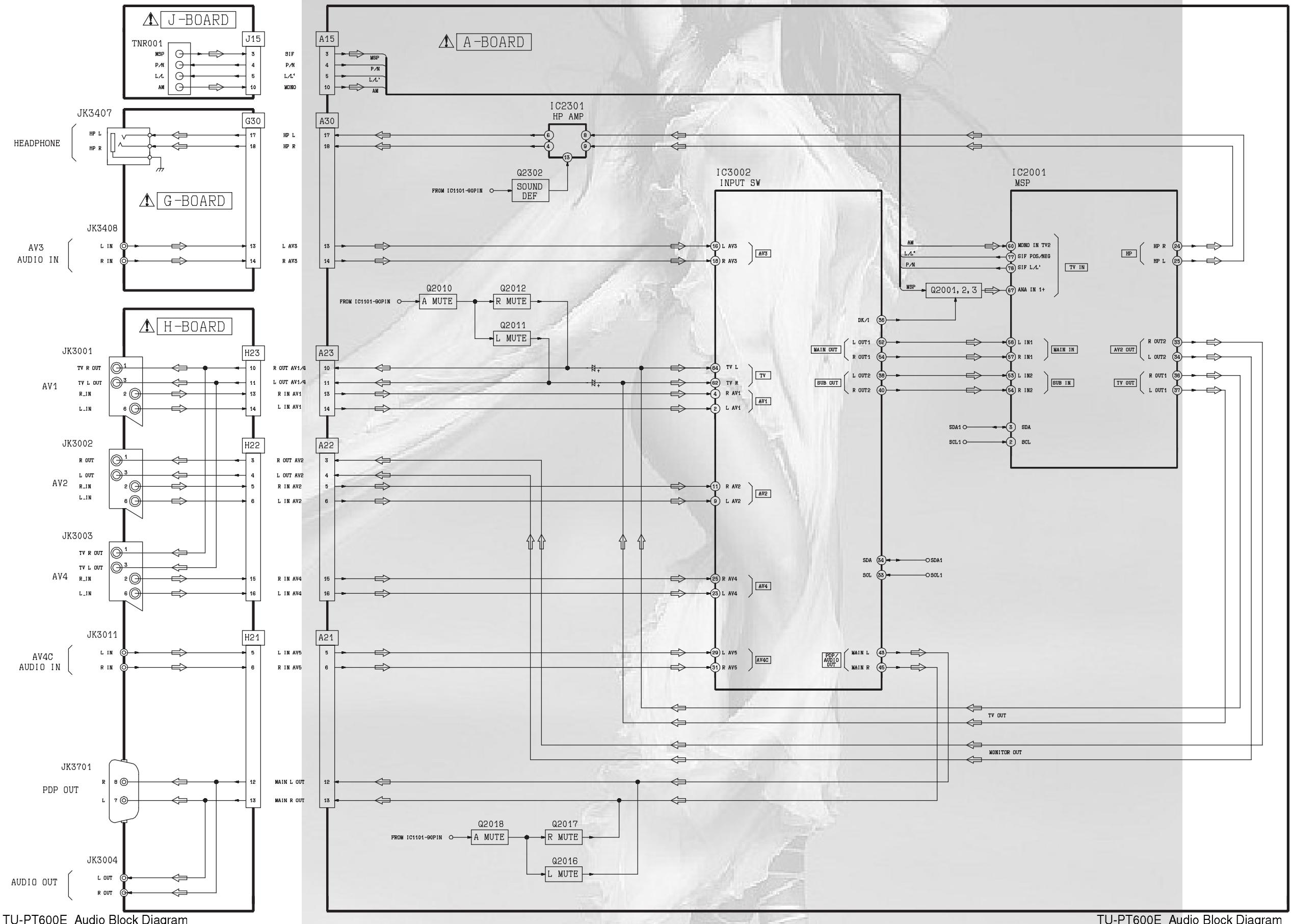
14

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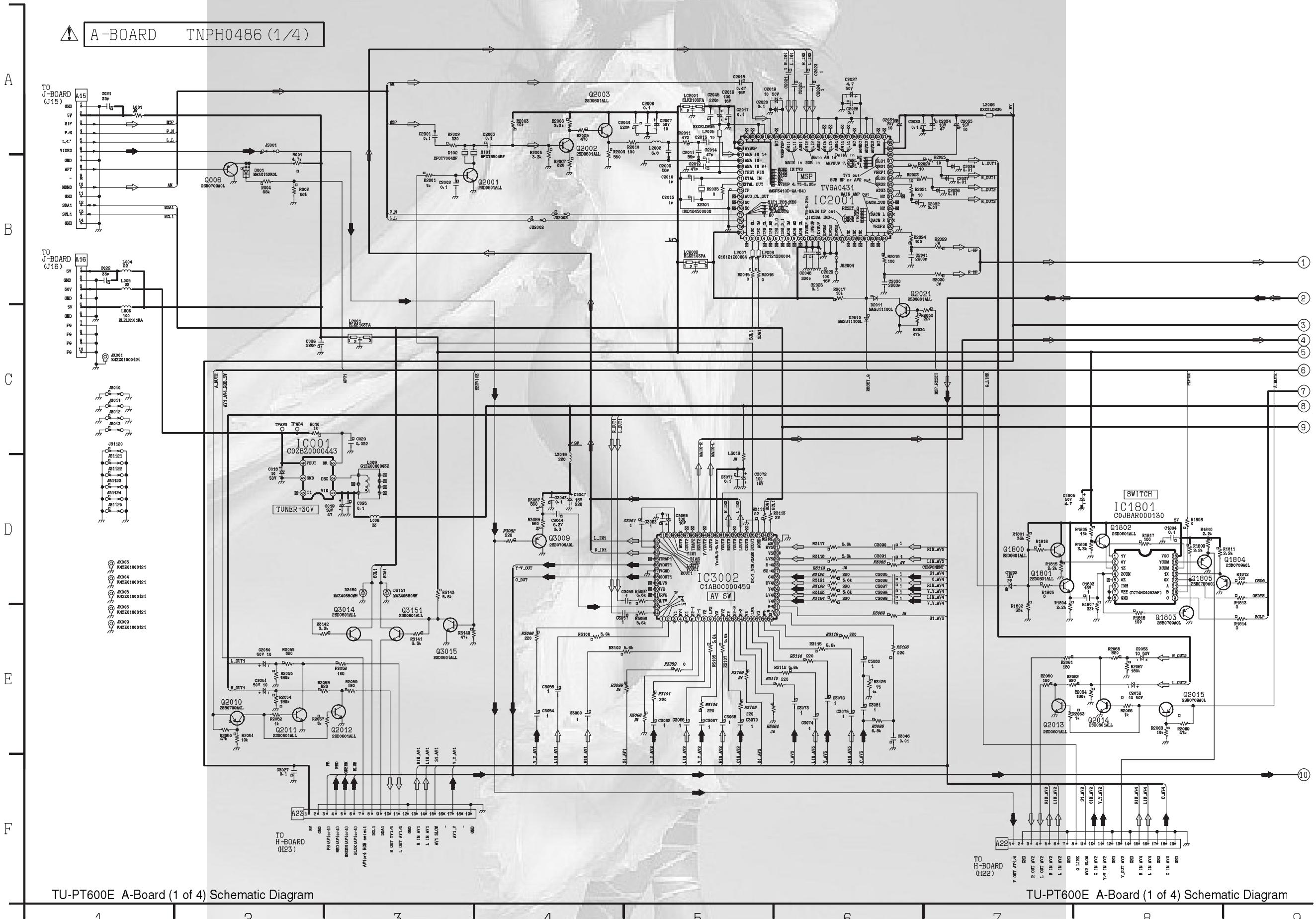
## 10.6. Audio Block Diagram



