

# TX-29AK1P Service Manual

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Specifications

Parts List

Safety

Block  
Diagrams

Service  
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## Service Support

Service and repair of this product is supported by Panasonic's LUCI interface.

This interface provides a link between the TV and a standard PC to allow a number of diagnostic and control functions to be performed.

For more details contact your local Panasonic company.

  
BACK

EXIT

# Service Manual



## Colour Television

## TX-29AK1P

## EURO-4 Chassis

### SPECIFICATIONS

|                                    |   |
|------------------------------------|---|
| <b>Power Source:</b>               | 220-240V a.c., 50Hz   |
| <b>Power Consumption:</b>          | 150W  |
| <b>Stand-by Power Consumption:</b> | 1,4W  |
| <b>Aerial Impedance:</b>           | 75Ω unbalanced, Coaxial Type  |
| <b>Receiving System:</b>           | PAL B/G, H, D/K, PAL-525/60<br>SECAM B/G, D/K<br>M.NTSC<br>NTSC (AV only)   |
| <b>Receiving Channels:</b>         | VHF E2-E12 VHF H1-H2 (ITALY)<br>VHF A-H (ITALY) VHF R1-R2<br>VHF R3-R5 VHF R6-R12<br>UHF E21-E69 CATV (S01-S05)<br>CATV S1-S10 (M1-M10) CATV S11-S20 (U1-U10)<br>CATV S21-S41 (HYPERBAND) |
| <b>Intermediate Frequency:</b>     |   |
| <b>Video/Audio</b>                 | Video 38,9MHz<br>Audio 33,16MHz, 33,4MHz<br>32,4MHz (A2 Stereo)<br>33,05MHz (NICAM)   |
| Colour                             | 32,66MHz, 32,4MHz (Czech Stereo)<br>34,47MHz (PAL)<br>34,5MHz, 34,65MHz (SECAM)   |
| <b>Terminals:</b>                  |   |
| AUDIO MONITOR OUT                  | Audio (RCAx2) 500mV rms 1kΩ   |
| AV1 IN                             | Video (21 pin) 1V p-p 75Ω<br>Audio (21 pin) 500mV rms 10kΩ<br>RGB (21 pin)  |
| AV1 OUT                            | Video (21 pin) 1V p-p 75Ω<br>Audio (21 pin) 500mV rms 1kΩ   |

|                               |   |
|-------------------------------|---|
| AV2 IN                        | Video (21 pin) 1V p-p 75Ω<br>Audio (21 pin) 500mV rms 10kΩ<br>S-Video IN (21-pin) Y: 1V p-p 75Ω<br>C:0,3V p-p 75Ω |
| AV2 OUT                       | Video (21 pin) 1V p-p 75Ω<br>Audio (21 pin) 500mV rms 1kΩ<br>Selectable output (21 pin)                           |
| AV3 IN                        | Audio (RCAx2) 500mV rms 10kΩ<br>Video (RCAx1) 1V p-p 75Ω  |
| <b>High Voltage:</b>          | 30,5kV ±1kV   |
| <b>Picture Tube:</b>          | M68LQK185X06 68cm   |
| <b>Audio Output:</b>          | 2 x 20W (Music Power)<br>8Ω Impedance   |
| <b>Headphones:</b>            | 8Ω Impedance<br>3,5 mm  |
| <b>Accessories supplied :</b> | Remote Control<br>2 x R6 (UM3) Batteries  |
| <b>Dimensions:</b>            |   |
| Height:                       | 568mm   |
| Width:                        | 688mm   |
| Depth:                        | 492mm   |
| <b>Net weight:</b>            | 47kg  |

Specifications are subject to change without notice.  
Weights and dimensions shown are approximate.

**NOTE:** This Service Manual should be used in conjunction with the EURO-4 Technical guide.

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## SAFETY PRECAUTION

### GENERAL GUIDE LINES

1. It is advisable to insert an isolation transformer in the a.c. supply before servicing a hot chassis.
2. When servicing, observe the original lead dress in the high voltage circuits. If a short circuit is found, replace all parts that have been overheated or damaged by the short circuit.
3. After servicing, see that all the protective devices such as insulation barriers, insulation papers, shields and isolation R-C combinations are correctly installed.
4. When the receiver is not being used for a long period of time, unplug the power cord from the a.c. outlet.
5. Potentials as high as 31,5kV are present when this receiver is in operation. Operation of the receiver without the rear cover involves the danger of a shock hazard from the receiver power supply. Servicing should not be attempted by anyone who is not familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the tube.
6. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazard.

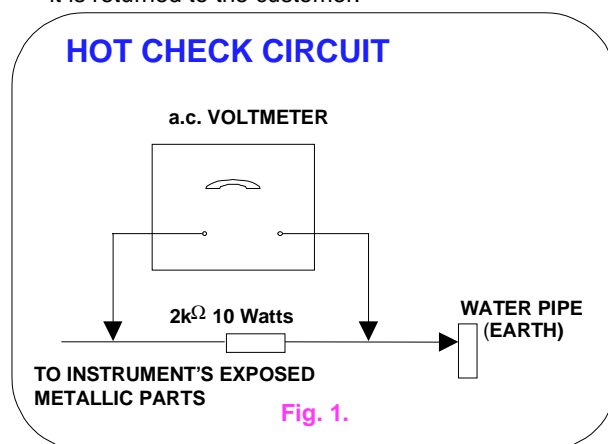
### LEAKAGE CURRENT COLD CHECK

1. Unplug the a.c. cord and connect a jumper between the two prongs of the plug.
2. Turn on the receiver's power switch.
3. Measure the resistance value with an ohmmeter, between the jumpered a.c. plug and each exposed metallic cabinet part on the receiver, such as screw heads, aerials, connectors, control shafts etc. When the exposed metallic part has a return path to the chassis, the reading should be between 4M ohm and 20M ohm. When the exposed metal does not have a return path to the chassis, the reading must be infinite.

### LEAKAGE CURRENT HOT CHECK

1. Plug the a.c. cord directly into the a.c. outlet. Do not use an isolation transformer for this check.
2. Connect a 2k $\Omega$  10W resistor in series with an exposed metallic part on the receiver and an earth, such as a water pipe.
3. Use an a.c. voltmeter with high impedance to measure the potential across the resistor.

4. Check each exposed metallic part and check the voltage at each point.
5. Reverse the a.c. plug at the outlet and repeat each of the previous measurements.
6. The potential at any point should not exceed 1,4 Vrms. In case a measurement is outside the limits specified, there is a possibility of a shock hazard, and the receiver should be repaired and rechecked before it is returned to the customer.



### X-RADIATION WARNING

1. The potential sources of X-Radiation in TV sets are the high voltage section and the picture tube.
2. When using a picture tube test jig for service, ensure that the jig is capable of handling 31,5kV without causing X-Radiation.

**NOTE:** It is important to use an accurate periodically calibrated high voltage meter.

1. Set the brightness to minimum.
2. Measure the high voltage. The meter should indicate 30,5kV  $\pm$  1kV. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
3. To prevent any X-Radiation possibility, it is essential to use the specified tube.

## SERVICE HINTS

### How to remove the rear cover

1. Remove the 9 screws as shown in **Fig.2**.



**SCREWS**  
Fig.2.

## LOCATION OF CONTROLS

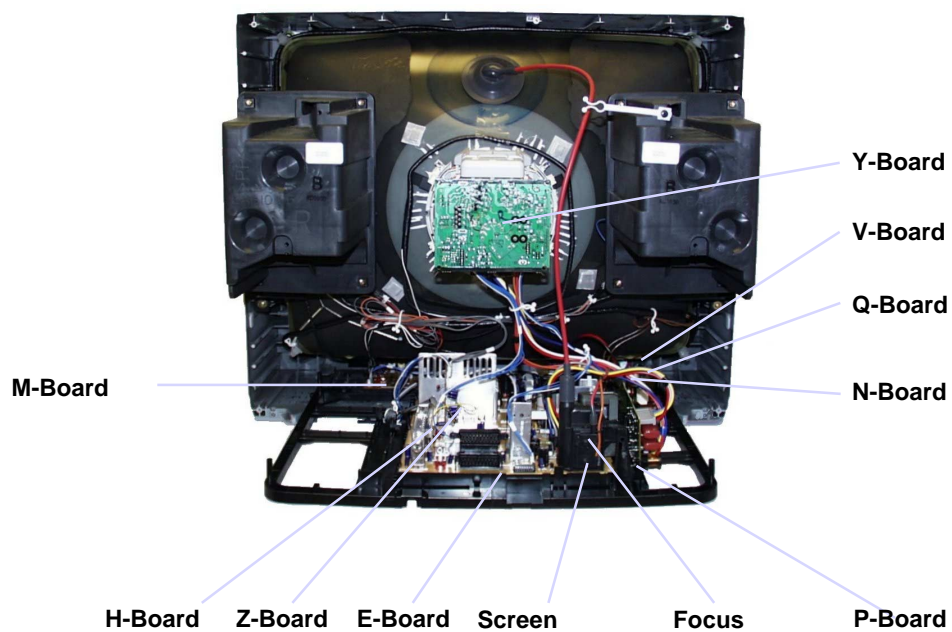
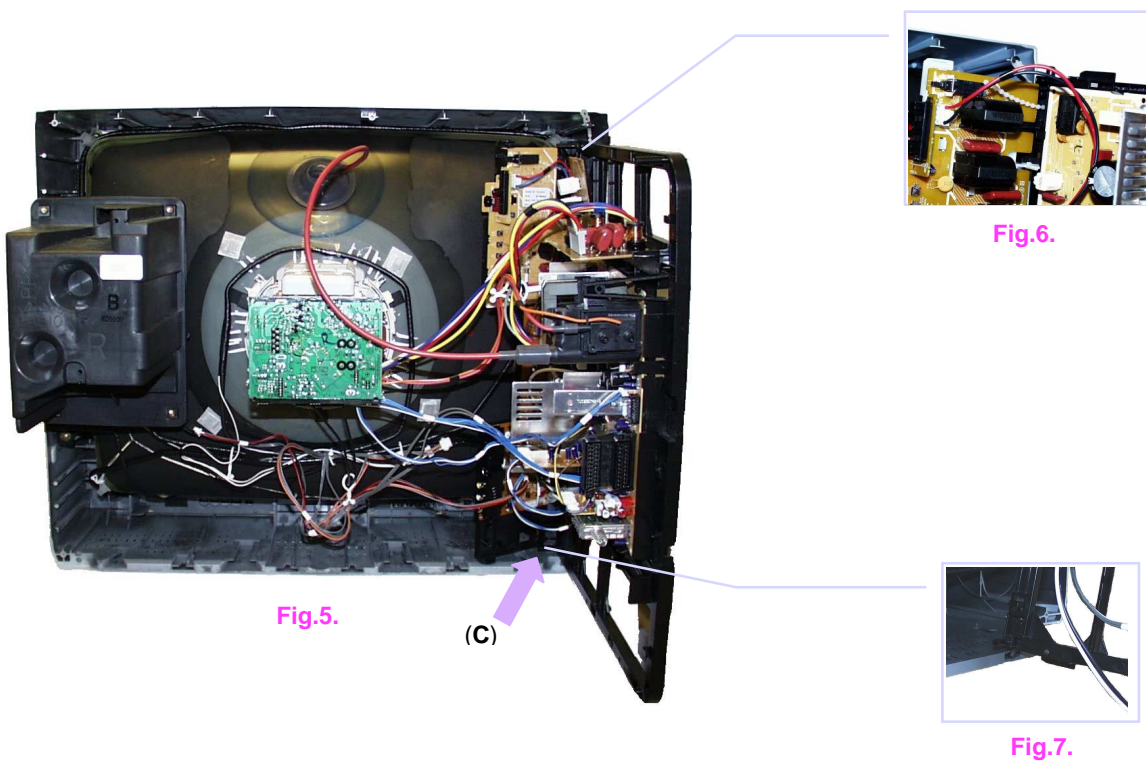
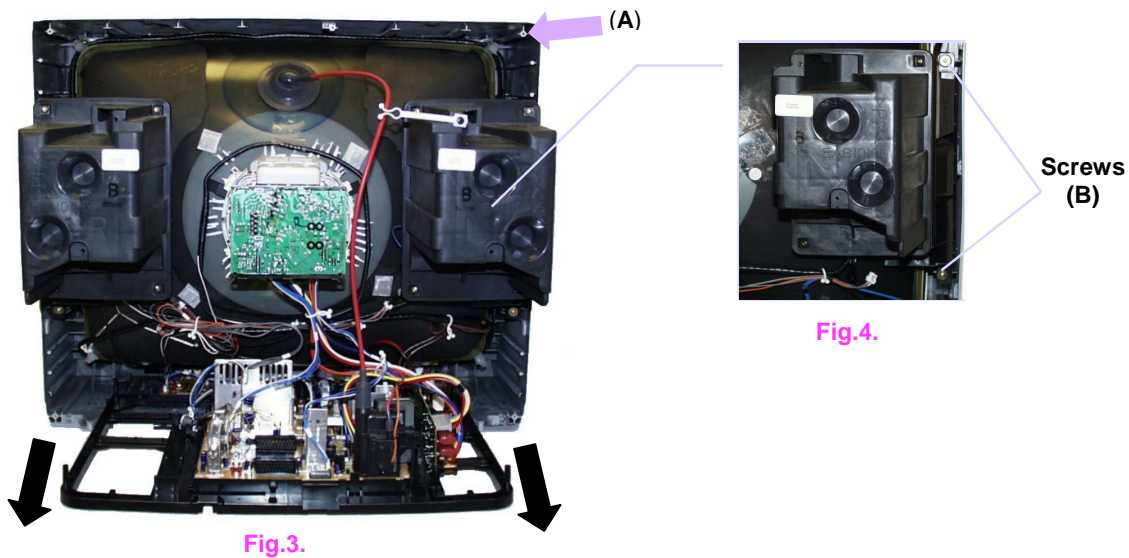


Fig.3.

## HOW TO MOVE THE CHASSIS INTO SERVICE POSITION

1. Remove the bead clamber from the mains lead and affix, using back cover screw, into top right-hand cabinet rib (A), shown in Fig.3.
2. Remove 2 screws (B), as shown in Fig.4, and remove speaker assembly.
3. Hold and lift the rear of the chassis and gently pull the chassis toward you, as shown in Fig.3.
4. Release the respective wiring clips and rotate the chassis vertically through 90°, anti-clockwise.
5. Locate the base of the chassis frame into location (C), shown in Fig.5 / Fig.7.
6. Clip the chassis frame onto the bead clamber, shown in Fig.5 / Fig.6.
7. After servicing replace the bead clamber and speaker, and ensure all wiring is returned to its original position before returning the receiver to the customer.



## ADJUSTMENT PROCEDURE

| Item / Preparation  | Adjustments   |
|---|---|
| <b>+B SET-UP</b><br>1. Receive a Greyscale signal.<br>2. Set the controls :-<br><br>Brightness      Minimum<br><br>Contrast        Minimum<br><br>Volume            Minimum | 1. Set the +B voltage up as follows:-<br>Adjust <b>R811</b> so that <b>B2</b> shows $148V \pm 1V$<br>2. Confirm the following voltages.<br><b>B9</b> 5 $\pm 0,25V$ <b>B10</b> 5 $\pm 0,25V$<br><b>B5</b> 12 $\pm 0,5V$ <b>B11</b> 33 $\pm 1,5V$<br><b>B4</b> 16 $\pm 1V$ <b>B7</b> 8 $\pm 0,5V$<br><b>B12</b> 26 $\pm 1V$ <b>B8</b> 5,5 $\pm 0,5V$<br><b>B3</b> 35 $\pm 1V$ <b>B13</b> 15 $\pm 1V$<br><b>B1</b> 200 $\pm 10V$ <b>B14</b> -15 $\pm 1V$ |
| <b>CUT OFF / Ug2 Test</b><br>1. Receive a Greyscale signal.<br>2. Degauss the tube externally.<br>3. Set the TV into Service Mode 1.<br>4. Select Cut off mode.             | To adjust Cutoff connect an oscilloscope to the Blue cathode. Press " <b>STR</b> " and adjust "cutoff" value using the " <b>Yellow</b> " and " <b>Blue</b> " buttons until the black level is $160V \pm 5V$ press " <b>STR</b> " to store the value. Remove the oscilloscope. Select Ug2 adjustment and adjust the screen VR until the display shows "O.K."   |

## SELF CHECK

Self-check is used to automatically check the bus lines and hexadecimal code of the TV set. To enter Self-Check mode, press the down (-/v) button on the customer controls at the front of the TV set, at the same time pressing the **STATUS**  button on the remote control. To exit Self Check, switch off the TV set at the power button.

|          |      |     |                  |
|----------|------|-----|------------------|
| VDP      | O.K. | PCB | O.K.             |
| TUN      | O.K. | Cab | O.K.             |
| E2       | O.K. | Sum | Factory use only |
| MSP      | O.K. |     |                  |
| DPL      | --   |     |                  |
| OPTION 1 | 3D   |     |                  |
| OPTION 2 | 3C   |     |                  |
| OPTION 3 | 1F   |     |                  |
| OPTION 4 | 40   |     |                  |
| OPTION 5 | FF   |     |                  |
| OPTION 6 | 61   |     |                  |

