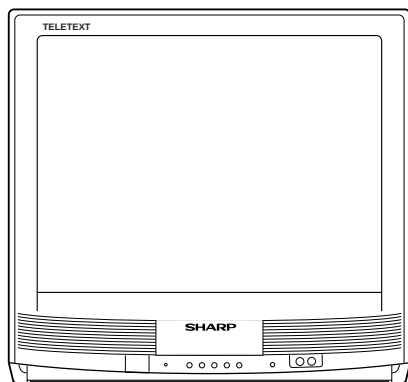


**SHARP****SERVICE MANUAL**

S69J6CX51TXZ/

**COLOUR TELEVISION****Chassis No. SP-80****MODEL****CX51TXZ**

In the interests of user-safety (Required by safety regulations in some countries ) the set should be restored to its original condition and only parts identical to those specified should be used.

**FEATURE**

- World Multi 21 Systems
- Full Auto Channel Preset and Auto Channel Skip
- 100 CH Program Memory
- CATV (Hyper Band) Ready  
  〈Used Frequency Synthesizer Tuner〉
- Aperture Control Circuit
- Black Stretch Circuit
- Arabic/Chinese/English/French/Malay  
  5 Language OSD
- On Timer/Sleep Timer/Reminder Timer
- Blue Back Noise Mute
- White Temp Adjustment
- Auto Picture Noise Reduction (TV)
- Front AV In & Rear AV In/Out Terminals
- NTSC Colour-Comb Filter
- Favorite Channel Function
- One Page Text (English)

**CONTENTS**

| Page                                     | Page |
|------------------------------------------|------|
| ● FEATURE .....                          | 1    |
| ● SPECIFICATIONS .....                   | 2    |
| ● IMPORTANT SERVICE NOTES .....          | 2    |
| ● ADJUSTMENT PRECAUTIONS .....           | 3    |
| ● TROUBLE SHOOTING TABLE .....           | 21   |
| ● SOLID STATE DEVICE BASE DIAGRAM .....  | 23   |
| ● CHASSIS LAYOUT .....                   | 24   |
| ● WAVEFORMS .....                        | 25   |
| ● DESCRIPTION OF SCHEMATIC DIAGRAM ..... | 26   |
| ● SCHEMATIC DIAGRAM .....                | 28   |
| ● BLOCK DIAGRAM .....                    | 32   |
| ● PRINTED WIRING BOARD ASSEMBLIES .....  | 36   |
| ● REPLACEMENT PARTS LIST                 |      |
| ■ ELECTRICAL PARTS .....                 | 41   |
| ■ SUPPLIED ACCESSORIES .....             | 47   |
| ■ CABINET PARTS .....                    | 47   |
| ■ PACKING PARTS .....                    | 47   |

**WARNING**

The chassis in this receiver is partially hot. Use an isolation transformer between the line cord plug and power receptacle, when servicing this chassis. To prevent electric shock, do not remove cover. No user – serviceable parts inside. Refer servicing to qualified service personnel.

**SHARP CORPORATION**

## SPECIFICATIONS

|                                    |                                                        |
|------------------------------------|--------------------------------------------------------|
| Convergence .....                  | Self Converging System                                 |
| Focus .....                        | Quadra-Potential Electrostatic                         |
| Sweep Deflection .....             | Magnetic                                               |
| Intermediate Frequencies           |                                                        |
| Picture IF Carrier .....           | 38.9 MHz                                               |
| Sound IF Carrier Frequency         |                                                        |
| 6.5 MHz .....                      | 32.4 MHz                                               |
| 6.0 MHz .....                      | 32.9 MHz                                               |
| 5.5 MHz .....                      | 33.4 MHz                                               |
| 4.5 MHz .....                      | 34.4 MHz                                               |
| Colour Sub-Carrier Frequency ..... | 34.47 MHz                                              |
| Power Input .....                  | 110 - 240V AC 50/60 Hz                                 |
| Power Consumption .....            | 81 W                                                   |
| Audio Power Output Rating .....    | 3.0 W (at Max.)                                        |
| Speaker                            |                                                        |
| Size .....                         | 5 × 9 cm (1 pc)                                        |
| Voice Coil Impedance .....         | 16 ohms at 400 Hz                                      |
| Aerial Input Impedance             |                                                        |
| VHF/UHF .....                      | 75 ohm Unbalanced                                      |
| Receiving System .....             | CCIR SECAM/PAL B, G, D, K, I<br>NTSC 3.58/4.43 MHz     |
| Receiving Channels                 |                                                        |
| PAL-B/G, SECAM-B/G                 |                                                        |
| VHF .....                          | AU0 thru AU12 ch<br>NZ1 thru NZ11 ch<br>E2 thru E12 ch |
| UHF .....                          | E21 thru E69 ch                                        |
| PAL-D/K, SECAM-D/K                 |                                                        |
| VHF .....                          | C1 thru C12 ch<br>R1 thru R12 ch                       |
| UHF .....                          | C13 thru C57 ch<br>R21 thru R69 ch                     |
| PAL-I                              |                                                        |
| VHF .....                          | B thru J ch                                            |
| UHF .....                          | (H.K): 21 thru 69 ch                                   |
| NTSC                               |                                                        |
| VHF .....                          | (US): 2 thru 13 ch<br>(JAPAN): 1 thru 12 ch            |
| UHF .....                          | (US): 14 thru 69 ch<br>(JAPAN): 13 thru 62 ch          |
| CATV .....                         | S1 thru S20 ch<br>S21 thru S41 ch<br>(Hyper)           |
| Receiving Frequency                |                                                        |
| VHF .....                          | 44.25 thru 463.25 MHz                                  |
| UHF .....                          | 471.25 thru 863.25 MHz                                 |
| Dimensions .....                   |                                                        |
|                                    | Width: 500 mm                                          |
|                                    | Height: 474 mm                                         |
|                                    | Depth: 475 mm                                          |
|                                    | Weight (approx.): 19.4 kg                              |
| Cabinet Material .....             | All Plastic                                            |

*Specifications are subject to change without prior notice.*

## IMPORTANT SERVICE NOTES

**Maintenance and repair of this receiver should be done by qualified service personnel only.**

## SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove static charge from it by connecting a 10k ohm Resistor in series with an insulated wire (such as a test probe) between picture tube dag and 2nd anode lead. (AC line cord should be disconnected from AC outlet.)

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage completely.

## X-RAY

This receiver is designed so that any X-Ray radiation is kept to an absolute minimum. Since certain malfunctions or servicing may produce potentially hazardous radiation with prolonged exposure at close range, the following precautions should be observed:

1. When repairing the circuit, be sure not to increase the high voltage to more than 29.0 kV (at beam 0  $\mu$ A) for the set.
2. To keep the set in a normal operation, be sure to make it function on  $24.8 \pm 1.5$  kV (at beam 1,100  $\mu$ A) in the case of the set. The set has been factory – Adjusted to the above-mentioned high voltage.  
 $\therefore$  If there is a possibility that the high voltage fluctuates as a result of the repairs, never forget to check for such high voltage after the work.
3. Do not substitute a picture tube with unauthorized types and/or brands which may cause excess X-ray radiation.

## BEFORE RETURNING THE RECEIVER

**Before returning the receiver to the user, perform the following safety checks.**

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators etc.

## ADJUSTMENT PRECAUTION

This model's setting are adjusted in two different ways: though the I<sup>2</sup>C bus control and in the conventional analog manner. The adjustments via the I<sup>2</sup>C bus control include preset-only items and variable data.

### 1. Setting the service mode by the microprocessor.

- ① Short TP1001 and TP1002 to switch to the service mode position, and the microprocessor is in input mode. (Adjustment through the I<sup>2</sup>C bus control). (Use JWS Key to set as well).
- ② Press the CH DOWN / UP key on the remote controller to get ready to select the mode one by one.
- ③ Press the CH DOWN / UP key on the remote controller to select the modes reversibly one by one.
- ④ Using the VOLUME UP/ DOWN key on the remote controller, the data can be modified.
- ⑤ Disconnect TP1001 and TP1002 to switch to the normal mode (OFF) position and the microprocessor is in out of the service mode.

### 2. Factory Presetting.

- ① Short TP1001 & TP1002 to switch to the service mode position and turn on the main power switch. Initial values are automatically preset, only when a new EEPROM is used (Judge with the first 4 bytes).
- ② The initial data are preset as listed in pages 4-6.
- ③ Make sure the data need modify or not (Initial data).

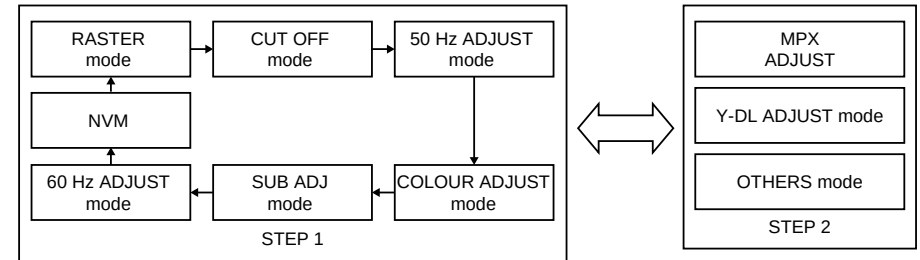
**Note:** Once the chassis has been assembly together and ready to be **POWER ON** for the **FIRST TIME**, make sure to short TP1001 and TP1002 to switch to the service mode position first and then turn on the main power switch. (See 2-① above).

**Precaution:** If haven't done this initiation, it may possibly generate excessive Beam current.

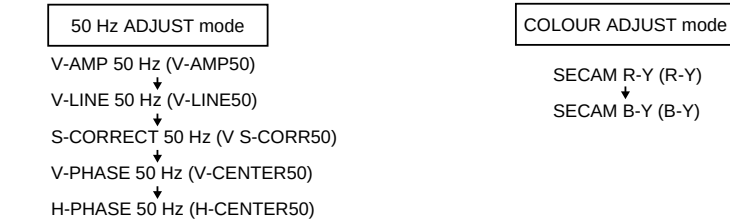
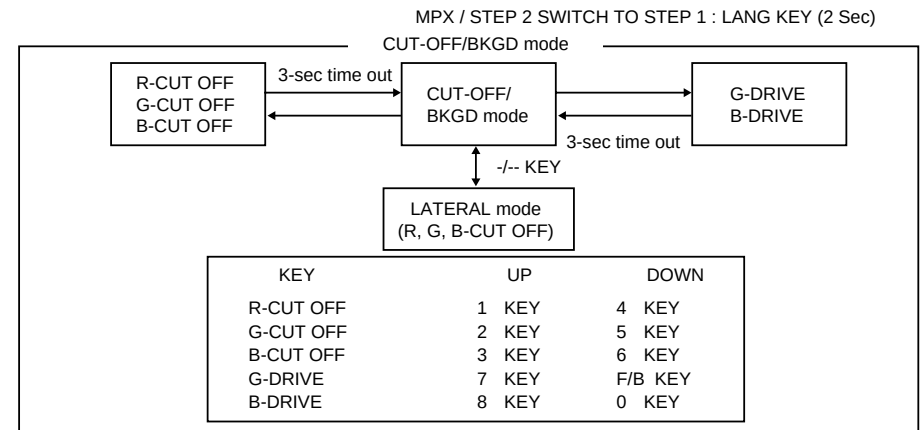
### 3. For reference please check with memory map (21SN Series type RH-IX3135CE Attachment)

## SERVICE MODE

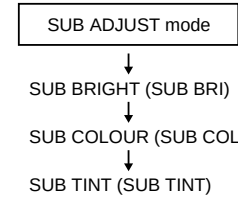
(1) In the Service Mode, Key is used to select the mode in the following order.



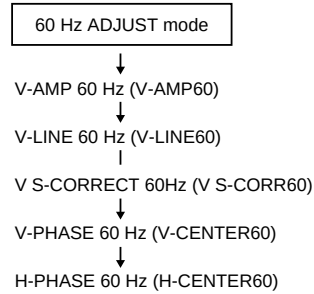
FORWARD : CH DOWN key  
REVERSE : CH UP key



FORWARD : CH DOWN key  
REVERSE : CH UP key  
\* ( ) means OSD display.



FORWARD : CH DOWN key  
REVERSE : CH UP key

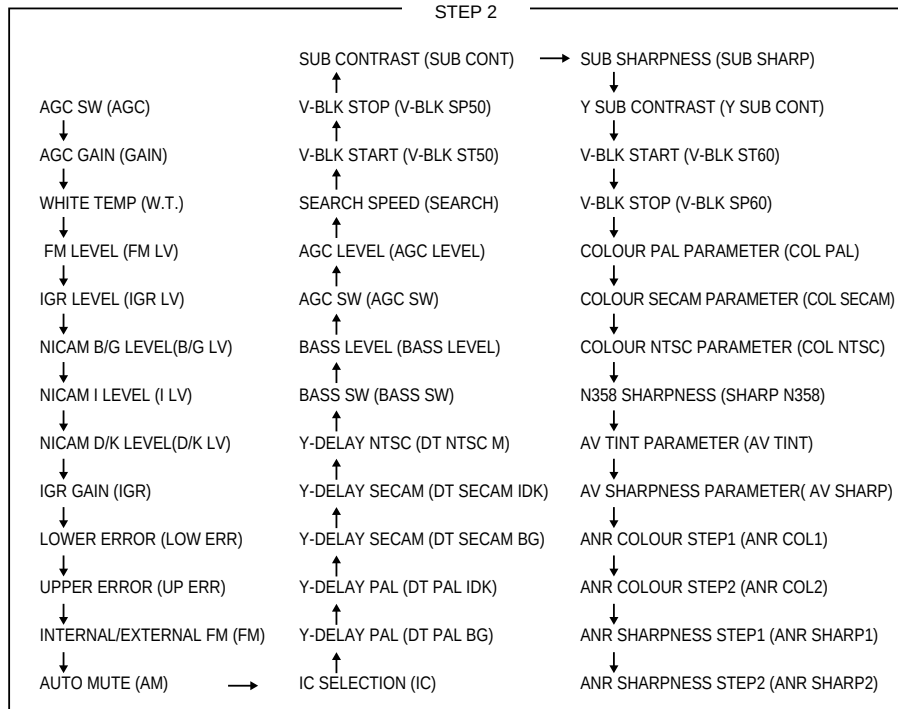


\* ( ) means OSD display.

Following MODES (STEP 2) can be switched by pressing LANG key (2 sec).

Press LANG Key for switch back STEP 1.

The data of STEP 2 is fixed, do not change without specific indication.



## OPTION INITIAL SETTING

Use the two ports of Micro for OPTION setting.

| PIN 31      | PIN14 | NICAM           |     |     | AV | FAV.<br>CH | BIL | C-SYS | S-SYS | AUTO<br>SELECT | MODEL |
|-------------|-------|-----------------|-----|-----|----|------------|-----|-------|-------|----------------|-------|
|             |       | B/G             | I   | D/K |    |            |     |       |       |                |       |
| L           | L     | ON              | OFF | OFF | 2  | ON         | OFF | PSN   | ON    | OFF            | SN5   |
| H           | L     | OFF             | ON  | OFF | 2  | OFF        | OFF | PSN   | ON    | OFF            | SN8   |
| L           | H     | ON              | ON  | ON  | 2  | OFF        | OFF | PSN   | ON    | OFF            | SN9   |
| H           | H     | READ OUT EEPROM |     |     |    |            |     |       |       |                |       |
| INITIAL EEP |       | ON              | OFF | OFF | 2  | ON         | ON  | P     | OFF   | OFF            | FREE  |

While Pins (31), (14) of Micro are at H/H status in service mode, MENU Key can be used for setting data. Check OSD display the model name, after the factory initial setting at CH1.  
(A3HE51TXZ: Please confirm "SN5", but no NICAM and IGR.)

## USER DATA IN SERVICE MODE

- \* While SERVICE mode ON, EEPROM DATA will switch to the service data.
- Also, once SERVICE mode OFF, EEPROM will switch back to previous USER DATA.
- \* In the service mode, the user data establish as below,

| MODE       | USER DATA    |
|------------|--------------|
| CONTRAST   | MAX (64/64)  |
| COLOUR     | CENT (32/64) |
| BRIGHTNESS | CENT (32/64) |
| TINT       | CENT (32/64) |
| SHARPNESS  | CENT (32/64) |
| WHITE TEMP | CENT (32/64) |
| S-VOLUME   | MIN (1/64)   |
| BLUE BACK  | OFF          |
| C SYSTEM   | AUTO         |
| S SYSTEM   | *1           |

\*1 : For each CH, before changing service mode setting.

The flow of Mode lists as following,

\* Direct Key-in Step1 Mode

| MODE       | KEY-IN KEY |
|------------|------------|
| H-CENTER*  | PICTURE    |
| V-CENTER*  | TEXT       |
| V-AMP*     | INDEX      |
| V S CORR*  | RED        |
| V-LINE*    | GREEN      |
| SUB COLOUR | TIMED PAGE |
| SUB BRIGHT | SIZE       |
| SUB TINT   | HOLD       |
| R-Y        | YELLOW     |
| B-Y        | CYAN       |

\* Depend on reception signal 50/60 Hz.

Direct Key-in STEP 2 Mode

| MODE         | KEY-IN KEY |
|--------------|------------|
| SEARCH SPEED | REVEAL     |
| COLOUR PAL   | RESET      |

\* After short TP1001 & TP1002, and turn on the MAIN Power Switch, read data from EEPROM Address 00H-03H, and compare to the list below, if different, initialize the EEPROM.

|           |      |           |      |
|-----------|------|-----------|------|
| Address : | Data | Address : | Data |
| 00H :     | 23H  | 02H :     | 13H  |
| 01H :     | 21H  | 03H :     | 85H  |

| EEPROM item (OSD Display) | Data length                                                                                                                    | Initial data | Remarks  |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------|
| (00H)                     | ————                                                                                                                           | 23H          |          |
| (01H)                     | ————                                                                                                                           | 21H          |          |
| (02H)                     | ————                                                                                                                           | 13H          |          |
| (03H)                     | ————                                                                                                                           | 85H          |          |
| R CUT OFF                 | 0 ~ 255                                                                                                                        | 0            |          |
| G CUT OFF                 | 0 ~ 255                                                                                                                        | 0            |          |
| B CUT OFF                 | 0 ~ 255                                                                                                                        | 0            |          |
| G DRIVE                   | 0 ~ 255                                                                                                                        | 127          |          |
| B DRIVE                   | 0 ~ 255                                                                                                                        | 127          |          |
| 50Hz V-AMP                | 0 ~ 127                                                                                                                        | 58           | +1 *1    |
| 50Hz V-LINEARITY          | 0 ~ 31                                                                                                                         | 16           | -2 *1    |
| 50Hz S CORRECTION         | 0 ~ 127                                                                                                                        | 67           | +7 *1 *2 |
| 50Hz V-PHASE              | 0 ~ 7                                                                                                                          | 5            | -3 *1    |
| 50Hz H-PHASE              | 0 ~ 31                                                                                                                         | 7            | +5 *1    |
| 60Hz V-AMP                | 0 ~ 127                                                                                                                        | 59           |          |
| 60Hz V-LINEARITY          | 0 ~ 31                                                                                                                         | 14           |          |
| 60Hz S CORRECTION         | 0 ~ 127                                                                                                                        | 74           | *2       |
| 60Hz V-PHASE              | 0 ~ 5                                                                                                                          | 2            |          |
| 60Hz H-PHASE              | 0 ~ 31                                                                                                                         | 12           |          |
| SECAM R-Y                 | 0 ~ 15                                                                                                                         | 10           |          |
| SECAM B-Y                 | 0 ~ 15                                                                                                                         | 6            |          |
| SUB-BRIGHT                | 0 ~ 255                                                                                                                        | 127          |          |
| SUB-COLOUR                | 0 ~ 255                                                                                                                        | 110          |          |
| SUB-TINT                  | 0 ~ 127                                                                                                                        | 70           |          |
| AFT/SKIP                  | 0 ~ 1                                                                                                                          | ON/OFF       |          |
| C-SYSTEM                  | 0 ~ 1                                                                                                                          | AUTO         |          |
| S-SYSTEM                  | ————                                                                                                                           | B/G          |          |
| NVM                       | When finish adjustments, DATA from 00H-03H differ from INITIAL DATA. Precaution, Once AC Power ON, all DATA will be initiated. |              |          |

\*1 : While 50 Hz mode has been adjusted, 60Hz mode's data automatically will be input.

(But, while 60Hz mode has been adjusted, 50Hz mode's data won't be updated.)

\*2 : Fixed DATA, do not change without specific indication.

## STEP 2 IN SERVICE MODE

(Press LANG Key 2 seconds to switch from STEP 1)

Fixed DATA, do not change with out specific indication.

| EEPROM item (OSD Display) | Data adjustable range | Data initial value | Remarks |
|---------------------------|-----------------------|--------------------|---------|
| AGC SW                    |                       | ON                 |         |
| AGC GAIN                  |                       | 0                  |         |
| WT                        |                       | HI (LO*)           |         |
| FM LEVEL                  |                       | 0dB                |         |
| IGR LEVEL                 |                       | +2dB               |         |
| NICAM B/G LEVEL           |                       | -1dB               |         |
| NICAM I LEVEL             |                       | +4dB               |         |
| NICAM D/K LEVEL           |                       | -1dB               |         |
| LOWER ERROR               |                       | 35                 |         |
| UPPER ERROR               |                       | 70                 |         |
| IGR GAIN (TDA9873H)       |                       | 0                  |         |
| INTERNAL/EXTERNAL FM      |                       | INTERNAL           |         |
| AUTO MUTE                 |                       | ON                 |         |
| IC SELECT                 |                       | PH                 |         |
| Y-DELAY PAL B/G           |                       | 2                  |         |
| Y-DELAY PAL IDK           |                       | 2                  |         |
| Y-DELAY SECAM BG          |                       | 4                  |         |
| Y-DELAY SECAM IDK         |                       | 4                  |         |
| Y-DELAY NTSC M            |                       | 2                  |         |
| BASS SW                   |                       | OFF                |         |
| BASS LEVEL                |                       | 0                  |         |
| AGC SW                    |                       | ON                 |         |
| AGC LEVEL                 |                       | 3                  |         |
| SEARCH SPEED              |                       | 550                |         |
| V-BLK ST50                | 0 ~ 63                | 63                 |         |
| V-BLK SP50                | 0 ~ 127               | 25                 |         |
| SUB CONTRAST              | 0 ~ 255               | 255                |         |
| SUB SHARPNESS             | 0 ~ 63                | 28                 |         |
| Y SUB CONTRAST            | 0 ~ 31                | 18                 |         |
| V-BLK ST60                | 0 ~ 63                | 63                 |         |
| V-BLK SP60                | 0 ~ 127               | 20                 |         |
| COLOUR PAL PARAMETER      |                       | +20                |         |
| COLOUR SECAM PARAMETER    |                       | +10                |         |
| COLOUR NTSC PARAMETER     |                       | +20                |         |
| N358 SHARPNESS            |                       | +10                |         |
| AV TINT PARAMETER         |                       | +3                 |         |
| AV SHARPNESS PARAMETER    |                       | 0                  |         |
| ANR COLOUR STEP1          |                       | 5                  |         |
| ANR COLOUR STEP2          |                       | 10                 |         |
| ANR SHARPNESS STEP1       |                       | 7                  |         |
| ANR SHARPNESS STEP2       |                       | 12                 |         |

|                           |            |
|---------------------------|------------|
| EEPROM ITEMS' OSD DISPLAY | JUDGE → WT |
| INITIAL DATA              | LOW → Hi   |

\* "WT" (WHITE TEMP. LIMIT) follows Pin (29) of IC1001

| WT | Pin (29) of IC1001 | OSD |
|----|--------------------|-----|
| HI | L                  | 5   |

## INITIAL SETTING

(1) In service mode, After execute select POS 1, setting the following data in EEPROM.

| MCL1  |          |           | MCL2  |          |           |
|-------|----------|-----------|-------|----------|-----------|
| CH-NO | Fv (MHz) | Sound SYS | CH-NO | Fv (MHz) | Sound SYS |
| 1     | 48.25    | B/G       | 1     | 46.25    | B/G       |
| 2     | 62.25    | B/G       | 2     | 64.25    | B/G       |
| 3     | 77.25    | D/K       | 3     | 86.25    | B/G       |
| 4     | 175.25   | B/G       | 4     | 95.25    | B/G       |
| 5     | 182.25   | B/G       | 5     | 138.25   | B/G       |
| 6     | 183.25   | D/K       | 6     | 175.25   | B/G       |
| 7     | 191.25   | D/K       | 7     | 182.25   | B/G       |
| 8     | 196.25   | B/G       | 8     | 189.25   | B/G       |
| 9     | 199.25   | M         | 9     | 196.25   | B/G       |
| 10    | 210.25   | B/G       | 10    | 209.25   | B/G       |
| 11    | 224.25   | B/G       | 11    | 216.25   | B/G       |
| 12    | 471.25   | B/G       | 12    |          |           |
| 13    | 487.25   | I         | 13    |          |           |
| 14    | 503.25   | B/G       | 14    |          |           |
| 15    | 575.25   | B/G       | 15    |          |           |
| 16    | 583.25   | B/G       | 16    |          |           |
| 17    | 599.25   | B/G       | 17    |          |           |
| 18    | 621.25   | M         | 18    | 527.25   | B/G       |
| 19    | 639.25   | D/K       | 19    | 847.25   | B/G       |
| 20    | 703.25   | B/G       | 20    | 48.25    | B/G       |
| 21    | 735.25   | I         | 21    | 175.25   | B/G       |
| 22    | 767.25   | B/G       | 22    | 210.25   | B/G       |
| 23    | 815.25   | B/G       | 23    | 224.25   | B/G       |
| 24    | 855.25   | I         | 24    | 575.25   | B/G       |
| 25    | 855.25   | B/G       | 25    | 599.25   | B/G       |
| 26    | 55.25    | M         | 26    | 767.25   | B/G       |
| 27    | 83.25    | M         | 27    | 183.25   | M         |
| 28    | 183.25   | M         | 28    | 193.25   | M         |
| 29    | 193.25   | M         | 29    | 112.25   | B/G       |
| 30    | 217.25   | M         | 30    | 168.25   | B/G       |
| 31    | 471.25   | M         | 31    |          |           |
| 32    | 477.25   | M         | 32    | 294.25   | B/G       |
| 33    | 693.25   | M         | 33    | 463.25   | B/G       |
| 34    | 885.25   | M         | 34    | 174.25   | B/G       |
| 35    | 112.25   | B/G       | 35    | 175.25   | B/G       |
| 36    | 168.25   | B/G       | 36    |          |           |
| 37    |          |           | 37    |          |           |
| 38    | 294.25   | B/G       | 38    |          |           |
| 39    | 463.25   | B/G       | 39    |          |           |
| 40    |          |           | 38    |          |           |
| 41    | 647.25   | B/G       | 41    |          |           |
| 42    | 663.25   | B/G       | 42    |          |           |
| 43    | 679.25   | B/G       | 43    |          |           |
| 44    | 174.95   | B/G       | 44    |          |           |
| 45    | 175.55   | B/G       | 45    |          |           |

## SHIPPING SETTING AND CHECKING

(1) Just before pack the set, input setting, according to factory Initial setting 1~6 in EEPROM as below.

| Items        | Data Setting      |
|--------------|-------------------|
| SKIP         | OFF               |
| AFT          | ON                |
| C-SYSTEM     | AUTO              |
| S-SYSTEM     | *1                |
| LAST POWER   | ON                |
| LAST TV/AV   | TV                |
| DIGIT        | 1DIG              |
| LANGUAGE     | *1                |
| BLUE BACK    | ON                |
| LAST POS     | 1                 |
| LAST FB POS  | 1                 |
| VOLUME       | MIN               |
| CONTRAST     | MAX               |
| COLOUR       | CENT              |
| BRIGHTNESS   | CENT              |
| TINT         | CENT              |
| SHARPNESS    | CENT              |
| WHITE TEMP   | CENT              |
| BASS/TRE/BAL | CENT              |
| SPATIALIZER  | OFF               |
| SPAT. LEVEL  | CENT              |
| P-NR         | AUTO(TV)/OFF (AV) |

\*1: Refer to M/M.