TU-PT600E Audio Block Diagram

TU-PT600E Audio Block Diagram

## 10.7. A-Board (1 of 4) Schematic Diagram

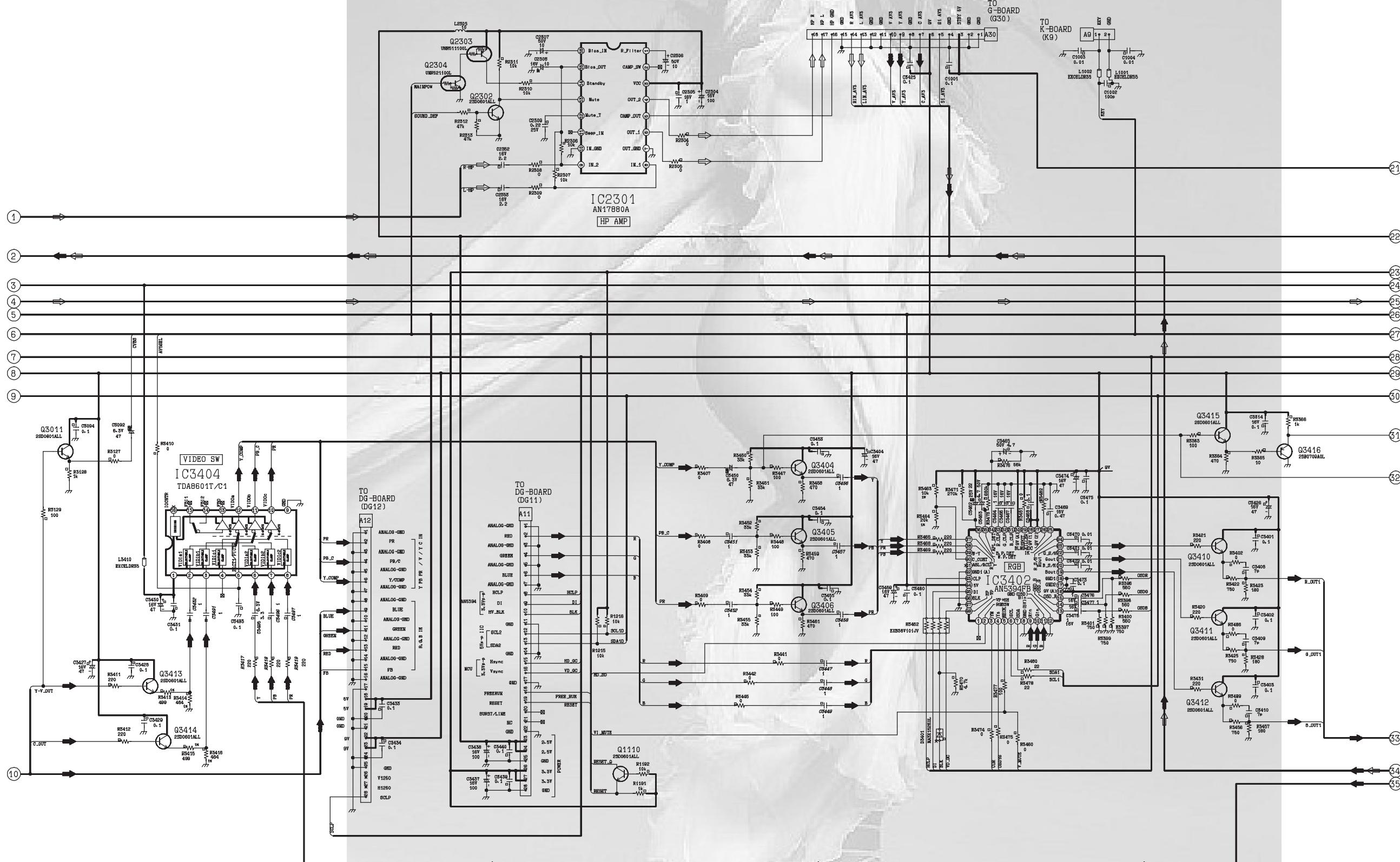


TU-PT600E A-Board (1 of 4) Schematic Diagram

TU-PT600E A-Board (1 of 4) Schematic Diagram

## 10.8. A-Board (2 of 4) Schematic Diagram

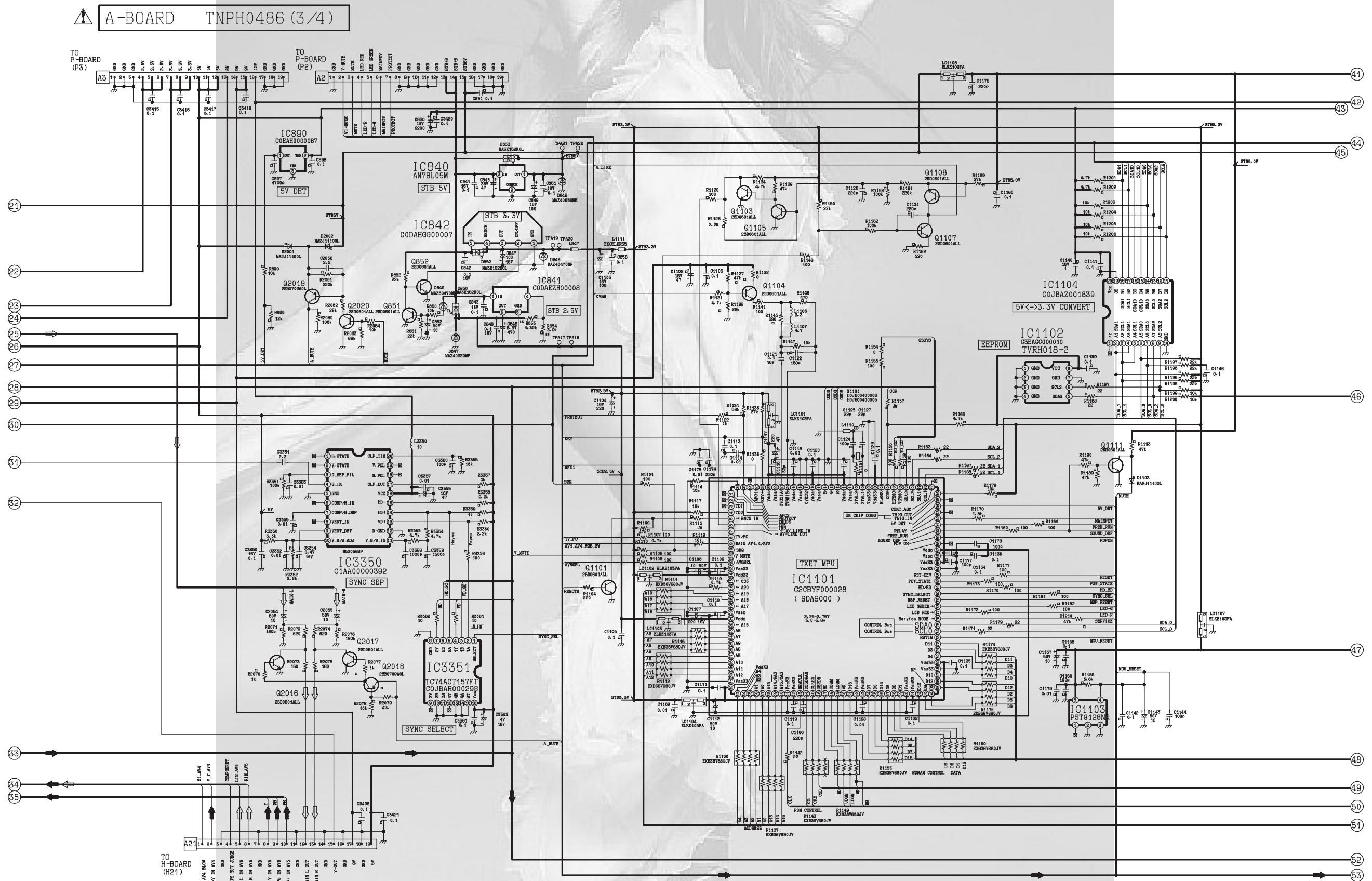
⚠ A-BOARD TNPH0486 (2/4)