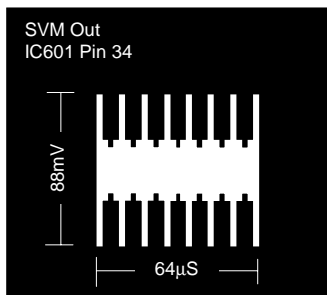
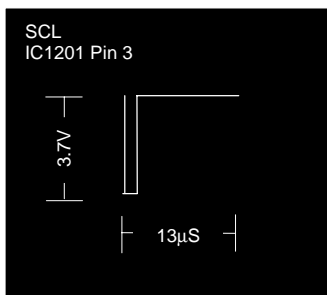
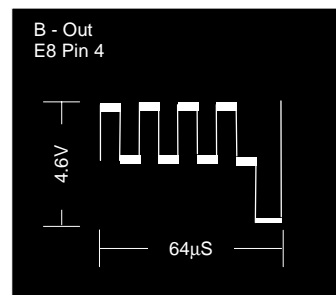
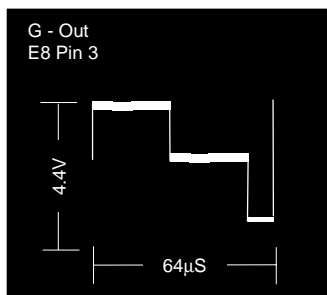
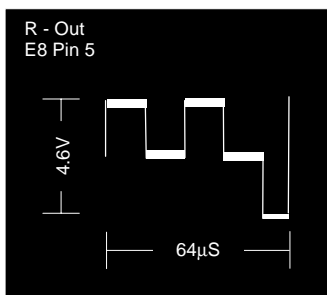
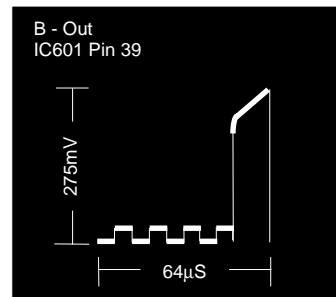
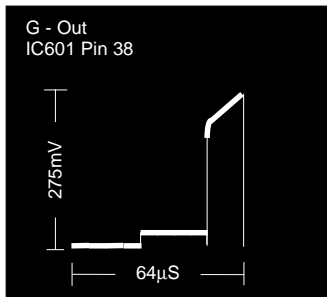
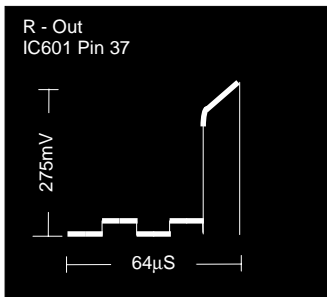
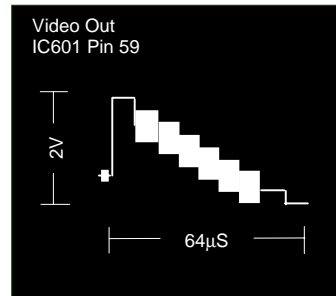
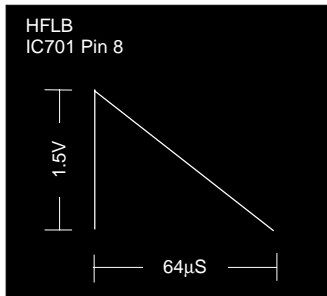
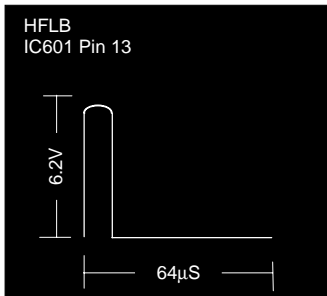
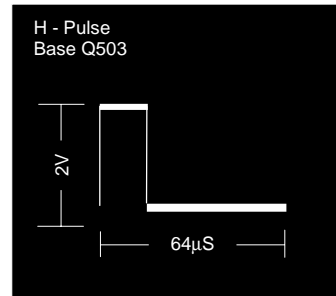
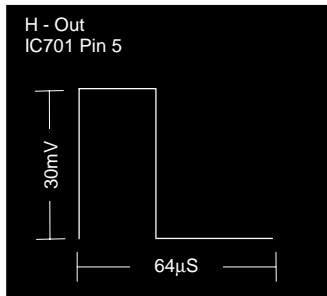
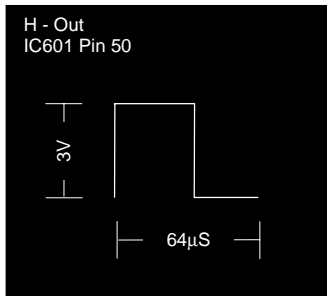
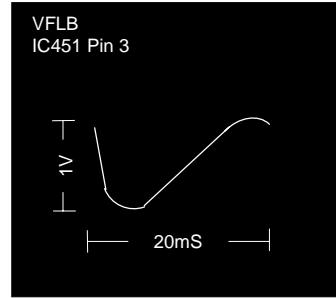
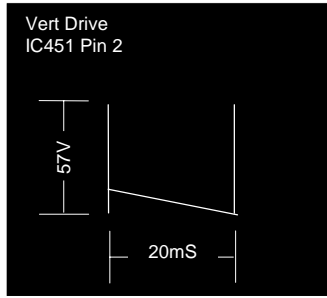
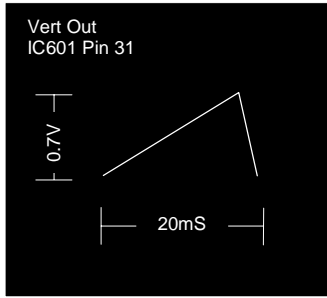
If the CCU ports have been checked and found to be incorrect or not located then "--" will appear in place of "O.K."

### Service Aids

To aid in the service of our current chassis there are a number of Service Aids which have been made available.

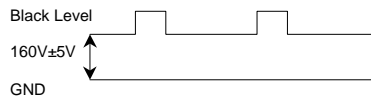
- LUCI** interface kit (Linked Utility Computer Interface)  
 Part number: TZS6EZ002  
 This contains interface and cables for connecting TV service connector and a PC as well as diagnostic software. As new models are introduced upgrade software will become available.
- VICI** (Visual Interactive Computer Information)  
 These C.D.'s contain multimedia documentation providing quick access to service information.  
 Part No. TZS7EZ006, TZS7EZ005 & TZS8EZ001
  - Service Manuals
  - Instruction Books
  - Technical Information
- TASMIN** (Technically Advanced System for Multimedia Interactive Notes)  
 As well as providing a first step towards more interactive training this product also achieves quick access to Technical Information.

## WAVEFORM PATTERN TABLE



## ALIGNMENT SETTINGS

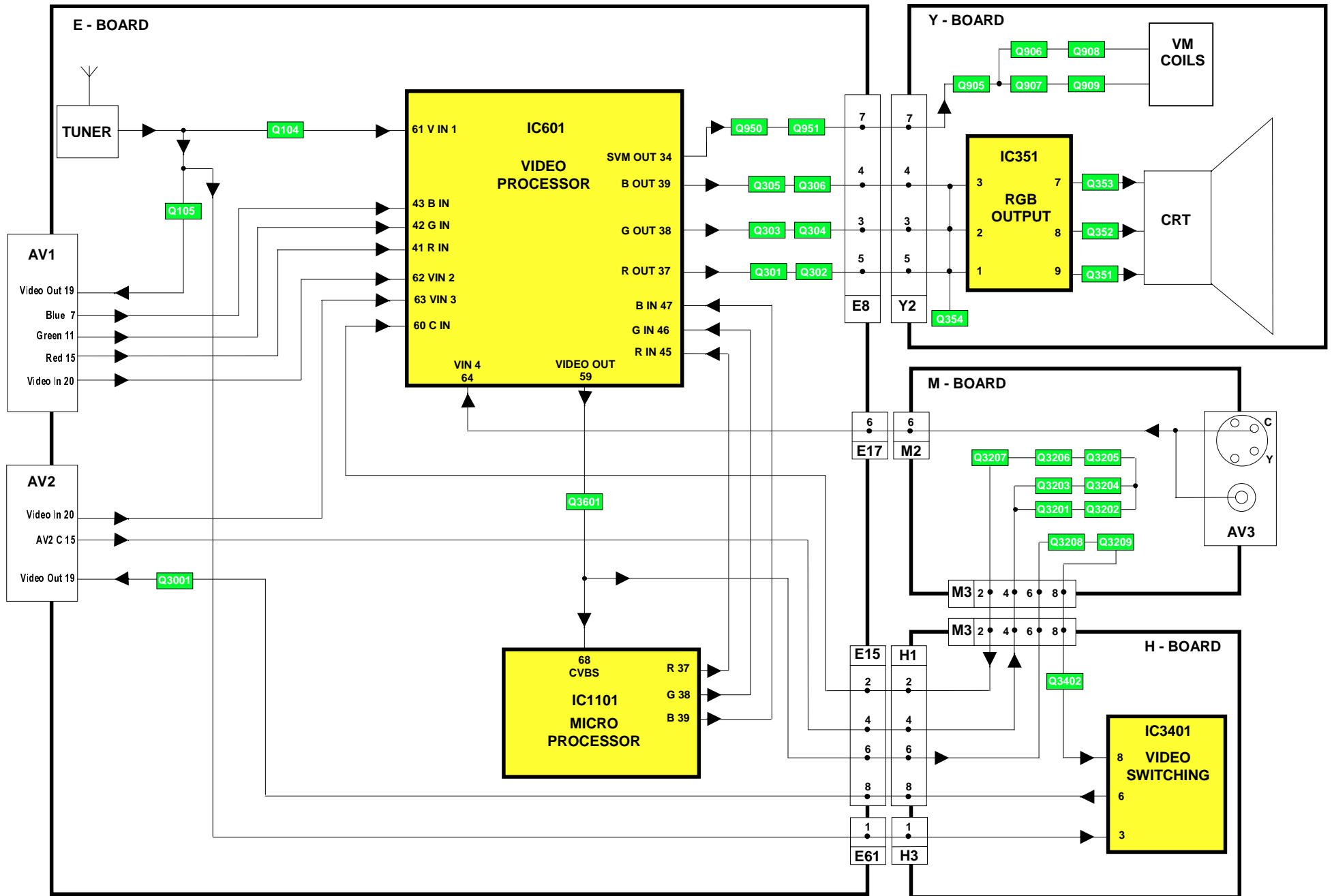
(The figures below are nominal and used for representative purposes only.)

| Alignment Function    |   | Settings / Special features   |
|-----------------------|---|---|
| Horizontal Position   | H-Pos<br>061                              | Optimum setting.  |
| Vertical Position     | V-Pos<br>005                              | Optimum setting.  |
| Horizontal Amplitude  | H-Amp<br>055                              | Optimum setting.  |
| Vert. Amplitude       | V-Amp<br>054                              | Optimum setting.  |
| EW-amplitude          | EW-Amp1<br>-128                           | Optimum setting.  |
| EW-amplitude          | EW-Amp2<br>006                            | Optimum setting.  |
| Trapezium-comp        | Trapez-1<br>047                           | Optimum setting.  |
| Trapezium-comp        | Trapez-2<br>-128                          | Optimum setting.  |
| Vertical Linearity    | V-Lin<br>006                              | Optimum setting.  |
| Vertical Symmetry     | V-Sym<br>002                              | Optimum setting.  |
| DVCO                  | DVCO<br>-005                              | Receive a PAL Colour Bar Pattern. For DVCO alignment press " <b>Blue</b> " button, wait until the colours are changing slowly and press " <b>STR</b> ".   |
| Cut-off DC            | Cut-off<br>0171                           | <p>To adjust Cutoff connect an oscilloscope to the blue cathode. Press "<b>STR</b>" and adjust "cutoff" value using the "<b>Yellow</b>" and "<b>Blue</b>" buttons until the black level is <math>160V \pm 5V</math> press "<b>STR</b>" to store the value. Remove the oscilloscope. Select Ug2 adjustment and adjust the screen VR until the display shows "O.K."</p>  |
| Ug2 Test              | Ug2<br>055<br>O.K.                        |   |
| Highlight<br>Lowlight | High 0902 0777 0864<br>Low 0117 0132 0112 | Optimum setting.  |
| Sub-Brightness        | Sub-Brightness<br>255                     | Optimum setting.  |



