# JVC

## SERVICE MANUAL
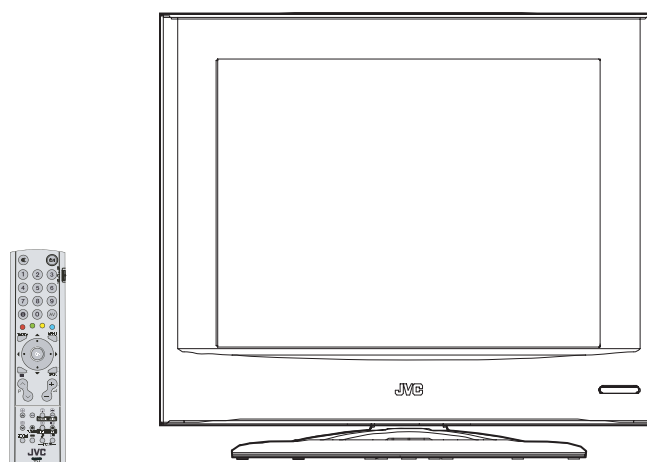
### INTEGRATED DIGITAL LCD PANEL TELEVISION

# LT-20DJ5SFR,
# LT-20DJ5SGE,
# LT-20DJ5SSP

**DVB**
**D**igital **V**ideo
**B**roadcasting

### TABLE OF CONTENTS

**No.YA437**
**2006/10**

# SPECIFICATION

| Items | | Contents |
|---|---|---|
| Dimensions ( W × H × D ) | | 53.0cm × 47.7cm × 21.3cm [Included stand]<br>53.0cm × 44.0cm × 12.5cm [TV only] |
| Mass | | 8.2kg [Included stand]<br>7.2kg [TV only] |
| Power Input | ADAPTER | AC100 - 240V, 50Hz |
| | TV | DC12V |
| Power Consumption | | 60W (Standby: 3.0W) |
| TV RF System | Analog | CCIR (B/G, I, D/K, L) |
| | Digital | DVB-T 2k&8k |
| Colour System | | PAL, SECAM, NTSC 3.58/4.43 [EXT only] |
| Stereo System | | NICAM (B/G, I, D/K, L), A2 (B/G, D/K) |
| Receiving Frequency | Analog | VHF: 46.25 MHz - 470 MHz<br>UHF: 470 MHz - 862.25 MHz |
| | Digital | UHF: 474 MHz - 858 MHz |
| | CATV | S1 - S20 / S21 - S41 |
| Intermediate<br>Frequency | VIF | 38.9 MHz (B/G, I, D/K, L) |
| | SIF | 33.4 MHz (5.5 MHz: B/G)<br>32.9 MHz (6.0 MHz: I)<br>32.4 MHz (6.5 MHz: D/K, L) |
| Colour Sub<br>Carrier Frequency | PAL | 4.43 MHz |
| | SECAM | 4.40625 MHz / 4.25MHz |
| | NTSC | 3.58 MHz / 4.43 MHz |
| Teletext System | Analog | TOP, FLOF (Fastext level 2.5), WST(World Standard system) |
| | Digital | Digital Teletext (VBI insertion) |
| LCD panel | | 20V-inch (4:3) |
| Screen Size | | Diagonal : 50.9cm  (H:40.8cm × V : 30.6cm) |
| Display Pixels | | Horizontal : 800 dots × Vertical : 600 dots (SVGA) |
| Audio Power Output | | 5W + 5W(10% THD) |
| Speaker | | 3.0cm × 10.0cm oval type × 2 |
| Aerial terminal (VHF/UHF) | | EU-type connector, 75Ω unbalanced, coaxial |
| EXT-1 / EXT-2 (Input / Output) | | 21-pin Euro connector (SCART socket ) × 2 |
| EXT-3(Input) | Component Video<br>625p / 525p / 625i / 525i | RCA pin jack × 3<br>Y : 1V (p-p), Positive (Negative sync provided), 75 Ω<br>Cb/Cr : 0.7V(p-p), 75 Ω |
| | Audio | 500mV(rms) (-4dBs), high impedance, RCA pin jack × 2 |
| EXT-4  (Input) | S-Video | Mini-DIN 4 pin × 1<br>Y: 1V (p-p), Positive (Negative sync provided), 75 Ω<br>C: 0.286V (p-p) (Burst signal), 75 Ω |
| | Video | 1V (p-p), Positive (Negative sync provided), 75 Ω,  RCA pin jack × 1 |
| | Audio | 500mV (rms), High impedance, RCA pin jack × 2 |
| PC (RGB) Input | | D-sub 15pin × 1<br>R/G/B : 0.7V (p-p), 75Ω<br>HD / VD : 1V (p-p) to 5V (p-p), high impedance<br>< Available signal ><br>Horizontal : 30kHz - 69kHz<br>Vertical : 50Hz - 75Hz<br>[Resolution : 640 pixels × 480 pixels(VGA), 720 pixels × 400 pixels, 800 pixels × 600 pixels(SVGA)] |
| PC AUDIO input | | 3.5mm stereo mini jack × 1 |
| Audio output | Analog | 500mV (rms), Low impedance, RCA pin jack × 2 |
| | Digital | AC3 compatible, RCA pin jack × 1 |
| Headphone | | 3.5mm stereo mini jack × 1 |
| Card Slot | | CAM(Conditional Access Module) × 1 |
| Remote Control Unit | | RM-C1897S (AA/R6 dry cell battery × 2) |

Design & specifications are subject to change without notice.