S-SYSTEM and LANGUAGE can be set to factory initial setting 1~6 at all CH.

| FACTORY INITIAL SETTING | LANGUAGE | S- SYSTEM |
|-------------------------|----------|-----------|
| 1                       | CHINESE  | D/K       |
| 2                       | CHINESE  | I         |
| 3                       | ENGLISH  | B/G       |
| 4                       | ARABIC   | B/G       |
| 5                       | RUSSIAN  | D/K       |
| 6                       | MALAY    | B/G       |

(2) Check OSD display the model name, after the factory initial setting at CH1.

| MODEL      | OSD |
|------------|-----|
| A3HE21SN5C | SN5 |
| A3HE51TXZ  |     |

### MODEL CLASSIFIED FACTORY SETTING/MAGNETIC FILED (REFERENCE)

| MODEL | Magnetic Field (H,V) nT | Background | Lang.   | S-SYS | Lang. QTY |
|-------|-------------------------|------------|---------|-------|-----------|
| Z     | 20,000 -50,000          | 12300K     | ENGLISH | B/G   | 5         |

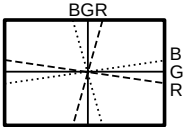
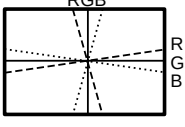
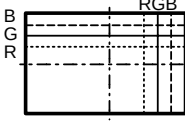
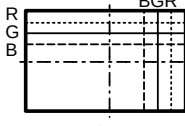
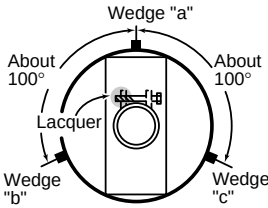
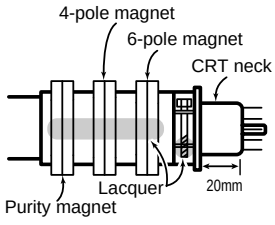
### PIF ADJUSTMENT

| No. | Adjusting point                                    | Adjusting procedure/conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Waveform and others                                                                                                                                                                                                                                                                                    |
|-----|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>RF-AGC check cut in adjustment (PRE SETTED)</b> | <p>1. Receive "PAL COLOUR BAR" signal.</p> <ul style="list-style-type: none"> <li>Signal Strength: <math>54 \pm 1</math> dB<math>\mu</math>V (75 ohm open)</li> </ul> <p>2. Connect the oscilloscope to TP210 (Tuner's AGC Terminal) as shown in <i>Fig. 1</i>.</p> <div data-bbox="331 430 672 625"> <p>Fig. 1</p> </div> <p>3. Drop Input Signal strength to <math>51 \pm 1</math> dB<math>\mu</math>V (75 ohm open).</p> <p>4. Under 1. and 3. conditions, the output voltage should be no change or below +0.1 V. In addition, change input signal strength to <math>57 \pm 2</math> dB<math>\mu</math>V, the output voltage should be no less than -0.1 V.</p> <p>5. Change the antenna input signal to 63~67 dB<math>\mu</math>V, and make sure there is no noise.</p> <p>6. Turn up the input signal to 90~95 dB<math>\mu</math>V to be sure that there is no cross modulation beat.</p> | <p><b>Note:</b> For the 50 ohm signal strength gauge, when not using 50/75 impedance adapter, signal strength is <math>52 \pm 1</math> dB<math>\mu</math>V (50 ohm open), instead of <math>54 \pm 1</math> dB<math>\mu</math>V (75 ohm open).<br/>precaution: The loss of using impedance adapter.</p> |

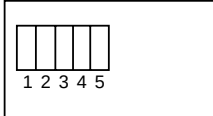
### PURITY ADJUSTMENT

| No. | Adjusting point          | Adjusting procedure/conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Waveform and others                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>Purity adjustment</b> | <p>1. Receive the GREEN-ONLY signal. Adjust the contrast control to have a beam current to 700 <math>\mu</math>A.</p> <p>2. Degauss the CRT enough with the degaussing coil.<br/><b>Note:</b> Follow the Job Instruction Sheet to adjust the magnetic field.<br/>Vertical Bv : -0.050 mT (-0.50 gauss)<br/>Horizontal Bh: +0.020 mT (0.20 gauss)<br/>(See page 12.)</p> <p>3. Maintain the purity magnet at the zero magnetic field and keep the static convergence roughly adjusted.</p> <p>4. Observe the points "a" and "b" as shown in <i>Fig. 2-1</i> through the microscope. Adjust the landings to "A" rank requirements.</p> <p>5. Orient the raster rotation to 0 eastward.</p> <p>6. Tighten up the deflection coil screws.<br/>• Tightening torque: <math>108 \pm 20</math> N (<math>11 \pm 2</math> kgf)</p> <p>7. Make sure the CRT corners landing meet the "A" rank requirements. If not, stick the magnet sheet to correct it.</p> <p><b>Note:</b> This adjustment must be done after warming up the unit for 30 minutes or longer with a beam current over 700 <math>\mu</math>A.</p> <p><b>Note:</b> Set the service mode by TP1001 and TP1002 (short) then press factory process R/C RGB key to change to RGB mono colour mode.</p> <p>* For the following colours press R/C RGB key to change.</p> <div data-bbox="1287 974 1665 1112"> </div> | <div data-bbox="1728 289 1927 446"> <p>Fig. 2-1</p> </div> <div data-bbox="1728 500 1948 727"> <p>Fig. 2-2<br/>Rank "A"<br/>(on the right of the CRT)</p> </div> <div data-bbox="1728 816 1948 1044"> <p>Fig. 2-3<br/>Rank "A"<br/>(on the left of the CRT)</p> </div> <p>* Press R/C RGB key for 1 second in NORMAL MODE, the colour will change to RGB mono colour mode.</p> <p>The TEXT Key "R. G. Cy" Key can be directly use to change to other colours screen.</p> |

## CONVERGENCE ADJUSTMENT

| No. | Adjusting point                                                           | Adjusting procedure/conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Waveform and others                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>Convergence adjustment</b><br>(to be done after the purity adjustment) | <p>1. Receive the "Crosshatch Pattern" signal.</p> <p>2. Using the remote controller, call NORMAL mode.</p> <p><b>STATIC CONVERGENCE</b></p> <p>1. Turn the 4-pole magnet to a proper opening angle in order to superpose the blue and red colours.</p> <p>2. Turn the 6-pole magnet to a proper opening angle in order to superpose the green colour over the blue and red colours.</p> <p><b>DYNAMIC CONVERGENCE</b></p> <p>1. Adjust the convergence on the fringes of the screen in the following steps.</p> <p>a) <b>Fig. 3-1: Drive the wedge at point "a" and swing the deflection coil upward.</b></p> <p>b) <b>Fig. 3-2: Drive the wedge at points "b" and "c" and swing the deflection coil downward.</b></p> <p>c) <b>Fig. 3-3: Drive the "c" wedge deeper and swing the deflection coil rightward.</b></p> <p>d) <b>Fig. 3-4: Drive the "b" wedge deeper and swing the deflection coil leftward.</b></p> <p>2. Fix all the wedges on the CRT and apply glass tape over them.</p> <p>3. Apply lacquer to the deflection yoke lock screw, magnet unit (purity, 4-pole, 6-pole magnets) and magnet unit lock screw.</p> <p>Finally received the Red-only and Blue-only signals to make sure there is no other colours on the screen.</p> |  <p><b>Fig. 3-1</b></p>  <p><b>Fig. 3-2</b></p>  <p><b>Fig. 3-3</b></p>  <p><b>Fig. 3-4</b></p>  <p><b>Fig. 3-5</b></p>  <p><b>Fig. 3-6</b></p> |

## CRT CUT-OFF, BACKGROUND AND SUB-CONTRAST ADJUSTMENT

| No. | Adjusting point                                                               | Adjusting procedure/conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Waveform and others                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>CRT cut-off adjustment</b><br><b>I<sup>2</sup>C bus Control adjustment</b> | <p>1. Receive the the "Monoscope Pattern" signal.</p> <p>2. Press R/C to set Picture in Normal condition.</p> <p>3. Call the Service mode and select the "Cut-off/ Background" mode.</p> <p>4. Set the screen control to 0 / 10 position.</p> <p>5. Press "-/-" key on the remote controller to reach the horizontal centering mode.</p> <p>6. Here one of the three colour will appear as a bright line when the screen controlis turned clockwise. Adjust the screen VR until the line can be seen slightly on the screen.</p> <p>7. Use the control key in the R/C to adjust the quantity of the other two colours, thus touching off the bias control belonging to the first colour, until the horizontal raster becomes white.</p> <p>8. Turn off the screen control (counter-clockwise) until the horizontal raster disappears.</p> <p><b>Note: Before starting this adjustment , warm up the unit for 30 minutes or longer at a beam current of over 700 <math>\mu</math>A.</b></p> <p>9. Press the "-/-" key on the remote control to call the NORMAL mode.</p> <p>10. Call "SUB-BRIGHT" in SERVICE mode. (Receive Crosshatch Signal with 5 black level window)</p> <p>11. Adjust the "SUB BRIGHT" bus data in order that the line 1, 2 and 3 have the same darkness wherelse line 4 is slightly brighter than line 1, 2 and 3 and finally line 5 will be the brighter than line 4.</p> <p>12. The range of the "SUB BRIGHT" must be between 107 and 157(127 +30, -20). (If the "SUB BRIGHT" is out of the range as mention above, please do adjust from step 1. to 11. again.)</p> <p><b>Note: Steps 10. and 11. should be adjusted after WHITE BALANCE ADJUSTMENT.</b></p> <p><b>For the "SUB BRIGHT" out of range mention above, it will result in the different brightness of OSD.</b></p> | <p>* Before adjustment , make sure that this adjustment with the initial bus data<br/>"R-CUT OFF", "G-CUT OFF", "B-CUT OFF", "B-DRIVE" &amp; "G-DRIVE".</p> <p><b>Note:</b></p> <p><b>R CUT OFF UP    "1" KEY</b><br/><b>DOWN "4" KEY</b></p> <p><b>G CUT OFF UP    "2" KEY</b><br/><b>DOWN "5" KEY</b></p> <p><b>B CUT OFF UP    "3" KEY</b><br/><b>DOWN "6" KEY</b></p> <p><b>The data can be turned up and down with the above keys.</b></p>  <p>Make sure all the 1st, 2nd and 3rd black portions are at the same black level.</p> |



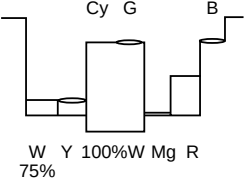
## CRT CUT-OFF, BACKGROUND AND SUB-CONTRAST ADJUSTMENT (Continued)

| No. | Adjusting point                                                                                  | Adjusting procedure/conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Waveform and others                                                                                                                                                                                                                                                                                                                                   |
|-----|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | <b>White balance Service mode adjustment</b><br><br><b>I<sup>2</sup>C bus control adjustment</b> | 1. Receive the "Monoscope Pattern" signal.<br>2. Press R/C to set Picture NORMAL condition.<br>3. Connect the DC miliammeter between TP602 (–) and TP603 (+).<br>4. Check Beam current should be around 1,100 $\mu$ A.<br>5. Set it to service mode and adjust the "G-DRIVE", "B-DRIVE" data to have a colour temperature of 12,300°K.<br>6. When changed back to non-service mode, adjust the Contrast & Brightness control to have a beam current of 200 $\mu$ A. If the colour temperature is not at 12,300°K go back to No. 1.<br><br><b>Note: This adjustment must be done after warming up the unit for 30 minutes or longer with a beam current over 700 <math>\mu</math>A.</b> | Refer to Page 6.<br>* 12300°K X : 0.272<br>Y : 0.275<br><br>(with colour temperature meter CA-100 (MINOLTA).)<br><br><b>Note:</b><br><b>G-DRIVE UP "7" KEY</b><br><b>                  DOWN "F/B" KEY</b><br><b>B-DRIVE UP "8" KEY</b><br><b>                  DOWN "0" KEY</b><br><br><b>The data can be turned up and down with the above keys.</b> |
| 3   | <b>Maximum beam check</b>                                                                        | 1. Receive the "Monoscope Pattern" signal.<br>2. Press R/C to set Picture NORMAL condition.<br>3. Connect the DC miliammeter between TP603 (+) and TP602 (–).<br>(Full Scale: 3 mA Range)<br>4. Beam current must be within 1,100 $\pm$ 100 $\mu$ A.                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                       |

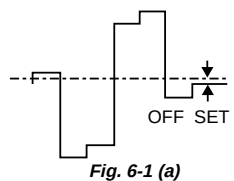
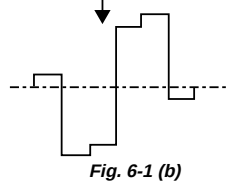
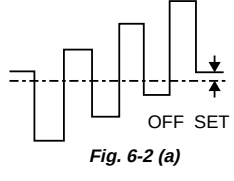
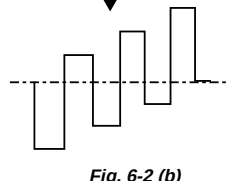
## HORIZONTAL AND VERTICAL DEFLECTION LOOP ADJUSTMENT

| No. | Adjusting point                                                                                                                                              | Adjusting procedure/conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Waveform and others        |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 1   | <b>V-AMP 50</b><br><br><b>V-LINEARITY-50 Hz</b><br><br><b>V-S CORRECTION-50 Hz</b><br><br><b>V-SHIFT 50 (V-CENTER)</b><br><br><b>H-SHIFT (50) (H-CENTER)</b> | 1. Adjust V-AMP50 to set overscan of 9.5% typical. ("Monoscope Pattern" signal (50Hz))<br>Adjustment Spec 9.5% range +1% –0%.<br><br>1. Adjust V-LIN to have the best vertical linearity.<br><br>1. Pre-set, NO NEED adjust. (Only if can't meet the specification ( $\pm$ 10%) of vertical linearity, then adjust V-SCORRECTION.)<br><br>1. Align the pattern's center with the CRT mechanical center.<br><br>1. Adjust H-SHIFT until left and right overscan is same.<br><br>For V-AMP 60, V-LINEARITY 60, V-SCORRECTION 60, V-SHIFT 60 (Data Range "0"~"5"), H-SHIFT 60, while 50 Hz mode has been adjusted automatically data will be input.<br><br>* Please check the 60 Hz and re-adjust if there is necessary to adjust. Please check also the PAL 60 Hz in dark condition wether left side of the screen got blank or not and re-adjust when it happen. | ( ) Mean reception channel |
| 2   | <b>Focus adjustment</b>                                                                                                                                      | 1. Receive the "Monoscope Pattern" signal.<br>2. Press R/C to set Picture NORMAL condition.<br>3. Adjust the focus control so that the screen be in good focus.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                            |

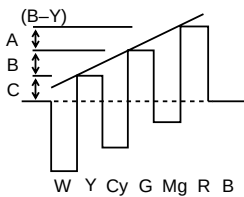
## PAL CHROMA ADJUSTMENT

| No. | Adjusting point                                         | Adjusting procedure/conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Waveform and others                                                                                                                |
|-----|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>Sub-colour<br/>I<sup>2</sup>C bus<br/>adjustment</b> | <ol style="list-style-type: none"> <li>1. Receive the "PAL Colour Bar" signal.</li> <li>2. Press R/C to set Picture Normal condition.</li> <li>3. Connect the oscilloscope to TP852 (Red cathode). <ul style="list-style-type: none"> <li>• Range : 20 V/div. (AC) (Using 10:1 probe)</li> <li>• Sweep time : 10 <math>\mu</math>sec/div.</li> </ul> </li> <li>4. Using the R/C call "SUB COL" in SERVICE mode. Adjust SUB COLOUR bus data, so that the 75% White &amp; Red portions of PAL Colour Bar be at the same level shown as <b>Fig. 4</b>.</li> <li>5. Clear the SERVICE mode.</li> </ol> |  <p style="text-align: center;"><b>Fig. 4</b></p> |

## SECAM CHROMA ADJUSTMENT

| No. | Adjusting point                                                              | Adjusting procedure/conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Waveform and others                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>SECAM black level<br/>(R-Y/B-Y)<br/>I<sup>2</sup>C bus<br/>adjustment</b> | <ol style="list-style-type: none"> <li>1. Receive "SECAM COLOUR BAR" signal.</li> <li>2. Set SECAM black level adjustment into R-Y mode.</li> <li>3. Connect oscilloscope to TP802 (Pin (35) of IC801 (R-Y out)). <ul style="list-style-type: none"> <li>• Range : 100 mV/div. (AC)(Use 10:1 Probe)</li> <li>• Sweep time : 10 <math>\mu</math>sec/div.</li> </ul> </li> <li>4. Adjust the offset of R-Y to minimum, shown in <b>Fig. 6-1 (b)</b>.<br/>Adjust the offset of between no-signal line and signal line be minimum.</li> <li>5. Call the SECAM black level adjustment into B-Y mode.</li> <li>6. Connect again oscilloscope to TP801 (Pin (36) of IC801 (B-Y out)) with the similar condition as (3).</li> <li>7. Adjust the offset of B-Y to minimum, shown in <b>Fig. 6-2 (b)</b>.<br/>Adjust the offset of between no-signal line and signal line be minimum.</li> </ol> |  <p style="text-align: center;"><b>Fig. 6-1 (a)</b></p>  <p style="text-align: center;"><b>Fig. 6-1 (b)</b></p>  <p style="text-align: center;"><b>Fig. 6-2 (a)</b></p>  <p style="text-align: center;"><b>Fig. 6-2 (b)</b></p> |

## NTSC CHROMA ADJUSTMENT

| No. | Adjusting point                                       | Adjusting procedure/conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Waveform and others                                                                                                                                                          |
|-----|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>Sub-tint<br/>I<sup>2</sup>C bus<br/>adjustment</b> | <ol style="list-style-type: none"> <li>1. Receive the "NTSC3.58 Colour Bar" signal for SUB-TINT adjustment.</li> <li>2. Connect the oscilloscope to TP801 (Pin (36) of IC801 (B-Y)). <ul style="list-style-type: none"> <li>• Range : 100 mV/div. (AC)(Use Probe 10:1)</li> <li>• Sweep time : 10 <math>\mu</math>sec/div.</li> </ul> </li> <li>3. Call the "SUB-TINT" mode in service mode. Adjust the "SUB-TINT" bus data to obtain the waveform shown as <b>Fig. 5</b>.</li> <li>4. Clear the SERVICE mode.</li> </ol> |  <p style="text-align: center;"><b>Fig. 5</b></p> <p style="text-align: center;">A=B=C</p> |

## PROTECTOR PERFORMANCE CHECK

| No. | Adjusting point               | Adjusting procedure/conditions                                                                                                                                                                                                                                                                   | Waveform and others                             |
|-----|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| 1   | <b>Beam protector</b>         | 1. Receive "Monoscope Pattern" signal.<br>2. Set the contrast control to maximum.<br>3. Set the brightness control to maximum.<br>4. Make a short circuit between the collector and emitter of Q851, Q852 or Q853 and make sure that the protector is activated and the stand-by mode is called. | * Short-circuit any of the Q851, Q852 and Q853. |
| 2   | <b>High-voltage protector</b> | 1. Receive "Monoscope Pattern" signal.<br>2. Connect output of Bias Box to D607 cathode (R635 side).<br>3. Set voltage of Bias Box to 18V and make sure the protector is not work.<br>4. Set voltage of Bias Box to 27V, and make sure the protector is work.                                    |                                                 |
| 3   | <b>Other protectors</b>       | 1. Once finish rectified Electrolytic Capacitor short testing in +B line, check all possible damaged components on +B line.<br>(Use random selected set for inspection)                                                                                                                          |                                                 |

## FUNCTION OPERATION CHECKING (VIDEO AND AUDIO)

| No. | Adjusting point       | Adjusting procedure/conditions                                                                                                                                                                                                                                                                                                                                                                                              | Waveform and others                                                                                          |
|-----|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 1   | <b>CONTRAST key</b>   | 1. Receive "Monoscope Pattern" signal.<br>2. Select the Contrast on the P-MODE screen.<br>3. Press Volume Up/Down key to check whether the contrast effect is OK or not.                                                                                                                                                                                                                                                    |                                                                                                              |
| 2   | <b>COLOUR key</b>     | 1. Receive "Colour Bar" signal.<br>2. Select the Colour on the P-MODE screen.<br>3. Press Volume Up/Down key to check whether the colour effect is OK or not.                                                                                                                                                                                                                                                               |                                                                                                              |
| 3   | <b>BRIGHTNESS key</b> | 1. Receive "Monoscope Pattern" signal.<br>2. Select the Brightness on the P-MODE screen.<br>3. Press Volume Up/Down key to check whether the Brightness effect is OK or not.                                                                                                                                                                                                                                                |                                                                                                              |
| 4   | <b>TINT key</b>       | 1. Receive the "NTSC Colour Bar" signal.<br>2. Select the Tint on the P-MODE screen.<br>3. Press Volume Up/Down key to check Tint, Up for green direction and down for purple direction whether is OK or not.                                                                                                                                                                                                               |                                                                                                              |
| 5   | <b>NORMAL key</b>     | 1. Once in PICTURE-Mode when the NORMAL key is pressed, all the settings will be present to normal setting.<br>(Normal setting value for every mode).<br><br><ul style="list-style-type: none"> <li>● Contrast : MAX</li> <li>● Colour : CENTER</li> <li>● Brightness : CENTER</li> <li>● Tint : CENTER</li> <li>● Sharpness : CENTER</li> <li>● White Temp : CENTER</li> <li>● Auto NR : AUTO (AV mode, NR off)</li> </ul> | <b>Note: If nothing is display mean contrast, colour, bright, tint, sharpness are all in normal setting.</b> |

## A/V INPUT AND OUTPUT CHECK

| No. | Adjusting point                     | Adjusting procedure/conditions                                                                                                                                                                                                                                                                                                                | Waveform and others |
|-----|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 1   | <b>Video and audio output check</b> | 1. Receive the "PAL Colour Bar" signal (100% White Colour Bar, 400 Hz 100% modulation audio (±50 kHz Dev)<br>2. Terminate the Video output with a 75 ohm impedance. Make sure the output is as specified (1.0 Vp-p ±3 dB).<br>3. Terminate the Audio output with a 10k ohm impedance. Make sure the output is as specified (1.76 Vp-p ±3 dB). |                     |
| 2   | <b>Video and audio input check</b>  | 1. Using the TV/AV key on the remote controller, make sure that the modes change in the order of TV, AV1, AV2 and TV again and that the video and audio outputs are according to the input terminal for each mode.                                                                                                                            |                     |

## FUNCTION OPERATION CHECKING (VIDEO AND AUDIO) (Continued)

| No. | Adjusting point          | Adjusting procedure/conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Waveform and others |
|-----|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 6   | <b>SHARPNESS key</b>     | <ol style="list-style-type: none"> <li>1. Receive "Monoscope Pattern" signal.</li> <li>2. Select the Sharpness on the P-MODE screen.</li> <li>3. Press Volume Up/Down key to check whether the Sharpness effect is OK or not.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     |
| 7   | <b>CH display colour</b> | <ol style="list-style-type: none"> <li>1. All the channel (1~99) will have an OSD display of the channel number in green colour under AFT ON condition.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                     |
| 8   | <b>WHITE TEMP</b>        | <ol style="list-style-type: none"> <li>1. Receive "Monoscope Pattern" signal.</li> <li>2. Select the White temp on the P-MODE screen.</li> <li>3. Press Volume Up/Down key to check WHITE TEMP, UP for more bluish direction changing, DOWN for more reddish direction changing.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |
| 9   | <b>COLOUR SYSTEM</b>     | <ol style="list-style-type: none"> <li>1. Receive the "PAL COLOUR BAR" signal, press the COLOUR SYSTEM key to select modes except PAL, check the COLOUR is not working properly. Then, select the "PAL" mode. Check again its colour so that it is working properly.</li> <li>2. Receive "SECAM COLOUR BAR" signal, press COLOUR SYSTEM key to select modes except SECAM, check the COLOUR is not working properly. Then, select the "SECAM" mode. Check again its colour so that it is working properly.</li> <li>3. Receive "NTSC 4.43 COLOUR BAR" signal, press COLOUR SYSTEM key to select modes except N4.43, check the COLOUR is not working properly. Then, select the "NTSC 4.43" mode. Check again its colour so that it is working properly.</li> <li>4. Receive "NTSC 3.58 COLOUR BAR" signal, press COLOUR SYSTEM key to select modes except N3.58, check the COLOUR is not working properly. Then, select the "NTSC 3.58" mode. Check again its colour so that it is working properly.</li> </ol> |                     |

## FUNCTION OPERATION CHECKING (VIDEO AND AUDIO) (Continued)

| No. | Adjusting point            | Adjusting procedure/conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Waveform and others |
|-----|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 10  | <b>SOUND SYSTEM</b>        | <ol style="list-style-type: none"> <li>1. Receive "PAL-D/K" signal, press the "SOUND SYSTEM" to select B/G, I, M. Check the sound output is not working properly. Select D/K and check the sound output to make sure it is working properly.</li> <li>2. Receive "PAL-I" signal, press the "SOUND SYSTEM" to select B/G, D/K, M. Check the sound output is not working properly. Select I and check the sound output to make sure it is working properly.</li> <li>3. Receive "PAL-B/G" signal, press the "SOUND SYSTEM" to select I, D/K, M. Check the sound output is not working properly. Select B/G and check the sound output to make sure it is working properly.</li> <li>4. Receive "NTSC-M" signal, press the "SOUND SYSTEM" to select B/G, D/K, I, check the sound output is not working properly. Select M and check the sound output to make sure it is working properly.</li> </ol> |                     |
| 11  | <b>Noise mute checking</b> | <ol style="list-style-type: none"> <li>1. Receive "PAL COLOUR BAR" signal.</li> <li>2. Turn up the volume control to maximum, make sure the sound is heard from the speakers. Then put the unit in no signal state.</li> <li>3. Check the sound mute is effective.</li> <li>4. Finally turn down the sound volume to minimum.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |

## FUNCTION OPERATION CHECKING (VIDEO AND AUDIO) (Continued)

| No.     | Adjusting point                       | Adjusting procedure/conditions                                                                                                                                                                                                                                                                | Waveform and others |          |         |         |         |         |        |       |         |   |   |   |   |   |   |   |  |
|---------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------|---------|---------|---------|---------|--------|-------|---------|---|---|---|---|---|---|---|--|
| 12      | Other<br>(NICAM/IGR/<br>TEXT/FAV. CH) | <div>1. Check Normal operation of each model of different features.</div> <table><tr><th>Model</th><th>NICAM</th><th>IGR</th><th>TEXT</th><th>FAV. CH</th></tr><tr><td>CX51TXZ</td><td>X</td><td>X</td><td>O</td><td>O</td></tr></table>                                                      | Model               | NICAM    | IGR     | TEXT    | FAV. CH | CX51TXZ | X      | X     | O       | O |   |   |   |   |   |   |  |
| Model   | NICAM                                 | IGR                                                                                                                                                                                                                                                                                           | TEXT                | FAV. CH  |         |         |         |         |        |       |         |   |   |   |   |   |   |   |  |
| CX51TXZ | X                                     | X                                                                                                                                                                                                                                                                                             | O                   | O        |         |         |         |         |        |       |         |   |   |   |   |   |   |   |  |
| 13      | OSD<br>Language<br>quantity check     | <div>1. Check OSD LANGUAGE quantity.</div> <table><tr><th>Model</th><th>Quantity</th><th>English</th><th>Russian</th><th>Chinese</th><th>French</th><th>Arabic</th><th>Malay</th></tr><tr><td>CX51TXZ</td><td>5</td><td>O</td><td>X</td><td>O</td><td>O</td><td>O</td><td>O</td></tr></table> | Model               | Quantity | English | Russian | Chinese | French  | Arabic | Malay | CX51TXZ | 5 | O | X | O | O | O | O |  |
| Model   | Quantity                              | English                                                                                                                                                                                                                                                                                       | Russian             | Chinese  | French  | Arabic  | Malay   |         |        |       |         |   |   |   |   |   |   |   |  |
| CX51TXZ | 5                                     | O                                                                                                                                                                                                                                                                                             | X                   | O        | O       | O       | O       |         |        |       |         |   |   |   |   |   |   |   |  |

## MEMORY MAP

| SUB<br>ADDRESS | DATA                   |   |   |   |   |   |   |   | REMARKS | CRITERIA  | FACTORY<br>SETTING |
|----------------|------------------------|---|---|---|---|---|---|---|---------|-----------|--------------------|
|                | 7                      | 6 | 5 | 4 | 3 | 2 | 1 | 0 |         |           |                    |
| 000            | PASS WORD "23"         |   |   |   |   |   |   |   |         | 23OUTSIDE | \$23               |
| 001            | PASS WORD "21"         |   |   |   |   |   |   |   |         | 21OUTSIDE | \$21               |
| 002            | PASS WORD "13"         |   |   |   |   |   |   |   |         | 13OUTSIDE | \$13               |
| 003            | PASS WORD "85"         |   |   |   |   |   |   |   |         | 85OUTSIDE | \$85               |
| 004            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH0     |           |                    |
| 005            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 006            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH1     |           |                    |
| 007            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 008            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH2     |           |                    |
| 009            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 00A            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH3     |           |                    |
| 00B            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 00C            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH4     |           |                    |
| 00D            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 00E            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH5     |           |                    |
| 00F            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 010            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH6     |           |                    |
| 011            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 012            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH7     |           |                    |
| 013            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 014            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH8     |           |                    |
| 015            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 016            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH9     |           |                    |
| 017            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 018            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH10    |           |                    |
| 019            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 01A            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH11    |           |                    |
| 01B            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 01C            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH12    |           |                    |
| 01D            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 01E            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH13    |           |                    |
| 01F            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 020            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH14    |           |                    |
| 021            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 022            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH15    |           |                    |
| 023            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 024            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH16    |           |                    |
| 025            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 026            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH17    |           |                    |
| 027            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 028            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH18    |           |                    |
| 029            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 02A            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH19    |           |                    |
| 02B            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 02C            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH20    |           |                    |
| 02D            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |
| 02E            | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH21    |           |                    |
| 02F            | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |           |                    |

| SUB ADDRESS | DATA                   |   |   |   |   |   |   |   | REMARKS | CRITERIA | FACTORY SETTING |
|-------------|------------------------|---|---|---|---|---|---|---|---------|----------|-----------------|
|             | 7                      | 6 | 5 | 4 | 3 | 2 | 1 | 0 |         |          |                 |
| 030         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH22    |          |                 |
| 031         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH23    |          |                 |
| 032         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 033         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 034         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH24    |          |                 |
| 035         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH25    |          |                 |
| 036         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 037         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH26    |          |                 |
| 038         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 039         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH27    |          |                 |
| 03A         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 03B         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH28    |          |                 |
| 03C         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 03D         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH29    |          |                 |
| 03E         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 03F         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH30    |          |                 |
| 040         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 041         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH31    |          |                 |
| 042         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 043         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH32    |          |                 |
| 044         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 045         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH33    |          |                 |
| 046         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 047         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH34    |          |                 |
| 048         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 049         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH35    |          |                 |
| 04A         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 04B         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH36    |          |                 |
| 04C         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 04D         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH37    |          |                 |
| 04E         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 04F         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH38    |          |                 |
| 050         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 051         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH39    |          |                 |
| 052         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 053         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH40    |          |                 |
| 054         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 055         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH41    |          |                 |
| 056         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 057         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH42    |          |                 |
| 058         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 059         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH43    |          |                 |
| 05A         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 05B         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH44    |          |                 |
| 05C         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 05D         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   | CH45    |          |                 |
| 05E         | PLL DATA (Higher rank) |   |   |   |   |   |   |   |         |          |                 |
| 05F         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |

| SUB ADDRESS | DATA                   |   |   |   |   |   |   |   | REMARKS | CRITERIA | FACTORY SETTING |
|-------------|------------------------|---|---|---|---|---|---|---|---------|----------|-----------------|
|             | 7                      | 6 | 5 | 4 | 3 | 2 | 1 | 0 |         |          |                 |
| 060         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH46    |          |                 |
| 061         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 062         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH47    |          |                 |
| 063         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 064         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH48    |          |                 |
| 065         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 066         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH49    |          |                 |
| 067         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 068         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH50    |          |                 |
| 069         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 06A         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH51    |          |                 |
| 06B         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 06C         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH52    |          |                 |
| 06D         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 06E         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH53    |          |                 |
| 06F         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 070         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH54    |          |                 |
| 071         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 072         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH55    |          |                 |
| 073         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 074         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | Ch56    |          |                 |
| 075         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 076         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH57    |          |                 |
| 077         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 078         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH58    |          |                 |
| 079         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 07A         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH59    |          |                 |
| 07B         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 07C         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | Ch60    |          |                 |
| 07D         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 07E         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH61    |          |                 |
| 07F         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 080         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH62    |          |                 |
| 081         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 082         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH63    |          |                 |
| 083         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 084         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH64    |          |                 |
| 085         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 086         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH65    |          |                 |
| 087         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 088         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH66    |          |                 |
| 089         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 08A         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH67    |          |                 |
| 08B         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 08C         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH68    |          |                 |
| 08D         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 08E         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH69    |          |                 |
| 08F         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |

| SUB ADDRESS | DATA                   |   |   |   |   |   |   |   | REMARKS | CRITERIA | FACTORY SETTING |
|-------------|------------------------|---|---|---|---|---|---|---|---------|----------|-----------------|
|             | 7                      | 6 | 5 | 4 | 3 | 2 | 1 | 0 |         |          |                 |
| 090         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH70    |          |                 |
| 091         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 092         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH71    |          |                 |
| 093         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 094         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH72    |          |                 |
| 095         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 096         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH73    |          |                 |
| 097         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 098         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH74    |          |                 |
| 099         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 09A         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH75    |          |                 |
| 09B         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 09C         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH76    |          |                 |
| 09D         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 09E         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH77    |          |                 |
| 09F         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0A0         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH78    |          |                 |
| 0A1         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0A2         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH79    |          |                 |
| 0A3         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0A4         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH80    |          |                 |
| 0A5         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0A6         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH81    |          |                 |
| 0A7         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0A8         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH82    |          |                 |
| 0A9         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0AA         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH83    |          |                 |
| 0AB         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0AC         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH84    |          |                 |
| 0AD         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0AE         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH85    |          |                 |
| 0AF         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0B0         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH86    |          |                 |
| 0B1         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0B2         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH87    |          |                 |
| 0B3         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0B4         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH88    |          |                 |
| 0B5         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0B6         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH89    |          |                 |
| 0B7         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0B8         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH90    |          |                 |
| 0B9         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0BA         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH91    |          |                 |
| 0BB         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0BC         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH92    |          |                 |
| 0BD         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |
| 0BE         | PLL DATA (Higher rank) |   |   |   |   |   |   |   | CH93    |          |                 |
| 0BF         | PLL DATA (Lower rank)  |   |   |   |   |   |   |   |         |          |                 |

| SUB ADDRESS | DATA                   |      |      |      |               |      |      |      | REMARKS  | CRITERIA                             | FACTORY SETTING |
|-------------|------------------------|------|------|------|---------------|------|------|------|----------|--------------------------------------|-----------------|
|             | 7                      | 6    | 5    | 4    | 3             | 2    | 1    | 0    |          |                                      |                 |
| 0C0         | PLL DATA (Higher rank) |      |      |      |               |      |      |      | CH94     |                                      |                 |
| 0C1         | PLL DATA (Lower rank)  |      |      |      |               |      |      |      |          |                                      |                 |
| 0C2         | PLL DATA (Higher rank) |      |      |      |               |      |      |      | CH95     |                                      |                 |
| 0C3         | PLL DATA (Lower rank)  |      |      |      |               |      |      |      |          |                                      |                 |
| 0C4         | PLL DATA (Higher rank) |      |      |      |               |      |      |      | CH96     |                                      |                 |
| 0C5         | PLL DATA (Lower rank)  |      |      |      |               |      |      |      |          |                                      |                 |
| 0C6         | PLL DATA (Higher rank) |      |      |      |               |      |      |      | CH97     |                                      |                 |
| 0C7         | PLL DATA (Lower rank)  |      |      |      |               |      |      |      |          |                                      |                 |
| 0C8         | PLL DATA (Higher rank) |      |      |      |               |      |      |      | CH98     |                                      |                 |
| 0C9         | PLL DATA (Lower rank)  |      |      |      |               |      |      |      |          |                                      |                 |
| 0CA         | PLL DATA (Higher rank) |      |      |      |               |      |      |      | CH99     |                                      |                 |
| 0CB         | PLL DATA (Lower rank)  |      |      |      |               |      |      |      |          |                                      |                 |
| 0CC         | LAST POWER             |      |      |      |               |      |      |      |          | ON:AA OFF:55                         | AA              |
| 0CD         | BLUE BACK              |      |      |      | 1DIGIT/2DIGIT |      |      |      | OFF/1DIG | ON:A OFF:5 / 1DIG:5 2DIG:A           | 55              |
| 0CE         | AUTO SELECT            |      |      |      | LANGUAGE      |      |      |      | OFF/ENG  | ON:A OFF:5 / E:0 R:1 C:2 A:3 F:4 M:5 | 50              |
| 0CF         | LAST POSITION          |      |      |      |               |      |      |      | POS1     |                                      | 01              |
| 0D0         | LAST CONTRAST          |      |      |      |               |      |      |      | 60       |                                      | 3C              |
| 0D1         | LAST COLOUR            |      |      |      |               |      |      |      | ±0       |                                      | 1E              |
| 0D2         | LAST BRIGHT            |      |      |      |               |      |      |      | ±0       |                                      | 1E              |
| 0D3         | LAST TINT              |      |      |      |               |      |      |      | ±0       |                                      | 1E              |
| 0D4         | LAST SHARPNESS         |      |      |      |               |      |      |      | ±0       |                                      | 1E              |
| 0D5         | LAST WHITE TEMP        |      |      |      |               |      |      |      | ±0       |                                      | 1E              |
| 0D6         |                        |      |      |      | NR(AV) NR(TV) |      |      |      | OFF/AUTO | ON1:2 ON2:4 OFF:0 / AUTO:1 OFF:0     | 01              |
| 0D7         | LAST TREBLE            |      |      |      |               |      |      |      | ±0       |                                      | 1E              |
| 0D8         | LAST BASS              |      |      |      |               |      |      |      | ±0       |                                      | 1E              |
| 0D9         | LAST SPATIALIZER MODE  |      |      |      |               |      |      |      | OFF      | ON1:1 ON2:2 OFF:0                    | 00              |
| 0DA         | LAST SPATIALIZER LEVEL |      |      |      |               |      |      |      | ±0       |                                      | 1E              |
| 0DB         | LAST BALANCE           |      |      |      |               |      |      |      | ±0       |                                      | 1E              |
| 0DC         | LAST VOLUME            |      |      |      |               |      |      |      | 0        |                                      | 00              |
| 0DD         | ON TIMER VOLUME        |      |      |      |               |      |      |      | UNINSTAL |                                      | FF              |
| 0DE         | LAST SERVICE MODE      |      |      |      |               |      |      |      | SERVICE  |                                      | 00              |
| 0DF         | LAST TV/AV MODE        |      |      |      |               |      |      |      | TV       | TV:1 AV1:1 AV2:2                     | 00              |
| 0E0         | CH7                    | CH6  | CH5  | CH4  | CH3           | CH2  | CH1  | CH0  | AFT      |                                      | FF              |
| 0E1         | CH15                   | CH14 | CH13 | CH12 | CH11          | CH10 | CH9  | CH8  | 0 : OFF  |                                      | FF              |
| 0E2         | CH23                   | CH22 | CH21 | CH20 | CH19          | CH18 | CH17 | CH16 | 1 : ON   |                                      | FF              |
| 0E3         | CH31                   | CH30 | CH29 | CH28 | CH27          | CH26 | CH25 | CH24 |          |                                      | FF              |
| 0E4         | CH39                   | CH38 | CH37 | CH36 | CH35          | CH34 | CH33 | CH32 |          |                                      | FF              |
| 0E5         | CH47                   | CH46 | CH45 | CH44 | CH43          | CH42 | CH41 | CH40 |          |                                      | FF              |
| 0E6         | CH55                   | CH54 | CH53 | CH52 | CH51          | CH50 | CH49 | CH48 |          |                                      | FF              |
| 0E7         | CH63                   | CH62 | CH61 | CH60 | CH59          | CH58 | CH57 | CH56 |          |                                      | FF              |
| 0E8         | CH71                   | CH70 | CH69 | CH68 | CH67          | CH66 | CH65 | CH64 |          |                                      | FF              |
| 0E9         | CH79                   | CH78 | CH77 | CH76 | CH75          | CH74 | CH73 | CH72 |          |                                      | FF              |
| 0EA         | CH87                   | CH86 | CH85 | CH84 | CH83          | CH82 | CH81 | CH80 |          | FF                                   |                 |
| 0EB         | CH95                   | CH94 | CH93 | CH92 | CH91          | CH90 | CH89 | CH88 |          | FF                                   |                 |
| 0EC         |                        |      |      |      | CH99          | CH98 | CH97 | CH96 |          | FF                                   |                 |

| SUB ADDRESS | DATA |      |      |      |      |      |      |      | REMARKS                   | CRITERIA | FACTORY SETTING |
|-------------|------|------|------|------|------|------|------|------|---------------------------|----------|-----------------|
|             | 7    | 6    | 5    | 4    | 3    | 2    | 1    | 0    |                           |          |                 |
| 0ED         |      |      |      |      |      |      |      |      |                           |          |                 |
| 0EE         |      |      |      |      |      |      |      |      |                           |          |                 |
| 0EF         |      |      |      |      |      |      |      |      |                           |          |                 |
| 0F0         | CH7  | CH6  | CH5  | CH4  | CH3  | CH2  | CH1  | CH0  | SKIP<br>0 : OFF<br>1 : ON |          | 00              |
| 0F1         | CH15 | CH14 | CH13 | CH12 | CH11 | CH10 | CH9  | CH8  |                           |          | 00              |
| 0F2         | CH23 | CH22 | CH21 | CH20 | CH19 | CH18 | CH17 | CH16 |                           |          | 00              |
| 0F3         | CH31 | CH30 | CH29 | CH28 | CH27 | CH26 | CH25 | CH24 |                           |          | 00              |
| 0F4         | CH39 | CH38 | CH37 | CH36 | CH35 | CH34 | CH33 | CH32 |                           |          | 00              |
| 0F5         | CH47 | CH46 | CH45 | CH44 | CH43 | CH42 | CH41 | CH40 |                           |          | 00              |
| 0F6         | CH55 | CH54 | CH53 | CH52 | CH51 | CH50 | CH49 | CH48 |                           |          | 00              |
| 0F7         | CH63 | CH62 | CH61 | CH60 | CH59 | CH58 | CH57 | CH56 |                           |          | 00              |
| 0F8         | CH71 | CH70 | CH69 | CH68 | CH67 | CH66 | CH65 | CH64 |                           |          | 00              |
| 0F9         | CH79 | CH78 | CH77 | CH76 | CH75 | CH74 | CH73 | CH72 |                           |          | 00              |
| 0FA         | CH87 | CH86 | CH85 | CH84 | CH83 | CH82 | CH81 | CH80 |                           |          | 00              |
| 0FB         | CH95 | CH94 | CH93 | CH92 | CH91 | CH90 | CH89 | CH88 |                           |          | 00              |
| 0FC         |      |      |      |      | CH99 | CH98 | CH97 | CH96 |                           |          | 00              |
| 0FD         |      |      |      |      |      |      |      |      |                           |          |                 |
| 0FE         |      |      |      |      |      |      |      |      |                           |          |                 |
| 0FF         |      |      |      |      |      |      |      |      |                           |          |                 |

| SUB ADDRESS | DATA     |   |   |   |          |   |   |   | REMARKS | CRITERIA                                      | FACTORY SETTING |
|-------------|----------|---|---|---|----------|---|---|---|---------|-----------------------------------------------|-----------------|
|             | 7        | 6 | 5 | 4 | 3        | 2 | 1 | 0 |         |                                               |                 |
| 100         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH0     | B:0 I:1 D:2 M:3 /<br>AU:0 PA:1 SE:2 N4:3 N3:4 | 00              |
| 101         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH1     |                                               | 00              |
| 102         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH2     |                                               | 00              |
| 103         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH3     |                                               | 00              |
| 104         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH4     |                                               | 00              |
| 105         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH5     |                                               | 00              |
| 106         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH6     |                                               | 00              |
| 107         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH7     |                                               | 00              |
| 108         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH8     |                                               | 00              |
| 109         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH9     |                                               | 00              |
| 10A         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH10    |                                               | 00              |
| 10B         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH11    |                                               | 00              |
| 10C         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH12    |                                               | 00              |
| 10D         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH13    |                                               | 00              |
| 10E         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH14    |                                               | 00              |
| 10F         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH15    |                                               | 00              |
| 110         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH16    |                                               | 00              |
| 111         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH17    |                                               | 00              |
| 112         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH18    |                                               | 00              |
| 113         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH19    |                                               | 00              |
| 114         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH20    |                                               | 00              |
| 115         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH21    |                                               | 00              |
| 116         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH22    |                                               | 00              |
| 117         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH23    |                                               | 00              |
| 118         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH24    |                                               | 00              |
| 119         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH25    |                                               | 00              |
| 11A         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH26    |                                               | 00              |
| 11B         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH27    |                                               | 00              |
| 11C         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH28    |                                               | 00              |
| 11D         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH29    |                                               | 00              |
| 11E         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH30    |                                               | 00              |
| 11F         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH31    |                                               | 00              |
| 120         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH32    |                                               | 00              |
| 121         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH33    |                                               | 00              |
| 122         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH34    |                                               | 00              |
| 123         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH35    |                                               | 00              |
| 124         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH36    |                                               | 00              |
| 125         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH37    |                                               | 00              |
| 126         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH38    |                                               | 00              |
| 127         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH39    |                                               | 00              |
| 128         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH40    |                                               | 00              |
| 129         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH41    |                                               | 00              |
| 12A         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH42    |                                               | 00              |
| 12B         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH43    |                                               | 00              |
| 12C         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH44    |                                               | 00              |
| 12D         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH45    |                                               | 00              |
| 12E         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH46    |                                               | 00              |



| SUB ADDRESS | DATA     |   |   |   |          |   |   |   | REMARKS | CRITERIA                                      | FACTORY SETTING |
|-------------|----------|---|---|---|----------|---|---|---|---------|-----------------------------------------------|-----------------|
|             | 7        | 6 | 5 | 4 | 3        | 2 | 1 | 0 |         |                                               |                 |
| 12F         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH47    |                                               | 00              |
| 130         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH48    |                                               | 00              |
| 131         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH49    |                                               | 00              |
| 132         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH50    |                                               | 00              |
| 133         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH51    |                                               | 00              |
| 134         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH52    |                                               | 00              |
| 135         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH53    |                                               | 00              |
| 136         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH54    |                                               | 00              |
| 137         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH55    |                                               | 00              |
| 138         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH56    |                                               | 00              |
| 139         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH57    |                                               | 00              |
| 13A         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH58    |                                               | 00              |
| 13B         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH59    |                                               | 00              |
| 13C         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH60    |                                               | 00              |
| 13D         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH61    |                                               | 00              |
| 13E         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH62    |                                               | 00              |
| 13F         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH63    |                                               | 00              |
| 140         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH64    | B:0 I:1 D:2 M:3 /<br>AU:0 PA:1 SE:2 N4:3 N3:4 | 00              |
| 141         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH65    |                                               | 00              |
| 142         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH66    |                                               | 00              |
| 143         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH67    |                                               | 00              |
| 144         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH68    |                                               | 00              |
| 145         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH69    |                                               | 00              |
| 146         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH70    |                                               | 00              |
| 147         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH71    |                                               | 00              |
| 148         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH72    |                                               | 00              |
| 149         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH73    |                                               | 00              |
| 14A         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH74    |                                               | 00              |
| 14B         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH75    |                                               | 00              |
| 14C         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH76    |                                               | 00              |
| 14D         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH77    |                                               | 00              |
| 14E         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH78    |                                               | 00              |
| 14F         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH79    |                                               | 00              |
| 150         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH80    |                                               | 00              |
| 151         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH81    |                                               | 00              |
| 152         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH82    |                                               | 00              |
| 153         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH83    |                                               | 00              |
| 154         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH84    |                                               | 00              |
| 155         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH85    |                                               | 00              |
| 156         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH86    |                                               | 00              |
| 157         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH87    |                                               | 00              |
| 158         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH88    |                                               | 00              |
| 159         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH89    |                                               | 00              |
| 15A         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH90    |                                               | 00              |
| 15B         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH91    |                                               | 00              |
| 15C         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH92    |                                               | 00              |
| 15D         | S-SYSTEM |   |   |   | C-SYSTEM |   |   |   | CH93    |                                               | 00              |

| SUB ADDRESS | DATA                 |   |   |   |                               |   |   |   | REMARKS | CRITERIA        | FACTORY SETTING |
|-------------|----------------------|---|---|---|-------------------------------|---|---|---|---------|-----------------|-----------------|
|             | 7                    | 6 | 5 | 4 | 3                             | 2 | 1 | 0 |         |                 |                 |
| 15E         | S-SYSTEM             |   |   |   | C-SYSTEM                      |   |   |   | CH94    |                 | 00              |
| 15F         | S-SYSTEM             |   |   |   | C-SYSTEM                      |   |   |   | CH95    |                 | 00              |
| 160         | S-SYSTEM             |   |   |   | C-SYSTEM                      |   |   |   | CH96    |                 | 00              |
| 161         | S-SYSTEM             |   |   |   | C-SYSTEM                      |   |   |   | CH97    |                 | 00              |
| 162         | S-SYSTEM             |   |   |   | C-SYSTEM                      |   |   |   | CH98    |                 | 00              |
| 163         | S-SYSTEM             |   |   |   | C-SYSTEM                      |   |   |   | CH99    |                 | 00              |
| 164         | C-SYSTEM             |   |   |   | C-SYSTEM                      |   |   |   | AV1, 2  |                 | 00              |
| 165         | FAV CH 1             |   |   |   |                               |   |   |   | POS10   |                 | 0A              |
| 166         | FAV CH 2             |   |   |   |                               |   |   |   | POS20   |                 | 14              |
| 167         | FAV CH 3             |   |   |   |                               |   |   |   | POS30   |                 | 1E              |
| 168         | FAV CH 4             |   |   |   |                               |   |   |   | POS40   |                 | 28              |
| 169         |                      |   |   |   |                               |   |   |   |         |                 |                 |
| 16A         |                      |   |   |   |                               |   |   |   |         |                 |                 |
| 16B         |                      |   |   |   |                               |   |   |   |         |                 |                 |
| 16C         |                      |   |   |   |                               |   |   |   |         |                 |                 |
| 16D         |                      |   |   |   |                               |   |   |   |         |                 |                 |
| 16E         |                      |   |   |   |                               |   |   |   |         |                 |                 |
| 16F         |                      |   |   |   |                               |   |   |   |         |                 |                 |
| 170         | CUT OFF (R)          |   |   |   |                               |   |   |   | 0       |                 | 00              |
| 171         | CUT OFF (G)          |   |   |   |                               |   |   |   | 0       |                 | 00              |
| 172         | CUT OFF (B)          |   |   |   |                               |   |   |   | 0       |                 | 00              |
| 173         | DRIVE (G)            |   |   |   |                               |   |   |   | 127     |                 | 7F              |
| 174         | DRIVE (B)            |   |   |   |                               |   |   |   | 127     |                 | 7F              |
| 175         |                      |   |   |   | TV H-CENTER (50Hz)            |   |   |   | 7       |                 | 07              |
| 176         |                      |   |   |   | TV H-CENTER (60Hz)            |   |   |   | 12      |                 | 0C              |
| 177         | HBLK PHASE           |   |   |   | V-CENTER (50Hz)               |   |   |   | 0/5     | 0 to 7 / 0 to 7 | 05              |
| 178         | V-AMPLITUDE (50Hz)   |   |   |   |                               |   |   |   | 58      |                 | 74              |
| 179         | VS-CORRECTION (50Hz) |   |   |   |                               |   |   |   | 67/50   |                 | 86/64           |
| 17A         | V-LINEALITY (50Hz)   |   |   |   |                               |   |   |   | 16      |                 | 80              |
| 17B         |                      |   |   |   | Y SUB CONTRAST                |   |   |   | 18      |                 | 12              |
| 17C         |                      |   |   |   | SUB COLOUR                    |   |   |   | 110     |                 | 6E              |
| 17D         |                      |   |   |   | SUB BRIGHTNESS                |   |   |   | 127     |                 | 7F              |
| 17E         |                      |   |   |   | SUB TINT                      |   |   |   | 70      |                 | 46              |
| 17F         |                      |   |   |   | SUB SHARPNESS                 |   |   |   | 28      |                 | 1C              |
| 180         | DELAY PAL (AV)       |   |   |   | DELAY PAL (TV) B/G            |   |   |   | 2/2     |                 | 22              |
| 181         |                      |   |   |   | DELAY PAL (TV) I,D/K          |   |   |   | 2       |                 | 22              |
| 182         | DELAY SECAM (AV)     |   |   |   | DELAY SECAM (TV) B/G          |   |   |   | 4/4     |                 | 44              |
| 183         |                      |   |   |   | DELAY SECAM (TV) I,D/K        |   |   |   | 4       |                 | 44              |
| 184         | DELAY NTSC (AV)      |   |   |   | ELAY NTSC (TV)                |   |   |   | 2/2     |                 | 22              |
| 185         | R-Y BLACK OFFSET     |   |   |   | B-Y BLACK OFFSET              |   |   |   | 10/6    |                 | A6              |
| 186         |                      |   |   |   | V-CENTER (60Hz)               |   |   |   | 0/2     |                 | 02              |
| 187         | V-AMPLITUDE (60Hz)   |   |   |   |                               |   |   |   | 59      |                 | 59              |
| 188         | VS-CORRECTION (60Hz) |   |   |   |                               |   |   |   | 74/57   |                 | E8/72           |
| 189         | V-LINEALITY (60Hz)   |   |   |   |                               |   |   |   | 14      |                 | 14              |
| 18A         |                      |   |   |   | WIDE V-BLK START PHASE (50Hz) |   |   |   | 63      |                 | 3F              |
| 18B         |                      |   |   |   | WIDE V-BLK START PHASE (60Hz) |   |   |   | 63      |                 | 3F              |
| 18C         |                      |   |   |   | WIDE V-BLK STOP PHASE (50Hz)  |   |   |   | 25      |                 | 19              |
| 18D         |                      |   |   |   | WIDE V-BLK STOP PHASE (60Hz)  |   |   |   | 20      |                 | 14              |

| SUB ADDRESS | DATA                             |           |                |              |               |         |                |            | REMARKS                                                                                  | CRITERIA                  | FACTORY SETTING |
|-------------|----------------------------------|-----------|----------------|--------------|---------------|---------|----------------|------------|------------------------------------------------------------------------------------------|---------------------------|-----------------|
|             | 7                                | 6         | 5              | 4            | 3             | 2       | 1              | 0          |                                                                                          |                           |                 |
| 18E         | SUB CONTRAST                     |           |                |              |               |         |                |            | 255                                                                                      |                           | FF              |
| 18F         |                                  |           |                |              | P/N GP        | CL-L SW |                |            |                                                                                          |                           | 00              |
| 190         | CLL LEVEL                        | PN CD ATT |                |              |               |         |                |            |                                                                                          |                           | A0              |
| 191         | BLACK STRETCH OFFSET             |           |                | DC TRAN RATE |               |         | APACPN PEAK    |            |                                                                                          |                           | EA              |
| 192         | ABL POINT                        |           |                | ABL GAIN     |               |         |                |            |                                                                                          |                           | 04              |
| 193         |                                  |           |                |              |               |         |                | COINCIDENT |                                                                                          |                           | 01              |
| 194         | S-FIELD                          | SCD ATT   | DEMP F0        | S GP         | V-ID SW       | S KIL   | BELL           |            |                                                                                          |                           | 22              |
| 195         | DTRSW                            |           |                |              |               |         |                |            | ON                                                                                       | ON:0 OFF:1                | 00              |
| 196         | DISTINCTION SPEED                |           |                |              |               |         |                |            | FAST                                                                                     | FAST:10 MEDIUM:01 SLOW:00 | 80              |
| 197         |                                  |           |                |              |               |         |                |            |                                                                                          |                           |                 |
| 198         | TOF Q (AV)                       |           | TOF F0 (AV)    |              | TOF Q (TV)    |         | TOF F0 (TV)    |            | PAL                                                                                      |                           | 8B              |
| 199         | TOF Q (AV)                       |           | TOF F0 (AV)    |              | TOF Q (TV)    |         | TOF F0 (TV)    |            | SECAM                                                                                    |                           | 8B              |
| 19A         | TOF Q (AV)                       |           | TOF F0 (AV)    |              | TOF Q (TV)    |         | TOF F0 (TV)    |            | N443                                                                                     |                           | 8B              |
| 19B         | TOF Q (AV)                       |           | TOF F0 (AV)    |              | TOF Q (TV)    |         | TOF F0 (TV)    |            | N358                                                                                     |                           | 8B              |
| 19C         | C-TRAP Q (AV)                    |           | C-TRAP F0 (AV) |              | C-TRAP Q (TV) |         | C-TRAP F0 (TV) |            | PAL                                                                                      |                           | 66              |
| 19D         | C-TRAP Q (AV)                    |           | C-TRAP F0 (AV) |              | C-TRAP Q (TV) |         | C-TRAP F0 (TV) |            | SECAM                                                                                    |                           | 66              |
| 19E         | C-TRAP Q (AV)                    |           | C-TRAP F0 (AV) |              | C-TRAP Q (TV) |         | C-TRAP F0 (TV) |            | N443                                                                                     |                           | 66              |
| 19F         | C-TRAP Q (AV)                    |           | C-TRAP F0 (AV) |              | C-TRAP Q (TV) |         | C-TRAP F0 (TV) |            | N358                                                                                     |                           | 66              |
| 1A0         | COLOUR PAL PARAMETER (-31~+31)   |           |                |              |               |         |                |            | +20                                                                                      |                           | 33 (+20)        |
| 1A1         | COLOUR SECAM PARAMETER (-31~+31) |           |                |              |               |         |                |            | +10                                                                                      |                           | 29 (+20)        |
| 1A2         | COLOUR NTSC PARAMETER (-31~+31)  |           |                |              |               |         |                |            | +20                                                                                      |                           | 33 (+20)        |
| 1A3         | N358 SHARPNESS (-31~+31)         |           |                |              |               |         |                |            | +10                                                                                      |                           | 29 (+10)        |
| 1A4         | AV TINT PARAMETER (-31~+31)      |           |                |              |               |         |                |            | +3                                                                                       |                           | 22              |
| 1A5         | AV SHARPESS (-31~+31)            |           |                |              |               |         |                |            | ±0                                                                                       |                           | 1F (0)          |
| 1A6         | ANR COLOUR STEP1                 |           |                |              |               |         |                |            | 5                                                                                        |                           | 05              |
| 1A7         | ANR COLOUR STEP2                 |           |                |              |               |         |                |            | 10                                                                                       |                           | 0A              |
| 1A8         | ANR SHARPNESS STEP1              |           |                |              |               |         |                |            | 7                                                                                        |                           | 07              |
| 1A9         | ANR SHARPNESS STEP2              |           |                |              |               |         |                |            | 12                                                                                       |                           | 0C              |
| 1AA         |                                  |           |                |              |               |         |                |            |                                                                                          |                           |                 |
| 1AB         |                                  |           |                |              |               |         |                |            |                                                                                          |                           |                 |
| 1AC         | AGC GAIN                         |           |                |              |               |         |                |            | ±0                                                                                       |                           | 0               |
| 1AD         | FM LV                            |           |                |              |               |         |                |            | ±0                                                                                       |                           | 1F              |
| 1AE         | IGR LV                           |           |                |              |               |         |                |            | +2                                                                                       |                           | 11              |
| 1AF         | B/G LV                           |           |                |              |               |         |                |            | -1                                                                                       |                           | 0E              |
| 1B0         | I LV                             |           |                |              |               |         |                |            | +4                                                                                       |                           | 13              |
| 1B1         | D/K LV                           |           |                |              |               |         |                |            | -1                                                                                       |                           | DF              |
| 1B2         | LOW ERROR                        |           |                |              |               |         |                |            | 35                                                                                       |                           | 23              |
| 1B3         | UP ERROR                         |           |                |              |               |         |                |            | 70                                                                                       |                           | 46              |
| 1B4         | IGR GAIN                         |           |                |              |               |         |                |            | 0                                                                                        |                           | 6               |
| 1B5         | AGC                              |           | AGC LEVEL      |              | AGC SW        | BASS SW | BASS LEVEL     |            | ON:1 OFF:0 / 0 to 3 / ON:1 OFF:0 / ON:1 OFF:0 / 0 to 3                                   | B6                        |                 |
| 1B6         | IC                               | AM        | SEARCH SPEED   |              | FM            |         |                | W-TEMP     | P:0 I:1 / ON:1 OFF:0 / S:00 M:01 F:10 / N:0 OUT:1 / HI:0 LO:1                            | 61/60                     |                 |
| 1B7         | AUTO SEL                         | S-SYS     | C-SYS          |              | BI+           | FAV     | AV0/1/2        |            | ON:0 OFF:1 / ON:1 OFF:0 / P:00 PN:01 PSN:10 / ON:1 OFF:0 / ON:1 OFF:0 / A:00 A1:01 A2:10 | 0E                        |                 |
| 1B8         |                                  |           |                |              |               | D/K     | I              | B/G        | ON:1 OFF:0 / ON:1 OFF:0 / ON:1 OFF:0                                                     | 01                        |                 |

| SUB ADDRESS | DATA                             |   |   |   |   |   |   |   | REMARKS | CRITERIA | FACTORY SETTING |
|-------------|----------------------------------|---|---|---|---|---|---|---|---------|----------|-----------------|
|             | 7                                | 6 | 5 | 4 | 3 | 2 | 1 | 0 |         |          |                 |
| 1B9         |                                  |   |   |   |   |   |   |   |         |          |                 |
| 1BA         | ROM CORRECT 1 ON/OFF             |   |   |   |   |   |   |   |         |          |                 |
| 1BB         | ROM CORRECT 2 ON/OFF             |   |   |   |   |   |   |   |         |          |                 |
| 1BC         | ROM CORRECT1 ADDRESS HIGHER RANK |   |   |   |   |   |   |   |         |          |                 |
| 1BD         | ROM CORRECT1 ADDRESS LOWER RANK  |   |   |   |   |   |   |   |         |          |                 |
| 1BE         | ROM CORRECT2 ADDRESS HIGHER RANK |   |   |   |   |   |   |   |         |          |                 |
| 1BF         | ROM CORRECT2 ADDRESS LOWER RANK  |   |   |   |   |   |   |   |         |          |                 |
| 1C0         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1C1         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1C2         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1C3         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1C4         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1C5         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1C6         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1C7         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1C8         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1C9         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1CA         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1CB         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1CC         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1CD         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1CE         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1CF         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1D0         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1D1         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1D2         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1D3         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1D4         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1D5         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1D6         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1D7         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1D8         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1D9         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1DA         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1DB         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1DC         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1DD         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1DE         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1DF         | ROM CORRECT1 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1E0         | ROM CORRECT2 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1E1         | ROM CORRECT2 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1E2         | ROM CORRECT2 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1E3         | ROM CORRECT2 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1E4         | ROM CORRECT2 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1E5         | ROM CORRECT2 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1E6         | ROM CORRECT2 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1E7         | ROM CORRECT2 CODE                |   |   |   |   |   |   |   |         |          |                 |
| 1E8         | ROM CORRECT2 CODE                |   |   |   |   |   |   |   |         |          |                 |