TU-PT600E A-Board (2 of 4) Schematic Diagram

TU-PT600E A-Board (2 of 4) Schematic Diagram

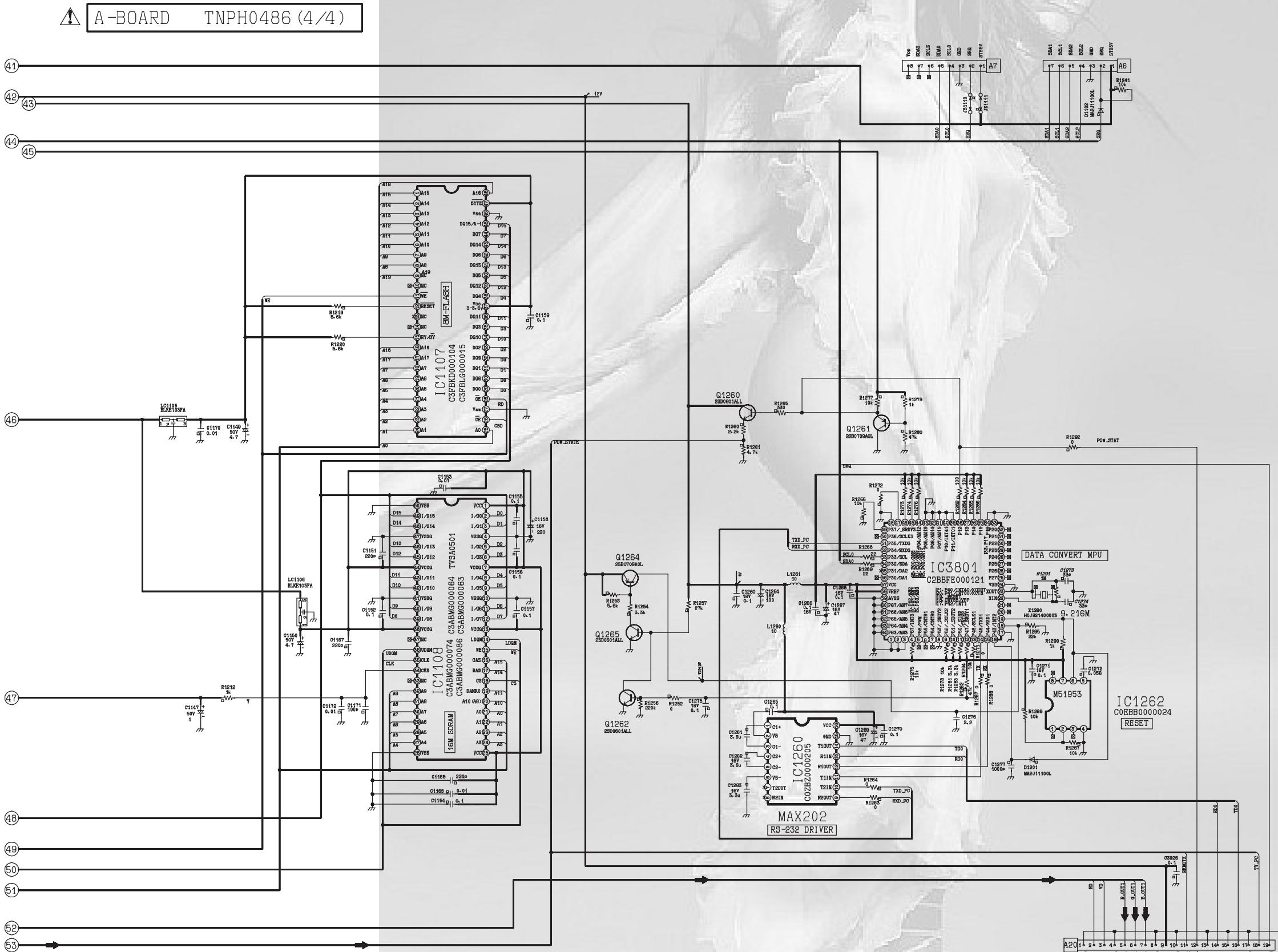
## 10.9. A-Board (3 of 4) Schematic Diagram



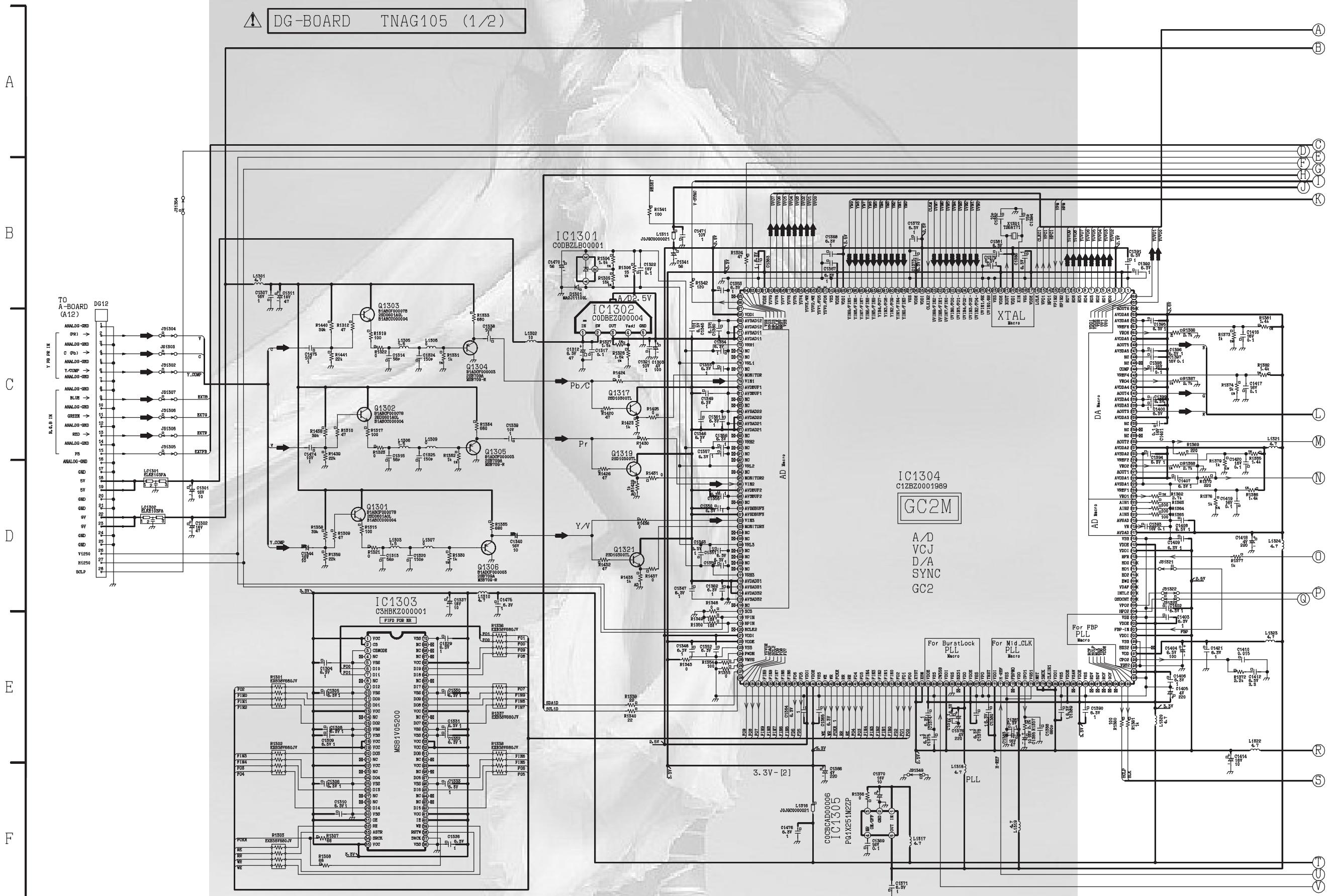
TU-PT600E A-Board (3 of 4) Schematic Diagram