# SECTION 1
# PRECAUTION

## 1.1 SAFETY PRECAUTIONS [EXCEPT FOR UK]

(1) The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

(2) Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

(3) Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by ( ⚠ ) on the parts list in Service manual**. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.

(4) **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : ( ⊥ ) side GND, the ISOLATED (NEUTRAL) : ( ⊥ ) side GND and EARTH : ( ⏚ ) side GND.
Don't short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time with a measuring apparatus (oscilloscope etc.). If above note will not be kept, a fuse or any parts will be broken.

(5) When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

(6) **Isolation Check (Safety for Electrical Shock Hazard)**
After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
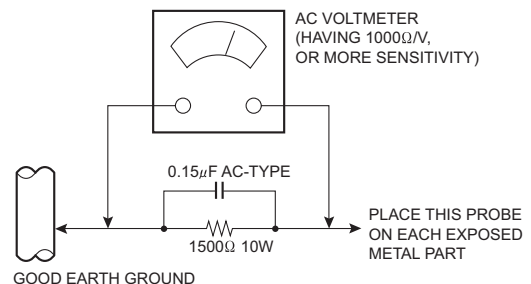
a) **Dielectric Strength Test**
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second. (. . . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.) This method of test requires a test equipment not generally found in the service trade.

b) **Leakage Current Check**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
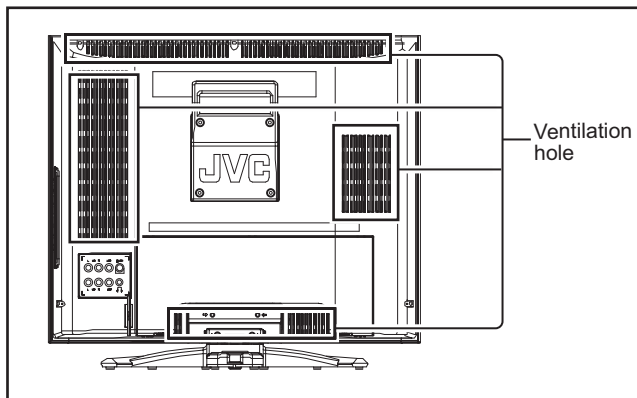However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

**Alternate Check Method**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000Ω per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



AC VOLTMETER
(HAVING 1000Ω/V,
OR MORE SENSITIVITY)

0.15μF AC-TYPE

1500Ω 10W

PLACE THIS PROBE ON EACH EXPOSED METAL PART

GOOD EARTH GROUND

## 1.2 INSTALLATION

### 1.2.1 HEAT DISSIPATION

If the heat dissipation vent behind this unit is blocked, cooling efficiency may deteriorate and temperature inside the unit will rise. The temperature sensor that protects the unit will be activated when internal temperature exceeds the pre-determined level and power will be turned off automatically.Therefore, please make sure pay attention not to block the heat dissipation vent as well as the ventilation outlet behind the unit and ensure that there is room for ventilation around it.



Ventilation hole

### 1.2.2 INSTALLATION REQUIREMENTS

Ensure that the minimal distance is maintained, as specified below, between the unit with and the surrounding walls, as well as the floor etc.Install the unit on stable flooring or stands.Take precautionary measures to prevent the unit from tipping in order to protect against accidents and earthquakes.



100 mm
100 mm
100 mm
100 mm
50 mm
*Diagram differs from actual appearance.

### 1.2.3 NOTES ON HANDLING

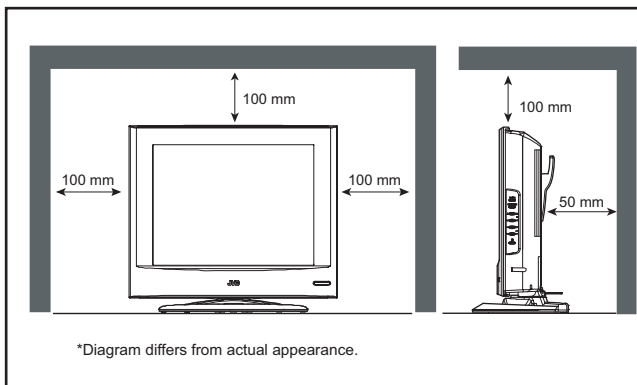(1) WHEN TAKING UNIT OUT OF A PACKING CASE
When taking the unit out of a packing case, do not grasp the upper part of the unit. If you take the unit out while grasping the upper part, the LCD PANEL may be damaged because of a pressure. Instead of grasping the upper part, put your hands on the lower backside or sides of the unit.