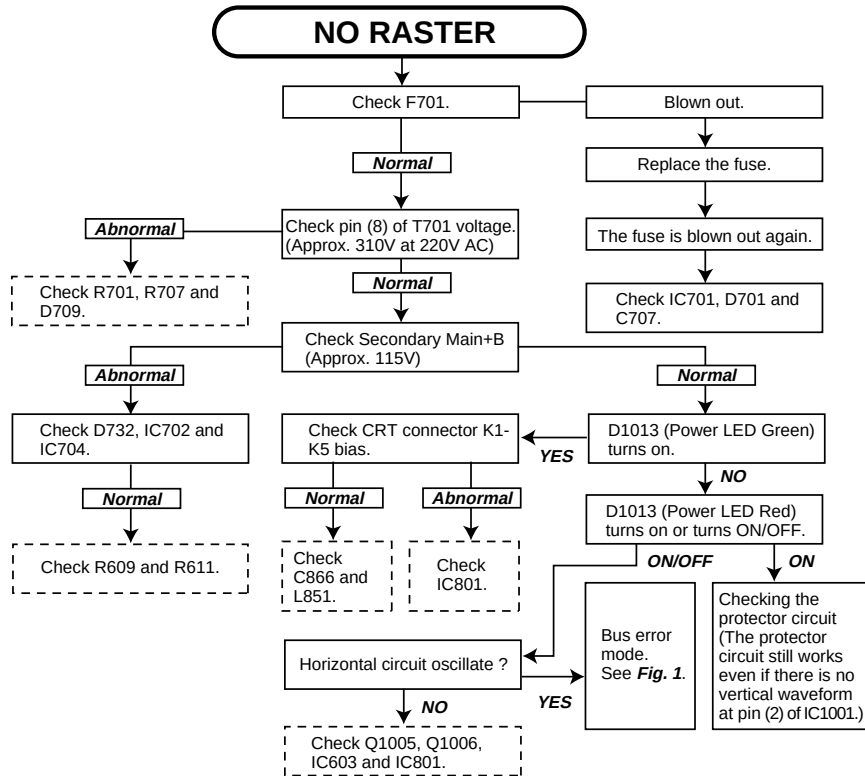
| SUB ADDRESS | DATA              |   |       |   |   |   |   |   | REMARKS | CRITERIA                                                                                         | FACTORY SETTING |
|-------------|-------------------|---|-------|---|---|---|---|---|---------|--------------------------------------------------------------------------------------------------|-----------------|
|             | 7                 | 6 | 5     | 4 | 3 | 2 | 1 | 0 |         |                                                                                                  |                 |
| 1E9         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1EA         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1EB         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1EC         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1ED         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1EE         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1EF         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1F0         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1F1         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1F2         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1F3         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1F4         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1F5         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1F6         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1F7         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1F8         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1F9         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1FA         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1FB         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1FC         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1FD         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1FE         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 1FF         | ROM CORRECT2 CODE |   |       |   |   |   |   |   |         |                                                                                                  |                 |
| 200         | IGR               |   | NICAM |   |   |   |   |   | CH0     | ON0 OFF:1 / ST:1 MO:0 / MA:0 SU:1 /<br>ON0 OFF:1 / NM:1 MO:0 / NST:1 MO:0 /<br>M1:00 M2:01 MO:11 | 4C              |
| 201         | IGR               |   | NICAM |   |   |   |   |   | CH1     |                                                                                                  | 4C              |
| 202         | IGR               |   | NICAM |   |   |   |   |   | CH2     |                                                                                                  | 4C              |
| 203         | IGR               |   | NICAM |   |   |   |   |   | CH3     |                                                                                                  | 4C              |
| 204         | IGR               |   | NICAM |   |   |   |   |   | CH4     |                                                                                                  | 4C              |
| 205         | IGR               |   | NICAM |   |   |   |   |   | CH5     |                                                                                                  | 4C              |
| 206         | IGR               |   | NICAM |   |   |   |   |   | CH6     |                                                                                                  | 4C              |
| 207         | IGR               |   | NICAM |   |   |   |   |   | CH7     |                                                                                                  | 4C              |
| 208         | IGR               |   | NICAM |   |   |   |   |   | CH8     |                                                                                                  | 4C              |
| 209         | IGR               |   | NICAM |   |   |   |   |   | CH9     |                                                                                                  | 4C              |
| 20A         | IGR               |   | NICAM |   |   |   |   |   | CH10    |                                                                                                  | 4C              |
| 20B         | IGR               |   | NICAM |   |   |   |   |   | CH11    |                                                                                                  | 4C              |
| 20C         | IGR               |   | NICAM |   |   |   |   |   | CH12    |                                                                                                  | 4C              |
| 20D         | IGR               |   | NICAM |   |   |   |   |   | CH13    |                                                                                                  | 4C              |
| 20E         | IGR               |   | NICAM |   |   |   |   |   | CH14    |                                                                                                  | 4C              |
| 20F         | IGR               |   | NICAM |   |   |   |   |   | CH15    |                                                                                                  | 4C              |
| 210         | IGR               |   | NICAM |   |   |   |   |   | CH16    |                                                                                                  | 4C              |
| 211         | IGR               |   | NICAM |   |   |   |   |   | CH17    |                                                                                                  | 4C              |
| 212         | IGR               |   | NICAM |   |   |   |   |   | CH18    |                                                                                                  | 4C              |
| 213         | IGR               |   | NICAM |   |   |   |   |   | CH19    |                                                                                                  | 4C              |
| 214         | IGR               |   | NICAM |   |   |   |   |   | CH20    |                                                                                                  | 4C              |
| 215         | IGR               |   | NICAM |   |   |   |   |   | CH21    |                                                                                                  | 4C              |
| 216         | IGR               |   | NICAM |   |   |   |   |   | CH22    |                                                                                                  | 4C              |

| SUB ADDRESS | DATA |   |   |   |       |   |   |   | REMARKS | CRITERIA                                                                                         | FACTORY SETTING |
|-------------|------|---|---|---|-------|---|---|---|---------|--------------------------------------------------------------------------------------------------|-----------------|
|             | 7    | 6 | 5 | 4 | 3     | 2 | 1 | 0 |         |                                                                                                  |                 |
| 217         | IGR  |   |   |   | NICAM |   |   |   | CH23    |                                                                                                  | 4C              |
| 218         | IGR  |   |   |   | NICAM |   |   |   | CH24    |                                                                                                  | 4C              |
| 219         | IGR  |   |   |   | NICAM |   |   |   | CH25    |                                                                                                  | 4C              |
| 21A         | IGR  |   |   |   | NICAM |   |   |   | CH26    |                                                                                                  | 4C              |
| 21B         | IGR  |   |   |   | NICAM |   |   |   | CH27    |                                                                                                  | 4C              |
| 21C         | IGR  |   |   |   | NICAM |   |   |   | CH28    |                                                                                                  | 4C              |
| 21D         | IGR  |   |   |   | NICAM |   |   |   | CH29    |                                                                                                  | 4C              |
| 21E         | IGR  |   |   |   | NICAM |   |   |   | CH30    |                                                                                                  | 4C              |
| 21F         | IGR  |   |   |   | NICAM |   |   |   | CH31    |                                                                                                  | 4C              |
| 220         | IGR  |   |   |   | NICAM |   |   |   | CH32    |                                                                                                  | 4C              |
| 221         | IGR  |   |   |   | NICAM |   |   |   | CH33    |                                                                                                  | 4C              |
| 222         | IGR  |   |   |   | NICAM |   |   |   | CH34    |                                                                                                  | 4C              |
| 223         | IGR  |   |   |   | NICAM |   |   |   | CH35    |                                                                                                  | 4C              |
| 224         | IGR  |   |   |   | NICAM |   |   |   | CH36    |                                                                                                  | 4C              |
| 225         | IGR  |   |   |   | NICAM |   |   |   | CH37    |                                                                                                  | 4C              |
| 226         | IGR  |   |   |   | NICAM |   |   |   | CH38    |                                                                                                  | 4C              |
| 227         | IGR  |   |   |   | NICAM |   |   |   | CH39    |                                                                                                  | 4C              |
| 228         | IGR  |   |   |   | NICAM |   |   |   | CH40    |                                                                                                  | 4C              |
| 229         | IGR  |   |   |   | NICAM |   |   |   | CH41    |                                                                                                  | 4C              |
| 22A         | IGR  |   |   |   | NICAM |   |   |   | CH42    |                                                                                                  | 4C              |
| 22B         | IGR  |   |   |   | NICAM |   |   |   | CH43    |                                                                                                  | 4C              |
| 22C         | IGR  |   |   |   | NICAM |   |   |   | CH44    |                                                                                                  | 4C              |
| 22D         | IGR  |   |   |   | NICAM |   |   |   | CH45    |                                                                                                  | 4C              |
| 22E         | IGR  |   |   |   | NICAM |   |   |   | CH46    |                                                                                                  | 4C              |
| 22F         | IGR  |   |   |   | NICAM |   |   |   | CH47    |                                                                                                  | 4C              |
| 230         | IGR  |   |   |   | NICAM |   |   |   | CH48    |                                                                                                  | 4C              |
| 231         | IGR  |   |   |   | NICAM |   |   |   | CH49    |                                                                                                  | 4C              |
| 232         | IGR  |   |   |   | NICAM |   |   |   | CH50    |                                                                                                  | 4C              |
| 233         | IGR  |   |   |   | NICAM |   |   |   | CH51    |                                                                                                  | 4C              |
| 234         | IGR  |   |   |   | NICAM |   |   |   | CH52    |                                                                                                  | 4C              |
| 235         | IGR  |   |   |   | NICAM |   |   |   | CH53    |                                                                                                  | 4C              |
| 236         | IGR  |   |   |   | NICAM |   |   |   | CH54    |                                                                                                  | 4C              |
| 237         | IGR  |   |   |   | NICAM |   |   |   | CH55    |                                                                                                  | 4C              |
| 238         | IGR  |   |   |   | NICAM |   |   |   | CH56    |                                                                                                  | 4C              |
| 239         | IGR  |   |   |   | NICAM |   |   |   | CH57    |                                                                                                  | 4C              |
| 23A         | IGR  |   |   |   | NICAM |   |   |   | CH58    |                                                                                                  | 4C              |
| 23B         | IGR  |   |   |   | NICAM |   |   |   | CH59    |                                                                                                  | 4C              |
| 23C         | IGR  |   |   |   | NICAM |   |   |   | CH60    |                                                                                                  | 4C              |
| 23D         | IGR  |   |   |   | NICAM |   |   |   | CH61    |                                                                                                  | 4C              |
| 23E         | IGR  |   |   |   | NICAM |   |   |   | CH62    |                                                                                                  | 4C              |
| 23F         | IGR  |   |   |   | NICAM |   |   |   | CH63    |                                                                                                  | 4C              |
| 240         | IGR  |   |   |   | NICAM |   |   |   | CH64    | ON0 OFF:1 / ST:1 MO:0 / MA:0 SU:1 /<br>ON0 OFF:1 / NM:1 MO:0 / NST:1 MO:0 /<br>M1:00 M2:01 MO:11 | 4C              |
| 241         | IGR  |   |   |   | NICAM |   |   |   | CH65    |                                                                                                  | 4C              |
| 242         | IGR  |   |   |   | NICAM |   |   |   | CH66    |                                                                                                  | 4C              |
| 243         | IGR  |   |   |   | NICAM |   |   |   | CH67    |                                                                                                  | 4C              |
| 244         | IGR  |   |   |   | NICAM |   |   |   | CH68    |                                                                                                  | 4C              |

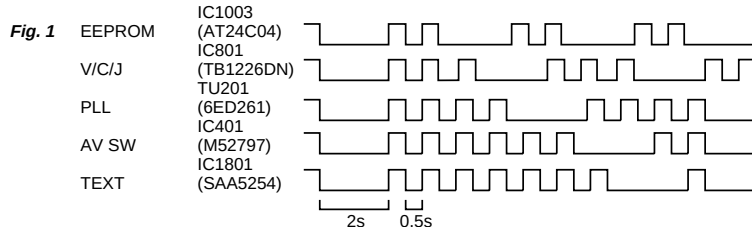
| SUB<br>ADDRESS | DATA |     |   |   |   |       |   |   | REMARKS | CRITERIA | FACTORY<br>SETTING |
|----------------|------|-----|---|---|---|-------|---|---|---------|----------|--------------------|
|                | 7    | 6   | 5 | 4 | 3 | 2     | 1 | 0 |         |          |                    |
| 245            |      | IGR |   |   |   | NICAM |   |   | CH69    |          | 4C                 |
| 246            |      | IGR |   |   |   | NICAM |   |   | CH70    |          | 4C                 |
| 247            |      | IGR |   |   |   | NICAM |   |   | CH71    |          | 4C                 |
| 248            |      | IGR |   |   |   | NICAM |   |   | CH72    |          | 4C                 |
| 249            |      | IGR |   |   |   | NICAM |   |   | CH73    |          | 4C                 |
| 24A            |      | IGR |   |   |   | NICAM |   |   | CH74    |          | 4C                 |
| 24B            |      | IGR |   |   |   | NICAM |   |   | CH75    |          | 4C                 |
| 24C            |      | IGR |   |   |   | NICAM |   |   | CH76    |          | 4C                 |
| 24D            |      | IGR |   |   |   | NICAM |   |   | CH77    |          | 4C                 |
| 24E            |      | IGR |   |   |   | NICAM |   |   | CH78    |          | 4C                 |
| 24F            |      | IGR |   |   |   | NICAM |   |   | CH79    |          | 4C                 |
| 250            |      | IGR |   |   |   | NICAM |   |   | CH80    |          | 4C                 |
| 251            |      | IGR |   |   |   | NICAM |   |   | CH81    |          | 4C                 |
| 252            |      | IGR |   |   |   | NICAM |   |   | CH82    |          | 4C                 |
| 253            |      | IGR |   |   |   | NICAM |   |   | CH83    |          | 4C                 |
| 254            |      | IGR |   |   |   | NICAM |   |   | CH84    |          | 4C                 |
| 255            |      | IGR |   |   |   | NICAM |   |   | CH85    |          | 4C                 |
| 256            |      | IGR |   |   |   | NICAM |   |   | CH86    |          | 4C                 |
| 257            |      | IGR |   |   |   | NICAM |   |   | CH87    |          | 4C                 |
| 258            |      | IGR |   |   |   | NICAM |   |   | CH88    |          | 4C                 |
| 259            |      | IGR |   |   |   | NICAM |   |   | CH89    |          | 4C                 |
| 25A            |      | IGR |   |   |   | NICAM |   |   | CH90    |          | 4C                 |
| 25B            |      | IGR |   |   |   | NICAM |   |   | CH91    |          | 4C                 |
| 25C            |      | IGR |   |   |   | NICAM |   |   | CH92    |          | 4C                 |
| 25D            |      | IGR |   |   |   | NICAM |   |   | CH93    |          | 4C                 |
| 25E            |      | IGR |   |   |   | NICAM |   |   | CH94    |          | 4C                 |
| 25F            |      | IGR |   |   |   | NICAM |   |   | CH95    |          | 4C                 |
| 260            |      | IGR |   |   |   | NICAM |   |   | CH96    |          | 4C                 |
| 261            |      | IGR |   |   |   | NICAM |   |   | CH97    |          | 4C                 |
| 262            |      | IGR |   |   |   | NICAM |   |   | CH98    |          | 4C                 |
| 263            |      | IGR |   |   |   | NICAM |   |   | CH99    |          | 4C                 |
| 264            |      |     |   |   |   |       |   |   |         |          |                    |
| 265            |      |     |   |   |   |       |   |   |         |          |                    |
| 266            |      |     |   |   |   |       |   |   |         |          |                    |
| 267            |      |     |   |   |   |       |   |   |         |          |                    |
| 268            |      |     |   |   |   |       |   |   |         |          |                    |
| 269            |      |     |   |   |   |       |   |   |         |          |                    |
| 26A            |      |     |   |   |   |       |   |   |         |          |                    |
| 26B            |      |     |   |   |   |       |   |   |         |          |                    |
| 26C            |      |     |   |   |   |       |   |   |         |          |                    |
| 26D            |      |     |   |   |   |       |   |   |         |          |                    |
| 26E            |      |     |   |   |   |       |   |   |         |          |                    |
| 26F            |      |     |   |   |   |       |   |   |         |          |                    |
| 270            |      |     |   |   |   |       |   |   |         |          |                    |
| 271            |      |     |   |   |   |       |   |   |         |          |                    |
| 272            |      |     |   |   |   |       |   |   |         |          |                    |
| 273            |      |     |   |   |   |       |   |   |         |          |                    |
| 274            |      |     |   |   |   |       |   |   |         |          |                    |

| SUB<br>ADDRESS | DATA |   |   |   |   |   |   |   | REMARKS | CRITERIA | FACTORY<br>SETTING |
|----------------|------|---|---|---|---|---|---|---|---------|----------|--------------------|
|                | 7    | 6 | 5 | 4 | 3 | 2 | 1 | 0 |         |          |                    |
| 275            |      |   |   |   |   |   |   |   |         |          |                    |
| 276            |      |   |   |   |   |   |   |   |         |          |                    |
| 277            |      |   |   |   |   |   |   |   |         |          |                    |
| 278            |      |   |   |   |   |   |   |   |         |          |                    |
| 279            |      |   |   |   |   |   |   |   |         |          |                    |
| 27A            |      |   |   |   |   |   |   |   |         |          |                    |
| 27B            |      |   |   |   |   |   |   |   |         |          |                    |
| 27C            |      |   |   |   |   |   |   |   |         |          |                    |
| 27D            |      |   |   |   |   |   |   |   |         |          |                    |
| 27E            |      |   |   |   |   |   |   |   |         |          |                    |
| 27F            |      |   |   |   |   |   |   |   |         |          |                    |

## TROUBLE SHOOTING TABLE



- 1) In case of all I<sup>2</sup>C BUS transmission the transmission is continued three times if ACK is not given. If ACK is not given yet, the process proceeds to the next operation. If ACK is not given when this operation is repeated 10 times, the mode is changed to BUS ERROR MODE. (If one ACK is given during counting of 3 x 10 times, the counter is cleared.)
- 2) Upon occurrence of bus error the LED RED (pin 3) blinks as follows, and power-off is performed. At this time the power key remains valid.



- 3) If bus error occurs in the SERVICE MODE, V/C/J read-out is inhibited.

### Protector operation

- 1) The protector input (pin 3) is read with 20 ms intervals. If "H" appears successively three times, the mode is changed to the PROTECTOR MODE. (For 2 s after the POWER port is set to "H", the read-in is set to NOP.)
- 2) If the H, V, V-GUARD bit of V/C/J STATUS register is "0", the mode is changed to the PROTECTOR MODE.
- 3) If V-SYNC (pin 2) is not given for 300 ms, the mode is changed to the PROTECTOR MODE. However, this operation is not performed in the SERVICE MODE and EXTERNAL BUS MODE.
- 4) If LOW + BIN (pin 27) is not set to "H" for 3s when power is on, the mode is changed to the PROTECTOR MODE.

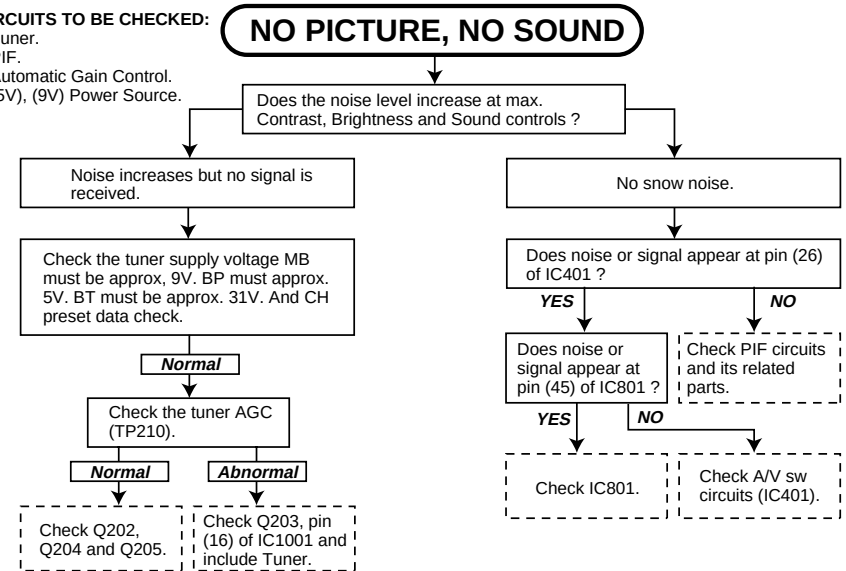
## TROUBLE SHOOTING TABLE (Continued)

- 5) In the PROTECTOR MODE the next port is forcibly changed. At this time the POWER key is invalid. The test power is kept turned on. POWER-ON is not performed until resetting is made.

POWER(Pin 37) : "L"  
POWER(Pin 15) : "H"  
LED GREEN(Pin 4) : "H"  
LED RED(Pin 3) : "L"

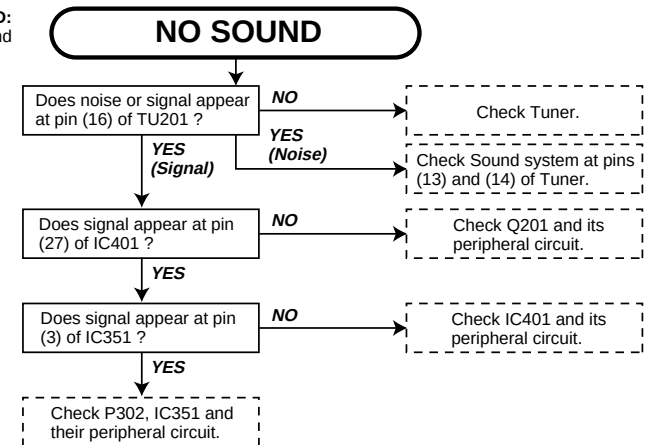
### CIRCUITS TO BE CHECKED:

- Tuner.
- PIF.
- Automatic Gain Control.
- (5V), (9V) Power Source.



### CIRCUITS TO BE CHECKED:

- Sound system (pins (13) and (14) of Tuner).
- Sound Detector Circuit.
- Sound Switch and Att. Control.
- Audio Output Circuit.



## TROUBLE SHOOTING TABLE (Continued)

## NEITHER VERTICAL NOR HORIZONTAL SYNCHRONIZATION

CIRCUIT TO BE CHECKED:  
• Sync. Separator Circuit.

Check IC801 and Q401.

## DEFECTIVE VERTICAL AMP. AND VERTICAL LINEARITY

Readjust vertical size.  
(Bus Data)

Vertical size is abnormal.

Check R509, R510, C512,  
C513, C514 and C501.

Vertical linearity is abnormal.

Check C515, C519, R511,  
R513 and R514.

## NO VERTICAL SCAN

Check IC501 bias.

**Normal**

Check C506.

**Abnormal**

Check IC501.

## TROUBLE SHOOTING TABLE (Continued)

## NO SPECIFIC COLOUR

Is some colour produced in  
B/W broadcast reception?

**NO**

Check IC801, R809, R810,  
R811, D801, D802, D803,  
Q801, Q802, Q803, Q804,  
Q805, C813 and C814.

**YES**

Is the white balance properly  
adjusted?

**YES**

**NO**

Readjust the white balance.

The picture colour is cyan.

Check Q852 and its adjacent  
circuits.

The picture colour is magenta.

Check Q851 and its adjacent  
circuits.

The picture colour is yellow.

Check Q853 and its  
adjacent circuits.

NO SPECIFIC COLOUR  
"PAL"/"NTSC"/"SECAM"  
(NO COLOUR SYNCHRONIZATION)

"PAL"/"NTSC"

"SECAM"

Check IC801 and bias  
control circuit.

**Normal**

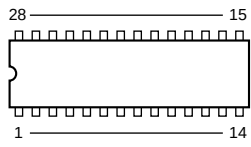
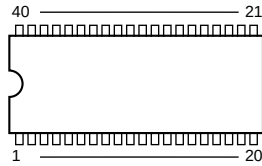
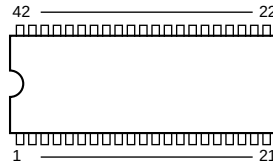
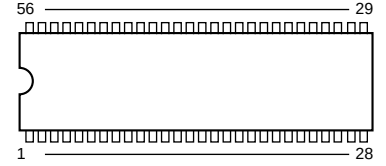
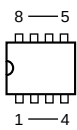
Check X801, C810, C815,  
C816 and R814.

**Normal**

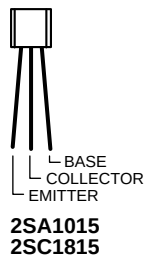
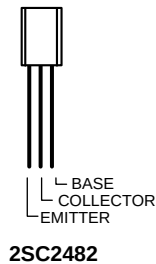
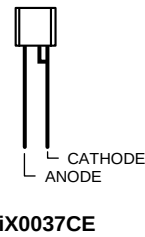
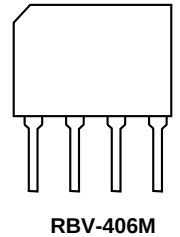
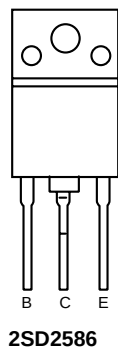
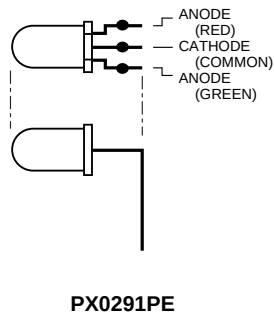
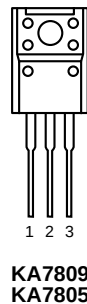
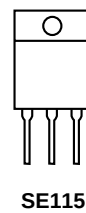
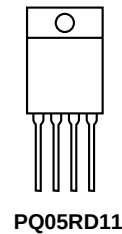
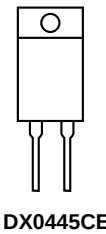
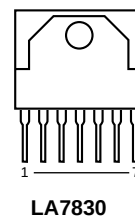
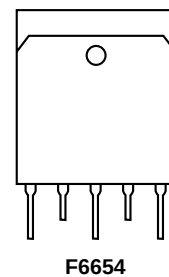
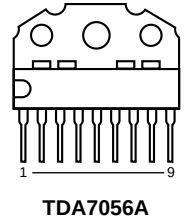
Check C901.

# SOLID STATE DEVICE BASE DIAGRAM

## TOP VIEW

**M52797SP****SAA5254****iX3135****TB1226****AT24C04****FX0008GE**

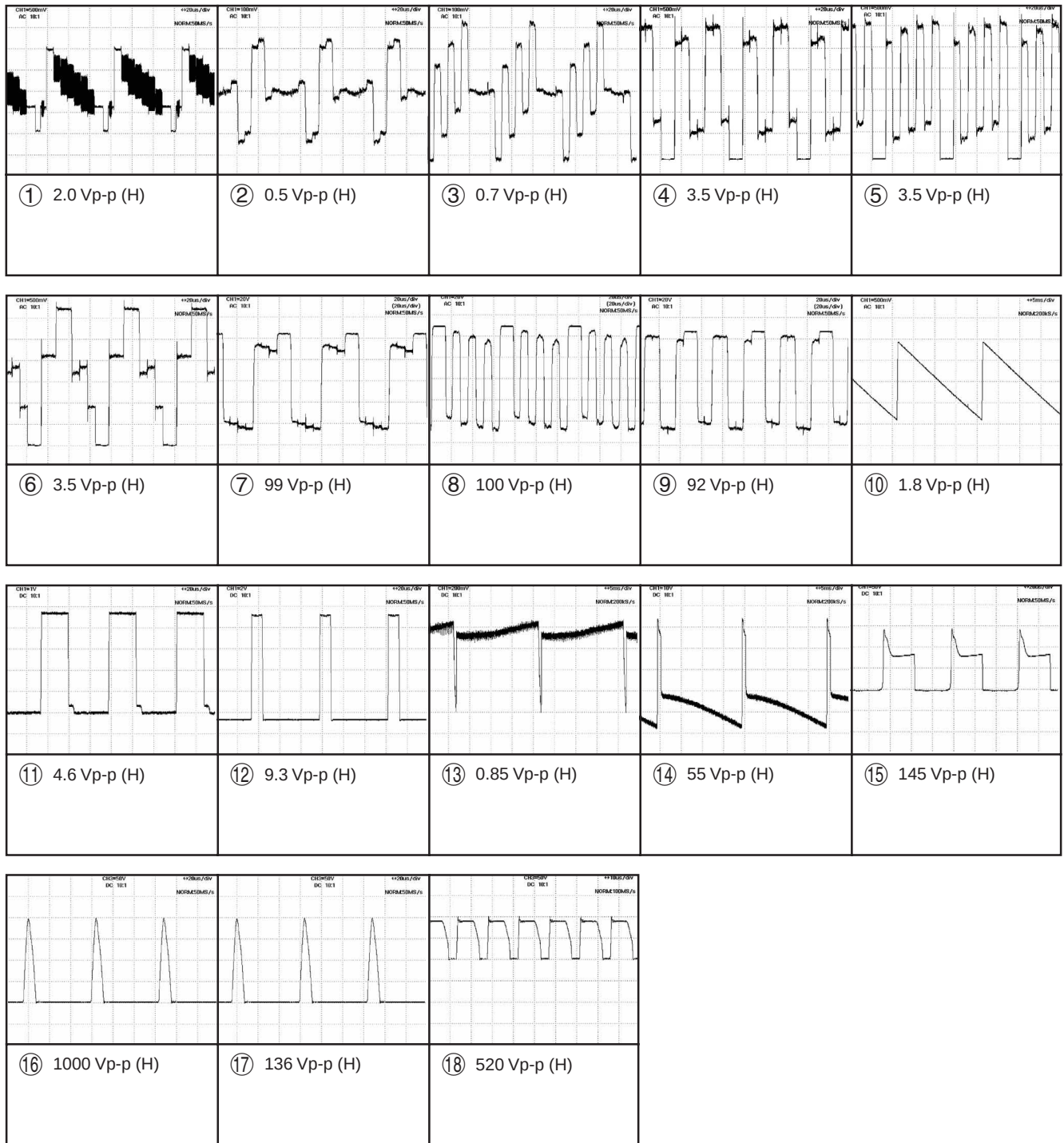
## SIDE VIEW

**2SA1015  
2SC1815****2SC2482****KiA7045A  
TA78L09****UPC78L05****iX0037CE****2SC3789****RBV-406M****2SD2586****PX0291PE****KA7809  
KA7805****SE115****PQ05RD11****DX0445CE****LA7830****F6654****TDA7056A**





# WAVEFORMS



# DESCRIPTION OF SCHEMATIC DIAGRAM

## SAFETY NOTES:

1. DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.
2. SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.

## IMPORTANT SAFETY NOTICE:

PARTS MARKED WITH "△" ( ) ARE IMPORTANT FOR MAINTAINING THE SAFETY OF THE SET. BE SURE TO REPLACE THESE PARTS WITH SPECIFIED ONES FOR MAINTAINING THE SAFETY AND PERFORMANCE OF THE SET.

## SERVICE PRECAUTION:

THE AREA ENCLOSED BY THIS LINE ( — — — ) IS DIRECTLY CONNECTED WITH AC MAINS VOLTAGE. WHEN SERVICING THE AREA, CONNECT AN ISOLATING TRANSFORMER BETWEEN TV RECEIVER AND AC LINE TO ELIMINATE HAZARD OF ELECTRIC SHOCK.

## NOTES:

1. The unit of resistance "ohm" is omitted.  
(K = 1000 ohms, M = Meg ohm).
2. All resistors are 1/8 watt, unless otherwise noted.
3. All capacitors are  $\mu\text{F}$ , unless otherwise noted. (P =  $\mu\mu\text{F}$ ).

## VOLTAGE MEASUREMENT CONDITIONS:

1. Voltage in parenthesis measured with no Signal.
2. Voltages without parenthesis measured with 3mV B & W or Colour-Signal.
3. All the voltages in each point are measured with VTVM.