TU-PT600E A-Board (3 of 4) Schematic Diagram

## 10.10. A-Board (4 of 4) Schematic Diagram



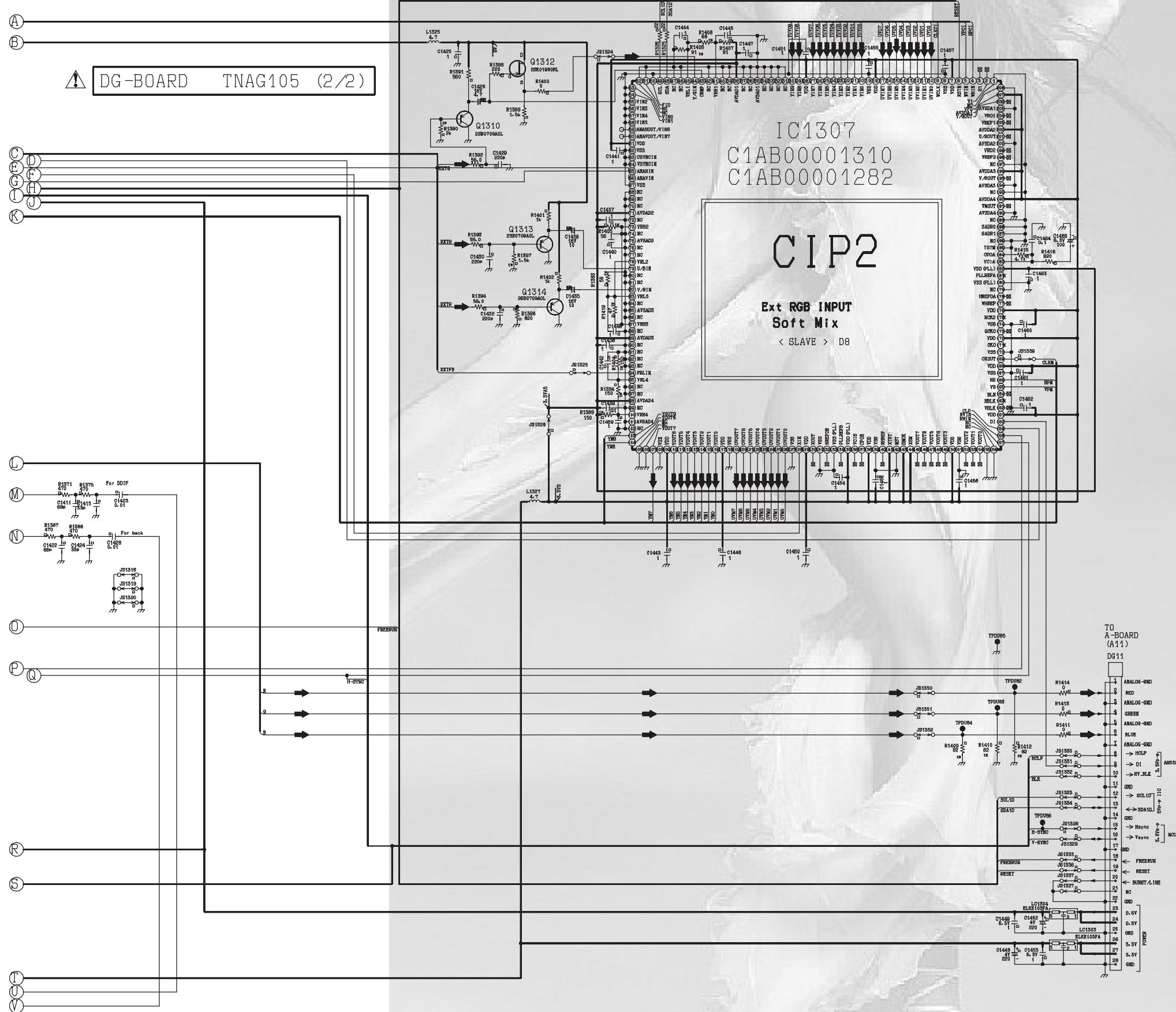
## 10.11. DG-Board (1 of 2) Schematic Diagram