(2) AS FOR PRESSING OR TOUCHING A SPEAKER
Be careful not to press the opening of the speaker in the lower part of the unit and around them since the decorative sheet on the surface of the openings may be deformed.

## 1.3 HANDLING LCD PANEL

### 1.3.1 PRECAUTIONS FOR TRANSPORTATION

When transporting the unit, pressure exerted on the internal LCD panel due to improper handling (such as tossing and dropping) may cause damages even when the unit is carefully packed. To prevent accidents from occurring during transportation, pay careful attention before delivery, such as through explaining the handling instructions to transporters.

Ensure that the following requirements are met during transportation, as the LCD panel of this unit is made of glass and therefore fragile:

(1) USE A SPECIAL PACKING CASE FOR THE LCD PANEL
When transporting the LCD panel of the unit, use a special packing case (packing materials). A special packing case is used when a LCD panel is supplied as a service spare part.

(2) ATTACH PROTECTION SHEET TO THE FRONT
Since the front (display part) of the panel is vulnerable, attach the protection sheet to the front of the LCD panel before transportation. Protection sheet is used when a LCD panel is supplied as a service spare part.

(3) AVOID VIBRATIONS AND IMPACTS
The unit may be broken if it is toppled sideways even when properly packed. Continuous vibration may shift the gap of the panel, and the unit may not be able to display images properly. Ensure that the unit is carried by at least 2 persons and pay careful attention not to exert any vibration or impact on it.

(4) DO NOT PLACE EQUIPMENT HORIZONTALLY
Ensure that it is placed upright and not horizontally during transportation and storage as the LCD panel is very vulnerable to lateral impacts and may break. During transportation, ensure that the unit is loaded along the traveling direction of the vehicle, and avoid stacking them on one another. For storage, ensure that they are stacked in 2 layers or less even when placed upright.

### 1.3.2 OPTICAL FILTER (ON THE FRONT OF THE LCD PANEL)

(1) Avoid placing the unit under direct sunlight over a prolonged period of time. This may cause the optical filter to deteriorate in quality and COLOUR.

(2) Clean the filter surface by wiping it softly and lightly with a soft and lightly fuzz cloth (such as outing flannel).

(3) Do not use solvents such as benzene or thinner to wipe the filter surface. This may cause the filter to deteriorate in quality or the coating on the surface to come off. When cleaning the filter, usually use the neutral detergent diluted with water. When cleaning the dirty filter, use water-diluted ethanol.

(4) Since the filter surface is fragile, do not scratch or hit it with hard materials. Be careful enough not to touch the front surface, especially when taking the unit out of the packing case or during transportation.

### 1.3.3 PRECAUTIONS FOR REPLACEMENT OF EXTERIOR PARTS

Take note of the following when replacing exterior parts (REAR COVER, FRONT PANEL, etc.):

(1) Do not exert pressure on the front of the LCD panel (filter surface). It may cause irregular COLOUR.

(2) Pay careful attention not to scratch or stain the front of the LCD panel (filter surface) with hands.

(3) When replacing exterior parts, the front (LCD panel) should be placed facing downward. Place a mat, etc. underneath to avoid causing scratches to the front (filter surface).

# SECTION 2
# SPECIFIC SERVICE INSTRUCTIONS

## 2.1 FEATURES

### DVB-T (DIGITAL TERRESTRIAL BROADCASTING)
This TV can receive both Digital terrestrial broadcasting (DVB-T) and Analogue terrestrial broadcasting.

### T-V LINK
When you have a T-V LINK compatible VCR connected to the EXT-2 Terminal on the TV,it is easier to set up the VCR and to view videos.

### ZOOM
This function can change the screen size according to the picture aspect ratio.

### OFF TIMER
This function can set the TV to automatically turn off after a set time.

### COLOUR SYSTEM
If the picture is not clear or no colour appears, change the current colour system to another colour system.

## 2.2 21-PIN EURO CONNECTOR (SCART) : EXT-1 / EXT-2

| Pin No. | Signal designation | Matching value | EXT-1 | EXT-2 |
|---|---|---|---|---|
| 1 | AUDIO R output | 500mV(rms) (Nominal),, Low impedance | Used (TV OUT) | Used (LINE OUT) |
| 2 | AUDIO R input | 500mV(rms) (Nominal),, High impedance | Used (R1) | Used (R2) |
| 3 | AUDIO L output | 500mV(rms) (Nominal),, Low impedance | Used (TV OUT) | Used (LINE OUT) |
| 4 | AUDIO GND | | Used | Used |
| 5 | GND (B) | | Used | Used |
| 6 | AUDIO L input | 500mV(rms) (Nominal),, High impedance | Used (L1) | Used (L2) |
| 7 | B input | $700mV_{(B-W)}$, $75\Omega$ | Used | Used |
| 8 | FUNCTION SW (SLOW SW) | Low : 0V-3V<br>High : 8V-12V, High impedance | Used | Used |
| 9 | GND (G) | | Used | Used |
| 10 | SCL / T-V LINK | | Not used | Used (TV-LINK) |
| 11 | G input | $700mV_{(B-W)}$, $75\Omega$ | Used | Used |
| 12 | SDA | | Not used | Not used |
| 13 | GND (R) | | Used | Used |
| 14 | GND (YS) | | Used | Not used |
| 15 | R / C input | R : $700mV_{(B-W)}$, $75\Omega$<br>C : $300mV_{(P-P)}$, $75\Omega$ | Used (R) | Used (C/R) |
| 16 | Ys input (FAST SW) | Low : 0V-0.4V, High : 1V-3V, $75\Omega$ | Used | Used |
| 17 | GND (VIDEO output) | | Used | Used |
| 18 | GND (VIDEO input) | | Used | Used |
| 19 | VIDEO output | $1V_{(P-P)}$ (Negative sync), $75\Omega$ | Used (TV OUT) | Used (LINE OUT) |
| 20 | VIDEO / Y input | $1V_{(P-P)}$ (Negative sync), $75\Omega$ | Used (V1) | Used (Y/V2) |
| 21 | COMMON GND | | Used | Used |