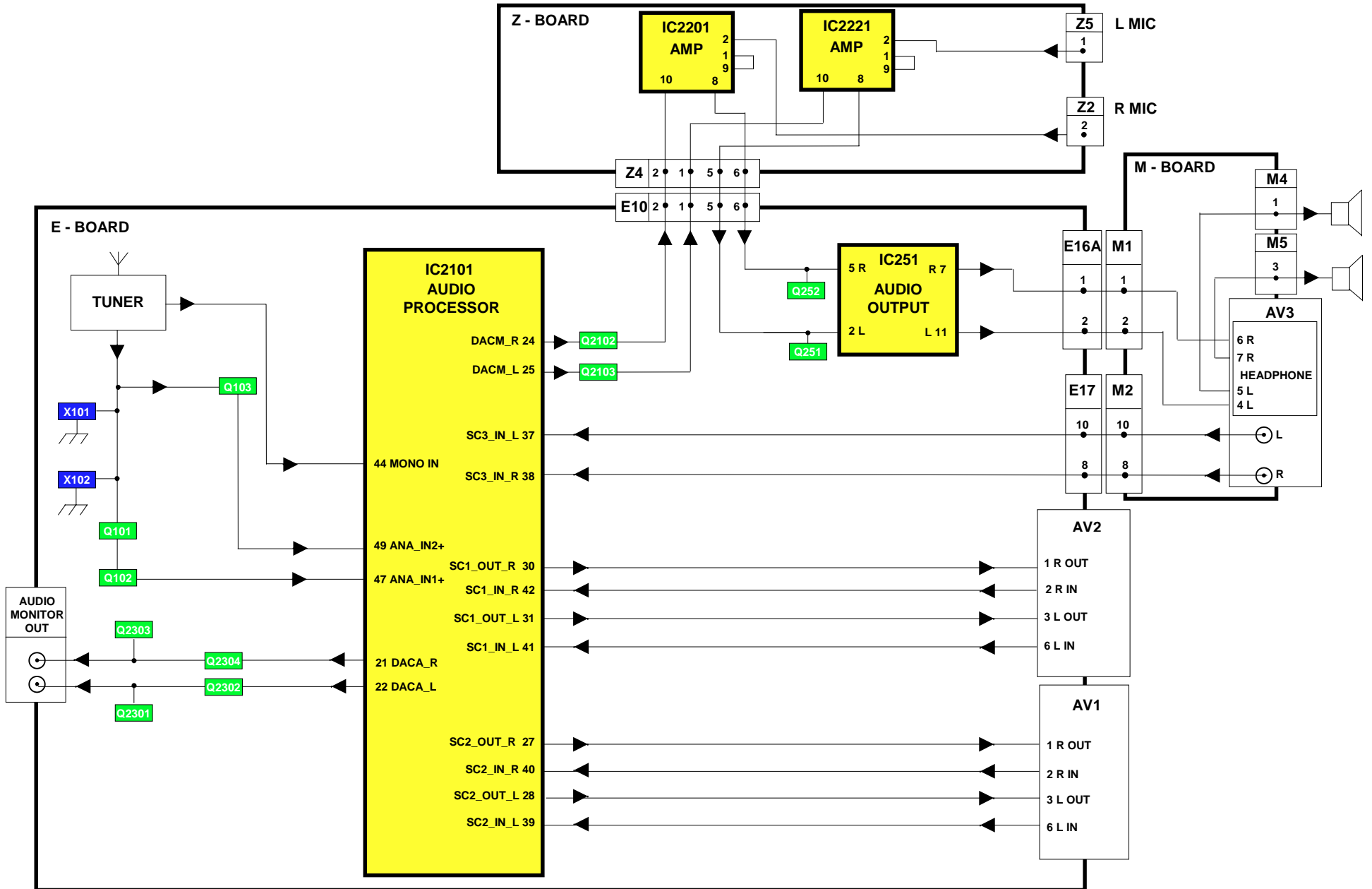
# VIDEO BLOCK DIAGRAM

8

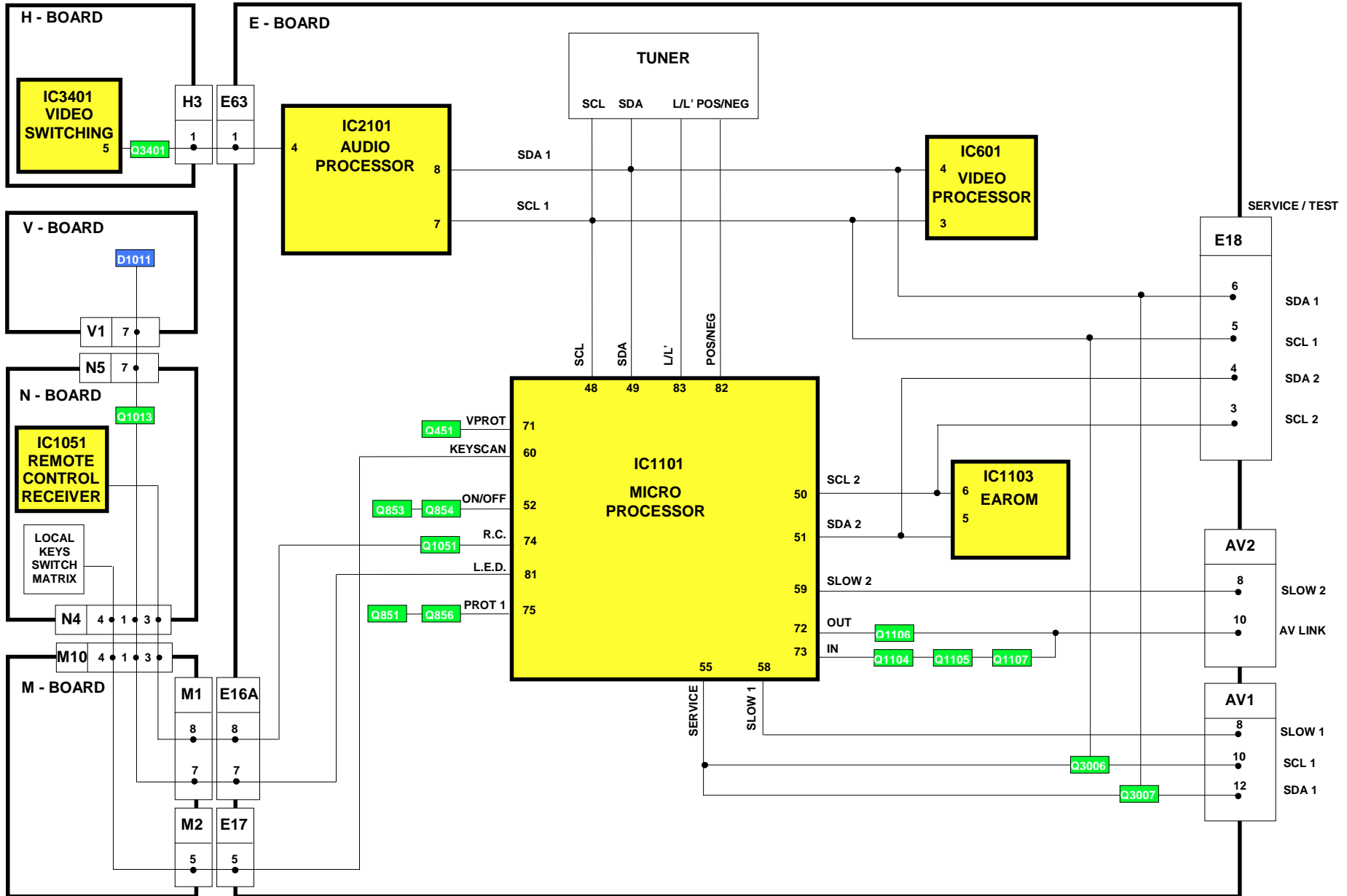


# AUDIO BLOCK DIAGRAM

6

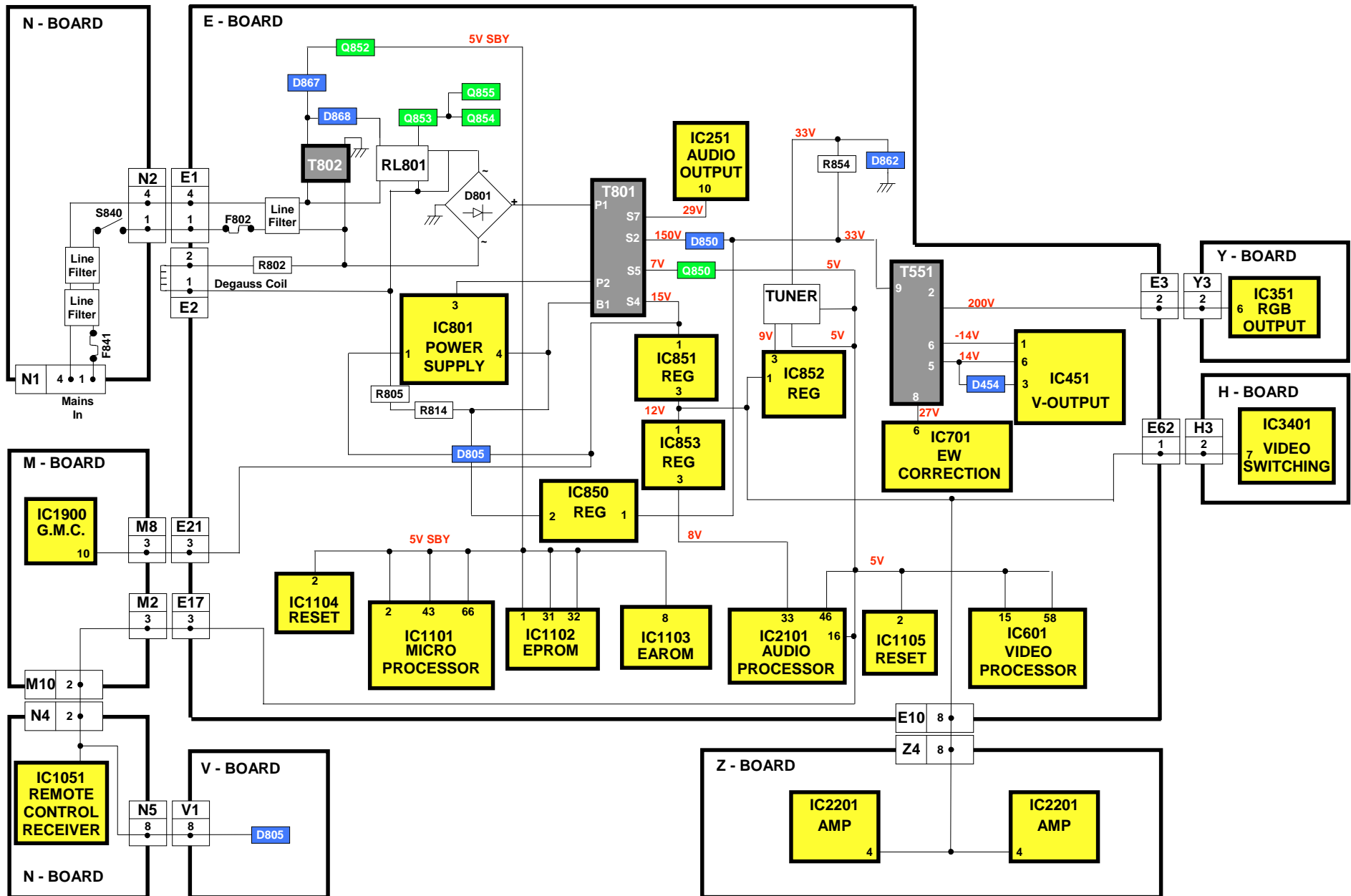


# CONTROL BLOCK DIAGRAM



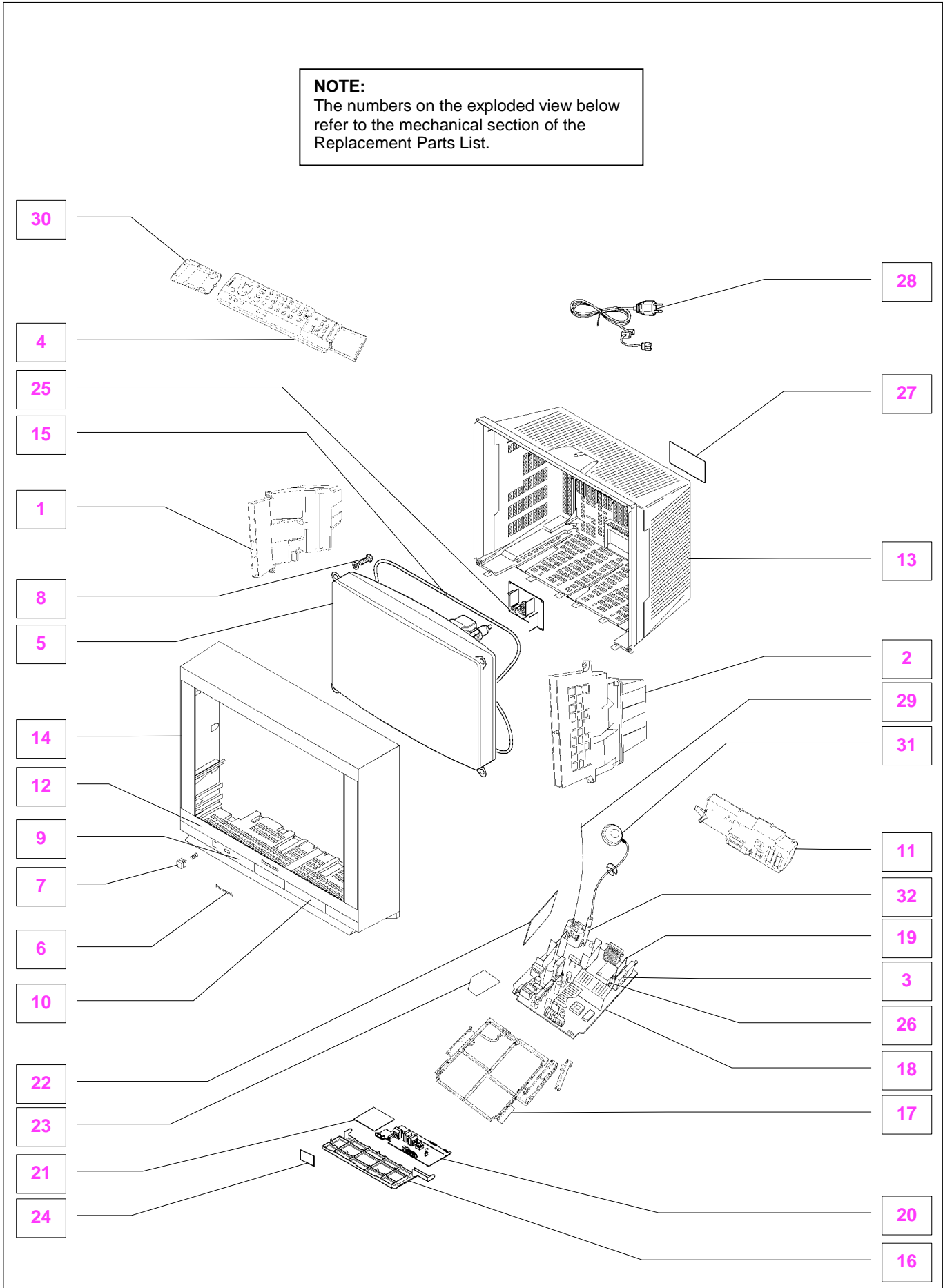
# POWER SUPPLY BLOCK DIAGRAM

11




# PARTS LOCATION







**NOTE:**  
The numbers on the exploded view below refer to the mechanical section of the Replacement Parts List.










# REPLACEMENT PARTS LIST

## Important Safety Notice

Components Identified by  mark have special characteristics important for safety.  
 \* When replacing any of these components, use only manufacturers specified parts.  
 In case of ordering these spare parts, please always add the complete Model-Type number to your order.

| Cct Ref                         | Parts Number | Description  |
|---------------------------------|--------------|--|
| <b>MECHANICAL PARTS</b>         |              |  |
| 1                               | EAB10106BL   | LEFT SPEAKER   |
| 2                               | EAB10106BR   | RIGHT SPEAKER  |
| 3                               | ENG29505GR   | TUNER               |
| 4                               | EUR511200    | REMOTE CONTROL   |
| 5                               | M68LQK185X06 | C.R.T.              |
| 6                               | TBMA059      | PANASONIC BADGE  |
| 7                               | TBXA20001    | POWER BUTTON   |
| 8                               | THT1062      | CRT FIXING SCREW   |
| 9                               | TKP8E1297    | DOOR LID LEFT  |
| 10                              | TKP8E1298    | DOOR LID RIGHT   |
| 11                              | TKP8E1301    | REAR AV PANEL  |
| 12                              | TKPA28603    | FRONT PANEL  |
| 13                              | TKU8E00500   | BACK COVER          |
| 14                              | TKY8E432     | CABINET             |
| 15                              | TLK8E05148   | DEGUASS COIL   |
| 16                              | TMW8E039     | CONTROL BRACKET  |
| 17                              | TMX8E036     | CHASSIS FRAME  |
| 18                              | TNP8EE009DV  | E P.C.B.          |
| 19                              | TNP8EH002AB  | H P.C.B.          |
| 20                              | TNP8EM020AA  | M P.C.B.          |
| 21                              | TNP8EN018AC  | N P.C.B.          |
| 22                              | TNP8EP015AC  | P P.C.B.          |
| 23                              | TNP8EQ002AB  | Q P.C.B.          |
| 24                              | TNP8EV004AA  | V P.C.B.          |
| 25                              | TNP8EY012AH  | Y P.C.B.          |
| 26                              | TNP8EZ001AE  | Z P.C.B.          |
| 27                              | TQF8E2859    | MODEL LABEL       |
| 28                              | TSX8E0033    | POWER CORD        |
| 29                              | TXFJTF01BMTG | FOCUS LEAD ASSY   |
| 30                              | UR51EC904A   | BATTERY COVER (REMOTE)   |
| 31                              | ZTBZAD550A   | ANODE CABLE  |
| 32                              | ZTFM05006A   | F.B.T.            |
| <b>MISCELLANEOUS COMPONENTS</b> |              |  |
|                                 | 31221212478  | FIX CLIP   |
|                                 | 832AG11D-ESL | IC SOCKET  |
|                                 | F9-4-220     | RELAY  |
|                                 | PLCC-84-T    | 84 PIN IC SOCKET   |
|                                 | TBLG3019     | SET FOOT (FRONT)   |
|                                 | TBLG3020     | SET FOOT (REAR)  |
|                                 | TBM8E1930    | PRESET LABEL RIGHT   |
|                                 | TBM8E1931    | PRESET LABEL LEFT  |
|                                 | TBM8E1942    | AV PANEL LABEL   |
|                                 | TEK6940      | LID CATCH  |
|                                 | TES2298      | CRT EARTH SPRING   |
|                                 | TES8E019     | POWER BUTTON SPRING  |
|                                 | TKPA28301    | ORNAMENTAL PANEL   |
|                                 | TLK8E05124   | GEOMAGNETIC COIL  |
|                                 | TMX8E035     | POWER BUTTON JOINT   |
|                                 | TPC8E4783    | OUTER CARTON   |
|                                 | TPD8E699     | TOP CUSHION  |
|                                 | TPD8E700     | BOTTOM CUSHION   |

| Cct Ref                  | Parts Number | Description  |
|--------------------------|--------------|--|
|                          | UM-3DJ-2P    | BATTERY PACK   |
| R842                     | 232266296706 | THERMISTOR        |
| R843                     | 232266296706 | THERMISTOR        |
| RL801                    | TSE1885-1    | RELAY  |
| S351                     | 0330550049   | C.R.T. SOCKET  |
| <b>INSTRUCTION BOOKS</b> |              |  |
|                          | TQB8E2808MN1 | BULG./ROMANIAN    |
|                          | TQB8E2808PQ1 | POLISH/HUNGARIAN  |
|                          | TQB8E2808RU1 | CZECH/ENGLISH     |
| <b>I.C.s</b>             |              |  |
| IC251                    | LA4282       | AUDIO OUTPUT   |
| IC351                    | TDA6103Q-N3  | R.G.B. OUTPUT  |
| IC451                    | LA7845N      | VERTICAL OUTPUT  |
| IC601                    | VDP3120BPPC2 | VIDEO PROCESSOR  |
| IC701                    | TEA2031A     | E/W CORRECTION   |
| IC801                    | STRF6654LF51 | POWER SUPPLY   |
| IC850                    | SE140N       | ERROR AMPLIFIER  |
| IC851                    | L78M12MRB    | 12V REGULATOR  |
| IC852                    | L78M09MRB    | 9V REGULATOR   |
| IC853                    | AN78L08TA    | 8V REGULATOR   |
| IC1051                   | RPM6937      | LED RECEIVER   |
| IC1101                   | SDA5450C70   | MICRO PROCESSOR  |
| IC1102                   | 27C2001-G13  | EPROM *  |
| IC1103                   | XDG2-01DP    | EAROM *  |
| IC1104                   | MN1381-R(TA) | RESET  |
| IC1105                   | MN1381-T(TA) | RESET  |
| IC1900                   | LA6515       | EARTH CORRECTION   |
| IC2101                   | MSP3410DPOB4 | AUDIO PROCESSOR  |
| IC2201                   | AN6554NSF-E2 | OPERATIONAL AMPLIFIER  |
| IC2221                   | AN6554NSF-E2 | OPERATIONAL AMPLIFIER  |
| IC3401                   | TEA2114      | VIDEO SWITCHING  |
| <b>FUSES</b>             |              |  |
| F841                     | 19181-3.15   | FUSE            |
| F1900                    | TR5-T374-315 | FUSE            |
| F8411                    | EYF52BC      | FUSE HOLDER  |
| F8412                    | EYF52BC      | FUSE HOLDER  |
| <b>DIODES</b>            |              |  |
| D101                     | MA3020TX     | DIODE  |
| D102                     | MA3020TX     | DIODE  |
| D251                     | MA2180BLFS   | DIODE  |
| D253                     | MA700TA5     | DIODE  |
| D254                     | MA700TA5     | DIODE  |
| D354                     | 1SR124-4AT82 | DIODE  |
| D355                     | 1SR124-4AT82 | DIODE  |
| D356                     | 1SR124-4AT82 | DIODE  |
| D357                     | MA165TA5     | DIODE  |
| D358                     | MA165TA5     | DIODE  |
| D359                     | MA165TA5     | DIODE  |
| D360                     | MTZJT-7715A  | DIODE  |
| D361                     | MA165TA5     | DIODE  |
| D362                     | MA165TA5     | DIODE  |

| Cct Ref | Parts Number | Description   |
|---------|--------------|---------------|
| D363    | MA165TA5     | DIODE         |
| D364    | MA165TA5     | DIODE         |
| D453    | MA165TA5     | DIODE         |
| D454    | ERA15-02V3   | DIODE         |
| D456    | MTZJT-775.6C | DIODE         |
| D457    | MA165TA5     | DIODE         |
| D501    | MA165TA5     | DIODE         |
| D502    | 1SR124-4AT82 | DIODE         |
| D511    | MA4047       | DIODE         |
| D552    | RU3LFA1      | DIODE         |
| D553    | 1SR124-4AT82 | DIODE         |
| D554    | 1SR124-4AT82 | DIODE         |
| D556    | MA165TA5     | DIODE         |
| D557    | EU02         | DIODE         |
| D558    | 1SR124-4AT82 | DIODE         |
| D580    | ERD07-15L7   | DIODE         |
| D601    | DAN217T146   | DIODE         |
| D603    | DAN217T146   | DIODE         |
| D605    | DAN212KT146  | DIODE         |
| D606    | MA165TA5     | DIODE         |
| D607    | MA4051       | DIODE         |
| D609    | 1SR124-4AT82 | DIODE         |
| D615    | STZ6.2NT146  | DIODE         |
| D616    | STZ6.2NT146  | DIODE         |
| D701    | MA165TA5     | DIODE         |
| D702    | MTZJT-775.1C | DIODE         |
| D704    | MA29TA5      | DIODE         |
| D705    | MTZJT-775.6C | DIODE         |
| D801    | RBV-608LF-B  | DIODE         |
| D803    | 1SR124-4AT82 | DIODE         |
| D804    | 1SR124-4AT82 | DIODE         |
| D805    | TLP621GR-LF2 | PHOTO COUPLER |
| D806    | 1SR124-4AT82 | DIODE         |
| D850    | RU4BLF-L1    | DIODE         |
| D851    | MTZJT776.2B  | DIODE         |
| D852    | MA165TA5     | DIODE         |
| D853    | MA2180BLFS   | DIODE         |
| D854    | TVSRU2AMLFA5 | DIODE         |
| D855    | FML22SLF610  | DIODE         |
| D856    | RU4AMLF-M1   | DIODE         |
| D857    | MTZJT-775.1C | DIODE         |
| D858    | MA165TA5     | DIODE         |
| D859    | MA165TA5     | DIODE         |
| D860    | MA165TA5     | DIODE         |
| D861    | MA165TA5     | DIODE         |
| D862    | MTZJT-7736A  | DIODE         |
| D863    | MA165TA5     | DIODE         |
| D864    | MA165TA5     | DIODE         |
| D865    | MA165TA5     | DIODE         |
| D866    | MA165TA5     | DIODE         |
| D867    | EK06-V0      | DIODE         |
| D868    | 1N4150T-77   | DIODE         |
| D869    | 1N4150T-77   | DIODE         |
| D870    | MA165TA5     | DIODE         |
| D871    | 1N4150T-77   | DIODE         |
| D873    | MTZJT-775.6C | DIODE         |
| D874    | 1SR124-4AT82 | DIODE         |
| D875    | BZX79A75A26A | DIODE         |
| D901    | MA165TA5     | DIODE         |
| D902    | MA165TA5     | DIODE         |
| D904    | MA165TA5     | DIODE         |
| D905    | MA165TA5     | DIODE         |
| D906    | RLS72TE-11   | DIODE         |
| D1011   | LN81RPHL     | DIODE         |
| D1101   | MA165TA5     | DIODE         |
| D1102   | MA165TA5     | DIODE         |

| Cct Ref            | Parts Number | Description |
|--------------------|--------------|-------------|
| D1104              | MA165TA5     | DIODE       |
| D1105              | MA165TA5     | DIODE       |
| D2101              | MA723TA5     | DIODE       |
| D2102              | MA723TA5     | DIODE       |
| D2103              | MA723TA5     | DIODE       |
| D2104              | MA723TA5     | DIODE       |
| D2105              | MTZJT-778.2C | DIODE       |
| D2303              | MA723TA5     | DIODE       |
| D2304              | MA723TA5     | DIODE       |
| D3201              | MTZJT-778.2C | DIODE       |
| D3202              | MTZJT-778.2C | DIODE       |
| <b>TRANSISTORS</b> |              |             |
| Q101               | BC847B       | TRANSISTOR  |
| Q102               | BC847B       | TRANSISTOR  |
| Q103               | BC847B       | TRANSISTOR  |
| Q104               | BC847B       | TRANSISTOR  |
| Q105               | BC847B       | TRANSISTOR  |
| Q251               | 2SD1328STX   | TRANSISTOR  |
| Q252               | 2SD1328STX   | TRANSISTOR  |
| Q253               | BC847B       | TRANSISTOR  |
| Q254               | BC847B       | TRANSISTOR  |
| Q301               | BC847B       | TRANSISTOR  |
| Q302               | FMY4T148     | TRANSISTOR  |
| Q303               | BC847B       | TRANSISTOR  |
| Q304               | FMY4T148     | TRANSISTOR  |
| Q305               | BC847B       | TRANSISTOR  |
| Q306               | FMY4T148     | TRANSISTOR  |
| Q351               | 2SA1767      | TRANSISTOR  |
| Q352               | 2SA1767      | TRANSISTOR  |
| Q353               | 2SA1767      | TRANSISTOR  |
| Q354               | BC857B       | TRANSISTOR  |
| Q451               | BC857B       | TRANSISTOR  |
| Q503               | 2SD2398-M2   | TRANSISTOR  |
| Q551               | 2SD1577LB    | TRANSISTOR  |
| Q552               | 2SC1473-RN   | TRANSISTOR  |
| Q701               | BC857B       | TRANSISTOR  |
| Q850               | 2SD1273PLB   | TRANSISTOR  |
| Q851               | BC857B       | TRANSISTOR  |
| Q852               | 2SC1383-S    | TRANSISTOR  |
| Q853               | BC847B       | TRANSISTOR  |
| Q854               | BC847B       | TRANSISTOR  |
| Q855               | BC847B       | TRANSISTOR  |
| Q856               | BC847B       | TRANSISTOR  |
| Q857               | 2SA1018QTA   | TRANSISTOR  |
| Q905               | BC847B       | TRANSISTOR  |
| Q906               | BC847B       | TRANSISTOR  |
| Q907               | BC857B       | TRANSISTOR  |
| Q908               | 2SA1535ARLB  | TRANSISTOR  |
| Q909               | 2SC3944ARLB  | TRANSISTOR  |
| Q950               | BC847B       | TRANSISTOR  |
| Q951               | FMY4T148     | TRANSISTOR  |
| Q1013              | BC547B/126   | TRANSISTOR  |
| Q1051              | BC847B       | TRANSISTOR  |
| Q1101              | BC847B       | TRANSISTOR  |
| Q1104              | BC847B       | TRANSISTOR  |
| Q1105              | BC847B       | TRANSISTOR  |
| Q1106              | BC847B       | TRANSISTOR  |
| Q1107              | BC847B       | TRANSISTOR  |
| Q1108              | BC847B       | TRANSISTOR  |
| Q2101              | BC857B       | TRANSISTOR  |
| Q2102              | BC857B       | TRANSISTOR  |
| Q2103              | BC857B       | TRANSISTOR  |
| Q2201              | BC847B       | TRANSISTOR  |
| Q2202              | BC847B       | TRANSISTOR  |
| Q2301              | BC847B       | TRANSISTOR  |
| Q2302              | BC857B       | TRANSISTOR  |