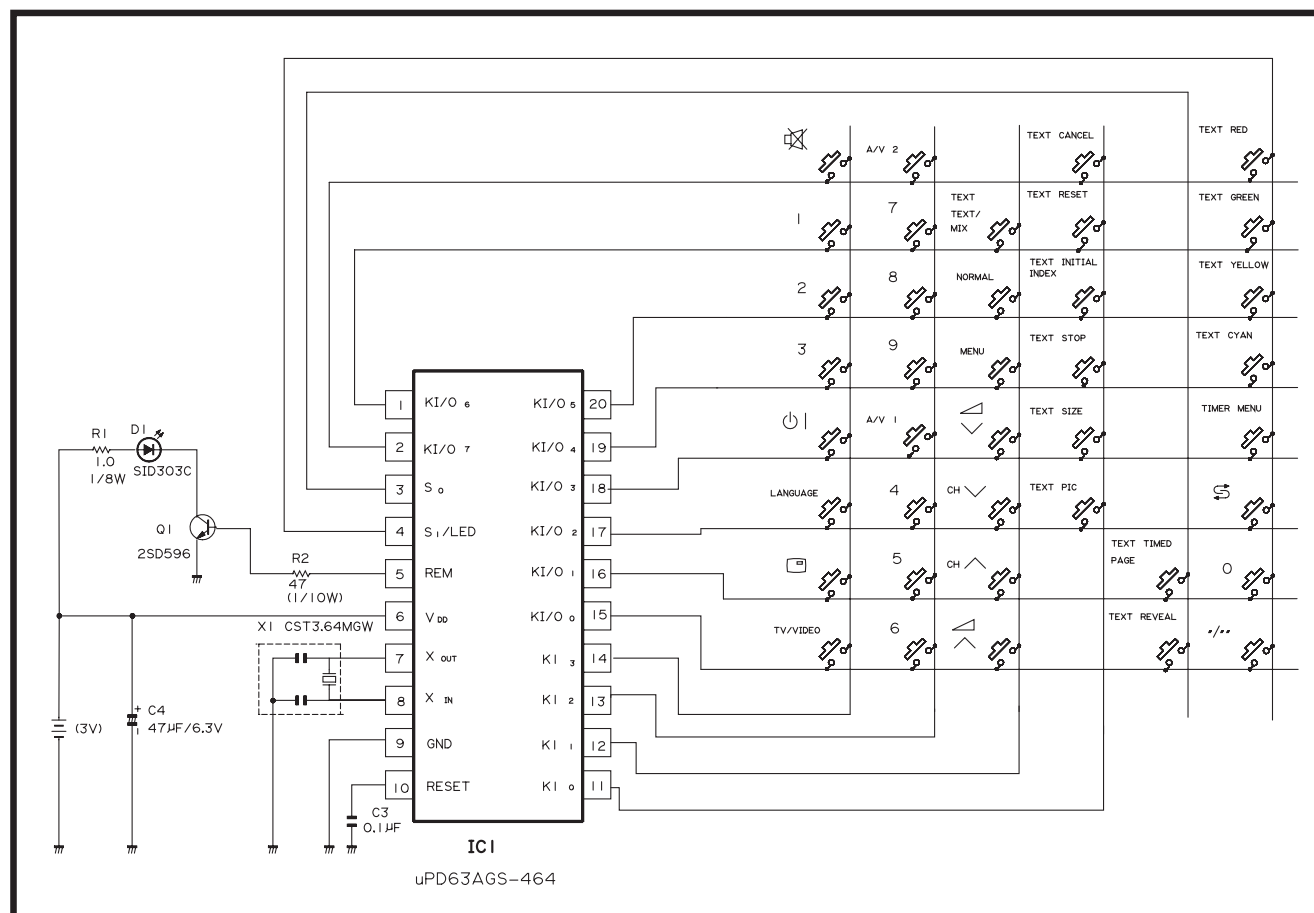
## WAVEFORM MEASUREMENT CONDITIONS:

1. Colour bar generator signal of 1.5V peak to peak applied at Base of Video Buffer Amp. Q202.
2. Approximately 4.0 V AGC bias.

## Infrared Remote Control Unit

NOTE: The parts here shown are supplied as an assembly but not independently.

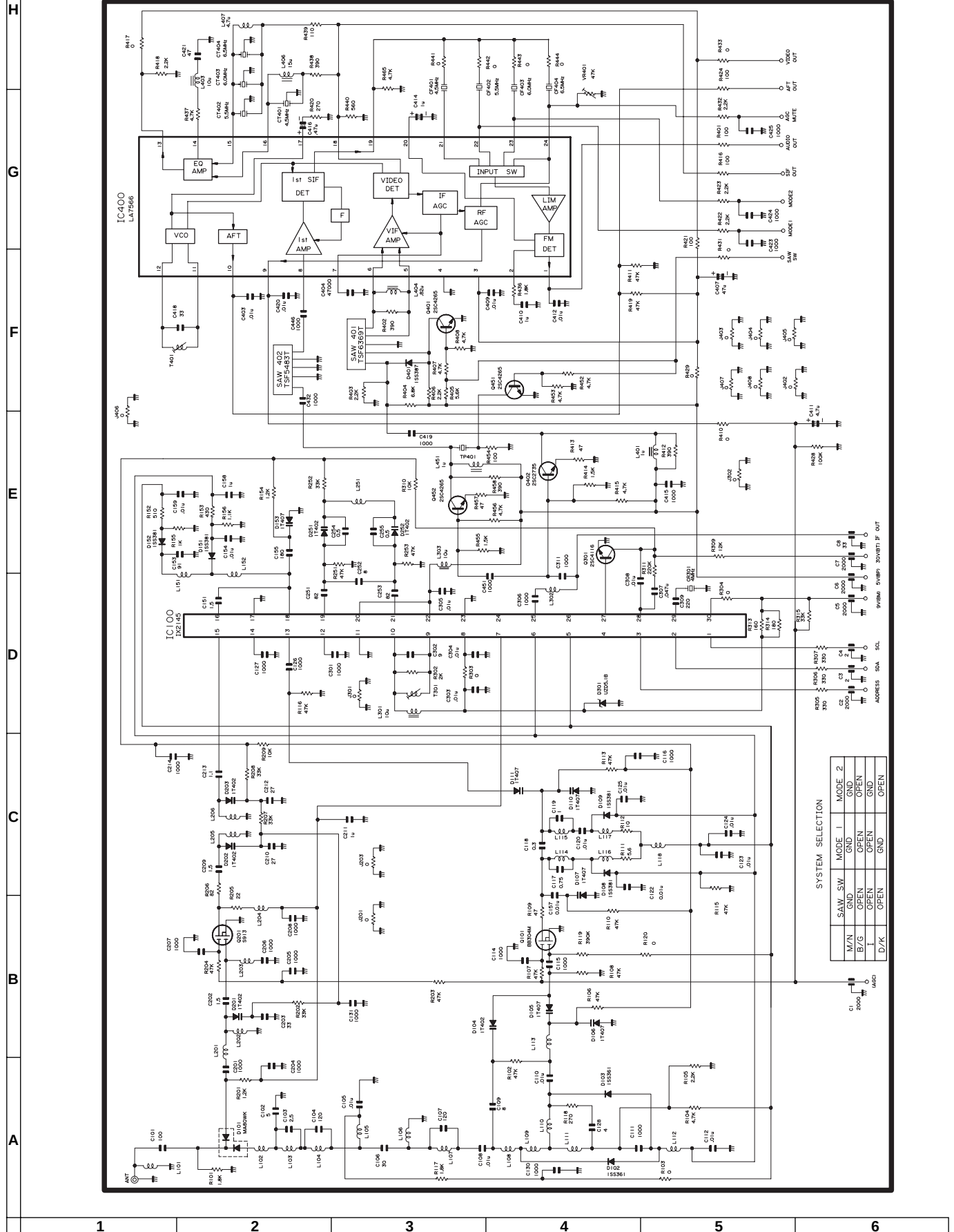
RRMCG1440CESA



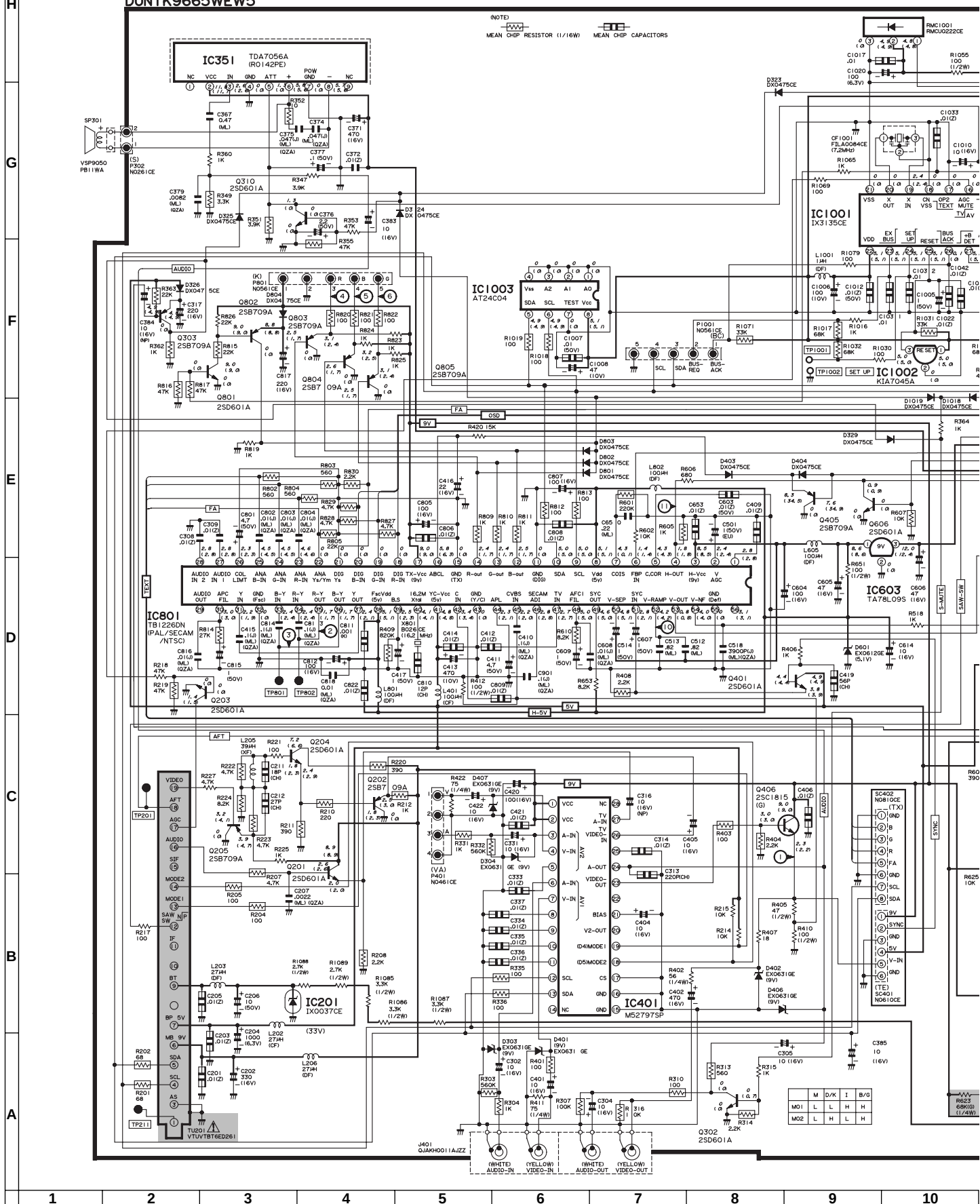
# Tuner

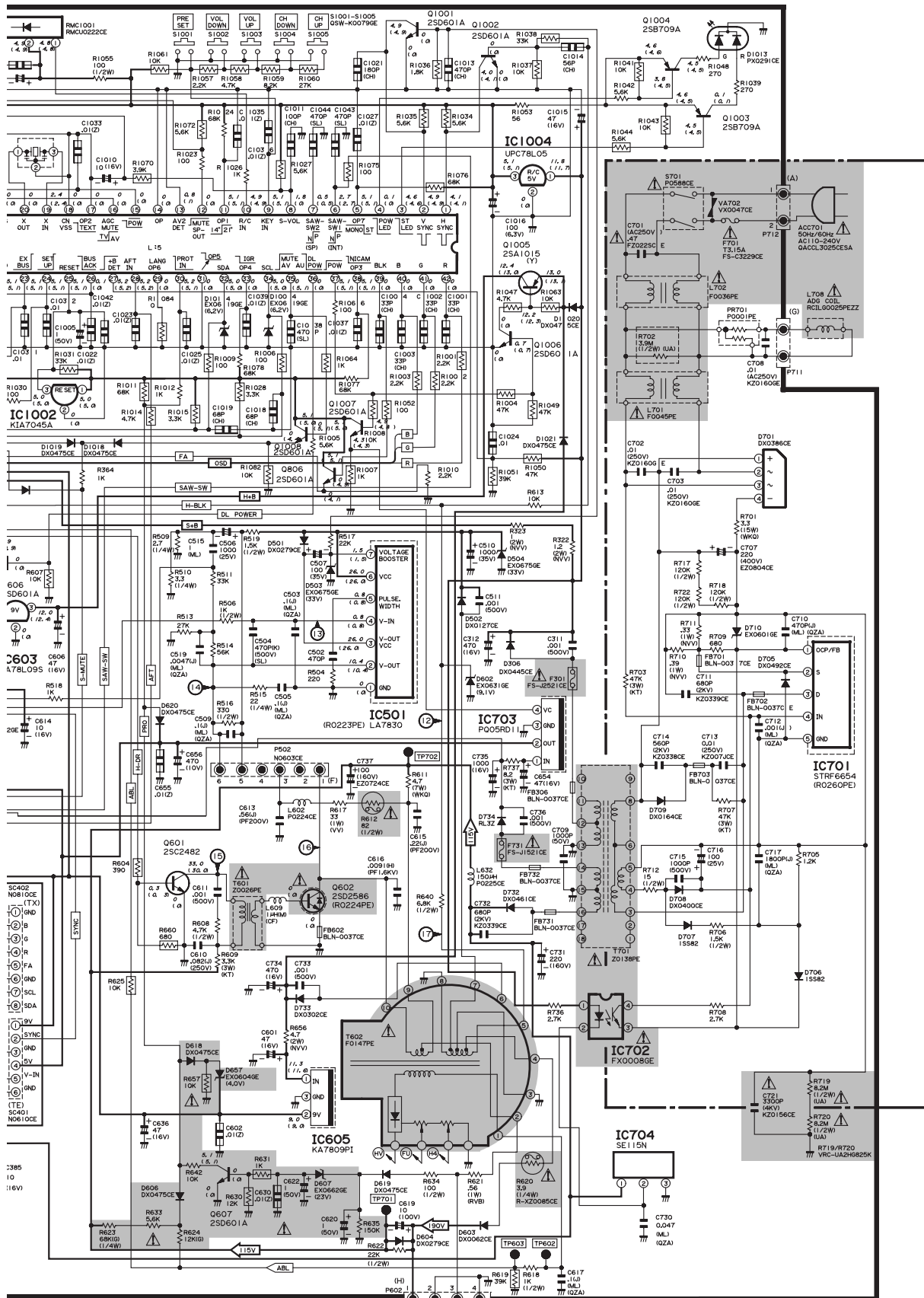
NOTE: The parts here shown are supplied as an assembly but not independently.

## VTUVTBT6ED261



## SCHEMATIC DIAGRAM: MAIN Unit

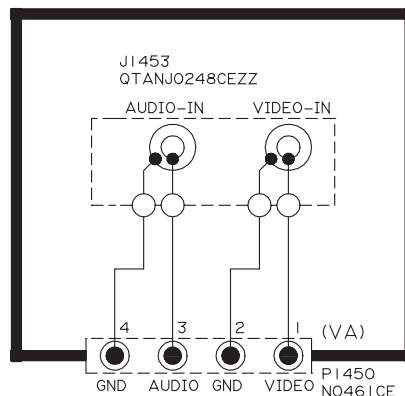
PWB-A (MAIN UNIT)  
DUNTK9665WEW5



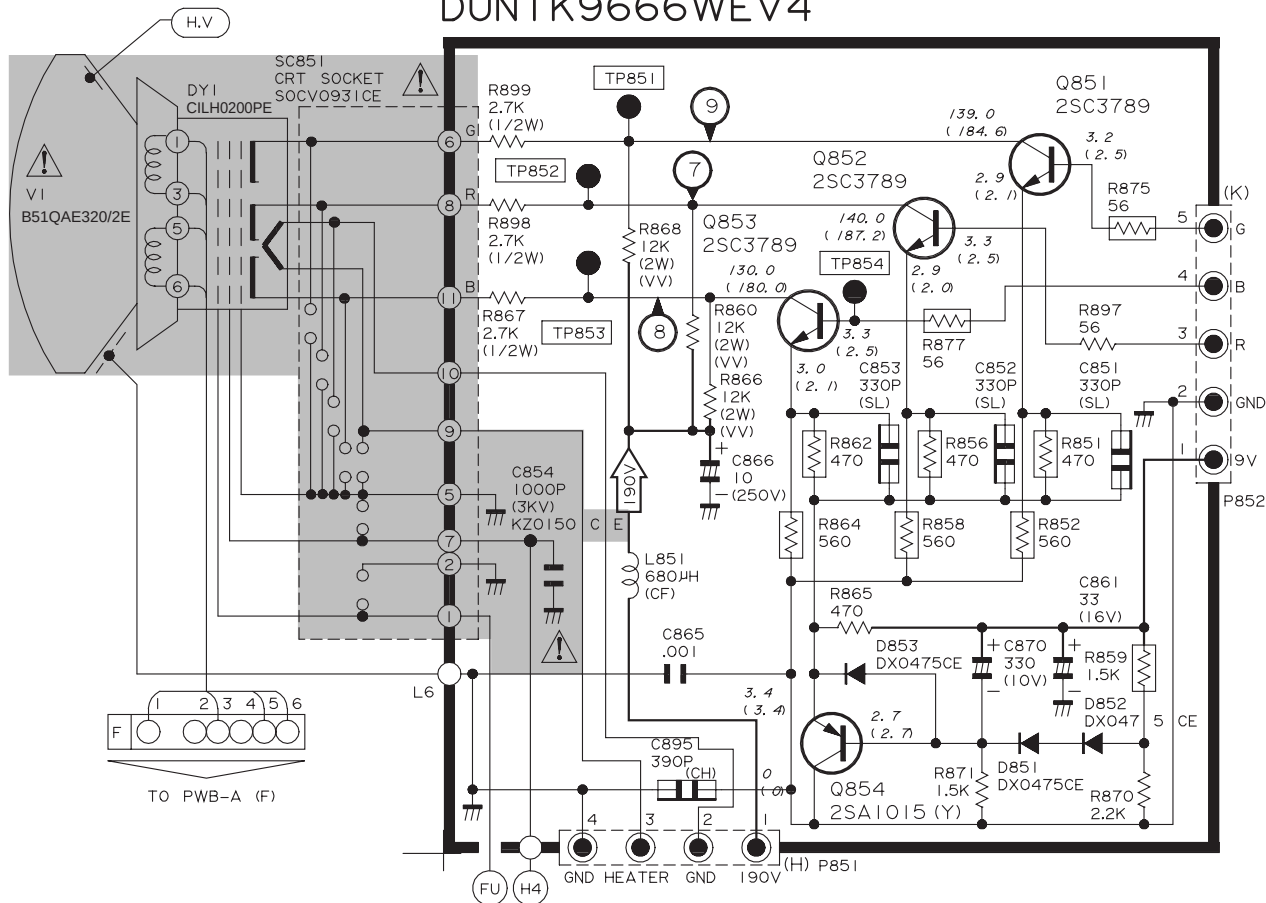
|    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|----|----|----|----|----|----|----|----|----|----|

# SCHEMATIC DIAGRAM: CRT and FRONT-AV Units

PWB-E (FRONT-AV UNIT)  
DUNTK9667WEV2



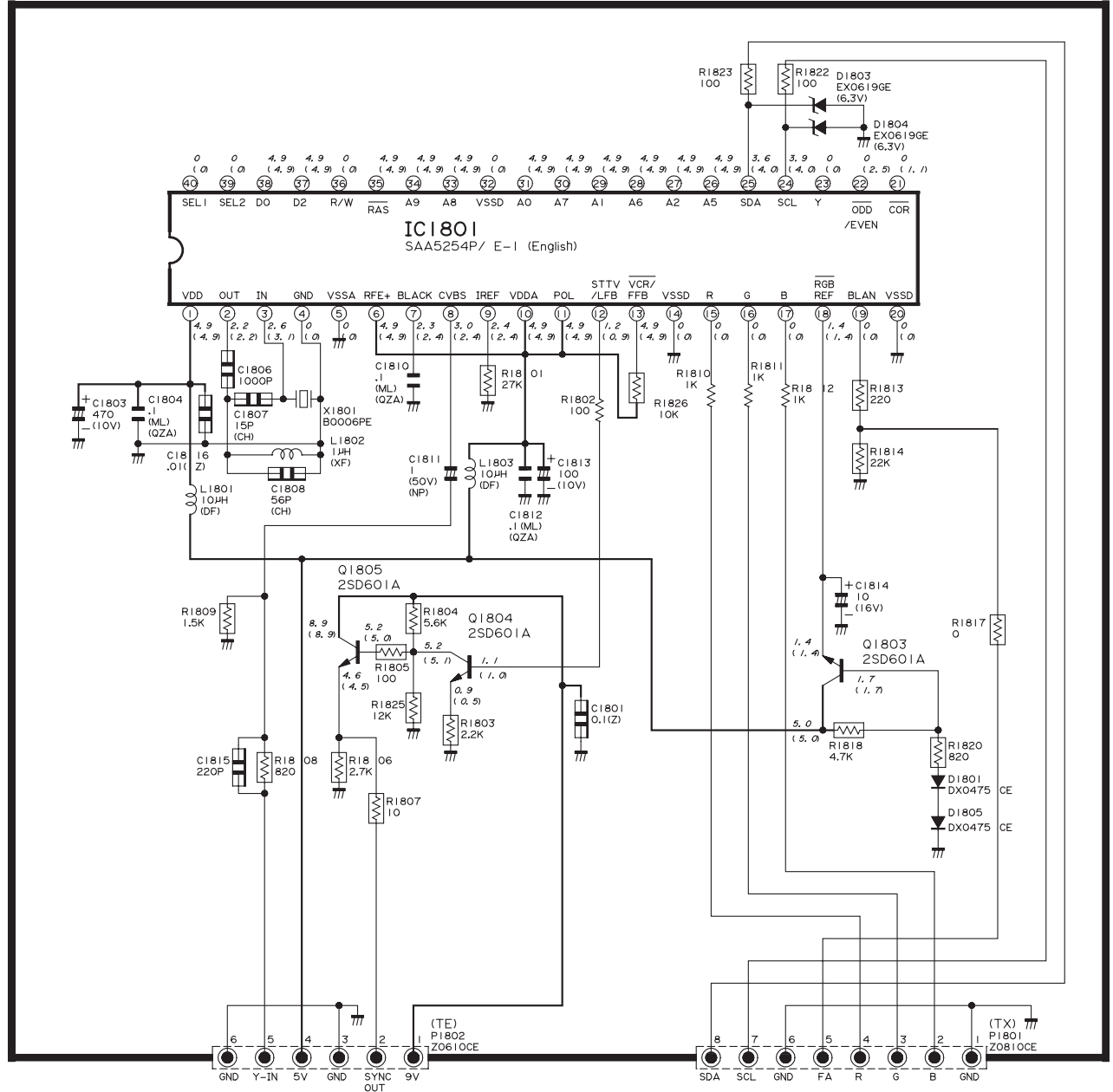
PWB-B (CRT UNIT)  
DUNTK9666WEV4





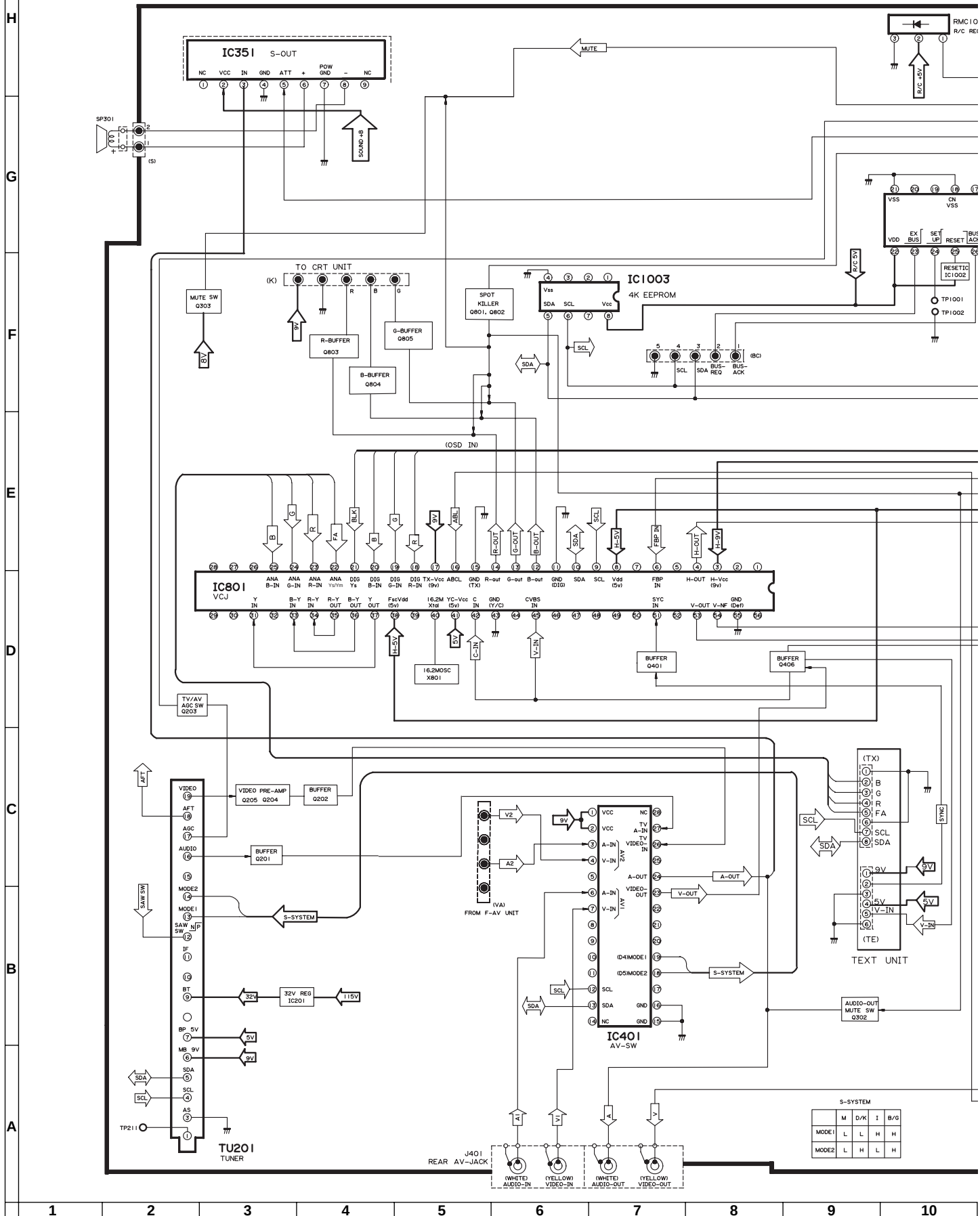
# SCHEMATIC DIAGRAM: TEXT Unit

PWB-D (TEXT UNIT)  
DUNT9669WEV2

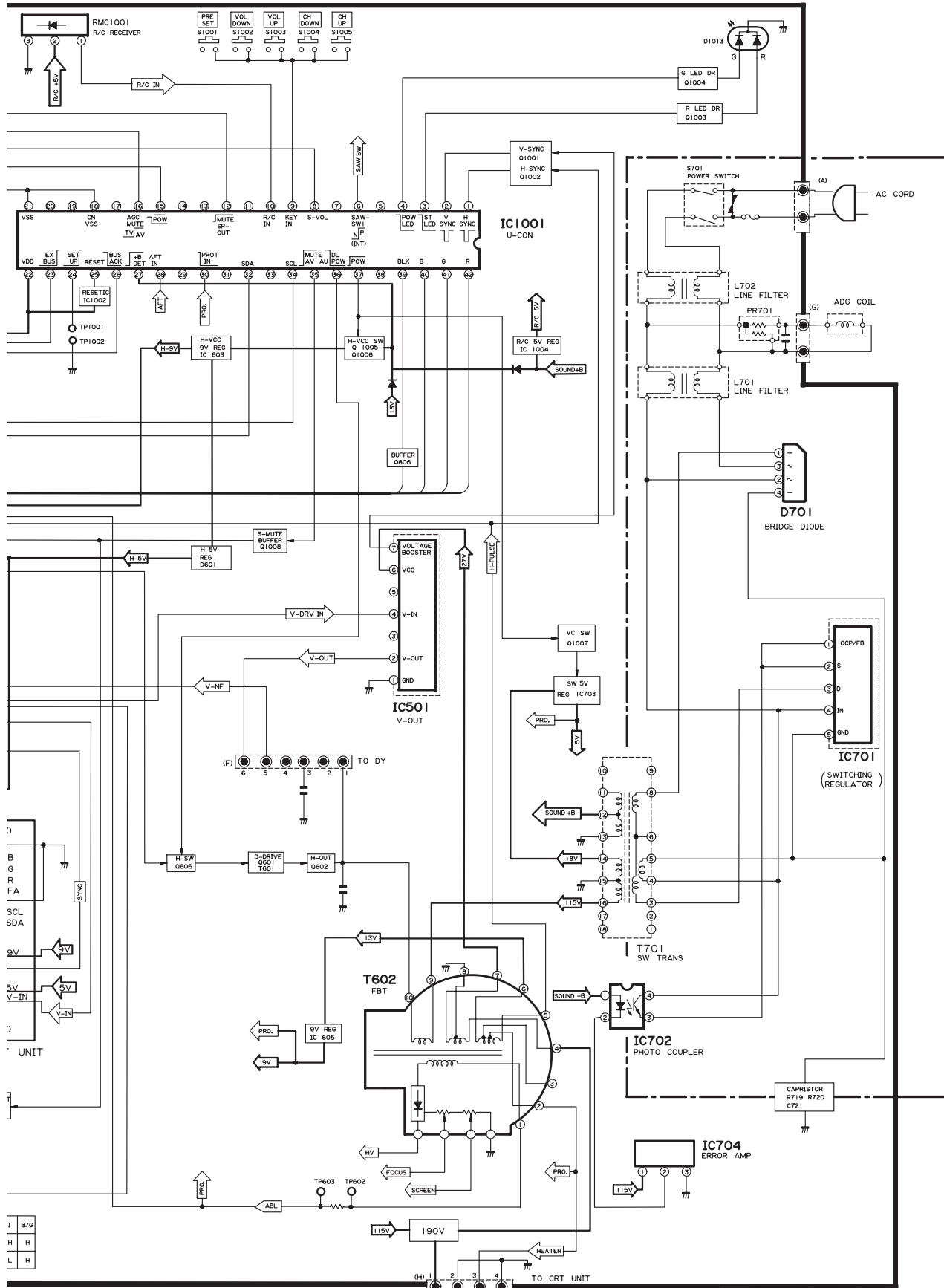


## BLOCK DIAGRAM -1/3

## PWB-A (MAIN UNIT)







|    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|----|----|----|----|----|----|----|----|----|----|