(P-P= Peak to Peak, B-W= Blanking to white peak)

[Pin assignment]
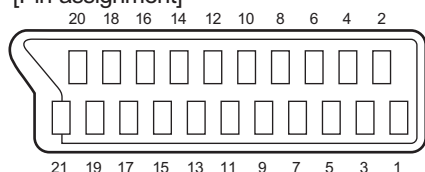
**2.3 TECHNICAL INFORMATION**

**2.3.1 LCD PANEL**

This unit uses the flat type panel LCD (Liquid Crystal Display) panel that occupies as little space as possible, instead of the conventional CRT (Cathode Ray Tube), as a display unit.

Since the unit has the two polarizing filter that are at right angles to each other, the unit adopts "normally black" mode, where light does not pass through the polarizing filter and the screen is black when no voltage is applied to the liquid crystals.

**2.3.1.1 SPECIFICATIONS**

The following table shows the specifications of this unit.

| Item | Specifications | Remarks |
|---|---|---|
| Displayed colour | 16777216 colours | 256 colours for R, G, and B |
| Brightness | 450cd/m$^2$ | |
| Contrast ratio | 500 : 1 | |
| Response time | 16ms | |
| View angle | Horizontally: 160°, Vertically: 120° | |

**2.3.1.2 PIXEL FAULT**

There are three pixel faults - bright fault , dark fault and flicker fault - that are respectively defined as follows.

■ **BRIGHT FAULT**

In this pixel fault, a cell that should not light originally is lighting on and off.

For checking this pixel fault, input ALL BLACK SCREEN and find out the cell that is lighting on and off.

■ **DARK FAULT**

In this pixel fault, a cell that should light originally is not lighting or lighting with the brightness twice as brighter as originally lighting.

For checking this pixel fault, input 100% of each R/G/B colour and find out the cell that is not lighting.

■ **FLICKER FAULT**

In the pixel fault, a cell that should light originally or not light originally is flashing on and off.

For checking this pixel fault, input ALL BLACK SCREEN signal or 100% of each RGB colour and find out the cell that is flashing on and off.

# SECTION 3
# DISASSEMBLY

## 3.1 DISASSEMBLY PROCEDURE

**NOTE:**
- Make sure that the power cord is disconnected from the outlet.
- Pay special attention not to break or damage the parts.
- When removing each board, remove the connectors as required.
- Taking notes of the connecting points (connector numbers) makes service procedure manageable.
- Make sure that there is no bent or stain on the connectors before inserting, and firmly insert the connectors.

### 3.1.1 REMOVING THE HINGE COVER
(1) Remove the 2 screws **[A]**.
(2) Remove the HINGE COVER.

### 3.1.2 REMOVING THE FOOT TOP COVER
- Remove the HINGE COVER.
(1) Remove the 2 screws **[B]**.
(2) Pull out the FOOT TOP COVER.

### 3.1.3 REMOVING THE FOOT ASSEMBLY
(1) Remove the 4 screws **[C]**.
(2) Remove the FOOT ASSEMBLY.

### 3.1.4 REMOVING THE HANDLE
- Remove the HINGE COVER.
- Remove the FOOT TOP COVER.
(1) Remove the 4 screws **[D]**.
(2) Remove the THE HANDLE.

### 3.1.5 REMOVIE BACK COVER
- Remove the FOOT ASSEMBLY.
(1) Remove the 7 screws **[E]**.
(2) Remove the BACK COVER toward you.

**NOTE:**
If necessary, remove the HANDLE and BACK DOOR.

### 3.1.6 REMOVING THE SIDE CONTROL PWB
- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
(1) Remove the 2 screws **[F]**.
(2) Remove the FUNCTION BUTTON with SIDE CONTROL PWB.
(3) Remove the 4 claws which is fixing the SIDE CONTROL PWB.
(4) Remove the SIDE CONTROL PWB.

### 3.1.7 REMOVING THE AV JACK PWB
- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
(1) Remove the 4 screws **[G]**.
(2) Remove the AV JACK PWB.