| Cct Ref             | Parts Number | Description |
|---------------------|--------------|-------------|
| Q2303               | BC847B       | TRANSISTOR  |
| Q2304               | BC857B       | TRANSISTOR  |
| Q3001               | BC847B       | TRANSISTOR  |
| Q3006               | BC847B       | TRANSISTOR  |
| Q3007               | BC847B       | TRANSISTOR  |
| Q3201               | BC847B       | TRANSISTOR  |
| Q3202               | BC847B       | TRANSISTOR  |
| Q3203               | BC857B       | TRANSISTOR  |
| Q3204               | BC857B       | TRANSISTOR  |
| Q3205               | BC847B       | TRANSISTOR  |
| Q3206               | BC847B       | TRANSISTOR  |
| Q3207               | BC847B       | TRANSISTOR  |
| Q3208               | BC847B       | TRANSISTOR  |
| Q3209               | BC847B       | TRANSISTOR  |
| Q3401               | BC847B       | TRANSISTOR  |
| Q3402               | BC847B       | TRANSISTOR  |
| Q3601               | BC847B       | TRANSISTOR  |
| <b>TRANSFORMERS</b> |              |             |
| T501                | ETH19Y173AY  | TRANSFORMER |
| T801                | ETS42AE226AD | TRANSFORMER |
| T802                | ETP35KAN619U | TRANSFORMER |
| <b>COILS</b>        |              |             |
| J5                  | ELESN2R2KA   | COIL        |
| J208                | EXCELSA35V   | COIL        |
| JA1                 | ELJFC2R2KF   | COIL        |
| L101                | TLT100K991R  | COIL        |
| L102                | TLT068K991R  | COIL        |
| L103                | EXCELSA35B   | COIL        |
| L104                | TLTACT4R7K   | COIL        |
| L105                | TLTACTR47K   | COIL        |
| L106                | TLTACT100K   | COIL        |
| L107                | TLTACT6R8K   | COIL        |
| L114                | ELJFC2R2KF   | COIL        |
| L115                | ELJFC2R2KF   | COIL        |
| L301                | TLTACT4R7K   | COIL        |
| L302                | TLTACT4R7K   | COIL        |
| L451                | EXCELSA35T   | COIL        |
| L501                | EXCELSA35T   | COIL        |
| L580                | ELC08D682E   | COIL        |
| L581                | ELH5L6118    | COIL        |
| L582                | ELC18B102E   | COIL        |
| L583                | ELC18B121L   | COIL        |
| L601                | TLTACT4R7K   | COIL        |
| L602                | TLTACT4R7K   | COIL        |
| L603                | TLTACT4R7K   | COIL        |
| L604                | TLTACT4R7K   | COIL        |
| L606                | TLTACT4R7K   | COIL        |
| L607                | ELJFC2R2KF   | COIL        |
| L701                | ELC10D682E   | COIL        |
| L850                | EXCELSA35T   | COIL        |
| L851                | EXCELSA35T   | COIL        |
| L852                | ELEIE470KA   | COIL        |
| L855                | EXCELSA35T   | COIL        |
| L856                | EXCELSA39V   | COIL        |
| L901                | EXCELSA24T   | COIL        |
| L902                | EXCELSA24T   | COIL        |
| L1103               | TLTACT100K   | COIL        |
| L1104               | EXCELSA35T   | COIL        |
| L1105               | ELJFC2R2KF   | COIL        |
| L2101               | TLTACT100K   | COIL        |
| L2103               | EXCELSA35T   | COIL        |
| L2104               | TLTACT4R7K   | COIL        |
| L3001               | ELEMV1R5MA   | COIL        |
| L3002               | ELEMV1R5MA   | COIL        |
| L3003               | ELEMV1R5MA   | COIL        |
| L3004               | ELEMV1R5MA   | COIL        |



| Cct Ref          | Parts Number | Description           |
|------------------|--------------|-----------------------|
| L3005            | ELEBR2R2KA   | COIL                  |
| L3006            | ELEBR2R2KA   | COIL                  |
| L3007            | TLTACT2R2K   | COIL                  |
| L3201            | ELEBR6R8KA   | COIL                  |
| L3202            | ELEBR6R8KA   | COIL                  |
| L3203            | TLT390K991R  | COIL                  |
| L3204            | TLT331K991R  | COIL                  |
| L3401            | ELESN2R2KA   | COIL                  |
| L3402            | ELESN2R2KA   | COIL                  |
| <b>FILTERS</b>   |              |                       |
| L804             | ELF18N012A   | LINE FILTER           |
| L842             | ELF18N012A   | LINE FILTER           |
| X101             | EFCT6504BF   | FILTER                |
| X102             | EFCT7004BF   | CERAMIC FILTER        |
| <b>CRYSTALS</b>  |              |                       |
| X601             | 4730007267   | CRYSTAL               |
| X1101            | TSSA121      | CRYSTAL               |
| X2101            | 4730007158   | CRYSTAL               |
| <b>RESISTORS</b> |              |                       |
| JA1              | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA1              | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA2              | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA2              | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA3              | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA5              | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA8              | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA9              | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA10             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA11             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA12             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA13             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA14             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA15             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA16             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA17             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA18             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA21             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA22             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA23             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA25             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA26             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA27             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA28             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA29             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA30             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA31             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA32             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA33             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA34             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA35             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA36             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA37             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA38             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA39             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA40             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA43             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA44             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA45             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA46             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA47             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA48             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA49             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |
| JA50             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA51             | ERJ8GEY0R00  | S.M.CARB .125W 5% 0 Ω |
| JA52             | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω  |





| Cct Ref | Parts Number | Description                        |
|---------|--------------|------------------------------------|
| R608    | ERJ6GEYJ271  | S.M.CARB 0.1W 5% 270 Ω             |
| R609    | ERJ6GEYJ122  | S.M.CARB 0.1W 5% 1K2 Ω             |
| R610    | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω               |
| R611    | ERJ6GEYJ103  | S.M.CARB 0.1W 5% 10K Ω             |
| R612    | ERJ6GEYJ101  | S.M.CARB 0.1W 5% 100 Ω             |
| R613    | ERJ6GEYJ152  | S.M.CARB 0.1W 5% 1K5 Ω             |
| R622    | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω               |
| R636    | ERJ6GEYJ750  | S.M.CARB 0.1W 5% 75 Ω              |
| R645    | ERJ6GEYJ103  | S.M.CARB 0.1W 5% 10K Ω             |
| R647    | ERJ6GEYJ472  | S.M.CARB 0.1W 5% 4K7 Ω             |
| R648    | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω               |
| R650    | ERJ6GEYJ750  | S.M.CARB 0.1W 5% 75 Ω              |
| R651    | ERJ6GEYJ750  | S.M.CARB 0.1W 5% 75 Ω              |
| R652    | ERJ6GEYJ102  | S.M.CARB 0.1W 5% 1K Ω              |
| R653    | ERJ6GEYJ103  | S.M.CARB 0.1W 5% 10K Ω             |
| R654    | ERJ6GEYJ622  | S.M.CARB 0.1W 5% 6K2 Ω             |
| R655    | ERJ6GEYJ103  | S.M.CARB 0.1W 5% 10K Ω             |
| R658    | ERJ6GEYJ153  | S.M.CARB 0.1W 5% 15K Ω             |
| R659    | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω               |
| R660    | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω               |
| R701    | ERQ12AJ101   | FUSIBLE 0.5W 5% 100 Ω <sup>△</sup> |
| R702    | ERQ12HJ8R2   | FUSIBLE 0.5W 5% 8R2 Ω <sup>△</sup> |
| R703    | ERG2FJ821    | METAL 2W 5% 820 Ω <sup>△</sup>     |
| R704    | ERJ6GEYJ563  | S.M.CARB 0.1W 5% 56K Ω             |
| R705    | ERJ6GEYJ104  | S.M.CARB 0.1W 5% 100K Ω            |
| R706    | ERJ6GEYJ103  | S.M.CARB 0.1W 5% 10K Ω             |
| R707    | ERJ6GEYJ391  | S.M.CARB 0.1W 5% 390 Ω             |
| R708    | ERJ6GEYJ393  | S.M.CARB 0.1W 5% 39K Ω             |
| R709    | ERJ6GEYJ393  | S.M.CARB 0.1W 5% 39K Ω             |
| R710    | ERJ6GEYJ273  | S.M.CARB 0.1W 5% 27K Ω             |
| R711    | ERG1SJ101    | METAL 1W 5% 100 Ω                  |
| R712    | ERJ6GEYJ102  | S.M.CARB 0.1W 5% 1K Ω              |
| R803    | ERC12ZGK335D | SOLID 0.5W 10% 3M3 Ω               |
| R805    | ERD25TJ473   | CARBON 0.25W 5% 47K Ω              |
| R806    | ERD25TJ100   | CARBON 0.25W 5% 10 Ω               |
| R807    | ERD25TJ332   | CARBON 0.25W 5% 3K3 Ω              |
| R809    | ERD25TJ681   | CARBON 0.25W 5% 680 Ω              |
| R810    | ERW2PKR27    | WOUND 2W 10% R27 Ω <sup>△</sup>    |
| R811    | ERW2PKR27    | WOUND 2W 10% R27 Ω <sup>△</sup>    |
| R812    | ERD75TAJ825  | CARBON 0.75W 5% 8M2 Ω <sup>△</sup> |
| R813    | ERF7ZK2R7    | WOUND 7W 20% 2R7 Ω <sup>△</sup>    |
| R814    | ERD25TJ473   | CARBON 0.25W 5% 47K Ω              |
| R815    | ERD25TJ222   | CARBON 0.25W 5% 2K2 Ω              |
| R841    | ERC12ZGK335D | SOLID 0.5W 10% 3M3 Ω               |
| R850    | ERD25TJ122   | CARBON 0.25W 5% 1K2 Ω              |
| R852    | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω               |
| R853    | ERJ6GEYJ102  | S.M.CARB 0.1W 5% 1K Ω              |
| R854    | ERG2FJ223    | METAL 2W 5% 22K Ω <sup>△</sup>     |
| R855    | ERJ6GEYJ752  | S.M.CARB 0.1W 5% 7K5 Ω             |
| R856    | ERJ6GEYJ752  | S.M.CARB 0.1W 5% 7K5 Ω             |
| R857    | ERJ6GEYJ752  | S.M.CARB 0.1W 5% 7K5 Ω             |
| R858    | ERJ6GEYJ752  | S.M.CARB 0.1W 5% 7K5 Ω             |
| R859    | ERJ6GEYJ753  | S.M.CARB 0.1W 5% 75K Ω             |
| R860    | ERQ1CJP2R2   | FUSIBLE 1W 10% 2R2 Ω <sup>△</sup>  |
| R861    | ERD25TJ221   | CARBON 0.25W 5% 220 Ω              |
| R862    | ERD25TJ272   | CARBON 0.25W 5% 2K7 Ω              |
| R863    | ERDS1TJ560   | CARBON 0.5W 5% 56 Ω                |
| R864    | ERDS1TJ151   | CARBON 0.5W 5% 150 Ω               |
| R865    | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω               |
| R867    | ERJ6GEYJ103  | S.M.CARB 0.1W 5% 10K Ω             |
| R868    | ERJ6GEYJ223  | S.M.CARB 0.1W 5% 22K Ω             |
| R869    | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω               |
| R870    | ERJ6GEYJ272  | S.M.CARB 0.1W 5% 2K7 Ω             |
| R871    | ERJ6GEYJ153  | S.M.CARB 0.1W 5% 15K Ω             |
| R872    | ERG1SJ183    | METAL 1W 5% 18K Ω                  |
| R873    | ERG1SJ223    | METAL 1W 5% 22K Ω                  |

| Cct Ref | Parts Number | Description                         |
|---------|--------------|-------------------------------------|
| R874    | ERD25TJ104   | CARBON 0.25W 5% 100K Ω              |
| R876    | ERJ6GEYJ103  | S.M.CARB 0.1W 5% 10K Ω              |
| R877    | ERW2PKR47    | WOUND 2W 10% R47 Ω <sup>△</sup>     |
| R878    | ERJ6GEYJ473  | S.M.CARB 0.1W 5% 47K Ω              |
| R882    | ERG2FJ330H   | METAL 2W 5% 33 Ω <sup>△</sup>       |
| R913    | ERJ6GEYJ473  | S.M.CARB 0.1W 5% 47K Ω              |
| R914    | ERJ6GEYJ822  | S.M.CARB 0.1W 5% 8K2 Ω              |
| R915    | ERJ6GEYJ152  | S.M.CARB 0.1W 5% 1K5 Ω              |
| R916    | ERJ6GEYJ391  | S.M.CARB 0.1W 5% 390 Ω              |
| R919    | ERQ14AJW390  | FUSIBLE 0.25W 5% 39 Ω <sup>△</sup>  |
| R920    | ERQ14AJW390  | FUSIBLE 0.25W 5% 39 Ω <sup>△</sup>  |
| R921    | ERD25TJ471   | CARBON 0.25W 5% 470 Ω               |
| R922    | ERD25TJ393   | CARBON 0.25W 5% 39K Ω               |
| R923    | ERD25TJ393   | CARBON 0.25W 5% 39K Ω               |
| R924    | ERDS1FJ390   | CARBON 0.5W 5% 39 Ω <sup>△</sup>    |
| R925    | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω                |
| R926    | ERJ6GEY0R00  | S.M.CARB 0.1W 5% 0 Ω                |
| R927    | ERD25TJ471   | CARBON 0.25W 5% 470 Ω               |
| R928    | ERD25TJ5R6   | CARBON 0.25W 5% 5R6 Ω               |
| R929    | ERDS1FJ471   | CARBON 0.5W 5% 470 Ω <sup>△</sup>   |
| R930    | ERD25TJ5R6   | CARBON 0.25W 5% 5R6 Ω               |
| R931    | ERDS1FJ390   | CARBON 0.5W 5% 39 Ω <sup>△</sup>    |
| R935    | ERQ14AJW3R9  | FUSIBLE 0.25W 5% 3R9 Ω <sup>△</sup> |
| R936    | ERQ1CJP331   | FUSIBLE 1W 5% 330 Ω <sup>△</sup>    |
| R951    | ERJ6GEYJ391  | S.M.CARB 0.1W 5% 390 Ω              |
| R952    | ERJ6GEYJ102  | S.M.CARB 0.1W 5% 1K Ω               |
| R953    | ERJ6GEYJ750  | S.M.CARB 0.1W 5% 75 Ω               |
| R954    | ERJ6GEYJ391  | S.M.CARB 0.1W 5% 390 Ω              |
| R1011   | ERD25TJ101   | CARBON 0.25W 5% 100 Ω               |
| R1012   | ERD25TJ101   | CARBON 0.25W 5% 100 Ω               |
| R1013   | ERD25TJ471   | CARBON 0.25W 5% 470 Ω               |
| R1015   | ERD25TJ103   | CARBON 0.25W 5% 10K Ω               |
| R1051   | ERJ6GEYJ102  | S.M.CARB 0.1W 5% 1K Ω               |
| R1072   | ERD25TJ222   | CARBON 0.25W 5% 2K2 Ω               |
| R1073   | ERD25TJ222   | CARBON 0.25W 5% 2K2 Ω               |
| R1074   | ERD25TJ332   | CARBON 0.25W 5% 3K3 Ω               |
| R1075   | ERD25TJ512   | CARBON 0.25W 5% 5K1 Ω               |
| R1076   | ERD25TJ912   | CARBON 0.25W 5% 9K1 Ω               |
| R1101   | ERJ6GEYJ101  | S.M.CARB 0.1W 5% 100 Ω              |
| R1102   | ERJ6GEYJ102  | S.M.CARB 0.1W 5% 1K Ω               |
| R1103   | ERJ6GEYJ331  | S.M.CARB 0.1W 5% 330 Ω              |
| R1104   | ERJ6GEYJ331  | S.M.CARB 0.1W 5% 330 Ω              |
| R1105   | ERJ6GEYJ101  | S.M.CARB 0.1W 5% 100 Ω              |
| R1106   | ERJ6GEYJ104  | S.M.CARB 0.1W 5% 100K Ω             |
| R1107   | ERJ6GEYJ104  | S.M.CARB 0.1W 5% 100K Ω             |
| R1108   | ERJ6GEYJ102  | S.M.CARB 0.1W 5% 1K Ω               |
| R1109   | ERJ6GEYJ472  | S.M.CARB 0.1W 5% 4K7 Ω              |
| R1110   | ERJ6GEYJ472  | S.M.CARB 0.1W 5% 4K7 Ω              |
| R1111   | ERJ6GEYJ473  | S.M.CARB 0.1W 5% 47K Ω              |
| R1112   | ERJ6GEYJ473  | S.M.CARB 0.1W 5% 47K Ω              |
| R1113   | ERJ6GEYJ101  | S.M.CARB 0.1W 5% 100 Ω              |
| R1114   | ERJ6GEYJ101  | S.M.CARB 0.1W 5% 100 Ω              |
| R1115   | ERJ6GEYJ471  | S.M.CARB 0.1W 5% 470 Ω              |
| R1116   | ERJ6GEYJ101  | S.M.CARB 0.1W 5% 100 Ω              |
| R1117   | ERJ6GEYJ101  | S.M.CARB 0.1W 5% 100 Ω              |
| R1118   | ERJ6GEYJ472  | S.M.CARB 0.1W 5% 4K7 Ω              |
| R1119   | ERJ6GEYJ472  | S.M.CARB 0.1W 5% 4K7 Ω              |
| R1120   | ERJ6GEYJ101  | S.M.CARB 0.1W 5% 100 Ω              |
| R1121   | ERJ6GEYJ101  | S.M.CARB 0.1W 5% 100 Ω              |
| R1123   | ERJ6GEYJ101  | S.M.CARB 0.1W 5% 100 Ω              |
| R1125   | ERJ6GEYJ472  | S.M.CARB 0.1W 5% 4K7 Ω              |
| R1126   | ERJ6GEYJ101  | S.M.CARB 0.1W 5% 100 Ω              |
| R1127   | ERJ6GEYJ101  | S.M.CARB 0.1W 5% 100 Ω              |
| R1128   | ERJ6GEYJ682  | S.M.CARB 0.1W 5% 6K8 Ω              |
| R1129   | ERJ6GEYJ682  | S.M.CARB 0.1W 5% 6K8 Ω              |
| R1130   | ERJ6GEYJ103  | S.M.CARB 0.1W 5% 10K Ω              |