## BLOCK DIAGRAM -2/3

H

G

F

E

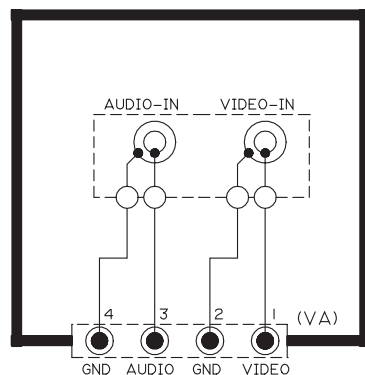
D

C

B

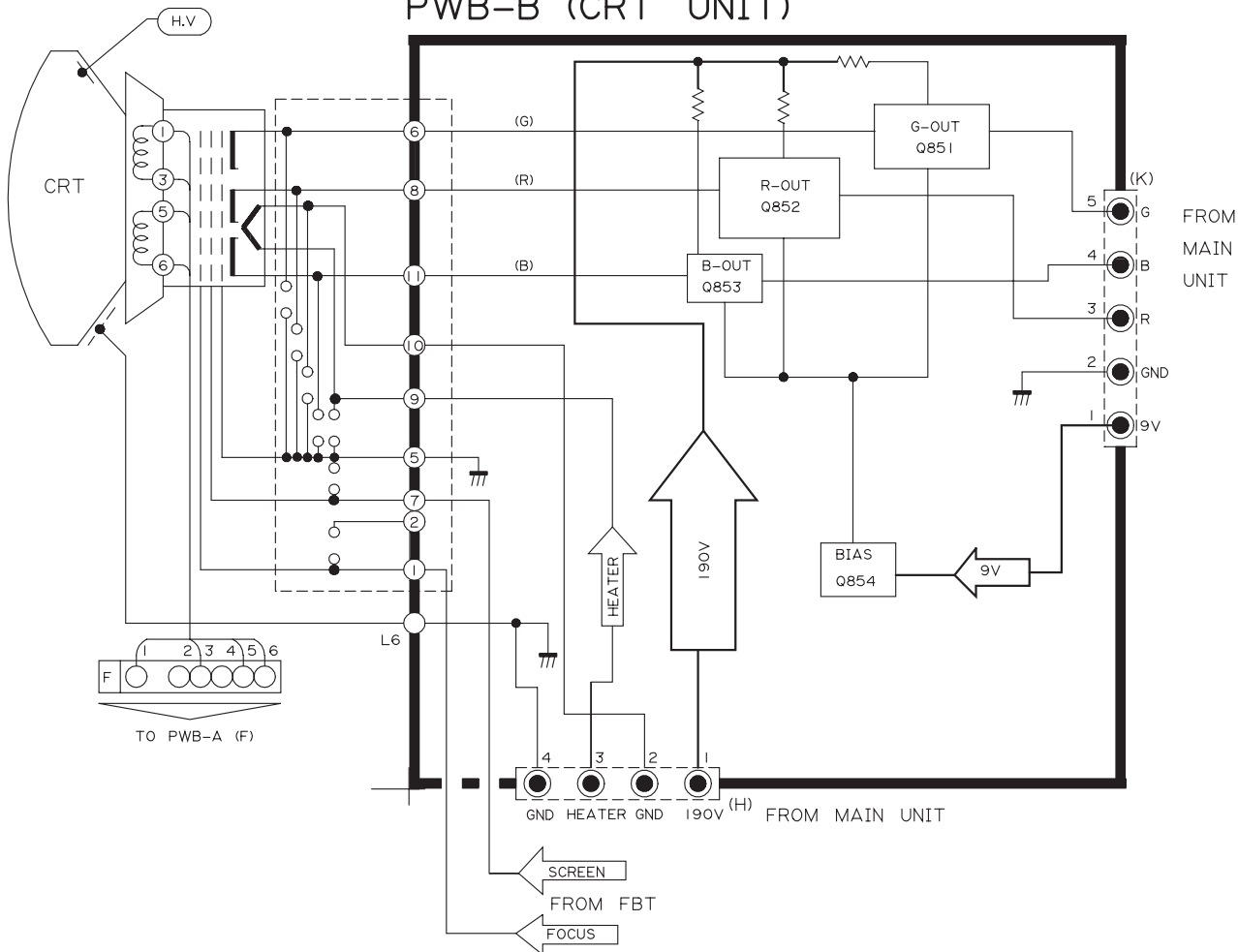
A

## PWB-E (FRONT-AV UNIT)



TO MAIN UNIT

## PWB-B (CRT UNIT)



1

2

3

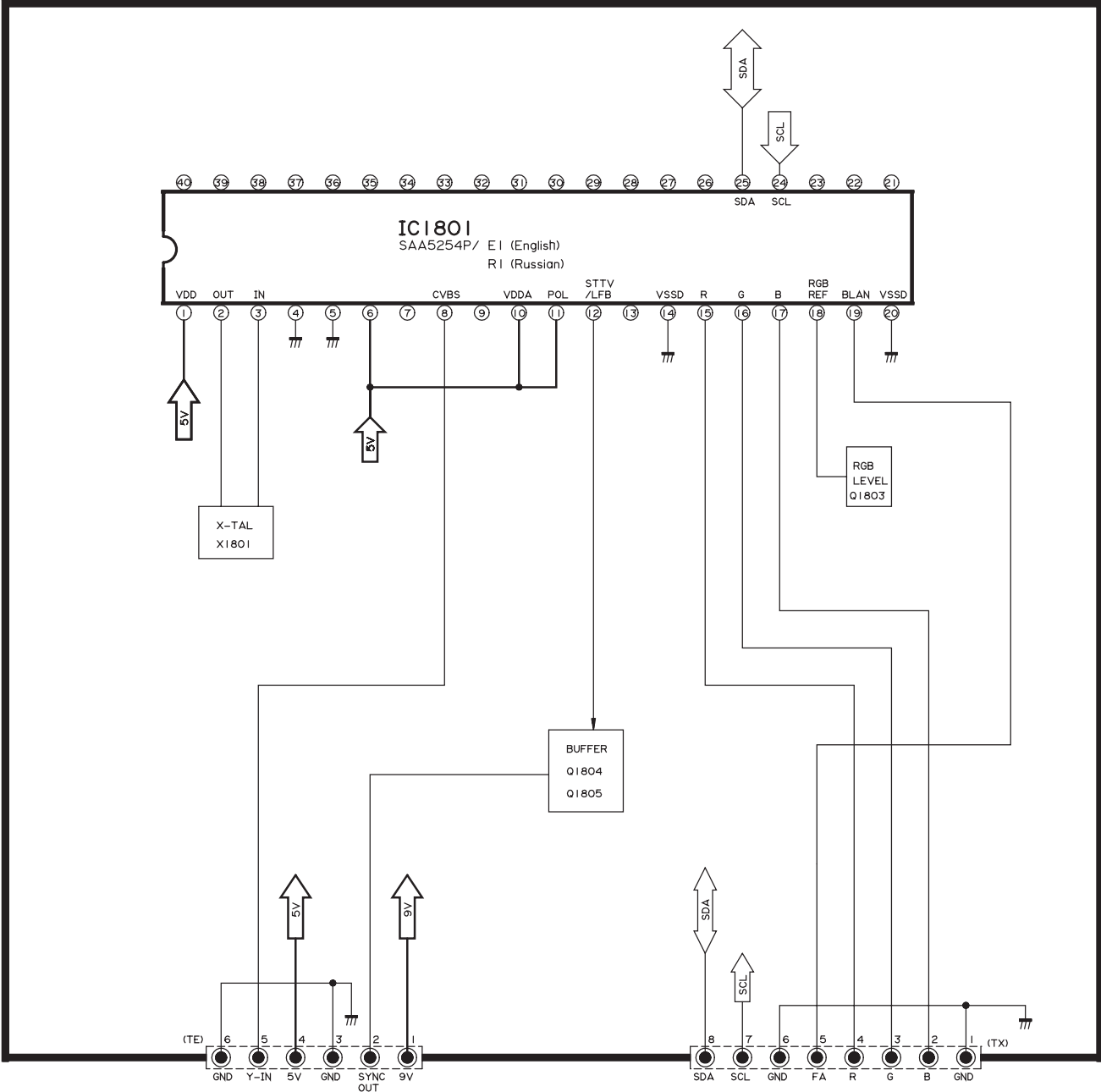
4

5

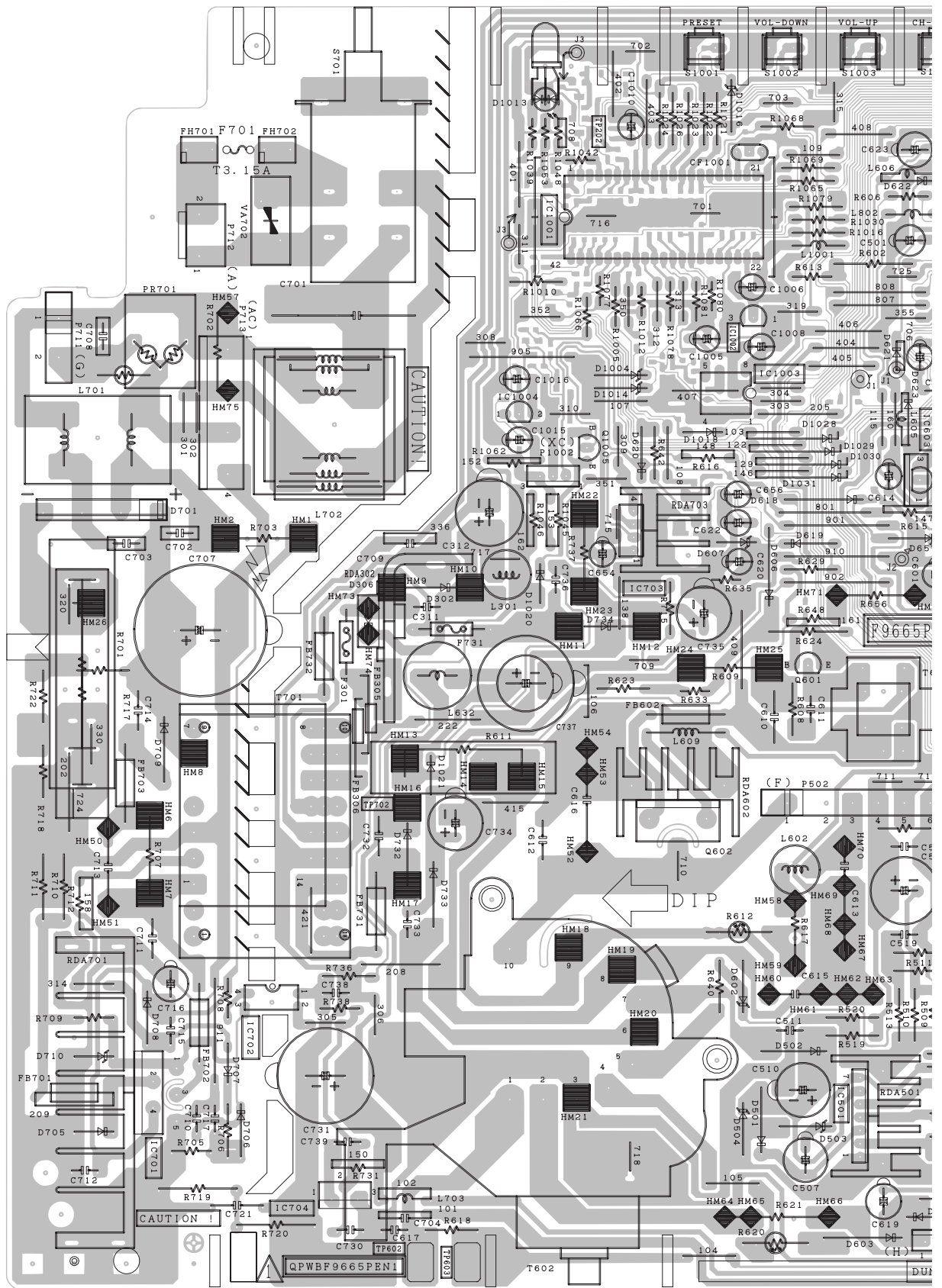
6

# BLOCK DIAGRAM -3/3

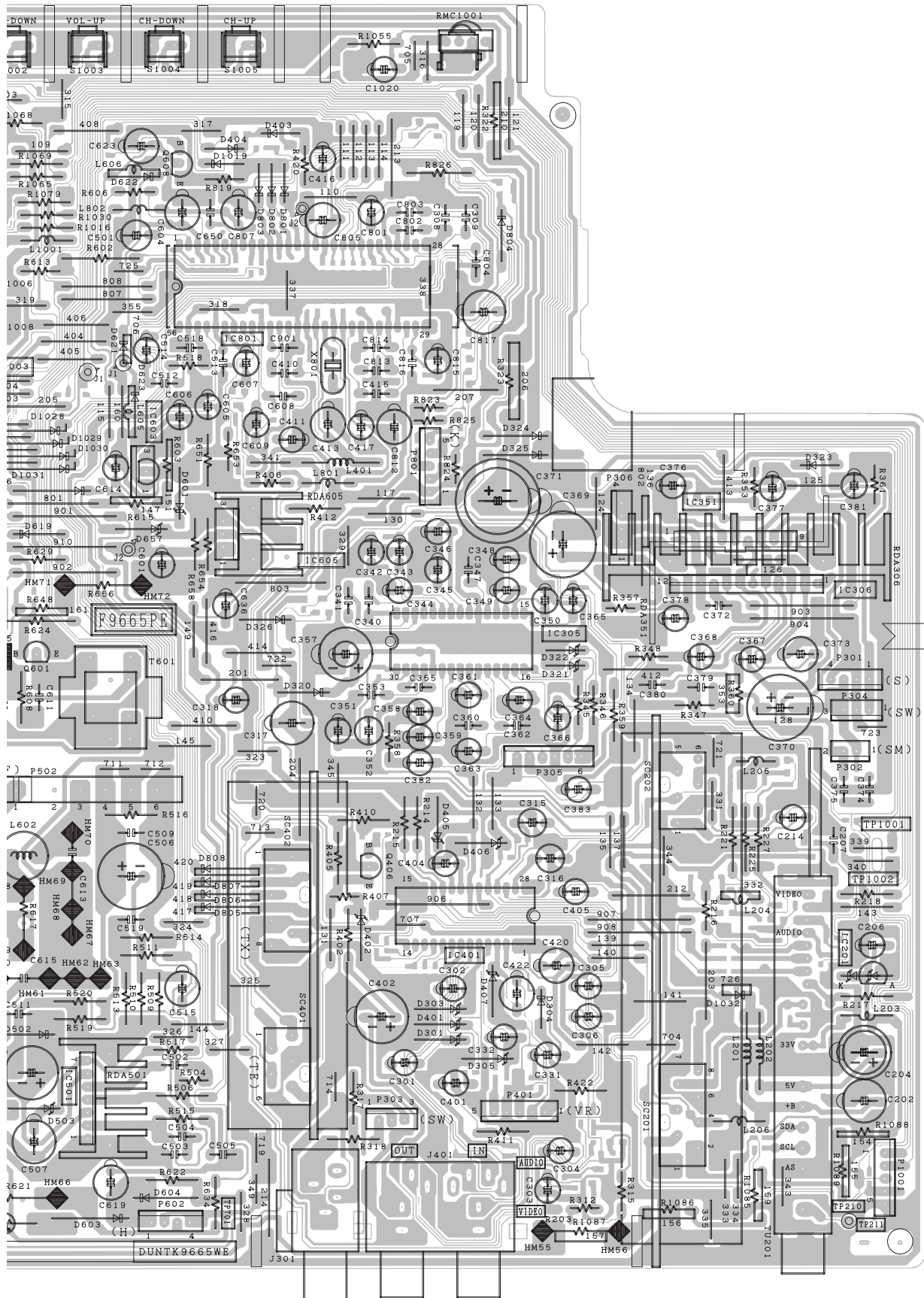
PWB-D (TEXT UNIT)



# PRINTED WIRING BOARD ASSEMBLIES



PWB-A: MAIN Unit (Wiring Side)



|    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|----|----|----|----|----|----|----|----|----|----|

H

G

F

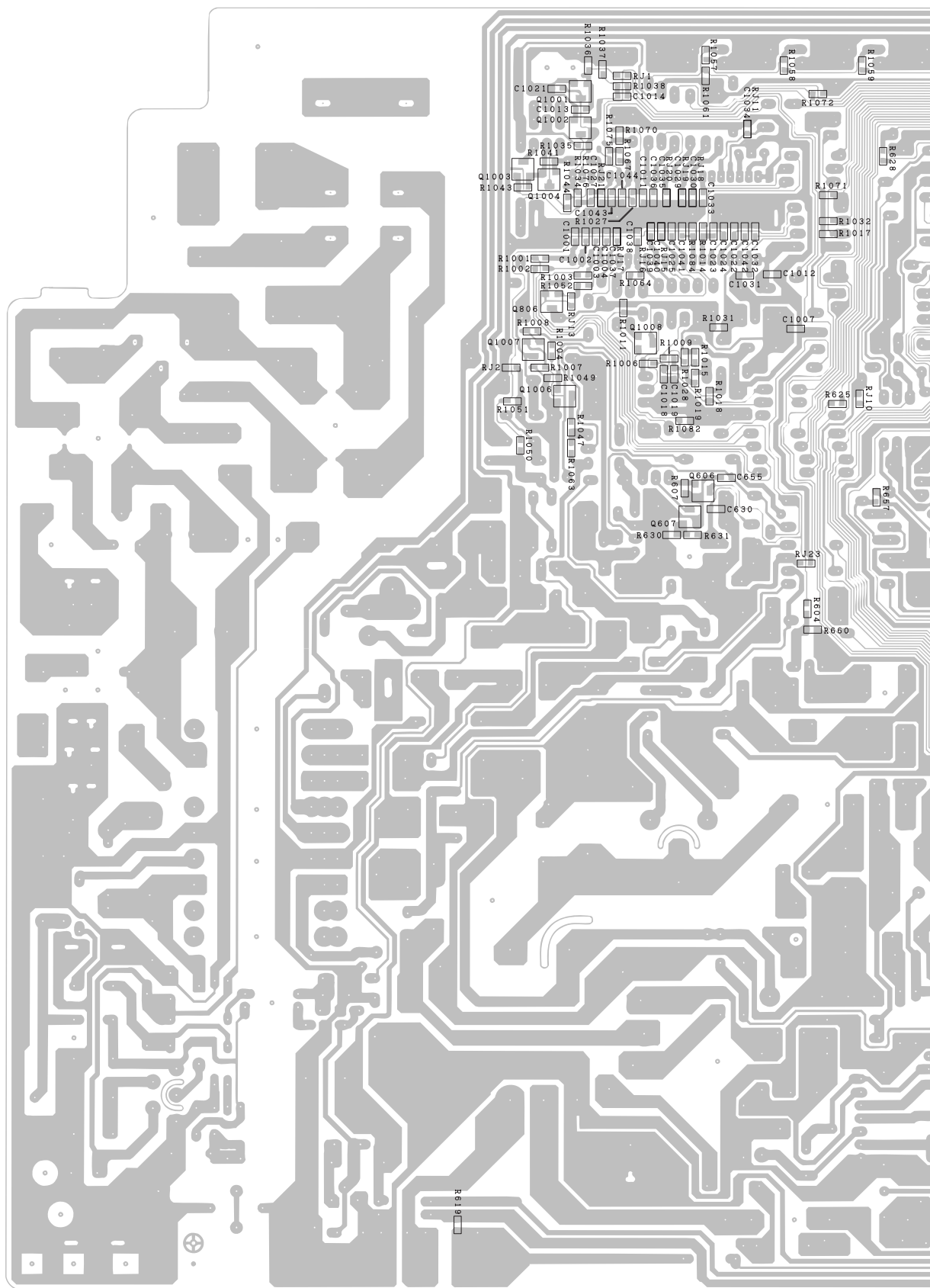
E

D

C

B

A



PWB-A: MAIN Unit (Chip Parts Side)

1

2

3

4

5

6

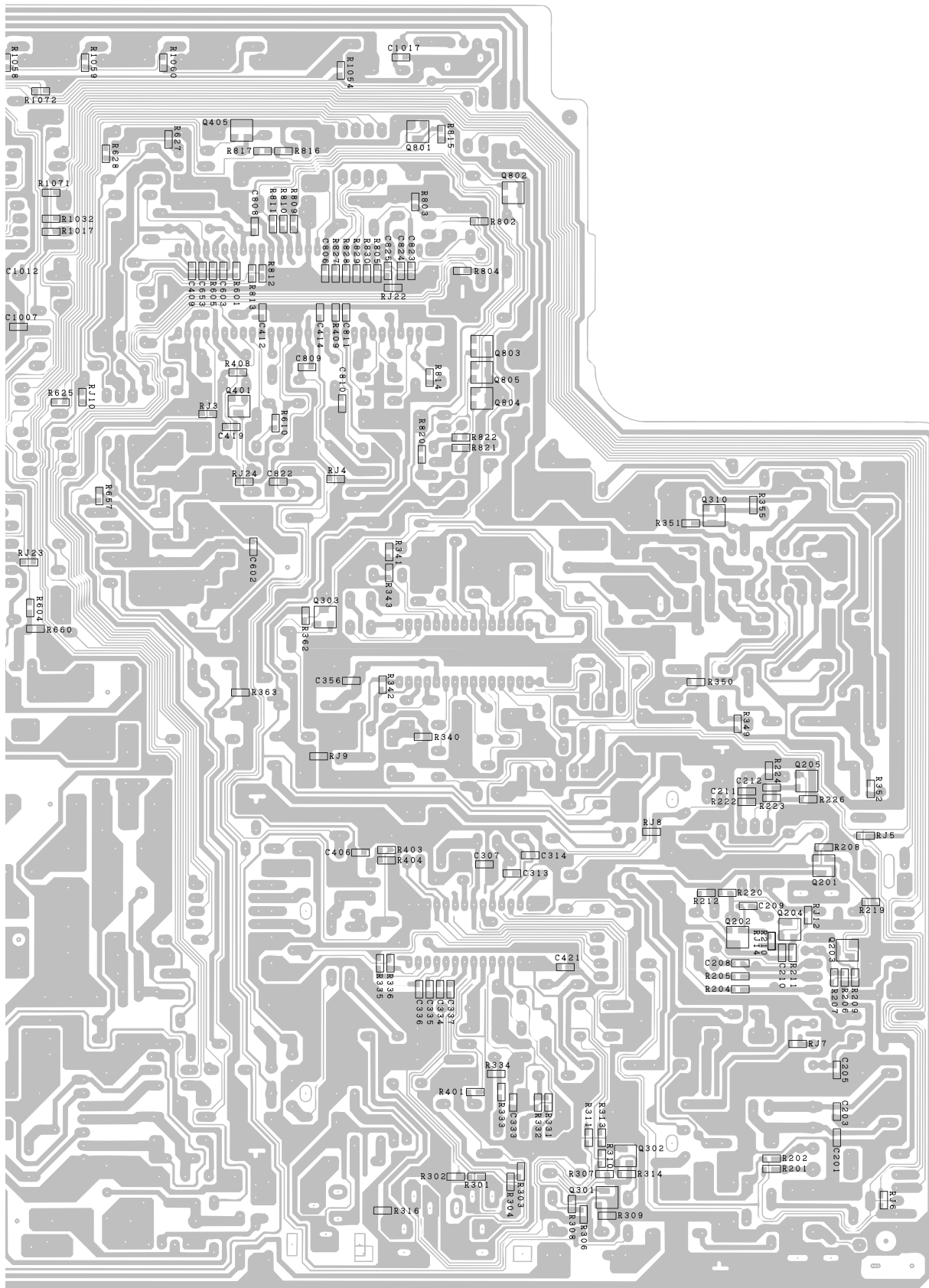
7

8

9

10





|    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|----|----|----|----|----|----|----|----|----|----|





# PARTS LIST

## PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual: electrical components having such features are identified by "△" in the Replacement Parts Lists. The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

### "HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

- |                 |                |
|-----------------|----------------|
| 1. MODEL NUMBER | 2. REF. NO.    |
| 3. PART NO.     | 4. DESCRIPTION |
| 5. CODE         | 6. QUANTITY    |

★ MARK: SPARE PARTS-DELIVERY SECTION

| Ref. No. | Part No. | ★ | Description | Code |
|----------|----------|---|-------------|------|
|----------|----------|---|-------------|------|

## PICTURE TUBE

|        |               |   |                     |    |
|--------|---------------|---|---------------------|----|
| △ V1   | VB51QAE320X2E | R | Picture Tube        | CD |
| △ DY1  | RCiLH0200PEZZ | R | Deflection Yoke     | BB |
| △ L708 | RCiLG0025PEZZ | R | Degaussing Coil     | AW |
|        | LHLDW0003PEKZ | R | ADG Coil Holder, x4 | AB |
|        | LHLDW1075PEKZ | R | ADG Fix Holder      | AC |
|        | MSPRT0001PEFJ | R | Spring              | AC |
|        | PMAGF3003CEZZ | R | Magnet              | AK |
|        | QEARC2107PEZZ | R | Grouding Strap      | AE |

## PRINTED WIRING BOARD ASSEMBLIES (NOT REPLECEMENT ITEM)

|       |               |   |               |   |
|-------|---------------|---|---------------|---|
| PWB-A | DUNTK9665WEW5 | — | MAIN Unit     | — |
| PWB-B | DUNTK9666WEV4 | — | CRT Unit      | — |
| PWB-D | DUNTK9669WEV2 | — | TEXT Unit     | — |
| PWB-E | DUNTK9667WEV2 | — | FRONT-AV Unit | — |

| Ref. No. | Part No. | ★ | Description | Code |
|----------|----------|---|-------------|------|
|----------|----------|---|-------------|------|

## PWB-A: DUNTK9665WEW5 MAIN UNIT

### TUNER

**Note: THE PARTS HERE SOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.**

|         |               |   |           |    |
|---------|---------------|---|-----------|----|
| △ TU201 | VTUVTBT6ED261 | R | VHF Tuner | BN |
|---------|---------------|---|-----------|----|

### INTEGRATED CIRCUITS

|        |               |   |           |    |
|--------|---------------|---|-----------|----|
| IC201  | RH-iX0037CEZZ | R | UPC574J   | AF |
| IC351  | VHiTDA7056A-1 | R | TDA7056A  | AP |
| IC401  | VHiM52797SP-1 | R | M52797SP  | AP |
| IC501  | VHiLA7830//-1 | R | LA7830    | AH |
| IC603  | VHiTA78L09S-1 | R | TA78L09S  | AC |
| IC605  | VHiKA7809PI-1 | J | KA7809PI  | AE |
| IC701  | VHiSTRF6654-1 | R | STRF6654  | AX |
| IC702  | RH-FX0008GEZZ | R | PC123FY8  | AE |
| IC703  | VHiPQ05RD11-1 | R | PQ05RD11  | AG |
| IC704  | VHiSE115N//-1 | R | SE115N    | AF |
| IC801  | VHiTB1226DN-1 | R | TB1226DN  | BB |
| IC1001 | RH-iX3135CEZZ | R | M37221M8  | AX |
| IC1002 | VHiKiA7045A-1 | R | KIA7045A  | AE |
| IC1003 | VHiAT24C04/-1 | R | AT24C04   | AP |
| IC1004 | VHiUPC78L05-4 | R | UPC78L05J | AD |

### TRANSISTORS

|        |               |   |            |    |
|--------|---------------|---|------------|----|
| Q201   | VS2SD601A//-1 | R | 2SD601A    | AC |
| Q202   | VS2SB709A//-1 | R | 2SB709A    | AA |
| Q203   | VS2SD601A//-1 | R | 2SD601A    | AC |
| Q204   | VS2SD601A//-1 | R | 2SD601A    | AC |
| Q205   | VS2SB709A//-1 | R | 2SB709A    | AA |
| Q302   | VS2SD601A//-1 | R | 2SD601A    | AC |
| Q303   | VS2SB709A//-1 | R | 2SB709A    | AA |
| Q310   | VS2SD601A//-1 | R | 2SD601A    | AC |
| Q401   | VS2SD601A//-1 | R | 2SD601A    | AC |
| Q405   | VS2SB709A//-1 | R | 2SB709A    | AA |
| Q406   | VS2SC1815GW-1 | R | 2SC1815GW  | AB |
| Q601   | VS2SC2482//-1 | R | 2SC2482    | AD |
| △ Q602 | VS2SD2586//1E | R | 2SD2586    | AM |
| Q606   | VS2SD601A//-1 | R | 2SD601A    | AC |
| △ Q607 | VS2SD601A//-1 | R | 2SD601A    | AC |
| Q801   | VS2SD601A//-1 | R | 2SD601A    | AC |
| Q802   | VS2SB709A//-1 | R | 2SB709A    | AA |
| Q803   | VS2SB709A//-1 | R | 2SB709A    | AA |
| Q804   | VS2SB709A//-1 | R | 2SB709A    | AA |
| Q805   | VS2SB709A//-1 | R | 2SB709A    | AA |
| Q806   | VS2SD601A//-1 | R | 2SD601A    | AC |
| Q1001  | VS2SD601A//-1 | R | 2SD601A    | AC |
| Q1002  | VS2SD601A//-1 | R | 2SD601A    | AC |
| Q1003  | VS2SB709A//-1 | R | 2SB709A    | AA |
| Q1004  | VS2SB709A//-1 | R | 2SB709A    | AA |
| Q1005  | VS2SA1015Y/1E | R | 2SA1015(Y) | AC |
| Q1006  | VS2SD601A//-1 | R | 2SD601A    | AC |
| Q1007  | VS2SD601A//-1 | R | 2SD601A    | AC |
| Q1008  | VS2SD601A//-1 | R | 2SD601A    | AC |