### 3.1.8 REMOVING THE METAL HANG
- Remove the FOOT ASSEMBLY.
- Remove the HANDLE.
- Remove the BACK COVER.
(1) Remove the 1 screw **[H]**.
(2) Remove the METAL HANG.
(3) Remove the opposite METAL HANG same steps.

### 3.1.9 REMOVING THE BRACKET SOCKET COVER
- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
(1) Remove the 2 screws **[J]**.
(2) Remove the BRACKET SOCKET COVER.

### 3.1.10 REMOVING THE MAIN PWB
- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
- Remove the BRACKET SOCKET COVER.
(1) Remove the 9 screws **[K]**.
(2) Remove the MAIN PWB.

### 3.1.11 REMOVING THE LED PWB
- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
(1) Remove the 2 screws **[L]**.
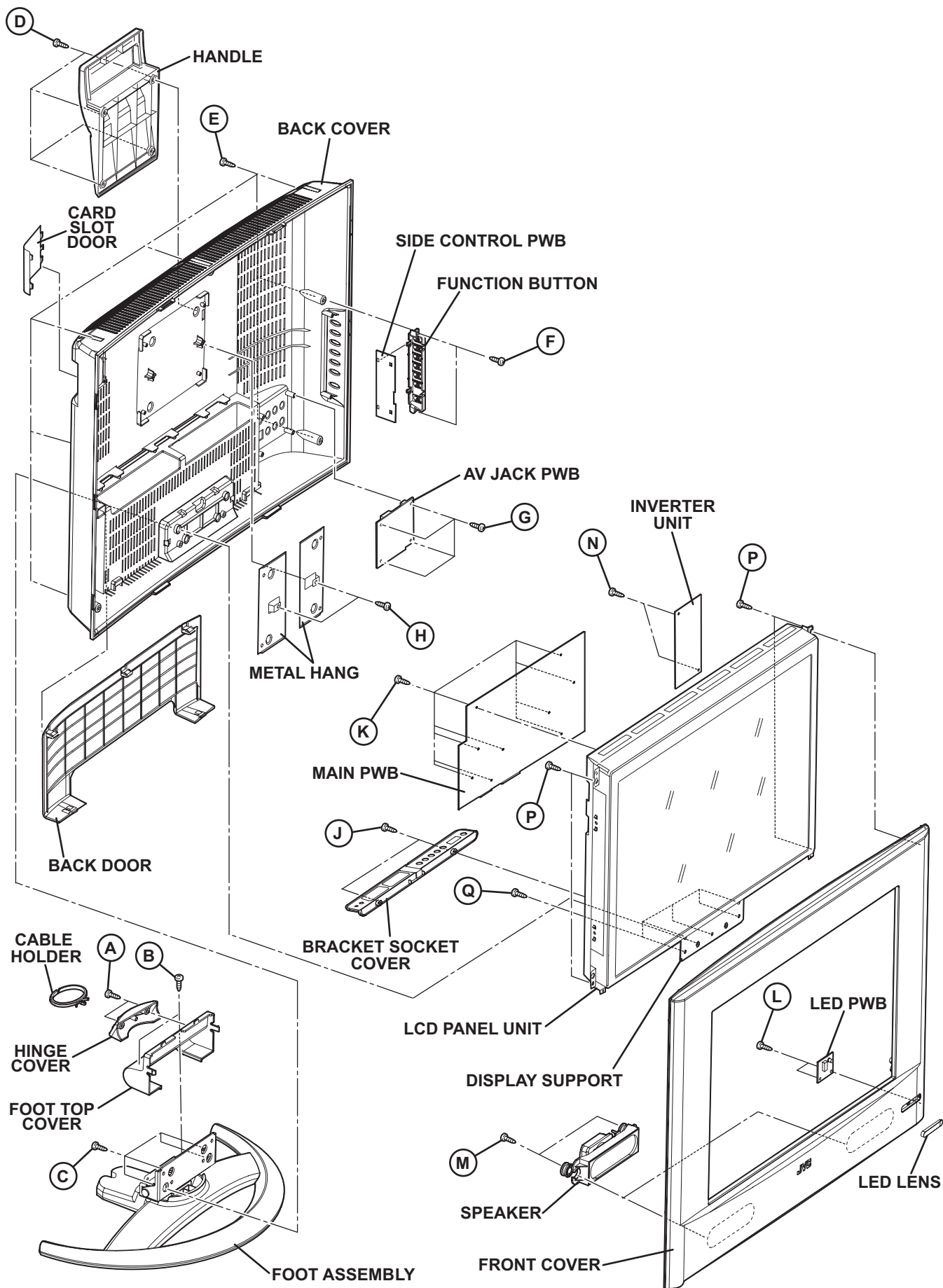(2) Remove the LED PWB.

### 3.1.12 REMOVING THE SPEAKER
- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
(1) Remove the speaker wire from speaker terminal.
(2) Remove the 2 screws **[M]**.
(3) Remove the SPEAKER.
(4) Remove the opposite speaker same steps.