| Cct Ref | Parts Number | Description |       |        |   |
|---------|--------------|-------------|-------|--------|---|
| C556    | ECQF4273JZH  | FILM        | 400V  | 27nF   | △ |
| C557    | ECKC2H471J   | CERAMIC     | 500V  | 470pF  | △ |
| C558    | ECA1HHG471E  | ELECT       | 50V   | 470µF  |   |
| C561    | ECA1EHG102B  | ELECT       | 25V   | 1000µF |   |
| C562    | ECKC2H101J   | CERAMIC     | 500V  | 100pF  | △ |
| C563    | ECA2EHG220B  | ELECT       | 250V  | 20µF   |   |
| C564    | ECEA2AU2R2   | ELECT       | 100V  | 2.2µF  |   |
| C565    | ECQP1H273J   | FILM        | 100V  | 2700µF |   |
| C566    | ECKC2H471J   | CERAMIC     | 500V  | 470pF  | △ |
| C567    | ECA1EHG102B  | ELECT       | 25V   | 1000µF |   |
| C568    | ECKC2H471J   | CERAMIC     | 500V  | 470pF  | △ |
| C569    | ECKC2H102J   | CERAMIC     | 500V  | 1nF    | △ |
| C580    | ECA2VM010B   | ELECT       | 63V   | 1µF    |   |
| C581    | ECWF2564JBB  | FILM        | 200V  | 560nF  | △ |
| C582    | ECWF2824JBB  | FILM        | 200V  | 820nF  | △ |
| C583    | ECWH15H562JN | FILM        | 1500V | 5.6nF  |   |
| C584    | TAC4R6T682JC | CERAMIC     | 400V  | 6.8µF  |   |
| C601    | ECUV1H104KBX | S.M. CAP    | 50V   | 100nF  |   |
| C602    | ECA1HM101GB  | ELECT       | 50V   | 100µF  |   |
| C603    | ECUV1H102JCX | S.M. CAP    | 50V   | 1nF    |   |
| C604    | ECJ2VF1H223Z | ELECT       | 350V  | 22nF   |   |
| C605    | ECA1HM101GB  | ELECT       | 50V   | 100µF  |   |
| C606    | ECA1HM3R3GB  | ELECT       | 50V   | 3.3µF  |   |
| C607    | ECJ2VF1H104Z | ELECT       | 350V  | 100nF  |   |
| C608    | ECUV1H153KBX | S.M. CAP    | 50V   | 15nF   |   |
| C609    | ECUV1H153KBX | S.M. CAP    | 50V   | 15nF   |   |
| C610    | ECUV1H153KBX | S.M. CAP    | 50V   | 15nF   |   |
| C611    | ECUV1H153KBX | S.M. CAP    | 50V   | 15nF   |   |
| C612    | ECUV1H153KBX | S.M. CAP    | 50V   | 15nF   |   |
| C613    | ECUV1H153KBX | S.M. CAP    | 50V   | 15nF   |   |
| C614    | ECUV1H050CCX | S.M. CAP    | 50V   | 50pF   |   |
| C615    | ECUV1H050CCX | S.M. CAP    | 50V   | 50pF   |   |
| C616    | ECA1HM101GB  | ELECT       | 50V   | 100µF  |   |
| C617    | ECUV1H223KBX | S.M. CAP    | 50V   | 22nF   |   |
| C618    | ECA1CM221GB  | ELECT       | 16V   | 220µF  |   |
| C619    | ECJ2VB1H473K | ELECT       | 350V  | 47nF   |   |
| C620    | ECA1HM101GB  | ELECT       | 50V   | 100µF  |   |
| C621    | ECJ2VB1C104K | ELECT       | 350V  | 100nF  |   |
| C622    | ECUV1H683KBX | S.M. CAP    | 50V   | 68nF   |   |
| C623    | ECUV1H102JCX | S.M. CAP    | 50V   | 1nF    |   |
| C624    | ECJ3VB1C474K | ELECT       | 3.5KV | 470nF  |   |
| C625    | ECJ3VB1C474K | ELECT       | 3.5KV | 470nF  |   |
| C626    | ECJ3VB1C474K | ELECT       | 3.5KV | 470nF  |   |
| C627    | ECJ3VB1C474K | ELECT       | 3.5KV | 470nF  |   |
| C628    | ECA1CM100GB  | ELECT       | 16V   | 10µF   |   |
| C629    | ECUV1H104KBX | S.M. CAP    | 50V   | 100nF  |   |
| C630    | ECUV1H100DCX | S.M. CAP    | 50V   | 10pF   |   |
| C631    | ECUV1H683ZFX | S.M. CAP    | 50V   | 68nF   |   |
| C632    | ECUV1H270JCX | S.M. CAP    | 50V   | 27pF   |   |
| C633    | ECUV1H271JCX | S.M. CAP    | 50V   | 270pF  |   |
| C634    | ECUV1H271JCX | S.M. CAP    | 50V   | 270pF  |   |
| C635    | ECUV1H180JCX | S.M. CAP    | 50V   | 18pF   |   |
| C636    | ECUV1H271JCX | S.M. CAP    | 50V   | 270pF  |   |
| C637    | ECUV1H101JCX | S.M. CAP    | 50V   | 100pF  |   |
| C638    | ECUV1H471JCX | S.M. CAP    | 50V   | 470pF  |   |
| C639    | ECUV1H332KBM | S.M. CAP    | 50V   | 3.3nF  |   |
| C701    | ECA1HHG101B  | ELECT       | 50V   | 100µF  |   |
| C702    | ECUV1H103KBX | S.M. CAP    | 50V   | 10nF   |   |
| C703    | ECEA1HGE100  | ELECT       | 50V   | 10µF   |   |
| C704    | ECQB1H223K   | FILM        | 50V   | 22nF   |   |
| C705    | ECQB1H222J   | FILM        | 50V   | 2.2nF  |   |
| C804    | 222233510224 | FILM        | 250V  | 220nF  |   |
| C806    | ECKWNA101MBC | CERAMIC     | 400V  | 100µF  |   |
| C807    | ECKC2H472J   | CERAMIC     | 500V  | 4.7nF  | △ |
| C808    | ECKC2H472J   | CERAMIC     | 500V  | 4.7nF  | △ |
| C809    | ECKC2H472J   | CERAMIC     | 500V  | 4.7nF  | △ |

| Cct Ref | Parts Number | Description |       |        |   |
|---------|--------------|-------------|-------|--------|---|
| C810    | ECKC2H472J   | CERAMIC     | 500V  | 4.7nF  | △ |
| C811    | ECOS2GA221CA | ELECT       | 400V  | 220µF  |   |
| C814    | ECKC3D222JB  | CERAMIC     | 2KV   | 2200pF | △ |
| C815    | ECKC1H471J   | CERAMIC     | 50V   | 470pF  |   |
| C816    | EEUFC1E820B  | CERAMIC     | 25V   | 82pF   |   |
| C818    | ECKWNA332MEC | CERAMIC     | 250V  | 3.3nF  |   |
| C819    | ECQB1H182K   | FILM        | 50V   | 1.8nF  |   |
| C842    | ECQE2A474MWB | FILM        | 250V  | 470nF  |   |
| C845    | ECQE6104K    | FILM        | 600V  | 100nF  | △ |
| C850    | ECKC3D471JB  | CERAMIC     | 2KV   | 470pF  | △ |
| C851    | ECA2CM221E   | ELECT       | 160V  | 220µF  |   |
| C852    | ECA2CHG101E  | ELECT       | 160V  | 100µF  |   |
| C853    | ECKC2H471J   | CERAMIC     | 500V  | 470pF  | △ |
| C854    | ECA1EM102GB  | ELECT       | 25V   | 100µF  |   |
| C855    | ECKC2H471J   | CERAMIC     | 500V  | 470pF  | △ |
| C856    | ECA1AHG222B  | ELECT       | 10V   | 2200µF |   |
| C857    | ECKC2H471J   | CERAMIC     | 500V  | 470pF  | △ |
| C858    | ECEA1HGE102  | ELECT       | 50V   | 1000µF |   |
| C859    | ECJ2VF1H104Z | ELECT       | 350V  | 100nF  |   |
| C860    | ECA1HM101GB  | ELECT       | 50V   | 100µF  |   |
| C862    | ECJ2VF1H104Z | ELECT       | 350V  | 100nF  |   |
| C863    | ECA1HM101GB  | ELECT       | 50V   | 100µF  |   |
| C864    | ECJ2VF1H104Z | ELECT       | 350V  | 100nF  |   |
| C865    | ECA1CM100GB  | ELECT       | 16V   | 10µF   |   |
| C866    | ECJ2VF1H104Z | ELECT       | 350V  | 100nF  |   |
| C867    | ECA1CM100GB  | ELECT       | 16V   | 10µF   |   |
| C868    | ECA1CM100GB  | ELECT       | 16V   | 10µF   |   |
| C869    | ECA1EM101GB  | ELECT       | 25V   | 100µF  |   |
| C870    | ECA1EM471GB  | ELECT       | 25V   | 470µF  |   |
| C871    | ECA1CM102B   | ELECT       | 16V   | 1000µF |   |
| C872    | ECA1CM471GB  | ELECT       | 16V   | 470µF  |   |
| C873    | ECA1CM100GB  | ELECT       | 16V   | 10µF   |   |
| C875    | ECA2CM4R7B   | ELECT       | 160V  | 10µF   |   |
| C876    | ECA1AHG471E  | ELECT       | 10V   | 470pF  |   |
| C902    | ECA1VM101GB  | ELECT       | 35V   | 100µF  |   |
| C903    | ECUV1H472KBX | S.M. CAP    | 50V   | 4.7nF  |   |
| C904    | ECUV1H472KBX | S.M. CAP    | 50V   | 4.7nF  |   |
| C906    | ECUV1H471KBX | S.M. CAP    | 50V   | 470pF  |   |
| C908    | ECUV1H151JCX | S.M. CAP    | 50V   | 150pF  |   |
| C909    | ECKC2H472J   | CERAMIC     | 500V  | 4.7nF  | △ |
| C910    | ECKC2H472J   | CERAMIC     | 500V  | 4.7nF  | △ |
| C911    | ECUV1H151JCX | S.M. CAP    | 50V   | 150pF  |   |
| C912    | ECEA2CU100   | ELECT       | 160V  | 10µF   |   |
| C913    | ECA1HM101GB  | ELECT       | 50V   | 100µF  |   |
| C914    | ECA1HM101GB  | ELECT       | 50V   | 100µF  |   |
| C916    | ECEA2CGE100  | ELECT       | 160V  | 10µF   |   |
| C950    | ECJ2VB1C104K | ELECT       | 350V  | 100nF  |   |
| C1011   | ECKC1H101J   | CERAMIC     | 50V   | 100pF  |   |
| C1012   | ECA1CM470GB  | ELECT       | 16V   | 47µF   |   |
| C1013   | ECKC1H103JB  | CERAMIC     | 50V   | 10nF   |   |
| C1101   | ECJ2VF1H104Z | ELECT       | 350V  | 100nF  |   |
| C1102   | ECA0JM101G   | ELECT       | 6.3V  | 100µF  |   |
| C1103   | ECUV1H220JCX | S.M. CAP    | 50V   | 22pF   |   |
| C1104   | ECUV1H220JCX | S.M. CAP    | 50V   | 22pF   |   |
| C1105   | ECUV1H101JCX | S.M. CAP    | 50V   | 100pF  |   |
| C1106   | ECKC2H681J   | CERAMIC     | 500V  | 680pF  | △ |
| C1108   | ECJ2VB1H333K | ELECT       | 350V  | 33nF   |   |
| C1111   | ECA1CM100GB  | ELECT       | 16V   | 10µF   |   |
| C1112   | ECUV1H103KBX | S.M. CAP    | 50V   | 10nF   |   |
| C1115   | ECJ3VB1C474K | ELECT       | 3.5KV | 470nF  |   |
| C1116   | ECUV1H472KBX | S.M. CAP    | 50V   | 4.7nF  |   |
| C1117   | ECJ2VF1H104Z | ELECT       | 350V  | 100nF  |   |
| C1118   | ECUV1H103KBX | S.M. CAP    | 50V   | 10nF   |   |
| C1119   | ECUV1H221JCX | S.M. CAP    | 50V   | 220pF  |   |
| C1120   | ECJ2VF1H104Z | ELECT       | 350V  | 100nF  |   |
| C1121   | ECUV1H221JCX | S.M. CAP    | 50V   | 220pF  |   |

| Cct Ref | Parts Number | Description |      |        |
|---------|--------------|-------------|------|--------|
| C1123   | ECUV1H471JCX | S.M. CAP    | 50V  | 470pF  |
| C1124   | ECUV1H101JCX | S.M. CAP    | 50V  | 100pF  |
| C1125   | ECUV1H101JCX | S.M. CAP    | 50V  | 100pF  |
| C1126   | ECUV1H101JCX | S.M. CAP    | 50V  | 100pF  |
| C1127   | ECUV1H221JCX | S.M. CAP    | 50V  | 220pF  |
| C1129   | ECUV1H270JCX | S.M. CAP    | 50V  | 27pF   |
| C1900   | ECQB1H153K   | FILM        | 50V  | 15nF   |
| C1901   | ECUV1H103KBX | S.M. CAP    | 50V  | 10nF   |
| C1903   | ECA1EM470GB  | ELECT       | 25V  | 47µF   |
| C1904   | ECQB1H104J   | FILM        | 50V  | 100nF  |
| C1905   | ECQB1H104J   | FILM        | 50V  | 100nF  |
| C1909   | ECUV1H103KBX | S.M. CAP    | 50V  | 10nF   |
| C2101   | ECUV1H102JCX | S.M. CAP    | 50V  | 1nF    |
| C2102   | ECUV1H102JCX | S.M. CAP    | 50V  | 1nF    |
| C2103   | ECUV1H102JCX | S.M. CAP    | 50V  | 1nF    |
| C2104   | ECUV1H102JCX | S.M. CAP    | 50V  | 1nF    |
| C2105   | ECUV1H102JCX | S.M. CAP    | 50V  | 1nF    |
| C2106   | ECUV1H102JCX | S.M. CAP    | 50V  | 1nF    |
| C2107   | ECUV1H102JCX | S.M. CAP    | 50V  | 1nF    |
| C2108   | ECUV1H102JCX | S.M. CAP    | 50V  | 1nF    |
| C2109   | ECUV1H102JCX | S.M. CAP    | 50V  | 1nF    |
| C2110   | ECUV1H102JCX | S.M. CAP    | 50V  | 1nF    |
| C2111   | ECA1CM100GB  | ELECT       | 16V  | 10µF   |
| C2112   | ECA1CM100GB  | ELECT       | 16V  | 10µF   |
| C2113   | ECA1HM3R3GB  | ELECT       | 50V  | 3.3µF  |
| C2114   | ECJ2VF1H104Z | ELECT       | 350V | 100nF  |
| C2115   | ECUV1H221JCX | S.M. CAP    | 50V  | 220pF  |
| C2116   | ECUV1H221JCX | S.M. CAP    | 50V  | 220pF  |
| C2117   | ECUV1H221JCX | S.M. CAP    | 50V  | 220pF  |
| C2118   | ECUV1H221JCX | S.M. CAP    | 50V  | 220pF  |
| C2119   | ECUV1H221JCX | S.M. CAP    | 50V  | 220pF  |
| C2120   | ECUV1H221JCX | S.M. CAP    | 50V  | 220pF  |
| C2121   | ECA1CM100GB  | ELECT       | 16V  | 10µF   |
| C2122   | ECJ2VF1H104Z | ELECT       | 350V | 100nF  |
| C2123   | ECUV1H221JCX | S.M. CAP    | 50V  | 220pF  |
| C2124   | ECUV1H070DTX | S.M. CAP    | 50V  | 70pF   |
| C2125   | ECUV1H470JCX | S.M. CAP    | 50V  | 47pF   |
| C2126   | ECUV1H560JCX | S.M. CAP    | 50V  | 56pF   |
| C2127   | ECUV1H010CCX | S.M. CAP    | 50V  | 1pF    |
| C2128   | ECUV1H010CCX | S.M. CAP    | 50V  | 1pF    |
| C2129   | ECA1CM102B   | ELECT       | 16V  | 1000µF |
| C2130   | ECA1CM331B   | ELECT       | 16V  | 330µF  |
| C2131   | ECUV1H103ZFX | S.M. CAP    | 50V  | 10nF   |
| C2132   | ECUV1H103ZFX | S.M. CAP    | 50V  | 10nF   |
| C2134   | ECUV1H103ZFX | S.M. CAP    | 50V  | 10nF   |
| C2135   | ECA1HM101GB  | ELECT       | 50V  | 100µF  |
| C2136   | ECJ2VF1H104Z | ELECT       | 350V | 100nF  |
| C2137   | ECA1CM100GB  | ELECT       | 16V  | 10µF   |
| C2138   | ECUV1H471KBX | S.M. CAP    | 50V  | 470pF  |
| C2139   | ECUV1H221JCX | S.M. CAP    | 50V  | 220pF  |
| C2140   | ECA1HM101GB  | ELECT       | 50V  | 100µF  |
| C2141   | ECUV1H152JCX | S.M. CAP    | 50V  | 1.5pF  |
| C2200   | ECUV1H562KBX | S.M. CAP    | 50V  | 5.6nF  |
| C2201   | ECA1HM100GB  | ELECT       | 50V  | 10µF   |
| C2202   | ECA0JM101G   | ELECT       | 6.3V | 100µF  |
| C2203   | ECA1VM470B   | ELECT       | 35V  | 47µF   |
| C2204   | ECA1HM4R7GB  | ELECT       | 50V  | 4.7µF  |
| C2205   | ECUV1H562KBX | S.M. CAP    | 50V  | 5.6nF  |
| C2206   | ECA1HM100GB  | ELECT       | 50V  | 10µF   |
| C2207   | ECUV1H222JCX | S.M. CAP    | 50V  | 2.2nF  |
| C2208   | ECUV1H333KBX | S.M. CAP    | 50V  | 33nF   |
| C2209   | ECUV1H681JCX | S.M. CAP    | 50V  | 680pF  |
| C2211   | ECUV1C104KBX | S.M. CAP    | 16V  | 100nF  |
| C2212   | ECUV1C104KBX | S.M. CAP    | 16V  | 100nF  |
| C2214   | ECUV1C154KBX | S.M. CAP    | 16V  | 150nF  |
| C2215   | ECUV1H103KBX | S.M. CAP    | 50V  | 10nF   |