TU-PT600E DG-Board (1 of 2) Schematic Diagram

TU-PT600E DG-Board (1 of 2) Schematic Diagram

## 10.12. DG-Board (2 of 2) Schematic Diagram

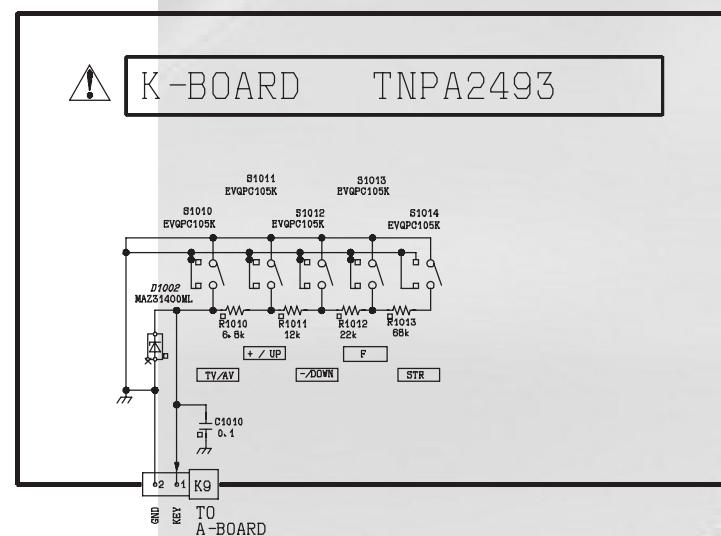
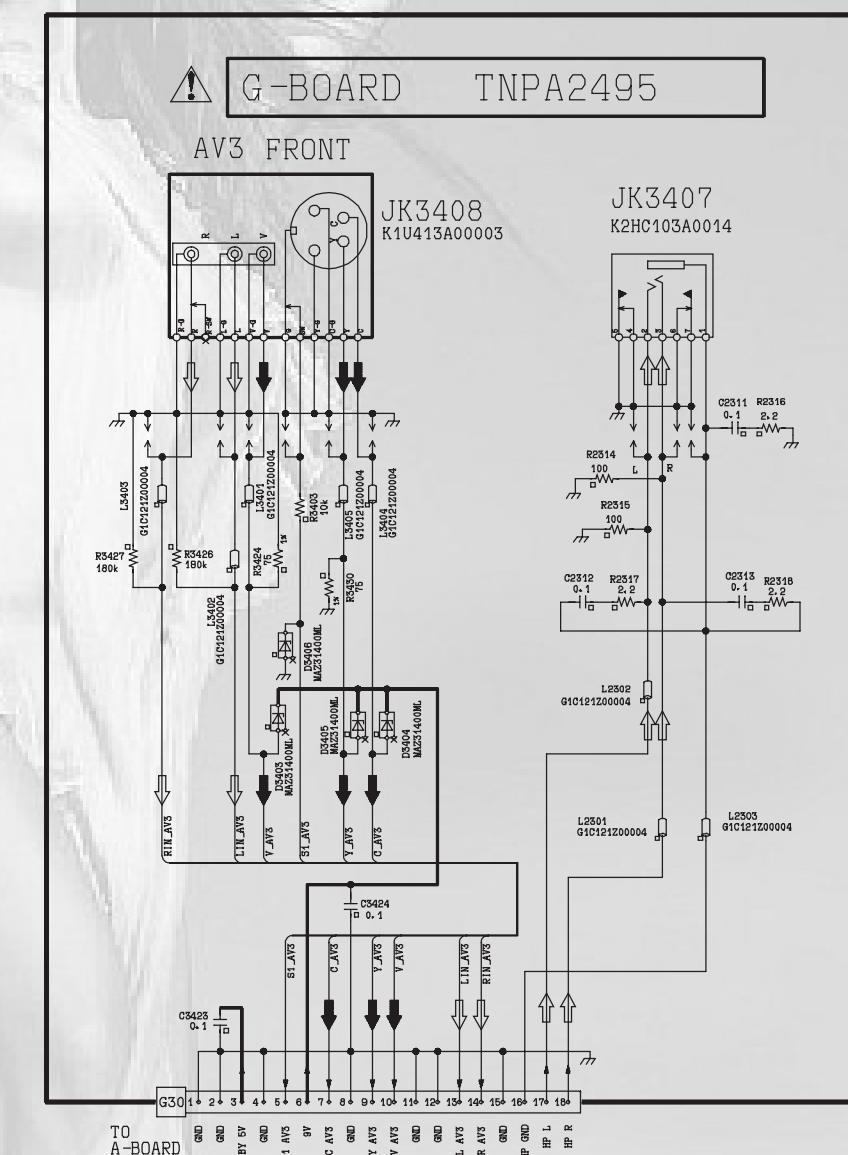
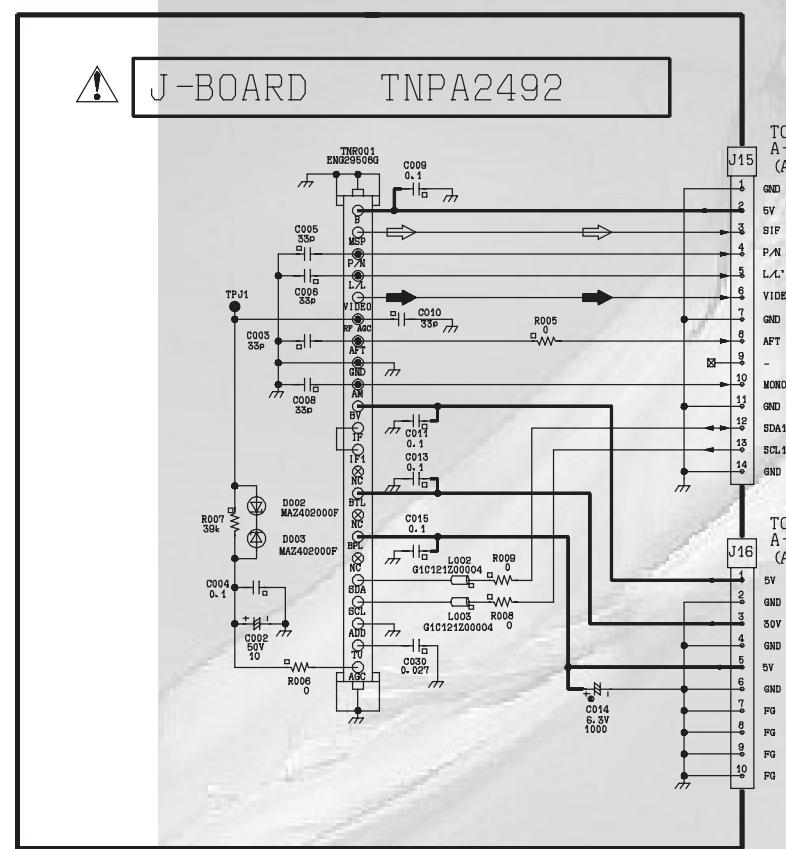


TU-PT600E DG-Board (2 of 2) Schematic Diagram

TU-PT600E DG-Board (2 of 2) Schematic Diagram

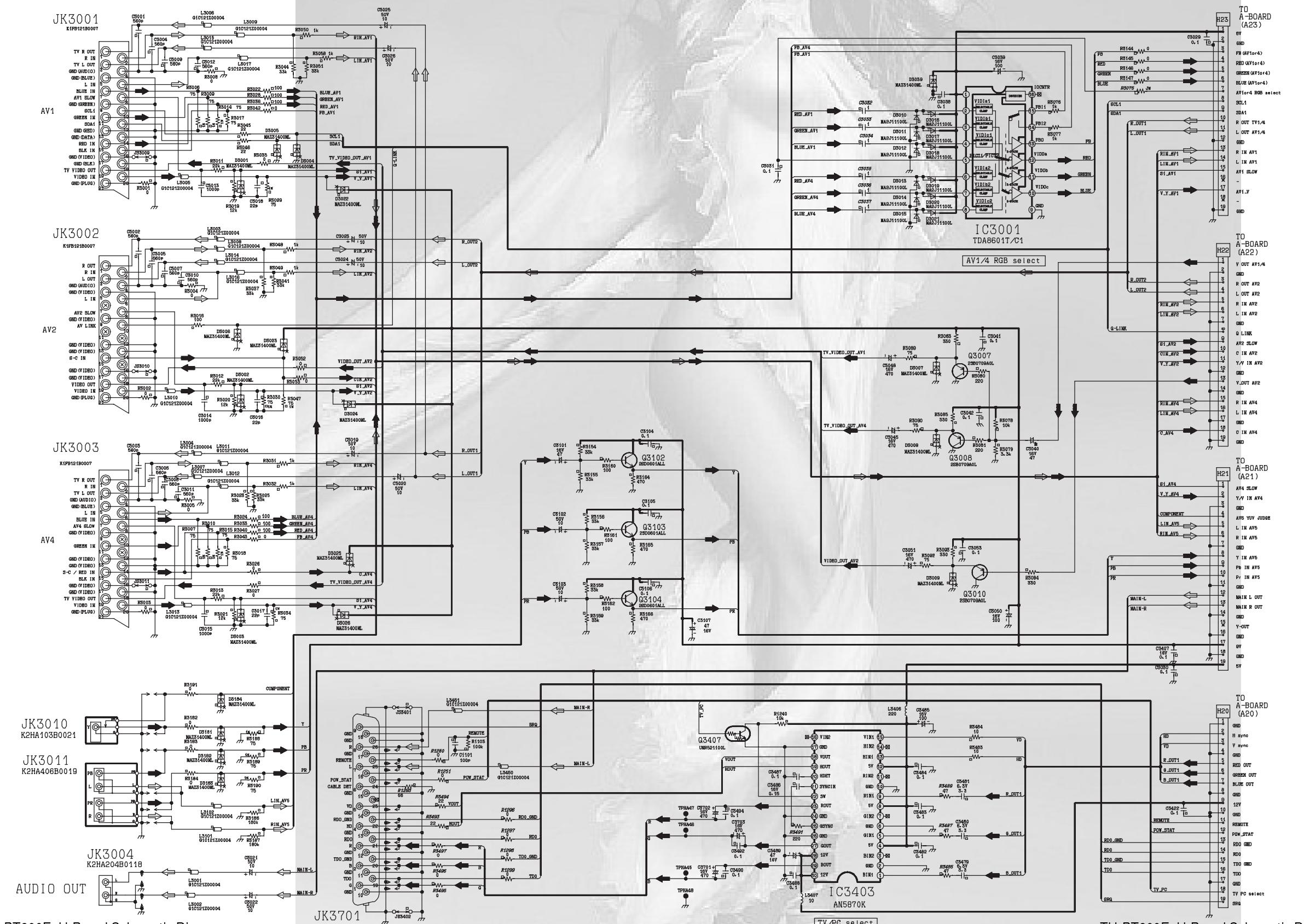
## 10.13. G, J and K-Board Schematic Diagrams