### 3.1.13 REMOVING THE LCD PANEL UNIT
- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
- Remove the MAIN PWB.
(1) Remove the 2 screws **[N]**.
(2) Remove the INVERTER UNIT.
(3) Remove the 4 screws **[P]**.
(4) Remove the 5 screws **[Q]** fixing the DISPLAY SUPPORT and LCD PANEL UNIT.
(5) Sightly raise the both sides of the LCD PANEL by hand from the FRONT COVER.

**NOTE:**
- Pay special attention not to break or damage on the front of the LCD PANEL.
- The LCD PANEL UNIT is fixed to the FRONT COVER (at the back side)by using double-side adhesive tapes. To remove the LCD PANEL UNIT, remove the adhesive tape on the FRONT COVER slowly.

D

HANDLE

E

BACK COVER

CARD
SLOT
DOOR

SIDE CONTROL PWB

FUNCTION BUTTON

F

AV JACK PWB

G

INVERTER
UNIT

N

P

METAL HANG

H

K

MAIN PWB

P

P

J

Q

BRACKET SOCKET
COVER

LCD PANEL UNIT

BACK DOOR

CABLE
HOLDER

A

B

HINGE
COVER

FOOT TOP
COVER

C

DISPLAY SUPPORT

L

LED PWB

M

LED LENS

SPEAKER

FOOT ASSEMBLY

FRONT COVER

## 3.2 MEMORY IC REPLACEMENT

• This model uses the memory IC.
• This memory IC stores data for proper operation of the video and drive circuits.
• When replacing, be sure to use an IC containing this (initial value) data.

### 3.2.1 SETTINGS OF FACTORY SHIPMENT

#### 3.2.1.1 BUTTON OPERATION

| Setting item | Setting position |
|---|---|
| POWER | Off |
| TV/AV | TV |

#### 3.2.1.2 REMOTE CONTROL DIRECT OPERATION

| Setting item | Setting position |
|---|---|
| ZOOM | Auto |
| Hyper Sound | Off |

#### 3.2.1.3 REMOTE CONTROL MENU OPERATION

**(1) PICTURE**

| Setting item | Setting position |
|---|---|
| Mode | Bright |
| Colour Temp. | Cool |
| Noise Red. | Minimum |

**(2) SOUND**

| Setting item | Setting position |
|---|---|
| Hyper Sound | Off |
| Sound Mode | Mono |

**(3) FEATURE**

| Setting item | Setting position |
|---|---|
| Sleep Timer | Off |
| Child Lock | Off |
| Language | English |
| EXT-2 Output | TV |
| Blue Back | On |

**(4) INSTALLATION**

| Setting item | Setting position |
|---|---|
| Colour System | AUTO |
| Decoder(EXT-2) | Off |
| VCR | Off |

### 3.3   REPLACEMENT OF CHIP COMPONENT

### 3.3.1   CAUTIONS
  (1) Avoid heating for more than 3 seconds.
  (2) Do not rub the electrodes and the resist parts of the pattern.
  (3) When removing a chip part, melt the solder adequately.
  (4) Do not reuse a chip part after removing it.

### 3.3.2   SOLDERING IRON
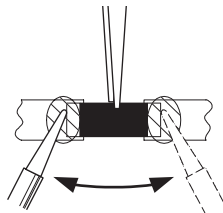  (1) Use a high insulation soldering iron with a thin pointed end of it.
  (2) A 30w soldering iron is recommended for easily removing parts.
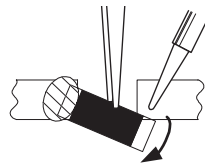
### 3.3.3   REPLACEMENT STEPS

**1. How to remove Chip parts**

**[Resistors, capacitors, etc.]**

  (1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.
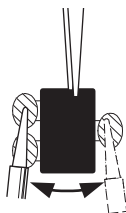
  (2) Shift with the tweezers and remove the chip part.

**[Transistors, diodes, variable resistors, etc.]**

  (1) Apply extra solder to each lead.

  SOLDER — SOLDER

  (2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.

**NOTE :**
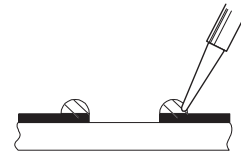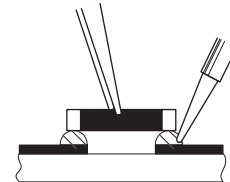  After removing the part, remove remaining solder from the pattern.

**2. How to install Chip parts**

**[Resistors, capacitors, etc.]**

  (1) Apply solder to the pattern as indicated in the figure.