| Cct Ref | Parts Number | Description |       |       |
|---------|--------------|-------------|-------|-------|
| C2220   | ECUV1H562KBX | S.M. CAP    | 50V   | 5.6nF |
| C2221   | ECA1HM100GB  | ELECT       | 50V   | 10µF  |
| C2222   | ECA0JM101G   | ELECT       | 6.3V  | 100µF |
| C2223   | ECA1VM470B   | ELECT       | 35V   | 47µF  |
| C2224   | ECA1HM4R7GB  | ELECT       | 50V   | 4.7µF |
| C2225   | ECUV1H562KBX | S.M. CAP    | 50V   | 5.6nF |
| C2226   | ECA1HM100GB  | ELECT       | 50V   | 10µF  |
| C2227   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C2228   | ECUV1H333KBX | S.M. CAP    | 50V   | 33nF  |
| C2229   | ECUV1H681JCX | S.M. CAP    | 50V   | 680pF |
| C2231   | ECUV1C104KBX | S.M. CAP    | 16V   | 100nF |
| C2232   | ECUV1C104KBX | S.M. CAP    | 16V   | 100nF |
| C2234   | ECUV1C154KBX | S.M. CAP    | 16V   | 150nF |
| C2235   | ECUV1H103KBX | S.M. CAP    | 50V   | 10nF  |
| C2240   | ECA1CM470GB  | ELECT       | 16V   | 47µF  |
| C2301   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C2302   | ECA1CM470GB  | ELECT       | 16V   | 47µF  |
| C2303   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C2304   | ECA1CM470GB  | ELECT       | 16V   | 47µF  |
| C3001   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C3002   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C3003   | ECA1CM470GB  | ELECT       | 16V   | 47µF  |
| C3005   | ECUV1H561JCX | S.M. CAP    | 50V   | 560pF |
| C3006   | ECJ3VB1C474K | ELECT       | 3.5KV | 470nF |
| C3007   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C3008   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C3009   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C3010   | ECA1CM470GB  | ELECT       | 16V   | 47µF  |
| C3012   | ECUV1H561JCX | S.M. CAP    | 50V   | 560pF |
| C3013   | ECJ3VB1C474K | ELECT       | 3.5KV | 470nF |
| C3014   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C3015   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C3016   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C3017   | ECA1CM470GB  | ELECT       | 16V   | 47µF  |
| C3019   | ECUV1H561JCX | S.M. CAP    | 50V   | 560pF |
| C3020   | ECJ3VB1C474K | ELECT       | 3.5KV | 470nF |
| C3021   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C3022   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C3023   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C3024   | ECA1CM470GB  | ELECT       | 16V   | 47µF  |
| C3026   | ECUV1H561JCX | S.M. CAP    | 50V   | 560pF |
| C3027   | ECJ3VB1C474K | ELECT       | 3.5KV | 470nF |
| C3028   | ECUV1H222JCX | S.M. CAP    | 50V   | 2.2nF |
| C3029   | ECA1HM101GB  | ELECT       | 50V   | 100µF |
| C3032   | ECUV1H271JCX | S.M. CAP    | 50V   | 270pF |
| C3033   | ECUV1H271JCX | S.M. CAP    | 50V   | 270pF |
| C3034   | ECUV1H271JCX | S.M. CAP    | 50V   | 270pF |
| C3035   | ECUV1H271JCX | S.M. CAP    | 50V   | 270pF |
| C3101   | ECUV1H104KBX | S.M. CAP    | 50V   | 100nF |
| C3102   | ECUV1E104KBX | S.M. CAP    | 25V   | 100nF |
| C3111   | ECUV1H222KBX | S.M. CAP    | 50V   | 2.2nF |
| C3112   | ECUV1H271JCX | S.M. CAP    | 50V   | 270pF |
| C3201   | ECUV1H103KBX | S.M. CAP    | 50V   | 10nF  |
| C3202   | ECUV1H103KBX | S.M. CAP    | 50V   | 10nF  |
| C3203   | ECUV1H561JCX | S.M. CAP    | 50V   | 560pF |
| C3204   | ECUV1H561JCX | S.M. CAP    | 50V   | 560pF |
| C3205   | ECA1HM470GB  | ELECT       | 50V   | 47µF  |
| C3206   | ECUV1H561JCX | S.M. CAP    | 50V   | 560pF |
| C3207   | ECUV1H561JCX | S.M. CAP    | 50V   | 560pF |
| C3208   | ECA1HM470GB  | ELECT       | 50V   | 47µF  |
| C3209   | ECUV1H103KBX | S.M. CAP    | 50V   | 10nF  |
| C3210   | ECJ2VB1C104K | ELECT       | 350V  | 100nF |
| C3211   | ECUV1H103KBX | S.M. CAP    | 50V   | 10nF  |
| C3212   | ECUV1H103KBX | S.M. CAP    | 50V   | 10nF  |
| C3213   | ECUV1H103KBX | S.M. CAP    | 50V   | 10nF  |
| C3214   | ECJ2VB1C104K | ELECT       | 350V  | 100nF |

| Cct Ref                    | Parts Number | Description          |      |       |
|----------------------------|--------------|----------------------|------|-------|
| C3215                      | ECUV1H103KBX | S.M. CAP             | 50V  | 10nF  |
| C3216                      | ECA1CM330GB  | ELECT                | 16V  | 33pF  |
| C3217                      | ECJ2VB1C104K | ELECT                | 350V | 100nF |
| C3221                      | ECA1HM4R7GB  | ELECT                | 50V  | 4.7µF |
| C3401                      | ECQM1H224J   | FILM                 | 50V  | 220nF |
| C3402                      | ECUV1H101JCX | S.M. CAP             | 50V  | 100pF |
| C3403                      | ECA1HM101GB  | ELECT                | 50V  | 100µF |
| C3404                      | ECQM1H224J   | FILM                 | 50V  | 220nF |
| C3405                      | ECUV1H180JCX | S.M. CAP             | 50V  | 18pF  |
| C3406                      | ECUV1H271JCX | S.M. CAP             | 50V  | 270pF |
| C3407                      | ECUV1H271JCX | S.M. CAP             | 50V  | 270pF |
| C3408                      | ECA1HM101GB  | ELECT                | 50V  | 100µF |
| C3601                      | ECA1HM101GB  | ELECT                | 50V  | 100µF |
| JSE28                      | ECUV1H104KBX | S.M. CAP             | 50V  | 100nF |
| <b>TERMINALS AND LINKS</b> |              |                      |      |       |
| JK2301                     | JPJ841101320 | RCA / HEADPHONE JACK |      |       |
| JK3001                     | 0350808500   | SCART SOCKET         |      |       |
| JK3201                     | TJB8E025     | AV TERMINAL          |      |       |
| <b>SWITCHES</b>            |              |                      |      |       |
| S840                       | ESB92S11B    | SWITCH               |      |       |
| S1071                      | EVQ21405R    | SWITCH               |      |       |
| S1072                      | EVQ21405R    | SWITCH               |      |       |
| S1073                      | EVQ21405R    | SWITCH               |      |       |
| S1074                      | EVQ21405R    | SWITCH               |      |       |
| S1075                      | EVQ21405R    | SWITCH               |      |       |


| Cct Ref | Parts Number | Description |
|---------|--------------|-------------|
|---------|--------------|-------------|

# SCHEMATIC DIAGRAMS FOR MODEL

## TX-29AK1P

### (EURO-4 CHASSIS)

#### IMPORTANT SAFETY NOTICE


Components identified by  mark have special characteristics important for safety. When replacing any of these components, use only manufacturers' specified parts.



#### NOTE

1. RESISTOR  
All resistors are carbon ¼W resistor, unless marked otherwise.  
Unit of resistance is OHM ( $\Omega$ ) (k=1,000, M=1,000,000)



2. CAPACITORS  
All capacitors are ceramic 50V unless marked otherwise.  
Unit of capacitance is  $\mu$ F unless otherwise stated.

3. COIL  
Unit of inductance is  $\mu$ H, unless otherwise stated.

4. TEST POINT  
 Test Point Position

5. EARTH SYMBOL  
 Chassis Earth (Cold)  
 Line Earth (Hot)

6. VOLTAGE MEASUREMENT  
Voltage is measured by a d.c. voltmeter.  
Measurement conditions are as follows:  
Power source           a.c. 220V-240V, 50Hz  
Receiving Signal       Colour Bar signal (RF)  
All customer controls   Maximum position

7.  
 Indicates the Video signal path  
 Indicates the Audio signal path

These schematic diagrams are the latest at time of printing and are subject to change without notice.

#### REMARKS

- a. Do not touch the hot part, or the hot and cold parts at the same time, as you are liable to a shock hazard.
- b. Do not short circuit the hot and cold circuits as electrical components may be damaged.
- c. Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously as this may cause fuse failure. Connect the earth of the instruments to the earth connection of the circuit being measured.
- d. Make sure to disconnect the power plug before removing the chassis.

#### NOTE

1. The Power Supply 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. All circuits, except the Power Circuit, are COLD.