A  
B  
C  
D  
E



## 10.14. H-Board Schematic Diagram

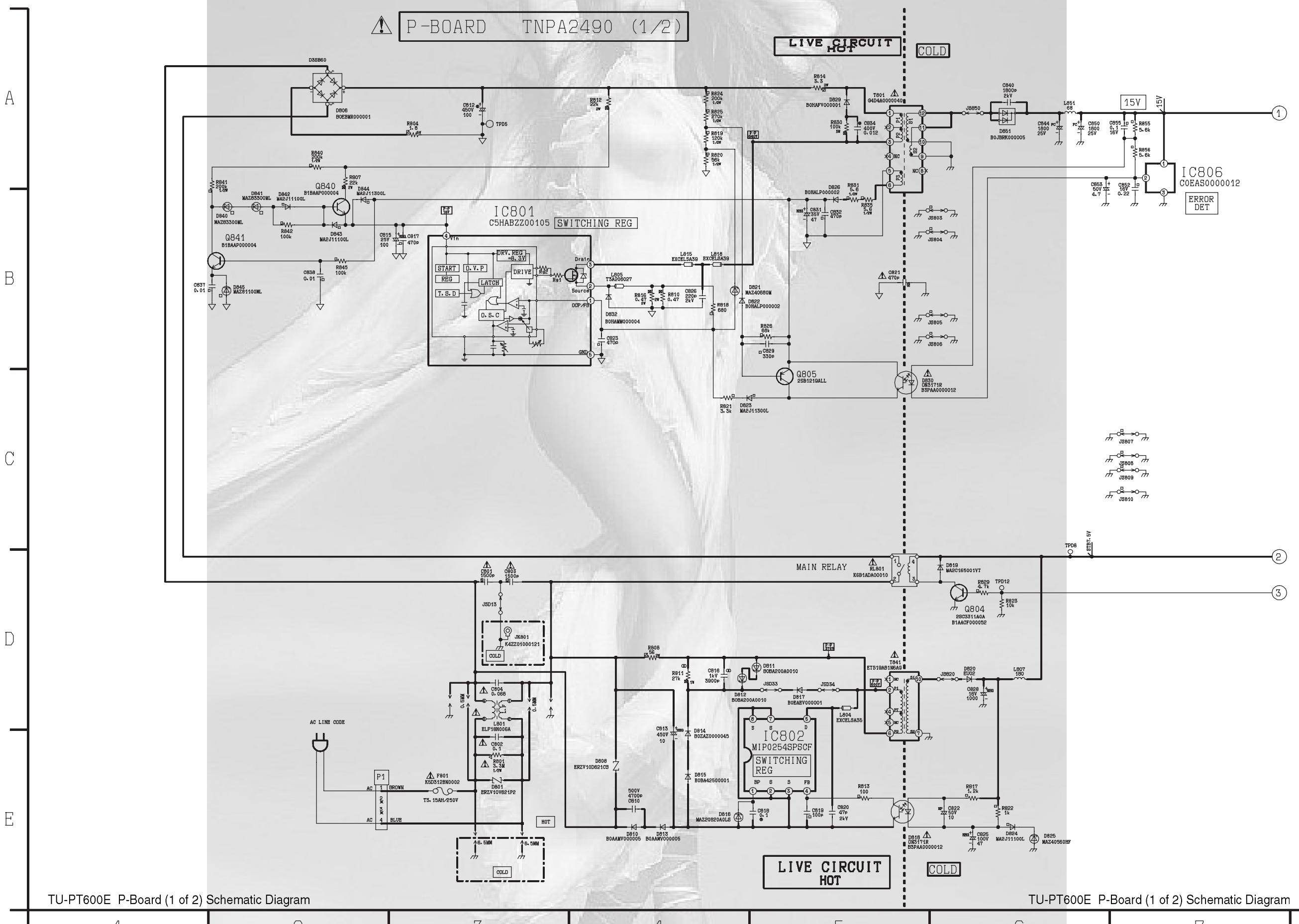
H-BOARD TNPA2491



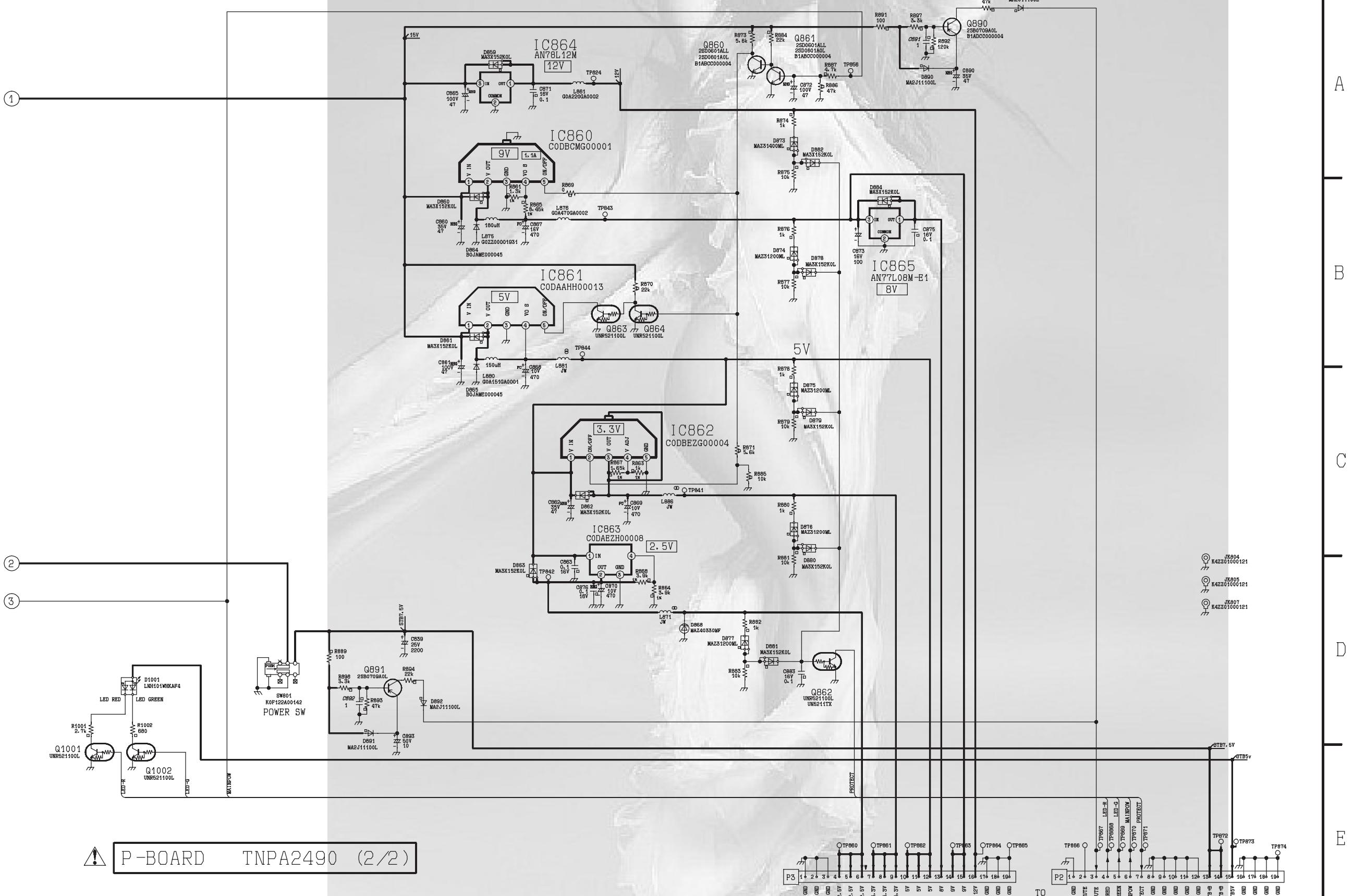
TU-PT600E H-Board Schematic Diagram

TU-PT600E H-Board Schematic Diagram