### DIODES

|      |               |   |             |    |
|------|---------------|---|-------------|----|
| D303 | RH-EX0631GEZZ | R | Zener Diode | AA |
| D304 | RH-EX0631GEZZ | R | Zener Diode | AA |
| D306 | RH-DX0445CEZZ | R | Diode       | AL |
| D323 | RH-DX0475CEZZ | R | Diode       | AB |
| D324 | RH-DX0475CEZZ | R | Diode       | AB |
| D325 | RH-DX0475CEZZ | R | Diode       | AB |
| D326 | RH-DX0475CEZZ | R | Diode       | AB |
| D329 | RH-DX0475CEZZ | R | Diode       | AB |
| D401 | RH-EX0631GEZZ | R | Zener Diode | AA |
| D402 | RH-EX0631GEZZ | R | Zener Diode | AA |
| D403 | RH-DX0475CEZZ | R | Diode       | AB |
| D404 | RH-DX0475CEZZ | R | Diode       | AB |
| D406 | RH-EX0631GEZZ | R | Zener Diode | AA |
| D407 | RH-EX0631GEZZ | R | Zener Diode | AA |
| D501 | RH-DX0279CEZZ | R | Diode       | AB |
| D502 | RH-DX0127CEZZ | R | Diode       | AC |
| D503 | RH-EX0675GEZZ | R | Zener Diode | AB |

| Ref. No.                     | Part No.      | ★ | Description            | Code |
|------------------------------|---------------|---|------------------------|------|
| <b>PWB-A: DUNTK9665WEW5</b>  |               |   |                        |      |
| <b>MAIN UNIT (Continued)</b> |               |   |                        |      |
| D504                         | RH-EX0675GEZZ | R | Zener Diode            | AB   |
| D601                         | RH-EX0612GEZZ | R | Zener Diode            | AA   |
| D602                         | RH-EX0631GEZZ | R | Zener Diode            | AA   |
| D603                         | RH-DX0062CEZZ | R | Diode                  | AD   |
| D604                         | RH-DX0279CEZZ | R | Diode                  | AB   |
| △ D606                       | RH-DX0475CEZZ | R | Diode                  | AB   |
| △ D607                       | RH-EX0662GEZZ | R | Zener Diode            | AB   |
| D618                         | RH-DX0475CEZZ | R | Diode                  | AB   |
| D619                         | RH-DX0475CEZZ | R | Diode                  | AB   |
| D620                         | RH-DX0475CEZZ | R | Diode                  | AB   |
| △ D657                       | RH-EX0604GEZZ | R | Zener Diode            | AB   |
| D701                         | RH-DX0386CEZZ | R | Diode                  | AG   |
| D705                         | RH-DX0492CEZZ | R | Diode                  | AE   |
| D706                         | VHD1SS82///1A | R | Diode                  | AC   |
| D707                         | VHD1SS82///1A | R | Diode                  | AC   |
| D708                         | RH-DX0400CEZZ | R | Diode                  | AC   |
| D709                         | RH-DX0164CEZZ | R | Diode                  | AC   |
| D710                         | RH-EX0601GEZZ | R | Zener Diode            | AA   |
| D732                         | RH-DX0461CEZZ | R | Diode                  | AG   |
| D733                         | RH-DX0302CEZZ | R | Diode                  | AC   |
| D734                         | VHDL3Z///-1   | R | Diode                  | AE   |
| D801                         | RH-DX0475CEZZ | R | Diode                  | AB   |
| D802                         | RH-DX0475CEZZ | R | Diode                  | AB   |
| D803                         | RH-DX0475CEZZ | R | Diode                  | AB   |
| D804                         | RH-DX0475CEZZ | R | Diode                  | AB   |
| D1004                        | RH-EX0619GEZZ | R | Zener Diode            | AA   |
| D1013                        | RH-PX0291CEZZ | R | Photodiode             | AC   |
| D1014                        | RH-EX0619GEZZ | R | Zener Diode            | AA   |
| D1018                        | RH-DX0475CEZZ | R | Diode                  | AB   |
| D1019                        | RH-DX0475CEZZ | R | Diode                  | AB   |
| D1020                        | RH-DX0475CEZZ | R | Diode                  | AB   |
| D1021                        | RH-DX0475CEZZ | R | Diode                  | AB   |
| △ VA702                      | RH-VX0047CEZZ | R | Varistor               | AF   |
| <b>PACKAGED CIRCUITS</b>     |               |   |                        |      |
| PR701                        | RMPTP0001PEZZ | J | Packaged Circuit       | AN   |
| X801                         | RCRSB0260CEZZ | R | Crystal                | AK   |
| <b>FILTER AND COILS</b>      |               |   |                        |      |
| CF1001                       | RFILA0084CEZZ | R | Ceramic Filter         | AE   |
| L202                         | VP-CF270K0000 | R | Peaking 27μH           | AB   |
| L203                         | VP-DF270K0000 | R | Peaking 27μH           | AB   |
| L205                         | VP-XF390K0000 | R | Peaking 39μH           | AB   |
| L206                         | VP-DF270K0000 | R | Peaking 27μH           | AB   |
| L401                         | VP-CF101K0000 | R | Peaking 100μH          | AB   |
| L602                         | RCILP0224CEZZ | R | Coil                   | AE   |
| L605                         | VP-DF101K0000 | R | Peaking 100μH          | AB   |
| L609                         | VP-CF1R0M0000 | R | Peaking 1μH            | AB   |
| L632                         | RCILP0225CEZZ | R | Coil                   | AF   |
| △ L701                       | RCILF0045PEZZ | J | Coil                   | AF   |
| △ L702                       | RCILF0036PEZZ | J | Coil                   | AN   |
| L801                         | VP-DF101K0000 | R | Peaking 100μH          | AB   |
| L802                         | VP-DF101K0000 | R | Peaking 100μH          | AB   |
| L1001                        | VP-DF1R0K0000 | R | Peaking 1μH            | AB   |
| <b>TRANSFORMERS</b>          |               |   |                        |      |
| △ T601                       | RTRNZ0026PEZZ | J | Transformer            | AH   |
| △ T602                       | RTRNF0147PEZZ | J | H-Volt Transformer     | BC   |
| △ T701                       | RTRNZ0138PEZZ | J | Transformer            | AW   |
| <b>CAPACITORS</b>            |               |   |                        |      |
| C201                         | VCKYCY1HF103Z | R | 0.01 50V Ceramic       | AA   |
| C202                         | VCEAGA1CW337M | R | 330 16V Electrolytic   | AC   |
| C203                         | VCKYCY1HF103Z | R | 0.01 50V Ceramic       | AA   |
| C204                         | VCEAGA0JW108M | R | 1000 6.3V Electrolytic | AC   |
| C205                         | VCKYCY1HF103Z | R | 0.01 50V Ceramic       | AA   |
| C206                         | VCEAGA1HW106M | R | 10 50V Electrolytic    | AC   |
| C207                         | RC-QZA222TAYJ | R | 0.0022 50V Mylar       | AB   |
| C211                         | VCCCCY1HH180J | R | 18p 50V Ceramic        | AA   |
| C212                         | VCCCCY1HH270J | R | 27p 50V Ceramic        | AA   |
| C302                         | VCEAGA1CW106M | R | 10 16V Electrolytic    | AA   |

| Ref. No. | Part No.      | ★ | Description              | Code |
|----------|---------------|---|--------------------------|------|
| C304     | VCEAGA1CW106M | R | 10 16V Electrolytic      | AA   |
| C305     | VCEAGA1CW106M | R | 10 16V Electrolytic      | AA   |
| C308     | VCKYPA1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C309     | VCKYPA1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C311     | VCKYPA2HB102K | R | 1000p 500V Ceramic       | AA   |
| C312     | VCEAGA1CW477M | R | 470 16V Electrolytic     | AC   |
| C313     | VCCCCY1HH221J | R | 220p 50V Ceramic         | AA   |
| C314     | VCKYCY1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C316     | VCE9GA1CW106M | R | 10 16V Elect.(N.P)       | AB   |
| C317     | VCEAGA1CW227M | R | 220 16V Electrolytic     | AC   |
| C331     | VCEAGA1CW106M | R | 10 16V Electrolytic      | AA   |
| C333     | VCKYCY1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C334     | VCKYCY1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C335     | VCKYCY1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C336     | VCKYCY1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C337     | VCKYCY1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C367     | VCFYSA1HB474J | R | 0.47 50V Mylar           | AC   |
| C371     | VCEAGA1CW477M | R | 470 16V Electrolytic     | AC   |
| C372     | VCKYPA1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C374     | RC-QZA473TAYJ | R | 0.047 50V Mylar          | AB   |
| C375     | RC-QZA473TAYJ | R | 0.047 50V Mylar          | AB   |
| C376     | VCEAGA1HW225M | R | 2.2 50V Electrolytic     | AB   |
| C377     | VCEAGA1HW104M | R | 0.1 50V Electrolytic     | AA   |
| C379     | RC-QZA822TAYJ | R | 0.0082 50V Mylar         | AB   |
| C383     | VCEAGA1CW106M | R | 10 16V Electrolytic      | AA   |
| C384     | VCE9GA1CW106M | R | 10 16V Elect.(N.P)       | AB   |
| C385     | VCEAGA1CW106M | R | 10 16V Electrolytic      | AA   |
| C401     | VCEAGA1CW106M | R | 10 16V Electrolytic      | AA   |
| C402     | VCEAGA1CW477M | R | 470 16V Electrolytic     | AC   |
| C404     | VCEAGA1CW106M | R | 10 16V Electrolytic      | AA   |
| C405     | VCEAGA1CW106M | R | 10 16V Electrolytic      | AA   |
| C406     | VCKYCY1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C409     | VCKYCY1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C410     | RC-QZA104TAYJ | R | 0.1 50V Mylar            | AC   |
| C411     | VCEAGA1HW475M | R | 4.7 50V Electrolytic     | AB   |
| C412     | VCKYCY1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C413     | VCEAGA1AW477M | R | 470 10V Electrolytic     | AC   |
| C414     | VCKYCY1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C415     | RC-QZA104TAYJ | R | 0.1 50V Mylar            | AC   |
| C416     | VCEAGA1CW226M | R | 22 16V Electrolytic      | AB   |
| C417     | VCEAGA1HW105M | R | 1.0 50V Electrolytic     | AC   |
| C419     | VCCCCY1HH560J | R | 56p 50V Ceramic          | AA   |
| C420     | VCEAGA1CW107M | R | 100 16V Electrolytic     | AB   |
| C421     | VCKYCY1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C422     | VCEAGA1CW106M | R | 10 16V Electrolytic      | AA   |
| C501     | VCEACA1HC105M | R | 1.0 50V Electrolytic     | AC   |
| C502     | VCKYPA1HB471K | R | 470p 50V Ceramic         | AA   |
| C503     | RC-QZA104TAYJ | R | 0.1 50V Mylar            | AC   |
| C504     | VCCSPA2HL471K | R | 470p 500V Ceramic        | AB   |
| C505     | RC-QZA104TAYJ | R | 0.1 50V Mylar            | AC   |
| C506     | VCEAGA1EW108M | R | 1000 25V Electrolytic    | AD   |
| C507     | VCEAGA1VW107M | R | 100 35V Electrolytic     | AC   |
| C509     | RC-QZA104TAYJ | R | 0.1 50V Mylar            | AC   |
| C510     | VCEAGA1VW108M | R | 1000 35V Electrolytic    | AD   |
| C511     | VCKYPA2HB102K | R | 1000p 500V Ceramic       | AA   |
| C512     | VCFYSA1HB824J | R | 0.82 50V Mylar           | AC   |
| C513     | VCFYSA1HB824J | R | 0.82 50V Mylar           | AC   |
| C514     | VCEAGA1HW105M | R | 1.0 50V Electrolytic     | AC   |
| C515     | VCFYHA1HA105J | R | 1.0 50V                  | AE   |
| C518     | RC-QZA392TAYJ | R | 3900p 50V Mylar          | AB   |
| C519     | RC-QZA472TAYJ | R | 0.0047 50V Mylar         | AB   |
| C601     | VCEAGA1CW476M | R | 47 16V Electrolytic      | AB   |
| C602     | VCKYCY1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C603     | VCKYCY1HF103Z | R | 0.01 50V Ceramic         | AA   |
| C604     | VCEAGA1CW107M | R | 100 16V Electrolytic     | AB   |
| C605     | VCEAGA1CW476M | R | 47 16V Electrolytic      | AB   |
| C606     | VCEAGA1CW476M | R | 47 16V Electrolytic      | AB   |
| C607     | VCEAGA1HW105M | R | 1.0 50V Electrolytic     | AC   |
| C608     | RC-QZA103TAYJ | R | 0.01 50V Mylar           | AB   |
| C609     | VCEAGA1HW105M | R | 1.0 50V Electrolytic     | AC   |
| C610     | VCFYSB2EB823J | R | 0.082 250V Mylar         | AD   |
| C611     | VCKYPA2HB102K | R | 1000p 500V Ceramic       | AA   |
| C613     | VCFPPD2DB564J | R | 0.56 200V Polypro Film   | AF   |
| C614     | VCEAGA1CW106M | R | 10 16V Electrolytic      | AA   |
| C615     | VCPSPD2DA224J | R | 0.22 200V Mylar          | AD   |
| C616     | VCFPPD3CA912H | R | 9100p 1.6kV Polypro Film | AE   |

| Ref. No.              | Part No. | ★             | Description | Code              | Ref. No. | Part No.      | ★             | Description       | Code              |    |
|-----------------------|----------|---------------|-------------|-------------------|----------|---------------|---------------|-------------------|-------------------|----|
| PWB-A: DUNTK9665WEW5  |          |               |             |                   | C1020    | VCEAGA0JW107M | R 100         | 6.3V Electrolytic | AB                |    |
| MAIN UNIT (Continued) |          |               |             |                   | C1021    | VCCCCY1HH181J | R 180p        | 50V Ceramic       | AA                |    |
|                       | C617     | RC-QZA104TAYJ | R 0.1       | 50V Mylar         | AC       | C1022         | VCKYCY1HF103Z | R 0.01            | 50V Ceramic       | AA |
| △                     | C619     | VCEAGA2AW106M | R 10        | 100V Electrolytic | AC       | C1023         | VCKYCY1HF103Z | R 0.01            | 50V Ceramic       | AA |
| △                     | C620     | VCEAGA1HW105M | R 1.0       | 50V Electrolytic  | AC       | C1024         | VCKYCY1HF103Z | R 0.01            | 50V Ceramic       | AA |
| △                     | C622     | VCEAGA1HW105M | R 1.0       | 50V Electrolytic  | AC       | C1025         | VCKYCY1HF103Z | R 0.01            | 50V Ceramic       | AA |
|                       | C630     | VCKYCY1HF103Z | R 0.01      | 50V Ceramic       | AA       | C1027         | VCKYCY1HF103Z | R 0.01            | 50V Ceramic       | AA |
|                       | C636     | VCEAGA1CW476M | R 47        | 16V Electrolytic  | AB       | C1031         | VCKYCY1HF103Z | R 0.01            | 50V Ceramic       | AA |
|                       | C650     | VCFYSA1HB224J | R 0.22      | 50V Mylar         | AB       | C1032         | VCKYCY1HF103Z | R 0.01            | 50V Ceramic       | AA |
|                       | C653     | VCKYCY1HF103Z | R 0.01      | 50V Ceramic       | AA       | C1033         | VCKYCY1HF103Z | R 0.01            | 50V Ceramic       | AA |
|                       | C654     | VCEAGA1CW476M | R 47        | 16V Electrolytic  | AB       | C1035         | VCKYCY1HF103Z | R 0.01            | 50V Ceramic       | AA |
|                       | C655     | VCKYCY1HF103Z | R 0.01      | 50V Ceramic       | AA       | C1036         | VCKYCY1HF103Z | R 0.01            | 50V Ceramic       | AA |
|                       | C656     | VCEAGA1AW477M | R 470       | 10V Electrolytic  | AC       | C1037         | VCKYCY1HF103Z | R 0.01            | 50V Ceramic       | AA |
| △                     | C701     | RC-FZ022SCEZZ | R 0.47      | AC250V Plastic    | AG       | C1038         | VCCSCY1HL471J | R 470p            | 50V Ceramic       | AA |
|                       | C702     | RC-KZ0160GEZZ | R 0.01      | 250V Ceramic      | AC       | C1039         | VCKYCY1HF103Z | R 0.01            | 50V Ceramic       | AA |
|                       | C703     | RC-KZ0160GEZZ | R 0.01      | 250V Ceramic      | AC       | C1042         | VCKYCY1HF103Z | R 0.01            | 50V Ceramic       | AA |
|                       | C707     | RC-EZ0804CEZZ | R 220       | 400V Electrolytic | AU       | C1043         | VCCSCY1HL471J | R 470p            | 50V Ceramic       | AA |
|                       | C708     | RC-KZ0160GEZZ | R 0.01      | 250V Ceramic      | AC       | C1044         | VCCSCY1HL471J | R 470p            | 50V Ceramic       | AA |
|                       | C709     | VCKYD41HB102K | R 1000p     | 50V Ceramic       | AA       | RESISTORS     |               |                   |                   |    |
|                       | C710     | RC-QZA471TAYJ | R 470p      | 50V Mylar         | AB       | RJ1           | VRS-CY1JF000J | R 0               | 1/16W Metal Oxide | AA |
|                       | C711     | RC-KZ0339CEZZ | R 680p      | 2kV Ceramic       | AD       | RJ2           | VRS-CY1JF000J | R 0               | 1/16W Metal Oxide | AA |
|                       | C712     | RC-QZA102TAYJ | R 0.001     | 50V Mylar         | AB       | RJ3           | VRS-CY1JF000J | R 0               | 1/16W Metal Oxide | AA |
|                       | C713     | RC-KZ007JCEZZ | R 0.01      | 250V Ceramic      | AC       | RJ4           | VRS-CY1JF000J | R 0               | 1/16W Metal Oxide | AA |
|                       | C714     | RC-KZ0338CEZZ | R 560p      | 2kV Ceramic       | AD       | RJ6           | VRS-CY1JF000J | R 0               | 1/16W Metal Oxide | AA |
|                       | C715     | VCKYPA2HB102K | R 1000p     | 500V Ceramic      | AA       | RJ9           | VRS-CY1JF000J | R 0               | 1/16W Metal Oxide | AA |
|                       | C716     | VCEAGA1EW107M | R 100       | 25V Electrolytic  | AD       | RJ11          | VRS-CY1JF000J | R 0               | 1/16W Metal Oxide | AA |
|                       | C717     | RC-QZA182TAYJ | R 1800p     | 50V Mylar         | AB       | RJ15          | VRS-CY1JF000J | R 0               | 1/16W Metal Oxide | AA |
| △                     | C721     | RC-KZ0156CEZZ | R 3300p     | 4kV Ceramic       | AG       | RJ18          | VRS-CY1JF000J | R 0               | 1/16W Metal Oxide | AA |
|                       | C730     | RC-QZA473TAYJ | R 0.047     | 50V Mylar         | AB       | RJ19          | VRS-CY1JF000J | R 0               | 1/16W Metal Oxide | AA |
|                       | C731     | VCEA4W2CN227M | R 220       | 160V Electrolytic | AG       | RJ22          | VRS-CY1JF000J | R 0               | 1/16W Metal Oxide | AA |
|                       | C732     | RC-KZ0339CEZZ | R 680p      | 2kV Ceramic       | AD       | RJ23          | VRS-CY1JF000J | R 0               | 1/16W Metal Oxide | AA |
|                       | C733     | VCKYPA2HB102K | R 1000p     | 500V Ceramic      | AA       | RJ24          | VRS-CY1JF000J | R 0               | 1/16W Metal Oxide | AA |
|                       | C734     | VCEAGA1CW477M | R 470       | 16V Electrolytic  | AC       | R201          | VRS-CY1JF680J | R 68              | 1/16W Metal Oxide | AA |
|                       | C735     | VCEAGA1CW108M | R 1000      | 16V Electrolytic  | AD       | R202          | VRS-CY1JF680J | R 68              | 1/16W Metal Oxide | AA |
|                       | C736     | VCKYPA2HB102K | R 1000p     | 500V Ceramic      | AA       | R204          | VRS-CY1JF101J | R 100             | 1/16W Metal Oxide | AA |
|                       | C737     | RC-EZ0724CEZZ | R 100       | 160V Electrolytic | AG       | R205          | VRS-CY1JF101J | R 100             | 1/16W Metal Oxide | AA |
|                       | C801     | VCEAGA1HW475M | R 4.7       | 50V Electrolytic  | AB       | R207          | VRS-CY1JF472J | R 4.7k            | 1/16W Metal Oxide | AA |
|                       | C802     | RC-QZA103TAYJ | R 0.01      | 50V Mylar         | AB       | R208          | VRS-CY1JF222J | R 2.2k            | 1/16W Metal Oxide | AA |
|                       | C803     | RC-QZA103TAYJ | R 0.01      | 50V Mylar         | AB       | R210          | VRS-CY1JF221J | R 220             | 1/16W Metal Oxide | AA |
|                       | C804     | RC-QZA103TAYJ | R 0.01      | 50V Mylar         | AB       | R211          | VRS-CY1JF391J | R 390             | 1/16W Metal Oxide | AA |
|                       | C805     | VCEAGA1CW107M | R 100       | 16V Electrolytic  | AB       | R212          | VRS-CY1JF102J | R 1.0k            | 1/16W Metal Oxide | AA |
|                       | C806     | VCKYCY1HF103Z | R 0.01      | 50V Ceramic       | AA       | R214          | VRD-RA2BE103J | R 10k             | 1/8W Carbon       | AA |
|                       | C807     | VCEAGA1CW107M | R 100       | 16V Electrolytic  | AB       | R215          | VRD-RA2BE103J | R 10k             | 1/8W Carbon       | AA |
|                       | C808     | VCKYCY1HF103Z | R 0.01      | 50V Ceramic       | AA       | R217          | VRD-RA2BE101J | R 100             | 1/8W Carbon       | AB |
|                       | C809     | VCKYCY1HF103Z | R 0.01      | 50V Ceramic       | AA       | R218          | VRD-RA2BE473J | R 47k             | 1/8W Carbon       | AA |
|                       | C810     | VCCCCY1HH120J | R 12p       | 50V Ceramic       | AA       | R219          | VRS-CY1JF473J | R 47k             | 1/16W Metal Oxide | AA |
|                       | C811     | VCKYCY1HB102K | R 1000p     | 50V Ceramic       | AA       | R220          | VRS-CY1JF391J | R 390             | 1/16W Metal Oxide | AA |
|                       | C812     | VCEAGA1CW107M | R 100       | 16V Electrolytic  | AB       | R221          | VRD-RA2BE101J | R 100             | 1/8W Carbon       | AB |
|                       | C813     | RC-QZA104TAYJ | R 0.1       | 50V Mylar         | AC       | R222          | VRS-CY1JF472J | R 4.7k            | 1/16W Metal Oxide | AA |
|                       | C814     | RC-QZA104TAYJ | R 0.1       | 50V Mylar         | AC       | R223          | VRS-CY1JF472J | R 4.7k            | 1/16W Metal Oxide | AA |
|                       | C815     | VCEAGA1HW105M | R 1.0       | 50V Electrolytic  | AC       | R224          | VRS-CY1JF822J | R 8.2k            | 1/16W Metal Oxide | AA |
|                       | C816     | RC-QZA103TAYJ | R 0.01      | 50V Mylar         | AB       | R225          | VRD-RA2BE102J | R 1.0k            | 1/8W Carbon       | AA |
|                       | C817     | VCEAGA1CW227M | R 220       | 16V Electrolytic  | AC       | R227          | VRD-RA2BE472J | R 4.7k            | 1/8W Carbon       | AA |
|                       | C818     | RC-QZA103TAYJ | R 0.01      | 50V Mylar         | AB       | R303          | VRS-CY1JF564J | R 560k            | 1/16W Metal Oxide | AA |
|                       | C822     | VCKYCY1HF103Z | R 0.01      | 50V Ceramic       | AA       | R304          | VRS-CY1JF102J | R 1.0k            | 1/16W Metal Oxide | AA |
|                       | C901     | RC-QZA104TAYJ | R 0.1       | 50V Mylar         | AC       | R307          | VRS-CY1JF104J | R 100k            | 1/16W Metal Oxide | AA |
|                       | C1001    | VCCCCY1HH330J | R 33p       | 50V Ceramic       | AA       | R310          | VRS-CY1JF101J | R 100             | 1/16W Metal Oxide | AA |
|                       | C1002    | VCCCCY1HH330J | R 33p       | 50V Ceramic       | AA       | R313          | VRS-CY1JF561J | R 560             | 1/16W Metal Oxide | AA |
|                       | C1003    | VCCCCY1HH330J | R 33p       | 50V Ceramic       | AA       | R314          | VRS-CY1JF222J | R 2.2k            | 1/16W Metal Oxide | AA |
|                       | C1004    | VCCCCY1HH330J | R 33p       | 50V Ceramic       | AA       | R315          | VRD-RA2BE102J | R 1.0k            | 1/8W Carbon       | AA |
|                       | C1005    | VCEAGA1HW105M | R 1.0       | 50V Electrolytic  | AC       | R316          | VRS-CY1JF103J | R 10k             | 1/16W Metal Oxide | AA |
|                       | C1006    | VCEAGA1AW107M | R 100       | 10V Electrolytic  | AB       | R322          | VRN-VV3DB1R2J | R 1.2             | 2W Metal Film     | AA |
|                       | C1007    | VCKYCY1HF103Z | R 0.01      | 50V Ceramic       | AA       | R323          | VRN-VV3DB1R0J | R 1.0             | 2W Metal Film     | AB |
|                       | C1008    | VCEAGA1AW476M | R 47        | 10V Electrolytic  | AA       | R331          | VRS-CY1JF102J | R 1.0k            | 1/16W Metal Oxide | AA |
|                       | C1010    | VCEAGA1CW106M | R 10        | 16V Electrolytic  | AA       | R332          | VRS-CY1JF564J | R 560k            | 1/16W Metal Oxide | AA |
|                       | C1011    | VCCCCY1HH101J | R 100p      | 50V Ceramic       | AA       | R335          | VRS-CY1JF101J | R 100             | 1/16W Metal Oxide | AA |
|                       | C1012    | VCKYCY1HF103Z | R 0.01      | 50V Ceramic       | AA       | R336          | VRS-CY1JF101J | R 100             | 1/16W Metal Oxide | AA |
|                       | C1013    | VCCCCY1HH471J | R 470p      | 50V Ceramic       | AA       | R347          | VRD-RA2BE392J | R 3.9k            | 1/8W Carbon       | AA |
|                       | C1014    | VCCCCY1HH560J | R 56p       | 50V Ceramic       | AA       | R349          | VRS-CY1JF332J | R 3.3k            | 1/16W Metal Oxide | AA |
|                       | C1015    | VCEAGA1CW476M | R 47        | 16V Electrolytic  | AB       | R351          | VRS-CY1JF392J | R 3.9k            | 1/16W Metal Oxide | AA |
|                       | C1016    | VCEAGA0JW107M | R 100       | 6.3V Electrolytic | AB       | R352          | VRS-CY1JF100J | R 10              | 1/16W Metal Oxide | AA |
|                       | C1017    | VCKYCY1HF103Z | R 0.01      | 50V Ceramic       | AA       | R353          | VRD-RA2BE473J | R 47k             | 1/8W Carbon       | AA |
|                       | C1018    | VCCCCY1HH680J | R 68p       | 50V Ceramic       | AA       | R355          | VRS-CY1JF473J | R 47k             | 1/16W Metal Oxide | AA |
|                       | C1019    | VCCCCY1HH680J | R 68p       | 50V Ceramic       | AA       | R360          | VRD-RA2BE102J | R 1.0k            | 1/8W Carbon       | AA |
|                       |          |               |             |                   |          | R362          | VRS-CY1JF102J | R 1.0k            | 1/16W Metal Oxide | AA |



| Ref. No.                     | Part No.      | ★ | Description            | Code |
|------------------------------|---------------|---|------------------------|------|
| <b>PWB-A: DUNTK9665WEW5</b>  |               |   |                        |      |
| <b>MAIN UNIT (Continued)</b> |               |   |                        |      |
| R363                         | VRS-CY1JF223J | R | 22k 1/16W Metal Oxide  | AA   |
| R364                         | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA   |
| R401                         | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA   |
| R402                         | VRD-RA2EE560J | R | 56 1/4W Carbon         | AA   |
| R403                         | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA   |
| R404                         | VRS-CY1JF222J | R | 2.2k 1/16W Metal Oxide | AA   |
| R405                         | VRD-RM2HD470J | R | 47 1/2W Carbon         | AA   |
| R406                         | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA   |
| R407                         | VRD-RA2BE180J | R | 18 1/8W Carbon         | AA   |
| R408                         | VRS-CY1JF222J | R | 2.2k 1/16W Metal Oxide | AA   |
| R409                         | VRS-CY1JF824J | R | 820k 1/16W Metal Oxide | AA   |
| R410                         | VRD-RM2HD101J | R | 100 1/2W Carbon        | AA   |
| R411                         | VRD-RA2EE750J | R | 75 1/4W Carbon         | AA   |
| R412                         | VRD-RM2HD101J | R | 100 1/2W Carbon        | AA   |
| R420                         | VRD-RA2BE153J | R | 15k 1/8W Carbon        | AA   |
| R422                         | VRD-RA2EE750J | R | 75 1/4W Carbon         | AA   |
| R504                         | VRD-RA2BE221J | R | 220 1/8W Carbon        | AA   |
| R506                         | VRD-RM2HD102J | R | 1.0k 1/2W Carbon       | AA   |
| R509                         | VRD-RA2EE2R7J | R | 2.7 1/4W Carbon        | AA   |
| R510                         | VRD-RA2EE3R3J | R | 3.3 1/4W Carbon        | AA   |
| R511                         | VRD-RA2BE333J | R | 33k 1/8W Carbon        | AA   |
| R513                         | VRD-RA2BE273J | R | 27k 1/8W Carbon        | AA   |
| R514                         | VRD-RA2BE563J | R | 56k 1/8W Carbon        | AA   |
| R515                         | VRD-RA2EE220J | R | 22 1/4W Carbon         | AA   |
| R516                         | VRD-RM2HD331J | R | 330 1/2W Carbon        | AA   |
| R517                         | VRD-RA2BE223J | R | 22k 1/8W Carbon        | AA   |
| R518                         | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA   |
| R519                         | VRD-RM2HD152J | R | 1.5k 1/2W Carbon       | AA   |
| R601                         | VRS-CY1JF224J | R | 220k 1/16W Metal Oxide | AA   |
| R602                         | VRD-RA2BE103J | R | 10k 1/8W Carbon        | AA   |
| R604                         | VRS-CY1JF391J | R | 390 1/16W Metal Oxide  | AA   |
| R605                         | VRS-CY1JF102J | R | 1.0k 1/16W Metal Oxide | AA   |
| R606                         | VRD-RA2BE681J | R | 680 1/8W Carbon        | AA   |
| R607                         | VRS-CY1JF103J | R | 10k 1/16W Metal Oxide  | AA   |
| R608                         | VRD-RM2HD472J | R | 4.7k 1/2W Carbon       | AA   |
| R609                         | VRS-KT3LB332J | R | 3.3k 3.0W Metal Oxide  | AC   |
| R610                         | VRS-CY1JF822J | R | 8.2k 1/16W Metal Oxide | AA   |
| R611                         | VRW-KQ3NC4R7K | R | 4.7 7.0W Cement        | AE   |
| △ R612                       | VRG-PD2HD820J | R | 82 1/2W Fuse Resistor  | AC   |
| R613                         | VRD-RA2BE103J | R | 10k 1/8W Carbon        | AA   |
| R617                         | VRS-VV3AB330J | R | 33 1W Metal Oxide      | AA   |
| R618                         | VRD-RM2HD102J | R | 1.0k 1/2W Carbon       | AA   |
| R619                         | VRS-CY1JF393J | R | 39k 1/16W Metal Oxide  | AA   |
| △ R620                       | RR-XZ0085CEZZ | R | 3.9 1/4W Fuse Resistor | AC   |
| R621                         | VRN-RV3ABR56J | R | 0.56 1W Metal Film     | AB   |
| R622                         | VRD-RM2HD223J | R | 22k 1/2W Carbon        | AA   |
| △ R623                       | VRD-RA2EE683G | R | 68k 1/4W Carbon        | AB   |
| △ R624                       | VRD-RA2BE123G | R | 12k 1/8W Carbon        | AA   |
| R625                         | VRS-CY1JF103J | R | 10k 1/16W Metal Oxide  | AA   |
| △ R630                       | VRS-CY1JF123J | R | 12k 1/16W Metal Oxide  | AA   |
| △ R631                       | VRS-CY1JF102J | R | 1.0k 1/16W Metal Oxide | AA   |
| △ R633                       | VRD-RA2BE562J | R | 5.6k 1/8W Carbon       | AA   |
| R634                         | VRD-RM2HD101J | R | 100 1/2W Carbon        | AA   |
| △ R635                       | VRD-RA2BE154J | R | 150k 1/8W Carbon       | AA   |
| R640                         | VRD-RM2HD682J | R | 6.8k 1/2W Carbon       | AA   |
| △ R642                       | VRD-RA2BE103J | R | 10k 1/8W Carbon        | AA   |
| R651                         | VRD-RM2HD101J | R | 100 1/2W Carbon        | AA   |
| R653                         | VRD-RA2BE822J | R | 8.2k 1/8W Carbon       | AA   |
| R656                         | VRN-VV3DB4R7J | R | 4.7 2W Metal Film      | AB   |
| △ R657                       | VRS-CY1JF103J | R | 10k 1/16W Metal Oxide  | AA   |
| R660                         | VRS-CY1JF681J | R | 680 1/16W Metal Oxide  | AA   |
| R701                         | VRW-KQ41C3R3K | R | 3.3 15W Cement         | AG   |
| △ R702                       | VRC-UA2HG395K | R | 3.9M 1/2W Solid        | AA   |
| R703                         | VRS-KT3LB473J | R | 47k 3.0W Metal Oxide   | AE   |
| R705                         | VRD-RA2BE122J | R | 1.2k 1/8W Carbon       | AA   |
| R706                         | VRD-RM2HD152J | R | 1.5k 1/2W Carbon       | AA   |
| R707                         | VRS-KT3LB473J | R | 47k 3.0W Metal Oxide   | AE   |
| R708                         | VRD-RA2BE272J | R | 2.7k 1/8W Carbon       | AA   |
| R709                         | VRD-RA2BE681J | R | 680 1/8W Carbon        | AA   |
| R710                         | VRN-VV3ABR39J | R | 0.39 1W Metal Film     | AA   |
| R711                         | VRN-VV3ABR33J | R | 0.33 1W Metal Film     | AA   |
| R712                         | VRD-RM2HD150J | R | 15 1/2W Carbon         | AA   |