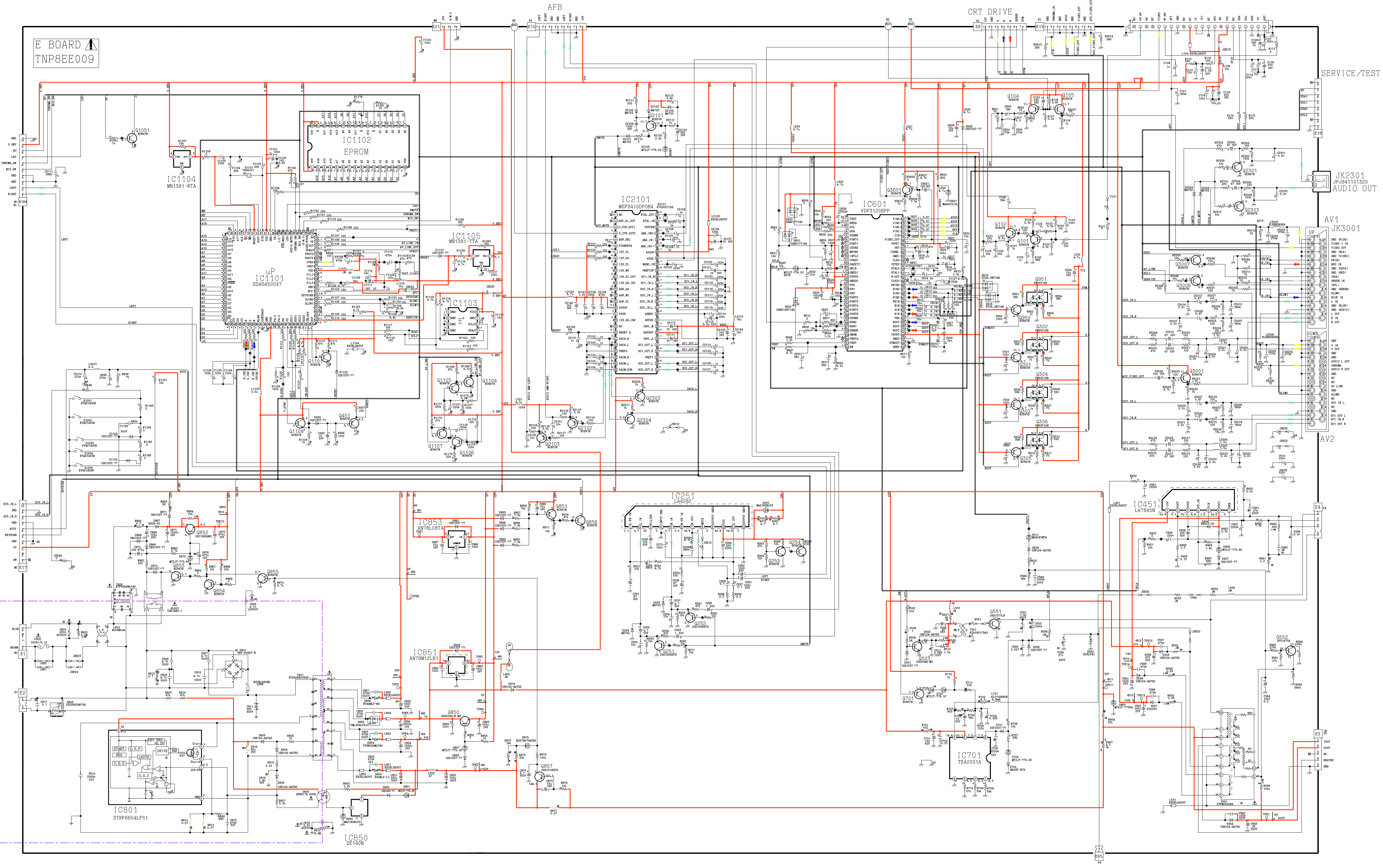


E BOARD  
TNP8EE009

AFB

CRT DRIVE

SERVICE/TEST



JK2301  
JPJ841104320  
AUDIO OUT

AV1  
JK3001

AV2

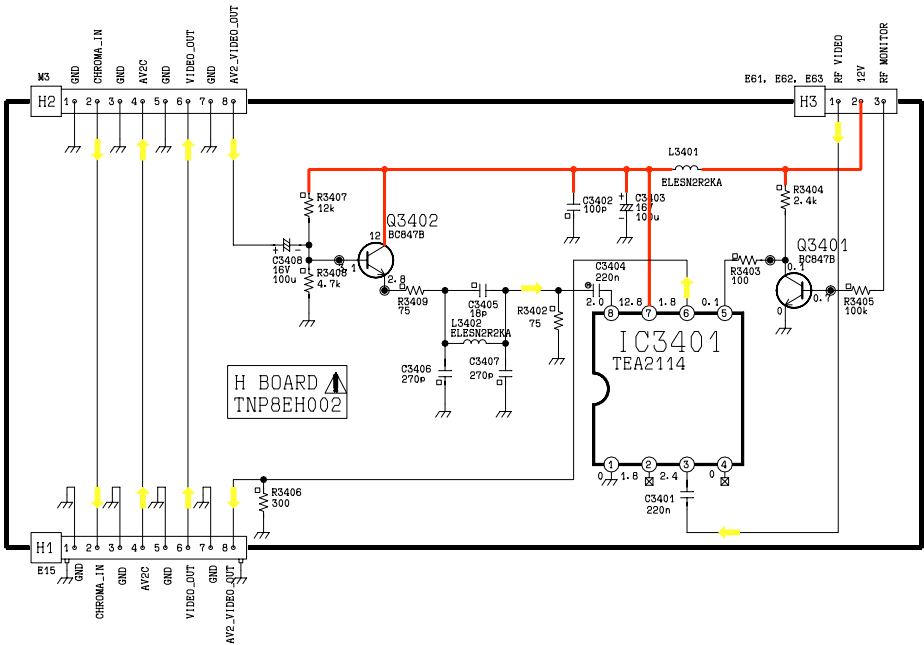
E4

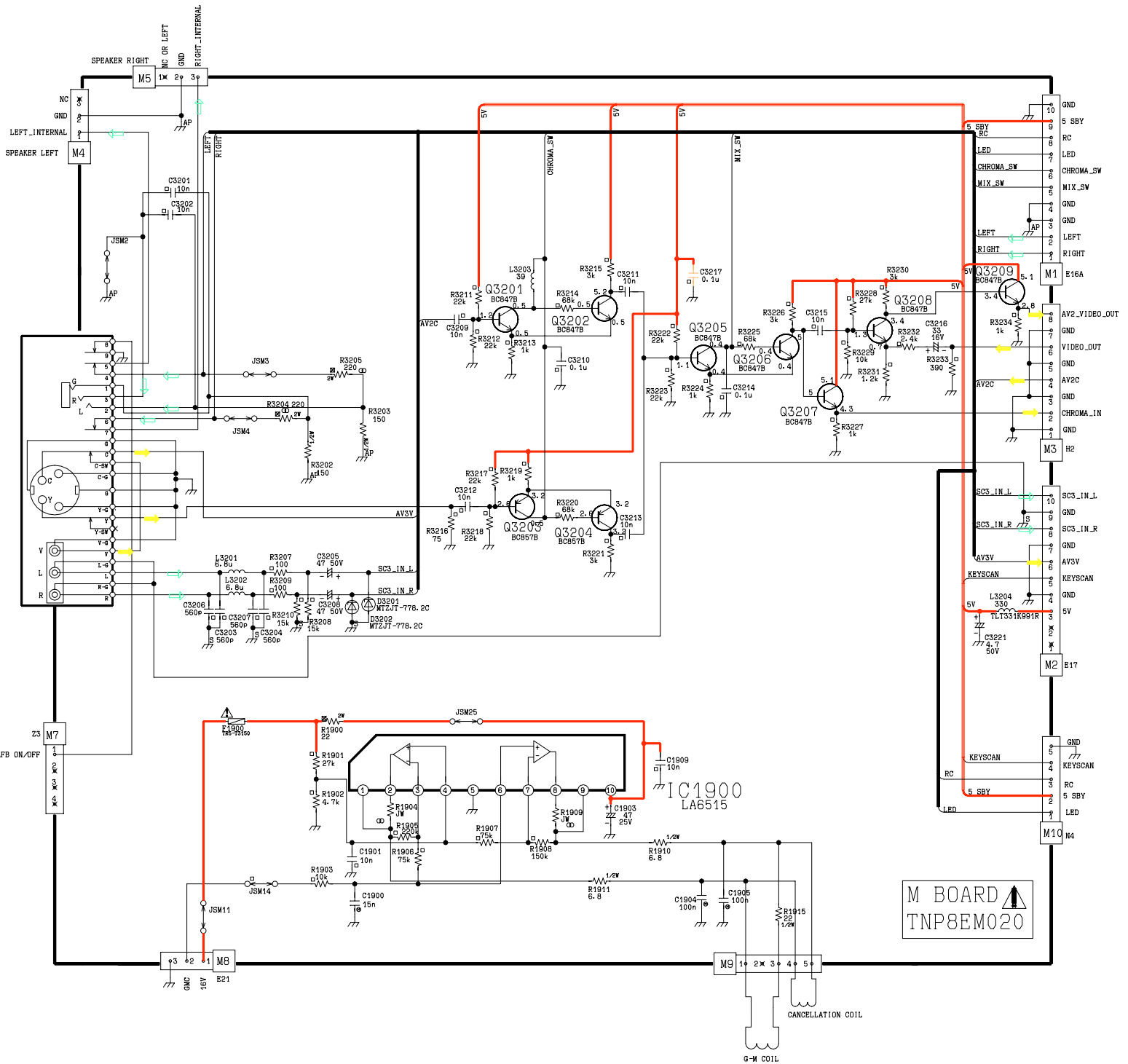
E3

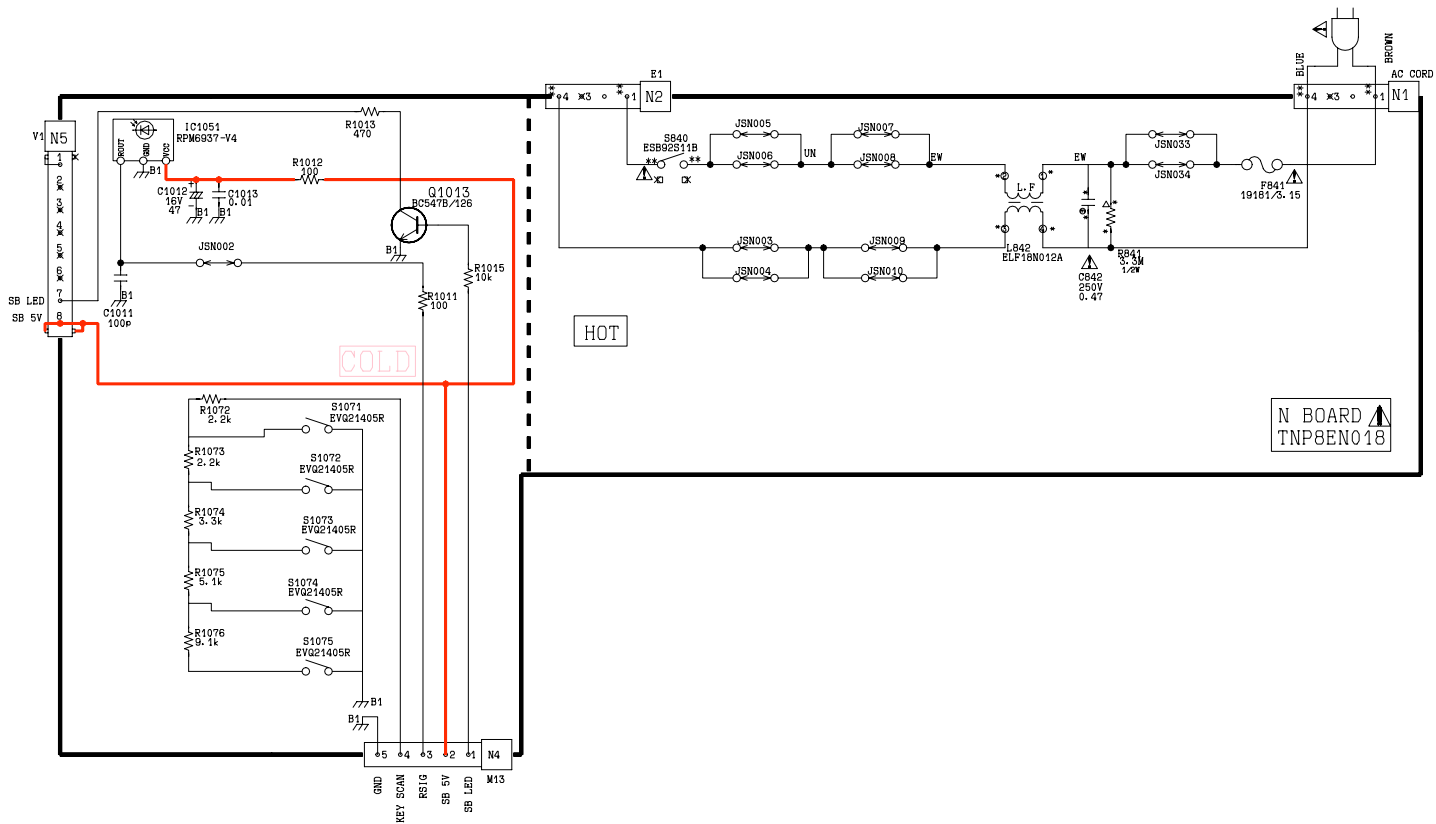
E2

E1

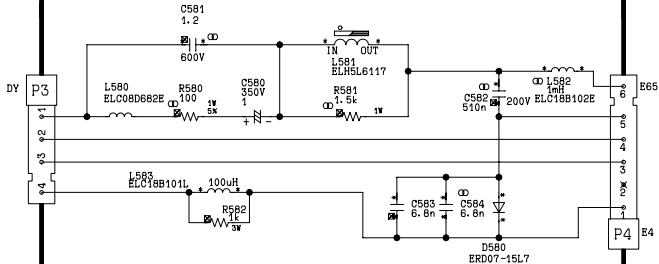
E0

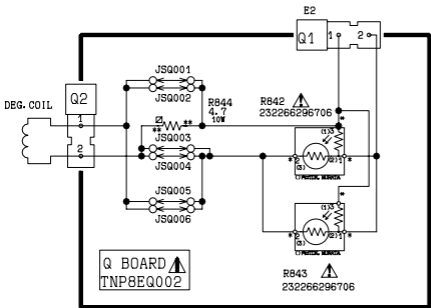




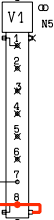


P BOARD  
TNP8EP015



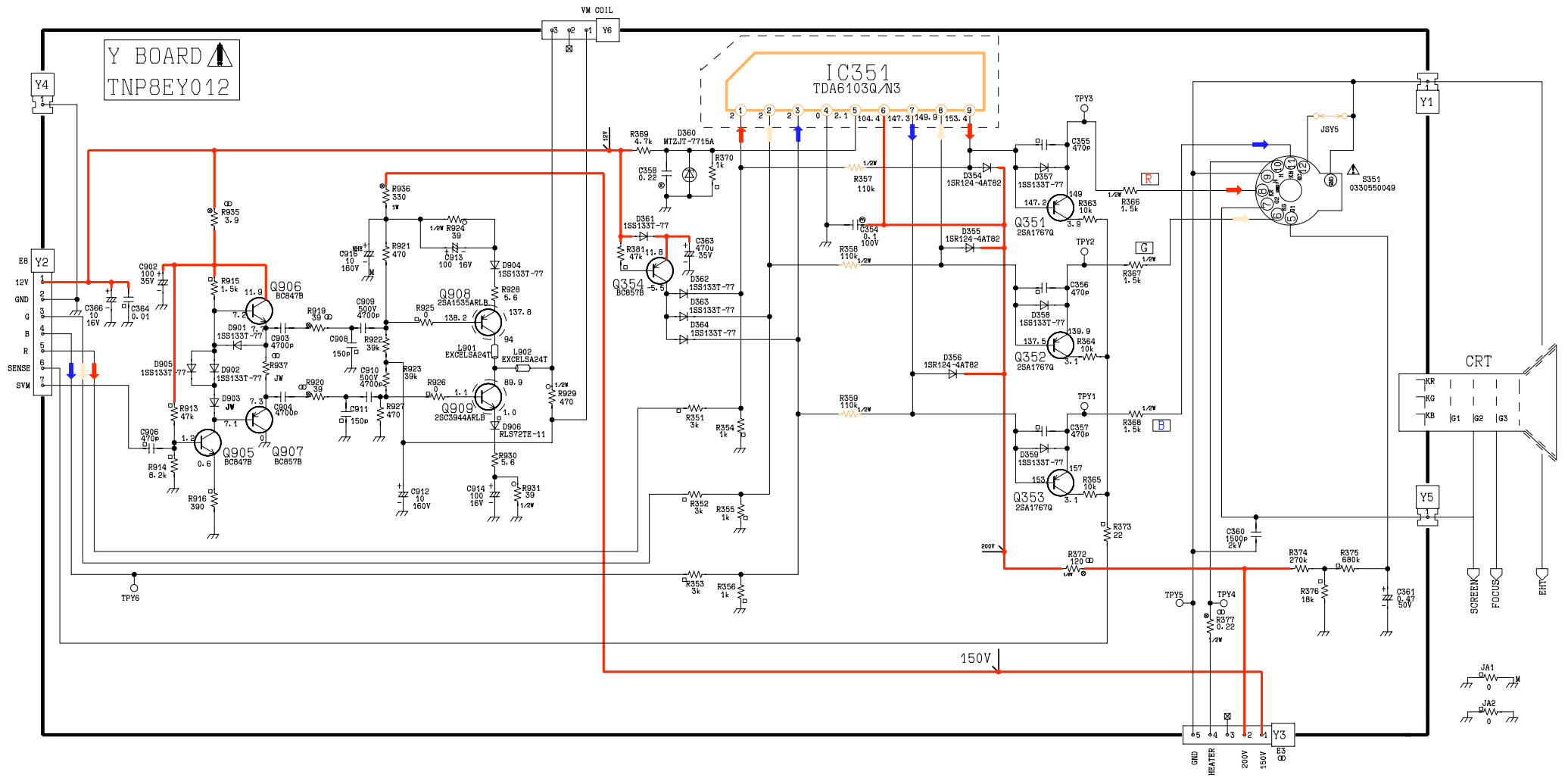


V BOARD ▲  
TNP8EV004

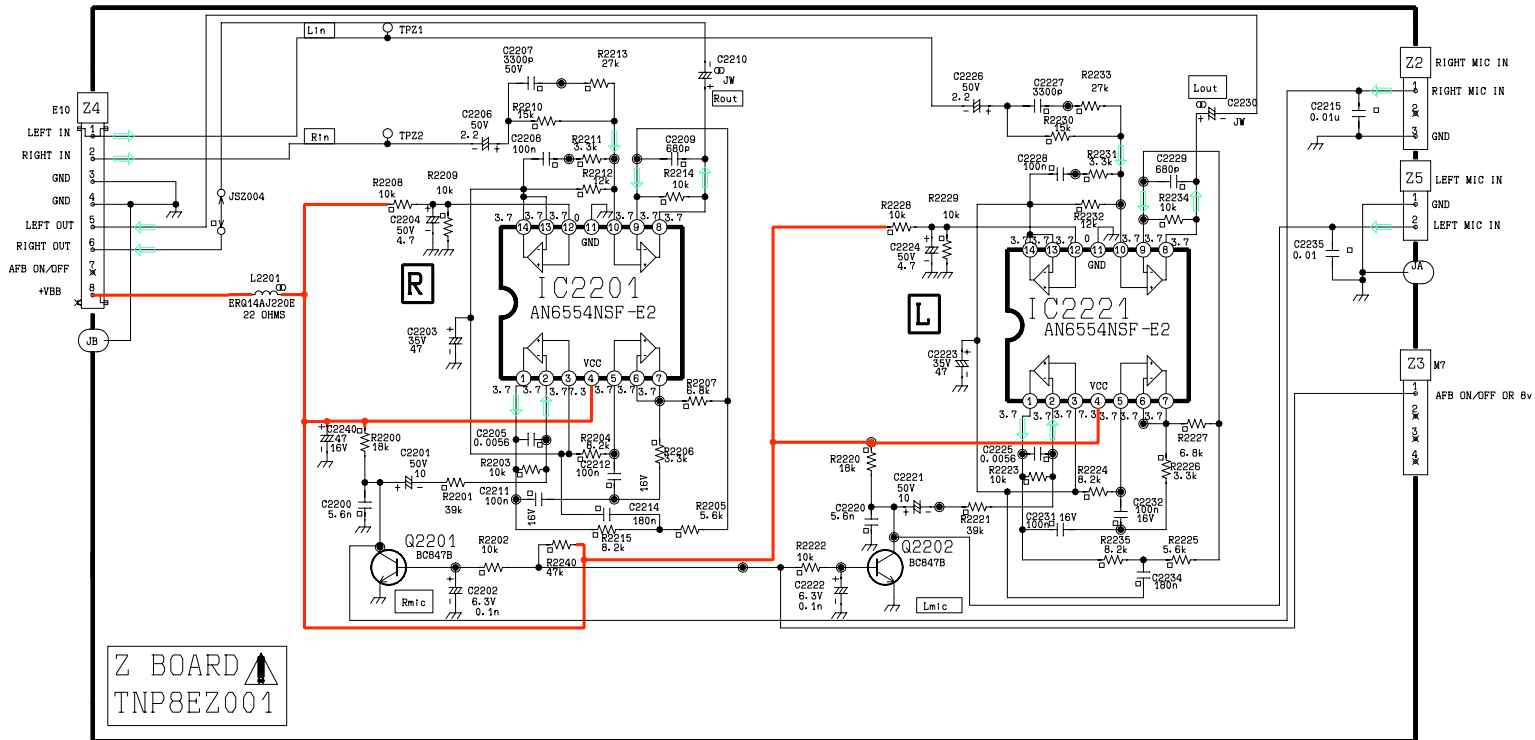


D1011  
LN81RPH





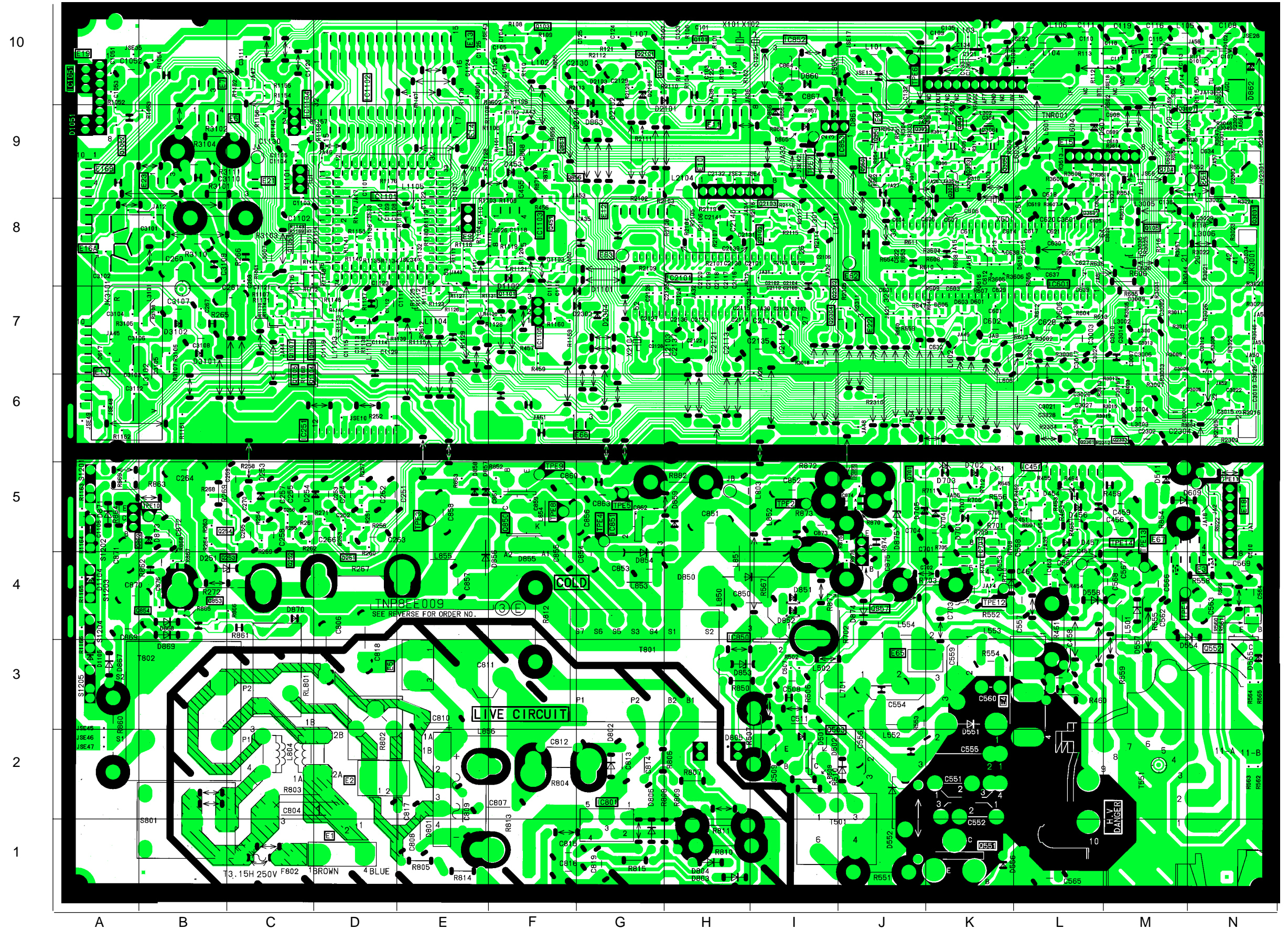




# CONDUCTOR VIEWS

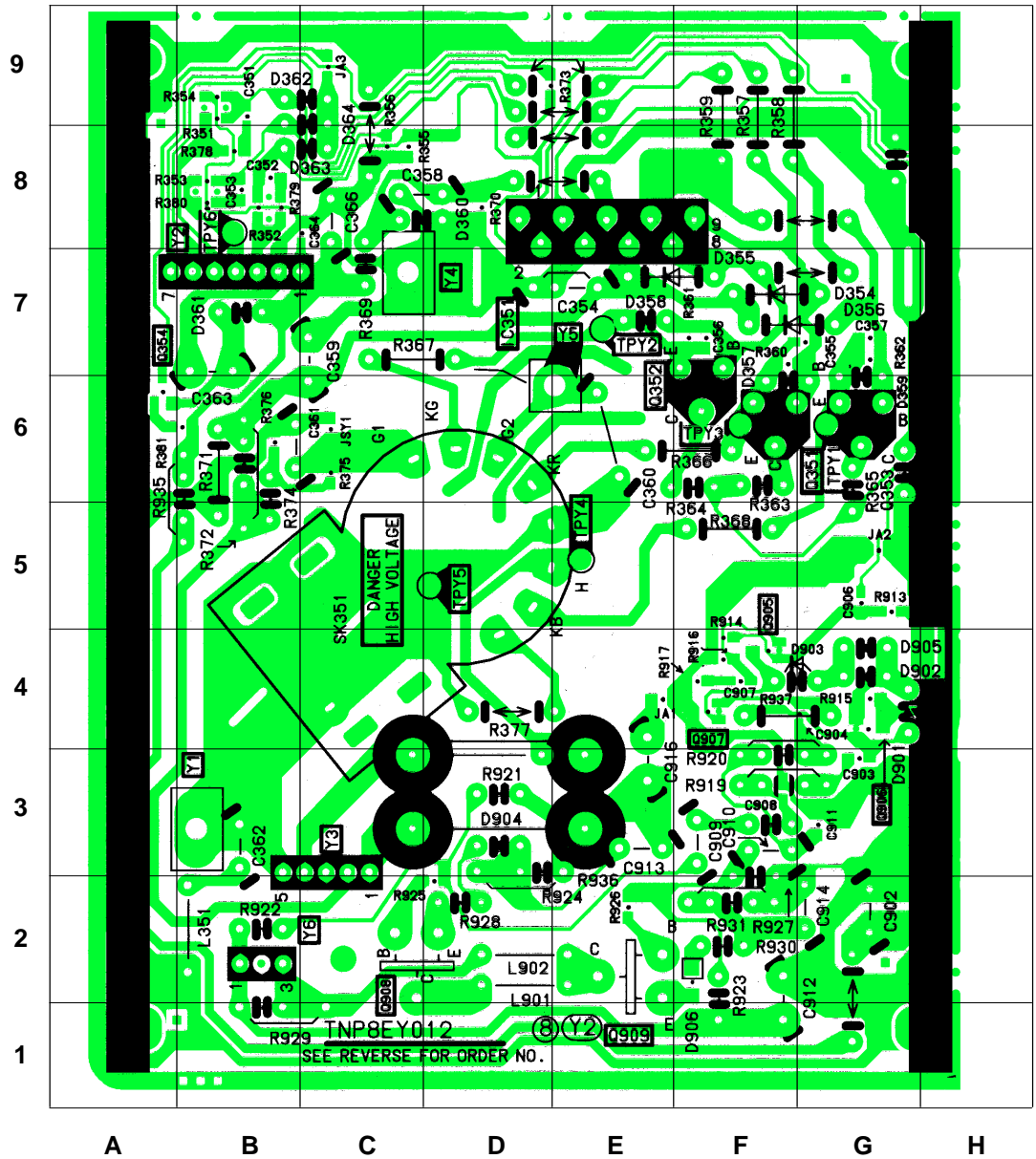
## E-BOARD TNP8EE009

| TRAN'S    | DIODES    | D558 L4     |
|-----------|-----------|-------------|
| Q3601 L8  | D3102 B7  | D557 M3     |
| Q3007 M9  | D3101 B7  | D556 K1     |
| Q3006 N10 | D2304 G7  | D555 N3     |
| Q3001 N8  | D2303 G7  | D554 N4     |
| Q2304 I7  | D2161 G9  | D553 K4     |
| Q2303 M6  | D2105 G10 | D552 J1     |
| Q2302 I7  | D2104 F9  | D551 K3     |
| Q2301 L6  | D2103 G10 | D511 M5     |
| Q2103 I8  | D2102 G9  | D502 I2     |
| Q2102 I8  | D1103 F8  | D501 I2     |
| Q2101 G10 | D1102 F7  | D457 L5     |
| Q1108 F9  | D1101 G7  | D456 L5     |
| Q1107 C7  | D1051 A9  | D454 L5     |
| Q1106 C7  | D875 J5   | D453 F9     |
| Q1105 C7  | D874 J4   | D254 B5     |
| Q1104 C7  | D873 B5   | D253 C4     |
| Q1101 F7  | D871 A5   | D252 C4     |
| Q1052 A9  | D870 C4   | D251 D4     |
| Q1051 C8  | D869 B4   |             |
| Q951 J9   | D868 B4   | <b>IC'S</b> |
| Q950 J9   | D867 A3   | IC2101 H8   |
| Q857 J4   | D866 I9   | IC1105 F7   |
| Q856 F9   | D865 I9   | IC1104 C9   |
| Q855 J5   | D864 I10  | IC1103 F8   |
| Q854 B4   | D863 G9   | IC1102 D10  |
| Q853 B4   | D862 N10  | IC1101 D8   |
| Q852 B5   | D861 J9   | IC1051 A10  |
| Q850 F5   | D860 I10  | IC853 J9    |
| Q701 J5   | D859 H5   | IC852 I10   |
| Q552 N3   | D858 E5   | IC851 G5    |
| Q551 K1   | D857 E5   | IC850 H4    |
| Q503 I2   | D856 F4   | IC801 G2    |
| Q451 F8   | D855 F4   | IC701 K5    |
| Q305 K9   | D854 G4   | IC601 L7    |
| Q304 K9   | D853 H3   | IC451 L5    |
| Q303 K9   | D852 I4   | IC251 D6    |
| Q302 J9   | D851 I4   |             |
| Q301 K9   | D850 H4   | <b>TP'S</b> |
| Q253 C4   | D806 G2   | TPE14 M5    |
| Q252 C4   | D805 H2   | TPE13 M4    |
| Q251 D4   | D804 H1   | TPE12 K4    |
| Q105 M8   | D803 H1   | TPE11 N5    |
| Q104 M9   | D802 G2   | TPE10 B5    |
| Q103 F10  | D801 E1   | TPE9 F5     |
| Q102 G10  | D705 J5   | TPE8 F5     |
| Q101 H10  | D704 K5   | TPE7 I9     |
|           | D703 K5   | TPE6 J10    |
|           | D702 K5   | TPE5 G5     |
|           | D701 K5   | TPE4 G5     |
|           | D609 N5   | TPE3 E5     |
|           | D607 L9   | TPE2 I5     |
|           |           | TPE1 M4     |