## 10.15. P-Board (1 of 2) Schematic Diagram



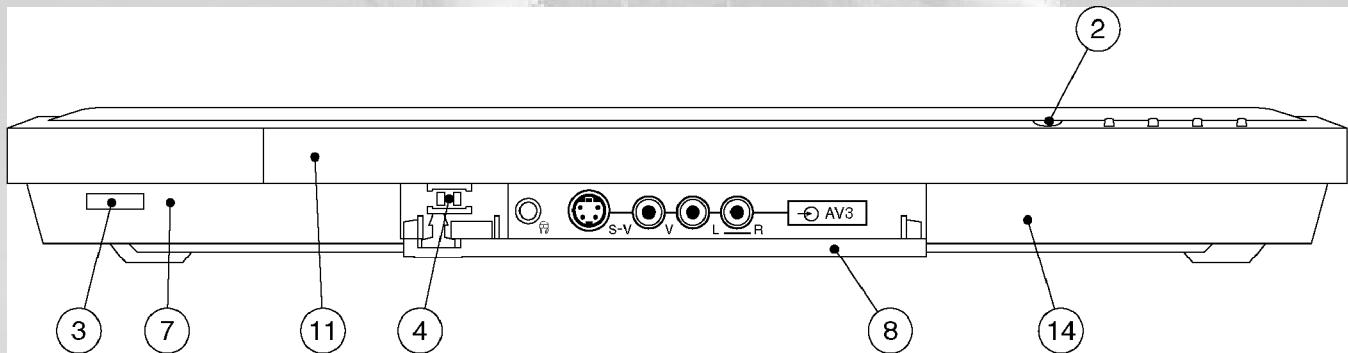
## 10.16. P-Board (2 of 2) Schematic Diagram



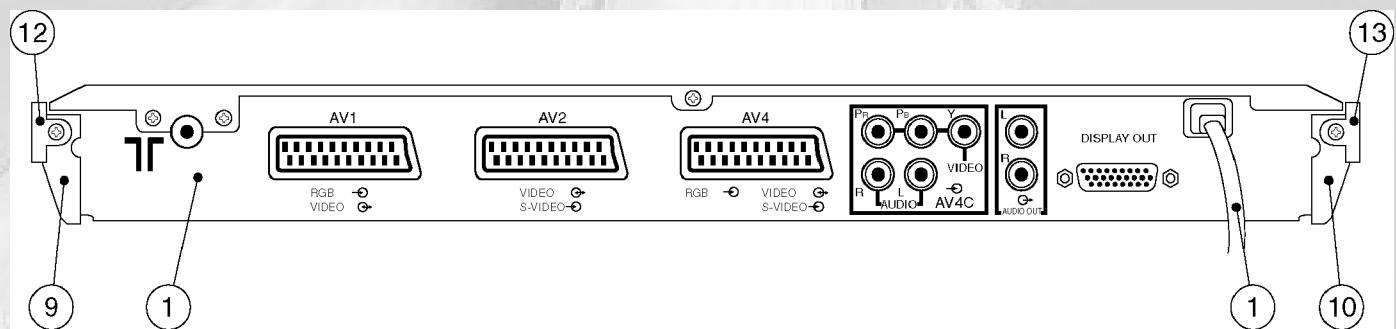
TU-PT600E P-Board (2 of 2) Schematic Diagram