  (2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.
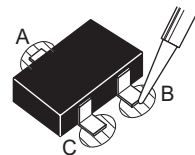
**[Transistors, diodes, variable resistors, etc.]**

  (1) Apply solder to the pattern as indicated in the figure.
  (2) Grasp the chip part with tweezers and place it on the solder.
  (3) First solder lead **A** as indicated in the figure.
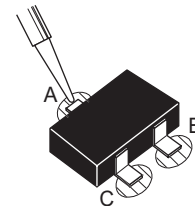
  (4) Then solder leads **B** and **C**.
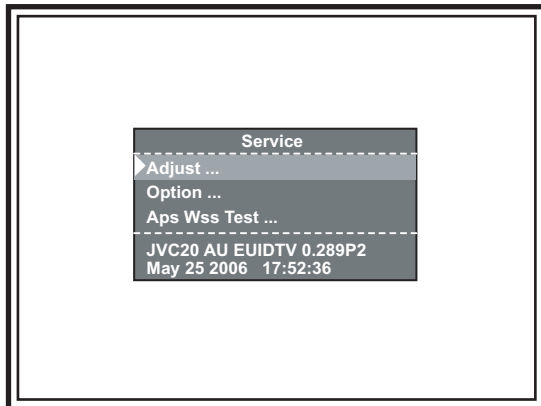
# SECTION 4
# ADJUSTMENT

## 4.1 ADJUSTMENT PREPARATION

(1) There are 2 ways of adjusting this TV : One is with the REMOTE CONTROL UNIT and the other is the conventional method using adjustment parts and components.

(2) The adjustment using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.

(3) Make sure that connection is correctly made AC to AC power source.

(4) Turn on the power of the TV and measuring instruments for warming up for at least 30 minutes before starting adjustments.

(5) If the receive or input signal is not specified, use the most appropriate signal for adjustment.

(6) Never touch the parts (such as variable resistors, transformers and condensers) not shown in the adjustment items of this service adjustment.

## 4.2 BASIC OPERATION OF SERVICE MODE

### 4.2.1 HOW TO ENTER THE SERVICE MODE

(1) Press **[INFORMATION]** key and **[MUTING]** key on the remote control unit simultaneously to enter the SERVICE MODE SCREEN.

### SERVICE MODE SCREEN



### 4.2.2 HOW TO EXIT THE SERVICE MODE

Press the **[MENU]** key to exit the Service mode.

### 4.2.3 CHANGE AND MEMORY OF SETTING VALUE

■ **SELECTION OF SETTING MENU & ITEM**
   • **[FUNCTION ▲/▼]** key : Select the SETTING MENU & ITEM
   • **[OK]** key : Decision the SETTING MENU & ITEM
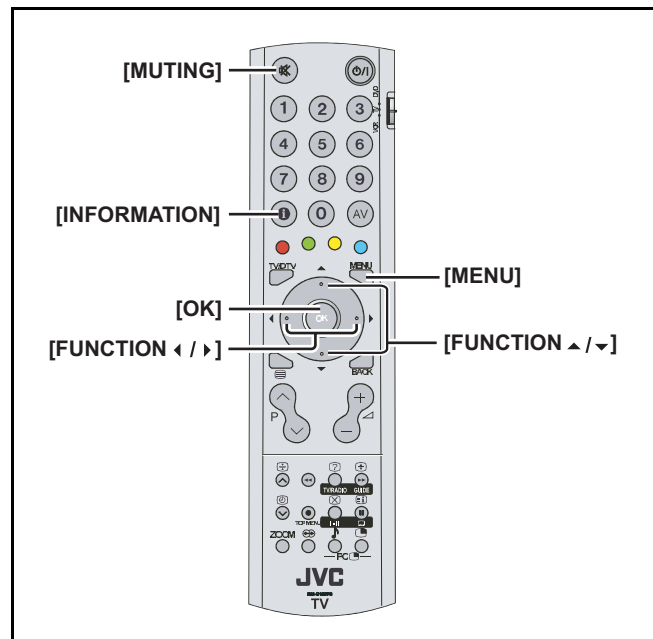
■ **CHANGE OF SETTING VALUE (DATA)**
   • **[FUNCTION ◀/▶]** key.

■ **MEMORY OF SETTING VALUE (DATA)**
   The setting value will be stored automatically when release the REMOTE CONTROL UNIT keys

### 4.2.4 SERVICE MODE SELECT KEY LOCATION

**4.2.5 SERVICE MODE SETTING ITEMS**

| Setting menu | Setting items | Setting menu | Setting items |
|---|---|---|---|
| Adjust | Group | Option 2 | Carrier |
| | Mode | | LDLY |
| | Col Temp | | AGC |
| | Contrast | | Other |
| | Brightness | | PC |
| | Colour | | Osdclk_Dly |
| | Sharpness | | Osdclk_pinDly |
| | Red | | MAD |
| | Green | Aps Wss Test | Programme |
| | Blue | | VPS |
| | Aps Volume | | Scart Volume Avl Off |
| Option 1 | First APS | | Pdc Format 1 |
| | FM Prs Avl On | | Pdc Format 2 |
| | Nicam Prs Avl On | | Name |
| | Scart Prs Avl On | | WSS |
| | Scart Volume Avl On | | |
| | FM Prs Avl Off | | |
| | Nicam Prs Avl Off | | |
| | Scart Prs Avl Off | | |
| | Scart Volume Avl Off | | |
| | Avl | | |
| | Sound | | |

# SECTION 5
# TROUBLESHOOTING

This service manual does not describe TROUBLESHOOTING.