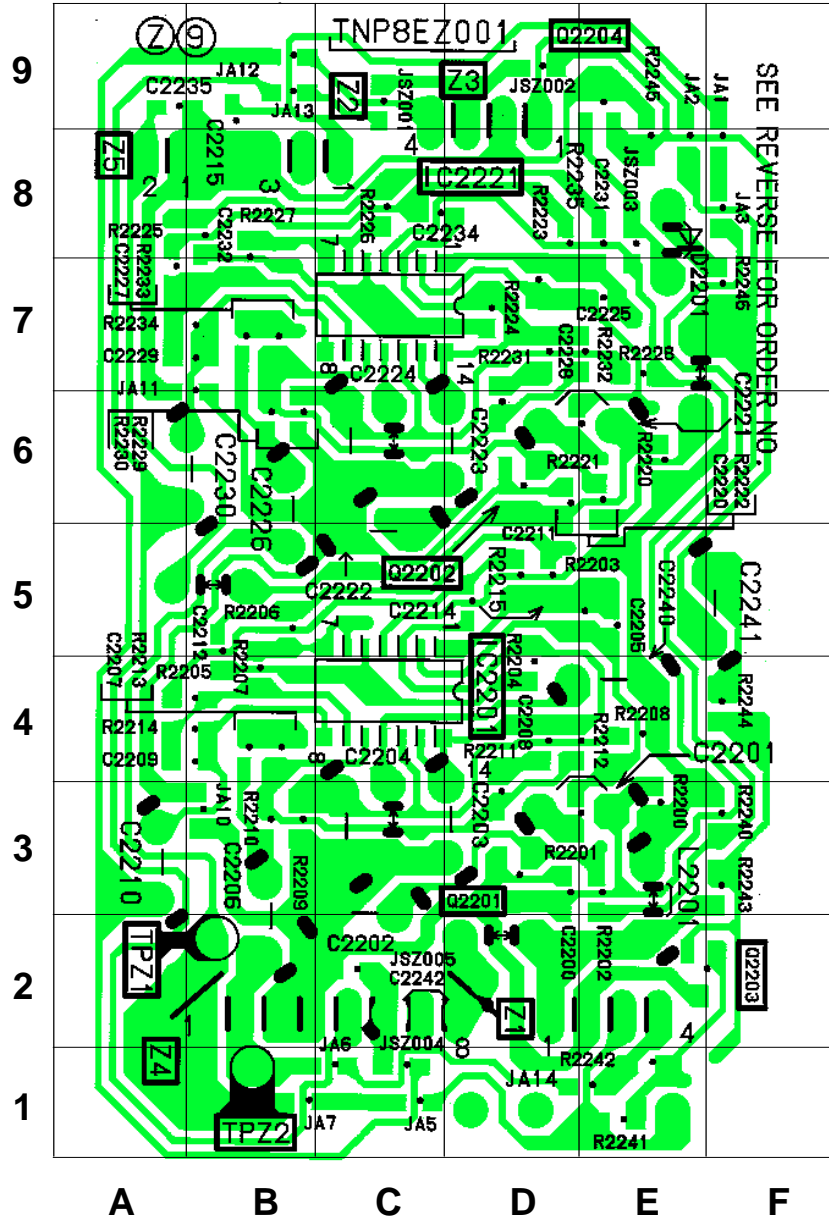
## Y - BOARD TNP8EY012

| TRANSISTORS |    |
|-------------|----|
| Q909        | E1 |
| Q908        | C2 |
| Q907        | F4 |
| Q906        | G3 |
| Q905        | F5 |
| Q354        | A7 |
| Q353        | G6 |
| Q352        | F6 |
| Q351        | F6 |
| DIODES      |    |
| D906        | F1 |
| D905        | G4 |
| D904        | D3 |
| D902        | G4 |
| D901        | G3 |
| D364        | C9 |
| D363        | C8 |
| D362        | B9 |
| D361        | B7 |
| D360        | D8 |
| D359        | G6 |
| D358        | E7 |
| D357        | F7 |
| D356        | G7 |
| D355        | F7 |
| D354        | G7 |
| TEST POINTS |    |
| TPY6        | B8 |
| TPY5        | D5 |
| TPY4        | E5 |
| TPY3        | F6 |
| TPY2        | E7 |
| TPY1        | G6 |
| IC'S        |    |
| IC351       | E8 |



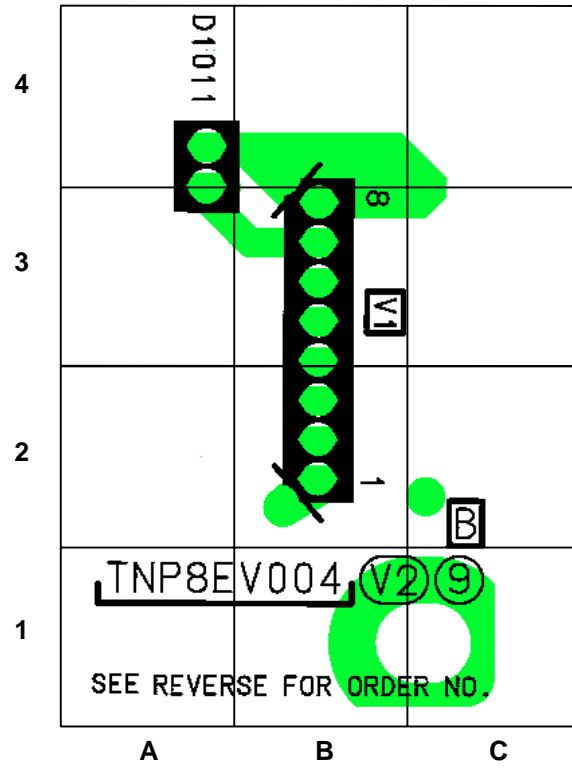
## Z - BOARD TNP8EZ001

| TRAN'S |    |
|--------|----|
| Q2201  | D3 |
| Q2202  | C5 |
| Q2203  | F2 |
| Q2204  | E9 |
| DIODES |    |
| D2201  | E8 |
| TP'S   |    |
| TPZ1   | B2 |
| TPZ2   | B1 |
| IC'S   |    |
| IC2201 | C4 |
| IC2221 | C7 |

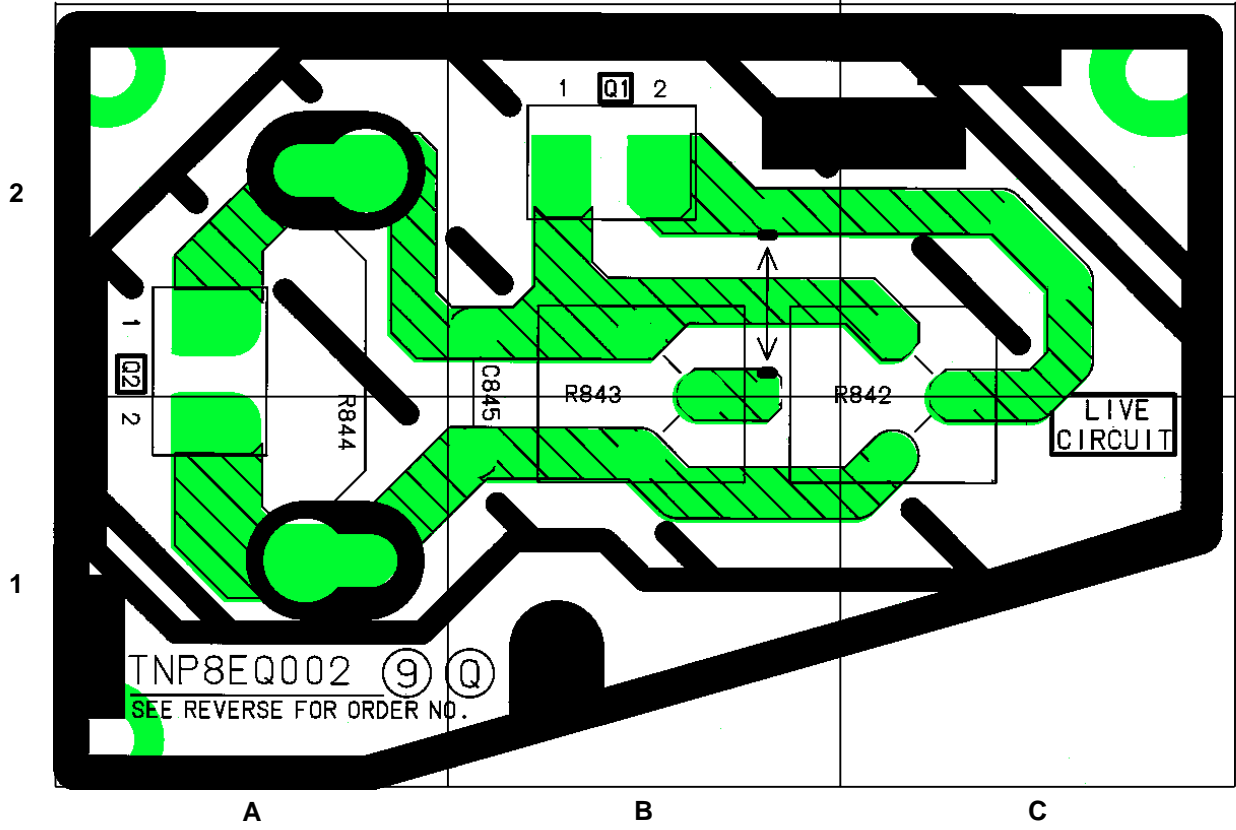


# V - BOARD TNP8EV004

| DIODES |    |
|--------|----|
| D1011  | A4 |

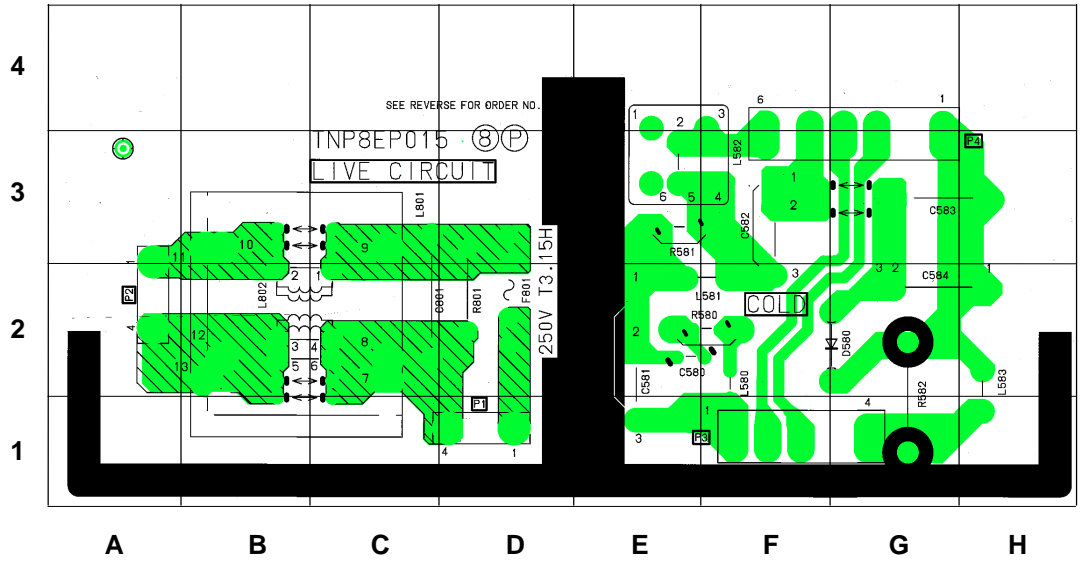


Q - BOARD TNP8EQ002



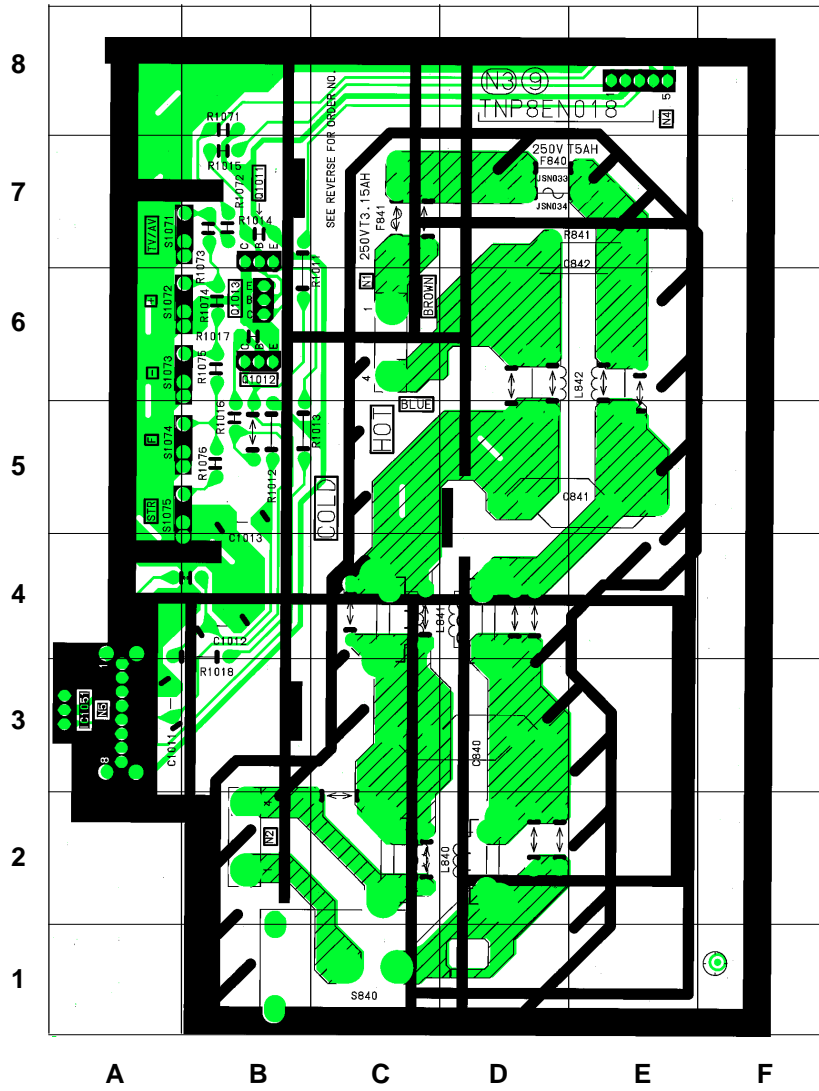
## P - BOARD TNP8EP015

| TRANSISTORS |    |
|-------------|----|
| Q580        | G4 |
| Q3901       | C2 |
| Q3902       | A4 |
| Q3903       | B2 |
| Q3904       | B4 |
| Q3905       | D3 |
| Q3906       | D2 |
| Q3907       | C2 |
| Q3908       | D1 |
| Q3911       | B4 |
| Q3912       | B4 |
| Q3917       | C4 |
| DIODES      |    |
| D580        | E6 |
| D581        | G4 |
| D3901       | B3 |
| D3907       | D3 |
| D3908       | D3 |
| D3909       | C1 |
| D3910       | D5 |
| D3911       | D5 |
| D3912       | D1 |
| D3915       | B4 |
| D3917       | B4 |
| D3918       | B4 |
| D3920       | E1 |
| D3921       | C4 |
| TEST POINTS |    |
| TPD11       | C3 |
| TPD12       | B2 |
| TPD13       | A3 |
| TPD14       | D4 |
| TPD15       | D2 |
| IC'S        |    |
| IC3901      | B3 |
| IC3902      | E1 |



## N - BOARD TNP8EN018

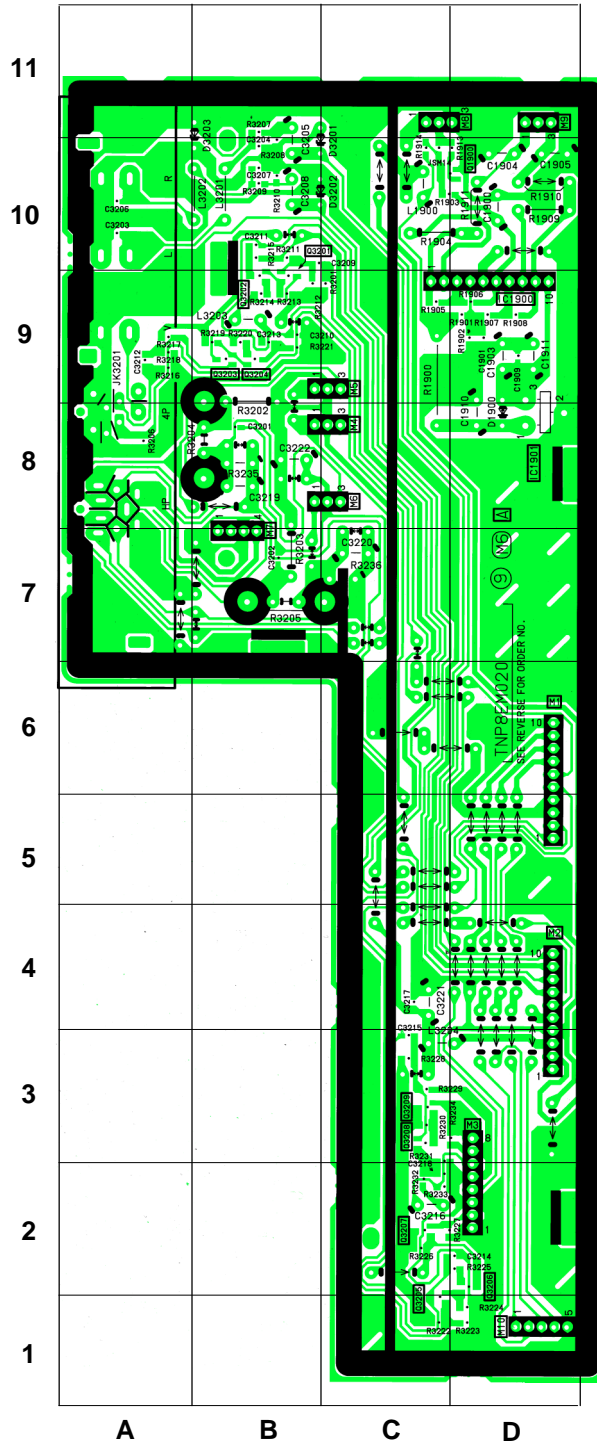
| DIODES |    |
|--------|----|
| Q1011  | B7 |
| Q1012  | B6 |
| Q1013  | B6 |
| IC'S   |    |
| IC1051 | A3 |





## M - BOARD TNP8EM020

| TRANSISTORS |     |
|-------------|-----|
| Q3201       | B10 |
| Q3202       | B9  |
| Q3203       | B9  |
| Q3204       | B9  |
| Q3205       | C1  |
| Q3206       | D2  |
| Q3207       | C2  |
| Q3208       | C3  |
| Q3209       | C3  |
| Q1900       | D10 |
| DIODES      |     |
| D3201       | C10 |
| D3202       | C10 |
| D3203       | B11 |
| D1900       | D8  |
| IC'S        |     |
| IC1900      | D9  |
| IC1901      | D8  |



## H - BOARD TNP8EH002

| TRANSISTORS |    |
|-------------|----|
| Q3401       | C3 |
| Q3402       | A2 |
| I.C.'S      |    |
| IC3401      | C2 |