# 11 Parts Location

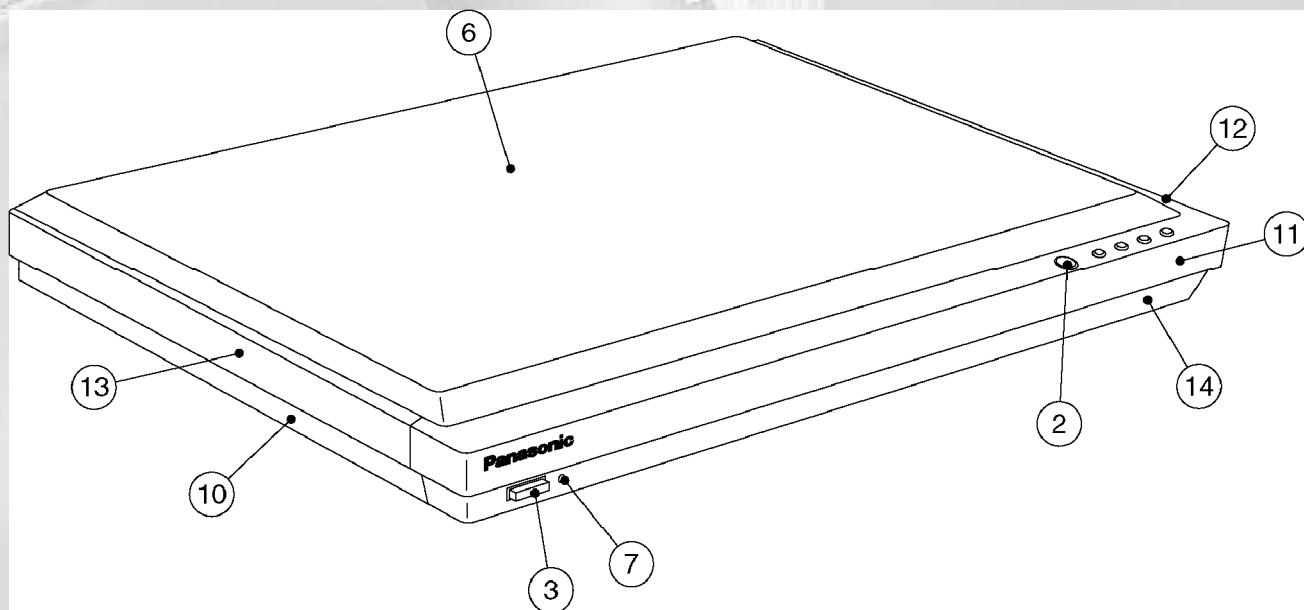
• Front View



• Rear View



• Top View



# 12 Mechanical Replacement Parts List

| Ref. No. | Part No.     | Part Name & Description    | Pcs | Remarks      |
|----------|--------------|----------------------------|-----|--------------|
|          |              |                            |     |              |
|          | KYF-52BC     | FUSE HOLDER                | 2   |              |
|          | K1KA26FA0001 | 26P CONNECTOR              | 1   |              |
|          | K1KA02B00115 | CONNECTOR                  | 1   |              |
|          | K1KA10A00263 | 10P CONNECTOR              | 1   |              |
|          | K1KA14A00127 | 14P CONNECTOR              | 1   |              |
|          | K1KA18A00036 | 18P CONNECTOR              | 1   |              |
|          | K1KA28A00017 | 28P CONNECTOR              | 2   |              |
|          | K1KB10B00042 | 10P CONNECTOR              | 1   |              |
|          | K1KB14B00026 | 14P CONNECTOR              | 1   |              |
|          | K1KB28A00017 | 28P CONNECTOR              | 2   |              |
|          |              |                            |     |              |
| 1        | K2CQ2DZ00002 | AC POWER CORD              | 1   | ⚠            |
|          |              |                            |     |              |
|          | TBLG3017     | SET LUG                    | 4   |              |
|          | TBME616      | MODEL NAME PLATE           | 1   |              |
|          |              |                            |     |              |
| 2        | TBXA35001    | OPERATION BUTTON           | 1   |              |
| 3        | TBXA35101    | POWER BUTTON               | 1   |              |
| 4        | TEK6935      | DOOR SWITCH                | 1   |              |
|          |              |                            |     |              |
|          | TEKC001      | DAMPER                     | 1   |              |
|          | THEA068N     | SCREW                      | 4   |              |
|          | THTD006      | SCREW                      | 36  |              |
|          | TJS118590    | 2P CONNECTOR               | 1   | K1KA02A00188 |
|          | TJS169690    | 4P CONNECTOR               | 1   | K1KA04A00111 |
|          | TJS3A9680    | 7P CONNECTOR               | 1   | K1KA07A00095 |
|          | TJS3A9880    | 8P CONNECTOR               | 1   | K1KA08A00179 |
|          | TJS6A9360    | 18P CONNECTOR              | 1   | K1KA18B00023 |
|          | TJSF31919    | 19P CONNECTOR              | 6   | K1KB19A00007 |
|          | TJSF32019    | 19P CONNECTOR              | 6   | K1KA19A00010 |
|          |              |                            |     |              |
| 5        | TKFA14201    | REAR PANEL                 | 1   | ⚠            |
| 6        | TKFA14301    | TOP COVER                  | 1   |              |
| 7        | TKKC5136     | LED COVER                  | 1   |              |
| 8        | TKPA61301    | DOOR                       | 1   |              |
| 9        | TKPA61401    | SIDE PANEL (RIGHT)         | 1   |              |
| 10       | TKPA61501    | SIDE PANEL (LEFT)          | 1   |              |
| 11       | TKPA61601    | DECORATION PANEL (FRONT)   | 1   |              |
| 12       | TKPA61701    | ORNAMENT PANEL (RIGHT)     | 1   |              |
| 13       | TKPA62201    | ORNAMENT PANEL (LEFT)      | 1   |              |
|          |              |                            |     |              |
|          | TNQE286      | REMOCON TRANSMITTER        | 1   |              |
|          | TPCB23201    | CARTON BOX                 | 1   |              |
|          | TPDF0860     | CUSHION                    | 1   |              |
|          | TPEH110      | PROTECT COVER              | 1   |              |
|          | TPEX013      | POLISHING CLOTH            | 1   |              |
|          | TQBC0503     | INSTRUCTION BOOK (ENGLISH) | 1   |              |
|          | TQBC0504     | INSTRUCTION BOOK (GERMAN)  | 1   |              |
|          | TQBC0505     | INSTRUCTION BOOK (FRENCH)  | 1   |              |
|          | TQBC0506     | INSTRUCTION BOOK (ITALIAN) | 1   |              |
|          | TQBC0507     | INSTRUCTION BOOK (SPANISH) | 1   |              |
|          | TQBC0508     | INSTRUCTION BOOK (NETHER)  | 1   |              |
|          | TQBC0509     | INSTRUCTION BOOK (DANISH)  | 1   |              |
|          | TQBC0510     | INSTRUCTION BOOK (SWEDISH) | 1   |              |
|          | TQFB722      | LABEL                      | 1   |              |
|          |              |                            |     |              |
| 14       | TXFKP02LESE  | FRONT PANEL ASS'Y          | 1   | ⚠            |
|          |              |                            |     |              |
|          | XTB3+6J      | SCREW                      | 2   |              |
|          | XTV3+10JFZ   | SCREW                      | 13  |              |

| Ref. No. | Part No. | Part Name & Description | Pcs | Remarks |
|----------|----------|-------------------------|-----|---------|
|          | XTW3+12T | SCREW                   | 3   |         |
|          | XYN3+F12 | SCREW                   | 1   |         |
|          | XYN3+J8  | SCREW                   | 4   |         |
|          | XZBT6506 | POLY BAG                | 1   |         |

# 13 Replacement Parts List

## 13.1. Replacement Parts List Notes

### Important Safety Notice

*Components identified by  $\Delta$  mark have special characteristics important for safety.  
When replacing any of these components, use only manufacturer's specified parts.*

#### RTL (Retention Time Limited)

**Note:** The marking (RTL) indicates that the Retention Time is Limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

Abbreviation of part name and description

#### 1. Resistor

Example:

ERD25TJ104 C 100KOHM, J, 1/4W

Type

Allowance

#### 2. Capacitor

Example:

ECKF1H103ZF C 0.01UF, Z, 50V

Type

Allowance

| Type            | Allowance      |
|-----------------|----------------|
| C : Carbon      | F : $\pm 1\%$  |
| F : Fuse        | G : $\pm 2\%$  |
| M : Metal Oxide | J : $\pm 5\%$  |
| Metal Film      | K : $\pm 10\%$ |
| S : Solid       | M : $\pm 20\%$ |
| W : Wire Wound  |                |

| Type             | Allowance               |
|------------------|-------------------------|
| C : Ceramic      | C : $\pm 0.25\text{pF}$ |
| E : Electrolytic | D : $\pm 0.5\text{pF}$  |
| P : Polyester    | F : $\pm 1\text{pF}$    |
|                  | G : $\pm 3\text{pF}$    |
|                  | J : $\pm 5\text{pF}$    |
| T : Tantalum     | K : $\pm 10\text{pF}$   |
|                  | L : $\pm 15\text{pF}$   |
|                  | M : $\pm 20\text{pF}$   |
|                  | P : $+100\%, -0\%$      |
|                  | Z : $+80\%, -20\%$      |



















| Ref.<br>No. | Part No.     | Part Name &<br>Description | Pcs | Remarks      |
|-------------|--------------|----------------------------|-----|--------------|
| S1010-14    | EVQPC105K    | SWITCH                     | 5   |              |
| SW801       | TSED0012     | SWITCH                     | 1   | K0F122A00142 |
| T801        | G4D4A0000040 | SWITCHING TRANS            | 1   | ▲            |
| T841        | ETS19AB1N6AG | SWITCHING TRANS            | 1   | ▲            |
| TNR001      | ENG29508G    | TUNER                      | 1   |              |
| X101        | EFCS6504BF   | CERAMIC FILTER             | 1   |              |
| X102        | EFCS7004BF   | CERAMIC FILTER             | 1   |              |
| X1101       | H0J600400006 | CRYSTAL                    | 1   |              |
| X1260       | H0J921400003 | CRYSTAL                    | 1   |              |
| X1301       | TSSA171      | CRYSTAL                    | 1   |              |
| X2301       | TSSA128      | CRYSTAL                    | 1   | H0D184500008 |