| Ref. No. | Part No.      | ★ | Description            | Code |
|----------|---------------|---|------------------------|------|
| R717     | VRD-RM2HD124J | R | 120k 1/2W Carbon       | AA   |
| R718     | VRD-RM2HD124J | R | 120k 1/2W Carbon       | AA   |
| △ R719   | VRC-UA2HG825K | R | 8.2M 1/2W Solid        | AA   |
| △ R720   | VRC-UA2HG825K | R | 8.2M 1/2W Solid        | AA   |
| R722     | VRD-RM2HD124J | R | 120k 1/2W Carbon       | AA   |
| R736     | VRD-RA2BE272J | R | 2.7k 1/8W Carbon       | AA   |
| R737     | VRN-KT3LB8R2J | R | 8.2 3.0W Metal Film    | AC   |
| R802     | VRS-CY1JF561J | R | 560 1/16W Metal Oxide  | AA   |
| R803     | VRS-CY1JF561J | R | 560 1/16W Metal Oxide  | AA   |
| R804     | VRS-CY1JF561J | R | 560 1/16W Metal Oxide  | AA   |
| R805     | VRS-CY1JF223J | R | 22k 1/16W Metal Oxide  | AA   |
| R809     | VRS-CY1JF102J | R | 1.0k 1/16W Metal Oxide | AA   |
| R810     | VRS-CY1JF102J | R | 1.0k 1/16W Metal Oxide | AA   |
| R811     | VRS-CY1JF102J | R | 1.0k 1/16W Metal Oxide | AA   |
| R812     | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA   |
| R813     | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA   |
| R814     | VRS-CY1JF273J | R | 27k 1/16W Metal Oxide  | AA   |
| R815     | VRS-CY1JF223J | R | 22k 1/16W Metal Oxide  | AA   |
| R816     | VRS-CY1JF473J | R | 47k 1/16W Metal Oxide  | AA   |
| R817     | VRS-CY1JF473J | R | 47k 1/16W Metal Oxide  | AA   |
| R819     | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA   |
| R820     | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA   |
| R821     | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA   |
| R822     | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA   |
| R823     | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA   |
| R824     | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA   |
| R825     | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA   |
| R826     | VRD-RA2BE223J | R | 22k 1/8W Carbon        | AA   |
| R827     | VRS-CY1JF472J | R | 4.7k 1/16W Metal Oxide | AA   |
| R828     | VRS-CY1JF472J | R | 4.7k 1/16W Metal Oxide | AA   |
| R829     | VRS-CY1JF472J | R | 4.7k 1/16W Metal Oxide | AA   |
| R830     | VRS-CY1JF222J | R | 2.2k 1/16W Metal Oxide | AA   |
| R1001    | VRS-CY1JF222J | R | 2.2k 1/16W Metal Oxide | AA   |
| R1002    | VRS-CY1JF222J | R | 2.2k 1/16W Metal Oxide | AA   |
| R1003    | VRS-CY1JF222J | R | 2.2k 1/16W Metal Oxide | AA   |
| R1004    | VRS-CY1JF473J | R | 47k 1/16W Metal Oxide  | AA   |
| R1005    | VRD-RA2BE562J | R | 5.6k 1/8W Carbon       | AA   |
| R1006    | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA   |
| R1007    | VRS-CY1JF102J | R | 1.0k 1/16W Metal Oxide | AA   |
| R1008    | VRS-CY1JF103J | R | 10k 1/16W Metal Oxide  | AA   |
| R1009    | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA   |
| R1010    | VRD-RA2BE222J | R | 2.2k 1/8W Carbon       | AA   |
| R1011    | VRS-CY1JF683J | R | 68k 1/16W Metal Oxide  | AA   |
| R1012    | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA   |
| R1014    | VRS-CY1JF472J | R | 4.7k 1/16W Metal Oxide | AA   |
| R1015    | VRS-CY1JF332J | R | 3.3k 1/16W Metal Oxide | AA   |
| R1016    | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA   |
| R1017    | VRS-CY1JF683J | R | 68k 1/16W Metal Oxide  | AA   |
| R1018    | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA   |
| R1019    | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA   |
| R1023    | VRD-RA2BE101J | R | 100 1/8W Carbon        | AB   |
| R1024    | VRD-RA2BE683J | R | 68k 1/8W Carbon        | AA   |
| R1026    | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA   |
| R1027    | VRS-CY1JF562J | R | 5.6k 1/16W Metal Oxide | AA   |
| R1028    | VRS-CY1JF332J | R | 3.3k 1/16W Metal Oxide | AA   |
| R1030    | VRD-RA2BE101J | R | 100 1/8W Carbon        | AB   |
| R1031    | VRS-CY1JF333J | R | 33k 1/16W Metal Oxide  | AA   |
| R1032    | VRS-CY1JF683J | R | 68k 1/16W Metal Oxide  | AA   |
| R1034    | VRS-CY1JF562J | R | 5.6k 1/16W Metal Oxide | AA   |
| R1035    | VRS-CY1JF562J | R | 5.6k 1/16W Metal Oxide | AA   |
| R1036    | VRS-CY1JF182J | R | 1.8k 1/16W Metal Oxide | AA   |
| R1037    | VRS-CY1JF103J | R | 10k 1/16W Metal Oxide  | AA   |
| R1038    | VRS-CY1JF333J | R | 33k 1/16W Metal Oxide  | AA   |
| R1039    | VRD-RA2BE271J | R | 270 1/8W Carbon        | AA   |
| R1041    | VRS-CY1JF103J | R | 10k 1/16W Metal Oxide  | AA   |
| R1042    | VRD-RA2BE562J | R | 5.6k 1/8W Carbon       | AA   |
| R1043    | VRS-CY1JF103J | R | 10k 1/16W Metal Oxide  | AA   |
| R1044    | VRS-CY1JF562J | R | 5.6k 1/16W Metal Oxide | AA   |
| R1047    | VRS-CY1JF472J | R | 4.7k 1/16W Metal Oxide | AA   |
| R1048    | VRD-RA2BE271J | R | 270 1/8W Carbon        | AA   |
| R1049    | VRS-CY1JF473J | R | 47k 1/16W Metal Oxide  | AA   |
| R1050    | VRS-CY1JF473J | R | 47k 1/16W Metal Oxide  | AA   |
| R1051    | VRS-CY1JF393J | R | 39k 1/16W Metal Oxide  | AA   |
| R1052    | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA   |
| R1053    | VRD-RA2BE560J | R | 56 1/8W Carbon         | AA   |
| R1055    | VRD-RM2HD101J | R | 100 1/2W Carbon        | AA   |

| Ref. No.                     | Part No.      | ★ | Description            | Code | Ref. No. | Part No.      | ★ | Description          | Code |
|------------------------------|---------------|---|------------------------|------|----------|---------------|---|----------------------|------|
| <b>PWB-A: DUNTK9665WEW5</b>  |               |   |                        |      |          |               |   |                      |      |
| <b>MAIN UNIT (Continued)</b> |               |   |                        |      |          |               |   |                      |      |
| R1057                        | VRS-CY1JF222J | R | 2.2k 1/16W Metal Oxide | AA   | HM23     | LX-GZ3001PEZZ | J | Screw                | AB   |
| R1058                        | VRS-CY1JF472J | R | 4.7k 1/16W Metal Oxide | AA   | HM24     | LX-GZ3001PEZZ | J | Screw                | AB   |
| R1059                        | VRS-CY1JF822J | R | 8.2k 1/16W Metal Oxide | AA   | HM25     | LX-GZ3001PEZZ | J | Screw                | AB   |
| R1060                        | VRS-CY1JF273J | R | 27k 1/16W Metal Oxide  | AA   | HM52     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1061                        | VRS-CY1JF103J | R | 10k 1/16W Metal Oxide  | AA   | HM54     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1063                        | VRS-CY1JF103J | R | 10k 1/16W Metal Oxide  | AA   | HM57     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1064                        | VRS-CY1JF102J | R | 1.0k 1/16W Metal Oxide | AA   | HM58     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1065                        | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA   | HM59     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1066                        | VRD-RA2BE101J | R | 100 1/8W Carbon        | AB   | HM60     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1069                        | VRD-RA2BE101J | R | 100 1/8W Carbon        | AB   | HM63     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1070                        | VRS-CY1JF392J | R | 3.9k 1/16W Metal Oxide | AA   | HM65     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1071                        | VRS-CY1JF333J | R | 33k 1/16W Metal Oxide  | AA   | HM66     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1072                        | VRS-CY1JF562J | R | 5.6k 1/16W Metal Oxide | AA   | HM67     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1075                        | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA   | HM70     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1076                        | VRS-CY1JF683J | R | 68k 1/16W Metal Oxide  | AA   | HM71     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1077                        | VRD-RA2BE683J | R | 68k 1/8W Carbon        | AA   | HM72     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1078                        | VRD-RA2BE683J | R | 68k 1/8W Carbon        | AA   | HM73     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1079                        | VRD-RA2BE101J | R | 100 1/8W Carbon        | AB   | HM74     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1082                        | VRS-CY1JF103J | R | 10k 1/16W Metal Oxide  | AA   | HM75     | LX-GZ3002PEZZ | J | Screw                | AB   |
| R1084                        | VRS-CY1JF000J | R | 0 1/16W Metal Oxide    | AA   | LB301    | LX-BZ0007PEFD | J | Screw                | AA   |
| R1085                        | VRD-RM2HD332J | R | 3.3k 1/2W Carbon       | AA   | RDA351   | PRDAR0142PEFW | J | Heat Sink, for IC351 | AD   |
| R1086                        | VRD-RM2HD332J | R | 3.3k 1/2W Carbon       | AA   | SLD1001  | PSLDM0233PEFW | J | Shield               | AC   |
| R1087                        | VRD-RM2HD332J | R | 3.3k 1/2W Carbon       | AA   | TP211    | QLUGP0102PEZZ | J | Lug                  | AA   |
| R1088                        | VRD-RM2HD272J | R | 2.7k 1/2W Carbon       | AA   |          | PRDAR0223PEFW | J | Heat Sink, for IC501 | AF   |
| R1089                        | VRD-RM2HD272J | R | 2.7k 1/2W Carbon       | AA   |          | PRDAR0224PEFW | J | Heat Sink, for       | AF   |
|                              |               |   |                        |      |          | PRDAR0259PEFW | J | Heat Sink, for       | AE   |
|                              |               |   |                        |      |          | PRDAR0260PEFW | J | Heat Sink, for IC701 | AH   |
|                              |               |   |                        |      |          | PSLDM0262PEFW | J | Shield               | AD   |
|                              |               |   |                        |      |          | PSLDM0263PEFW | J | Shield               | AC   |
|                              |               |   |                        |      |          | LHLDP1042PE00 | J | Holder               | AG   |
|                              |               |   |                        |      |          | LX-BZ0086TAFD | R | Screw                | AA   |
|                              |               |   |                        |      |          | LX-BZ3100CEFD | R | Screw                | AA   |
|                              |               |   |                        |      |          | LX-TZ3004CEFD | R | Screw                | AA   |
| <b>SWITCHES</b>              |               |   |                        |      |          |               |   |                      |      |
| △ S701                       | QSW-P0588CEZZ | R | Power                  | AP   |          |               |   |                      |      |
| S1001                        | QSW-K0079GEZZ | R | Preset                 | AB   |          |               |   |                      |      |
| S1002                        | QSW-K0079GEZZ | R | Vol-down               | AB   |          |               |   |                      |      |
| S1003                        | QSW-K0079GEZZ | R | Vol-up                 | AB   |          |               |   |                      |      |
| S1004                        | QSW-K0079GEZZ | R | CH-down                | AB   |          |               |   |                      |      |
| S1005                        | QSW-K0079GEZZ | R | CH-up                  | AB   |          |               |   |                      |      |
| <b>MISCELLANEOUS PARTS</b>   |               |   |                        |      |          |               |   |                      |      |
| △ F301                       | QFS-J2521CEZZ | R | Fuse                   | AF   |          |               |   |                      |      |
| △ F701                       | QFS-C3229CEZZ | R | Fuse T3.15A            | AD   |          |               |   |                      |      |
| △ F731                       | QFS-J1521CEZZ | R | Fuse                   | AF   |          |               |   |                      |      |
| FB306                        | RBLN-0037CEZZ | R | Ferrite Bead           | AB   |          |               |   |                      |      |
| FB602                        | RBLN-0037CEZZ | R | Ferrite Bead           | AB   |          |               |   |                      |      |
| FB701                        | RBLN-0037CEZZ | R | Ferrite Bead           | AB   |          |               |   |                      |      |
| FB702                        | RBLN-0037CEZZ | R | Ferrite Bead           | AB   |          |               |   |                      |      |
| FB703                        | RBLN-0037CEZZ | R | Ferrite Bead           | AB   |          |               |   |                      |      |
| FB731                        | RBLN-0037CEZZ | R | Ferrite Bead           | AB   |          |               |   |                      |      |
| FB732                        | RBLN-0037CEZZ | R | Ferrite Bead           | AB   |          |               |   |                      |      |
| FH701                        | QFSDH1014CEZZ | R | Fuse Holder            | AC   |          |               |   |                      |      |
| FH702                        | QFSDH1013CEZZ | R | Fuse Holder            | AC   |          |               |   |                      |      |
| J401                         | QJAKH0011AJZZ | R | AV Jack                | AK   |          |               |   |                      |      |
| P302                         | QPLGN0261CEZZ | R | Plug, 2-pin (S)        | AB   |          |               |   |                      |      |
| P401                         | QPLGN0461CEZZ | R | Plug, 4-pin (VA)       | AB   |          |               |   |                      |      |
| P502                         | QPLGN0603CEZZ | R | Plug, 6-pin (F)        | AB   |          |               |   |                      |      |
| P602                         | QPLGN0461CEZZ | R | Plug, 4-pin (H)        | AB   |          |               |   |                      |      |
| P711                         | QPLGN0207CEZZ | R | Plug, 2-pin (G)        | AA   |          |               |   |                      |      |
| P712                         | QPLGN0269GEZZ | R | Plug, 2-pin (A)        | AB   |          |               |   |                      |      |
| P801                         | QPLGN0561CEZZ | R | Plug, 5-pin (K)        | AB   |          |               |   |                      |      |
| P1001                        | QPLGN0561CEZZ | R | Plug, 5-pin (BC)       | AB   |          |               |   |                      |      |
| RMC1001                      | RRMCU0222CEZZ | R | R/C Receiver           | AL   |          |               |   |                      |      |
| HM1                          | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM2                          | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM6                          | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM7                          | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM11                         | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM12                         | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM13                         | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM15                         | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM16                         | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM17                         | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM18                         | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM19                         | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM20                         | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM21                         | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |
| HM22                         | LX-GZ3001PEZZ | J | Screw                  | AB   |          |               |   |                      |      |

| Ref. No. | Part No. | ★ | Description | Code |
|----------|----------|---|-------------|------|
|----------|----------|---|-------------|------|

## PWB-B: DUNTK9666WEV4 CRT UNIT

### TRANSISTORS

|      |               |   |             |    |
|------|---------------|---|-------------|----|
| Q851 | VS2SC3789//1E | J | 2SC3789     | AE |
| Q852 | VS2SC3789//1E | J | 2SC3789     | AE |
| Q853 | VS2SC3789//1E | J | 2SC3789     | AE |
| Q854 | VS2SA1015Y/1E | J | 2SA1015 (Y) | AC |

### DIODES

|      |               |   |       |    |
|------|---------------|---|-------|----|
| D851 | RH-DX0475CEZZ | J | Diode | AB |
| D852 | RH-DX0475CEZZ | J | Diode | AB |
| D853 | RH-DX0475CEZZ | J | Diode | AB |

### COIL

|      |               |   |               |    |
|------|---------------|---|---------------|----|
| L851 | VP-CF681K0000 | J | Peaking 680μH | AB |
|------|---------------|---|---------------|----|

### CAPACITORS

|        |               |   |                      |    |
|--------|---------------|---|----------------------|----|
| C851   | VCCCCY1HH331J | J | 330p 50V Ceramic     | AA |
| C852   | VCCCCY1HH331J | J | 330p 50V Ceramic     | AA |
| C853   | VCCCCY1HH331J | J | 330p 50V Ceramic     | AA |
| △ C854 | RC-KZ0150CEZZ | J | 1000p 3kV Ceramic    | AB |
| C861   | VCEAGA1CW336M | J | 33 16V Electrolytic  | AB |
| C865   | VCKYPA1HB102K | J | 1000p 50V Ceramic    | AA |
| C866   | VCEAGA2EW106M | J | 10 250V Electrolytic | AC |
| C870   | VCEAGA1AW337M | J | 330 10V Electrolytic | AB |
| C895   | VCCCCY1HH391J | J | 390p 50V Ceramic     | AA |

### RESISTORS

|      |               |   |                        |    |
|------|---------------|---|------------------------|----|
| R851 | VRS-CY1JF471J | J | 470 1/16W Metal Oxide  | AA |
| R852 | VRS-CY1JF561J | J | 560 1/16W Metal Oxide  | AA |
| R856 | VRS-CY1JF471J | J | 470 1/16W Metal Oxide  | AA |
| R858 | VRS-CY1JF561J | J | 560 1/16W Metal Oxide  | AA |
| R859 | VRS-CY1JF152J | J | 1.5k 1/16W Metal Oxide | AA |
| R860 | VRS-VV3DB123J | J | 12k 2W Metal Oxide     | AA |
| R862 | VRS-CY1JF471J | J | 470 1/16W Metal Oxide  | AA |
| R864 | VRS-CY1JF561J | J | 560 1/16W Metal Oxide  | AA |
| R865 | VRD-RA2BE471J | J | 470 1/8W Carbon        | AA |
| R866 | VRS-VV3DB123J | J | 12k 2W Metal Oxide     | AA |
| R867 | VRD-RM2HD272J | J | 2.7k 1/2W Carbon       | AA |
| R868 | VRS-VV3DB123J | J | 12k 2W Metal Oxide     | AA |
| R870 | VRD-RA2BE222J | J | 2.2k 1/8W Carbon       | AA |
| R871 | VRD-RA2BE152J | J | 1.5k 1/8W Carbon       | AA |
| R875 | VRS-CY1JF560J | J | 56 1/16W Metal Oxide   | AA |
| R877 | VRS-CY1JF560J | J | 56 1/16W Metal Oxide   | AA |
| R897 | VRD-RA2BE560J | J | 56 1/8W Carbon         | AA |
| R898 | VRD-RM2HD272J | J | 2.7k 1/2W Carbon       | AA |
| R899 | VRD-RM2HD272J | J | 2.7k 1/2W Carbon       | AA |

### MISCELLANEOUS PARTS

|         |               |   |                 |    |
|---------|---------------|---|-----------------|----|
| P851    | QPLGN0461CEZZ | J | Plug, 4-pin (H) | AB |
| P852    | QPLGN0561CEZZ | J | Plug, 5-pin (K) | AB |
| △ SC851 | QSOCV0931CEZZ | J | CRT Socket      | AK |

| Ref. No. | Part No. | ★ | Description | Code |
|----------|----------|---|-------------|------|
|----------|----------|---|-------------|------|

## PWB-D: DUNTK9669WEV2 TEXT UNIT

### INTEGRATED CIRCUIT

|        |               |   |          |    |
|--------|---------------|---|----------|----|
| IC1801 | VHiSAA5254E-1 | R | SAA5254P | BF |
|--------|---------------|---|----------|----|

### TRANSISTORS

|       |               |   |         |    |
|-------|---------------|---|---------|----|
| Q1803 | VS2SD601A//-1 | R | 2SD601A | AC |
| Q1804 | VS2SD601A//-1 | R | 2SD601A | AC |
| Q1805 | VS2SD601A//-1 | R | 2SD601A | AC |

### DIODES

|       |               |   |             |    |
|-------|---------------|---|-------------|----|
| D1801 | RH-DX0475CEZZ | R | Diode       | AB |
| D1803 | RH-EX0619GEZZ | R | Zener Diode | AA |
| D1804 | RH-EX0619GEZZ | R | Zener Diode | AA |
| D1805 | RH-DX0475CEZZ | R | Diode       | AB |

### PACKAGED CIRCUIT

|       |               |   |         |    |
|-------|---------------|---|---------|----|
| X1801 | RCRSB0006PEZZ | J | Crystal | AK |
|-------|---------------|---|---------|----|

### COILS

|       |               |   |              |    |
|-------|---------------|---|--------------|----|
| L1801 | VP-DF100K0000 | R | Peaking 10μH | AB |
| L1802 | VP-XF1R0K0000 | R | Peaking 1μH  | AB |
| L1803 | VP-DF100K0000 | R | Peaking 10μH | AB |

### CAPACITORS

|       |               |   |                      |    |
|-------|---------------|---|----------------------|----|
| C1801 | VCKYCY1EF104Z | R | 0.1 25V Ceramic      | AA |
| C1803 | VCEAGA1AW477M | R | 470 10V Electrolytic | AC |
| C1804 | RC-QZA104TAYJ | R | 0.1 50V Mylar        | AC |
| C1806 | VCKYCY1HB102K | R | 1000p 50V Ceramic    | AA |
| C1807 | VCCCCY1HH150J | R | 15p 50V Ceramic      | AA |
| C1808 | VCCCCY1HH560J | R | 56p 50V Ceramic      | AA |
| C1810 | RC-QZA104TAYJ | R | 0.1 50V Mylar        | AC |
| C1811 | VCE9GA1HW105M | R | 1.0 50V Elect.(N.P)  | AB |
| C1812 | RC-QZA104TAYJ | R | 0.1 50V Mylar        | AC |
| C1813 | VCEAGA1AW107M | R | 100 10V Electrolytic | AB |
| C1814 | VCEAGA1CW106M | R | 10 16V Electrolytic  | AA |
| C1815 | VCKYCY1HB221K | R | 220p 50V Ceramic     | AA |
| C1816 | VCKYCY1HF103Z | R | 0.01 50V Ceramic     | AA |

### RESISTORS

|        |               |   |                        |    |
|--------|---------------|---|------------------------|----|
| RJ1801 | VRS-CY1JF000J | R | 0 1/16W Metal Oxide    | AA |
| RJ1802 | VRS-CY1JF000J | R | 0 1/16W Metal Oxide    | AA |
| RJ1803 | VRS-CY1JF000J | R | 0 1/16W Metal Oxide    | AA |
| RJ1804 | VRS-CY1JF000J | R | 0 1/16W Metal Oxide    | AA |
| R1801  | VRS-CY1JF273J | R | 27k 1/16W Metal Oxide  | AA |
| R1802  | VRD-RA2BE101J | R | 100 1/8W Carbon        | AB |
| R1803  | VRS-CY1JF222J | R | 2.2k 1/16W Metal Oxide | AA |
| R1804  | VRS-CY1JF562J | R | 5.6k 1/16W Metal Oxide | AA |
| R1805  | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA |
| R1806  | VRS-CY1JF272J | R | 2.7k 1/16W Metal Oxide | AA |
| R1807  | VRS-CY1JF100J | R | 10 1/16W Metal Oxide   | AA |
| R1808  | VRS-CY1JF821J | R | 820 1/16W Metal Oxide  | AA |
| R1809  | VRS-CY1JF152J | R | 1.5k 1/16W Metal Oxide | AA |
| R1810  | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA |
| R1811  | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA |
| R1812  | VRD-RA2BE102J | R | 1.0k 1/8W Carbon       | AA |
| R1813  | VRS-CY1JF221J | R | 220 1/16W Metal Oxide  | AA |
| R1814  | VRS-CY1JF223J | R | 22k 1/16W Metal Oxide  | AA |
| R1817  | VRS-CY1JF000J | R | 0 1/16W Metal Oxide    | AA |
| R1818  | VRS-CY1JF472J | R | 4.7k 1/16W Metal Oxide | AA |
| R1820  | VRS-CY1JF821J | R | 820 1/16W Metal Oxide  | AA |
| R1822  | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA |
| R1823  | VRS-CY1JF101J | R | 100 1/16W Metal Oxide  | AA |
| R1825  | VRS-CY1JF123J | R | 12k 1/16W Metal Oxide  | AA |
| R1826  | VRS-CY1JF103J | R | 10k 1/16W Metal Oxide  | AA |

### MISCELLANEOUS PARTS

|       |               |   |                  |    |
|-------|---------------|---|------------------|----|
| P1801 | QPLGZ0810CEZZ | R | Plug, 8-pin (TX) | AD |
| P1802 | QPLGZ0610CEZZ | R | Plug, 6-pin (TE) | AB |

| Ref. No.                                      | Part No.      | ★ | Description      | Code |
|-----------------------------------------------|---------------|---|------------------|------|
| <b>PWB-E: DUNTK9667WEV2<br/>FRONT-AV UNIT</b> |               |   |                  |      |
| <b>MISCELLANEOUS PARTS</b>                    |               |   |                  |      |
| J1453                                         | QTANJ0248CEZZ | J | AV Terminal      | AH   |
| P1450                                         | QPLGN0461CEZZ | J | Plug, 4-pin (VA) | AB   |

| Ref. No.                                        | Part No.      | ★ | Description      | Code |
|-------------------------------------------------|---------------|---|------------------|------|
| <b>PACKING PARTS<br/>(NOT REPLACEMENT ITEM)</b> |               |   |                  |      |
|                                                 | SPAKC6556PEZZ | — | Packing Case     | —    |
|                                                 | SPAKP0099PEZZ | — | Wrapping Paper   | —    |
|                                                 | SPAKX2655PEZZ | — | Buffer Material  | —    |
|                                                 | SSAKA0031PEZZ | — | Polyethylene Bag | —    |
|                                                 | SSAKH0006PEZZ | — | Polyethylene Bag | —    |

|                            |               |   |                  |    |
|----------------------------|---------------|---|------------------|----|
| <b>MISCELLANEOUS PARTS</b> |               |   |                  |    |
| ACC701                     | QACCL3025CESA | R | AC Cord          | AR |
| SP301                      | VSP9050PB11WA | R | Speaker          | AP |
|                            | QCNW-2127PEZZ | R | Connecting Cord  | AG |
|                            | QCNW-2128PEZZ | R | Connecting Cord  | AK |
|                            | QCNW-2163PEZZ | R | Connecting Cord  | AE |
|                            | QCNW-2275PEZZ | R | Connecting Cord  | AF |
|                            | TLABK0002PEZZ | R | Number Label     | AB |
|                            | TLABM1535PEZZ | R | Label            | AB |
|                            | TLABN0001PEZZ | R | Serial No. Label | AD |
|                            | TLABV0255PEZZ | R | Label            | AB |

|                      |                      |   |                                    |    |
|----------------------|----------------------|---|------------------------------------|----|
| <b>CABINET PARTS</b> |                      |   |                                    |    |
| 1                    | CCABA2512WEV0        |   | Front Cabinet Ass'y                | BD |
| 1-1                  | <i>Not Available</i> | — | Front Cabinet                      | —  |
| 1-2                  | GC0VA0079PESA        |   | LED Cover                          | AC |
| 1-3                  | GC0VA0080PESA        |   | R/C Cover                          | AD |
| 1-4                  | HBDGB0019PESB        |   | "SHARP", Badge                     | AD |
| 1-5                  | JBTN-0273PESB        |   | Button, Vol-up/down,<br>Ch-up/down | AF |
| 1-6                  | JBTN-0274PESB        |   | Button, Power                      | AE |
| 1-7                  | MSPRC0068CEFW        |   | Spring, Power Button               | AA |
| 2                    | GCABB2363PEKA        |   | Rear Cabinet                       | BB |

|                                           |               |   |                   |    |
|-------------------------------------------|---------------|---|-------------------|----|
| <b>SUPPLIED ACCESSORIES</b>               |               |   |                   |    |
| <b>ACCESSORIES</b>                        |               |   |                   |    |
|                                           | RRMCG1440PESA | R | Infrared R/C Unit | AV |
|                                           | TiNS-6759PEZZ | R | Operation Manual  | AF |
| <b>ACCESSORIES (NOT REPLACEMENT ITEM)</b> |               |   |                   |    |
|                                           | TCAUA0002PEZZ | — | Caution Card      | —  |