# JVC

InteríArt

## LT-20DJ5SFR

| INTEGRATED DIGITAL LCD PANEL TV | INSTRUCTIONS |
| --- | --- |
| TV LCD NUMÉRIQUE INTÉGRÉE | MANUEL D'INSTRUCTIONS |

# JVC

**DVB**®
**D**igital **V**ideo
**B**roadcasting

*Trade Mark of the DVB Digital Video Broadcasting*
*Project (1991 to 1996) Number: 4082*

50081971

0505TKH-VT-VT

# Contents

## For your safety

This equipment has been designed and manufactured to meet international safety standards but, like any electrical equipment, care must be taken if you are to obtain the best results and safety is to be assured. So, please read the points below for your own safety. They are of a general nature, intended to help you with all your electronic consumer products and some points may not apply to the goods you have just purchased.

## Some "DOs" and "DON'Ts" for you

### Air Circulation…

Leave at least 10cm clearance around the television to allow adequate ventilation. This will prevent the TV from overheating and consequential possible damage to the TV. Dusty places should also be avoided.

### Heat Damage…

Damage may occur if you leave the TV in direct sunlight or near a heater. Avoid places subject to extremely high temperatures or humidity, or locations where the temperature is likely to fall below 5ºC (41ºF).
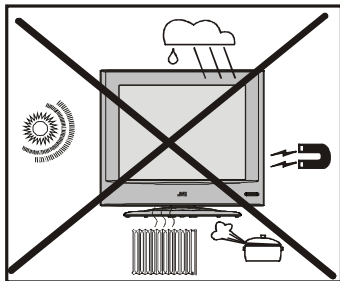


### Mains Supply…

The mains supply required for this equipment is **100 -240 AC, 50 Hz.** Never connect to a DC supply or any other power source. DO ensure that the TV is not standing on the mains lead. DO NOT cut off the mains plug from this equipment, this incorporates a special Radio Interference Filter, the removal of which will impair its performance.

### Hot / Moderate Climate Conditions

This device is suitable for working in hot and moderate climate conditions.

## IF IN DOUBT PLEASE CONSULT A COMPETENT ELECTRICIAN.

### DO…

*DO* read the operating instructions before you attempt to use the equipment.

*DO* ensure that all electrical connections (including the mains plug, extension leads and inter-connections between pieces of equipment) are properly made and in accordance with the manufacturers' instructions.

Switch off and withdraw the mains plug before making or changing connections.

*DO* consult your dealer if you are ever in doubt about the installation, operation or safety of your equipment.

*DO* be careful with glass panels or doors on equipment.

### DO NOT…

*DON'T* remove any fixed cover as this may expose dangerous voltages.

*DON'T* obstruct the ventilation openings of the equipment with items such as newspapers, table-cloths, curtains etc. Overheating will cause damage and shorten the life of the equipment.

*DON'T* allow electrical equipment to be exposed to dripping or splashing or objects filled with liquids, such as vases, to be placed on the equipment.

*DON'T* place hot objects or naked flame sources, such as lighted candles or night-lights on, or close to the equipment. High temperatures can melt plastic and lead to fires.

*DON'T* use makeshift stands and NEVER fix legs with wood screws. To ensure complete safety, always fit the manufacturer's approved stand or legs with the fixings provided according to the instructions.

*DON'T* listen to headphones at high volume, as such use can permanently damage your hearing.

*DON'T* leave equipment switched on when it is unattended, unless it is specifically stated that it is designed for unattended operation or has a standby mode. Switch off using the switch on the equipment and make sure your family know how to do this. Special arrangements may need to be made for infirm or handicapped people.

**DON'T** continue to operate the equipment if you are in any doubt about it working normally, or it is damaged in any way – switch off, withdraw the mains plug and consult your dealer.

**DON'T** put the empty batteries into garbage instead of recycle bin to reduce harmfull effects to the environment.

**ABOVE ALL** – **NEVER let anyone, especially children, push anything into holes, slots or any other openings in the case – this could result in a fatal electric shock.**

NEVER guess or take chances with electrical equipment of any kind – it is better to be safe than sorry.

**To fully disconnect the TV, switch off the mains socket and remove the Power plug.**

**Safety Precautions for Power adapter**

• Be careful! May become hot.

• For indoor and dry location use only.

• Risk of electric shock.

• Shock hazard, do not open.

• Keep all power adapters away from any other heat source.

• Always use power adapter(s) well-ventilated area.

*\*\* Cold cathode fluoresant lamp in LCD PANEL contains a small amount of mercury, please follow local ordinates or regulations for disposal.*

**"The LCD panel is very high technology product with about a million thin film transistors, giving you fine picture details. Occasionally, a few non-active pixels may appear on the screen as a fixed point of blue, green or red. Please note that this does not affect the performance of your product." Please note that certain light guns used with games consoles may not work on this product.**

## Warning:

**This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.**

*WARNING*

• Fingers may be trapped under the TV causing injuries. Hold the TV at the bottom in the middle, and do not allow it to tilt up or down.

• The TV may fall causing injuries. Hold the bottom of the stand with your hand and tilt the TV up and down.

• Do not allow children to hang from the TV, place their elbows on the TV or lean against the TV. Doing so may cause the TV to fall over and lead to injuries.
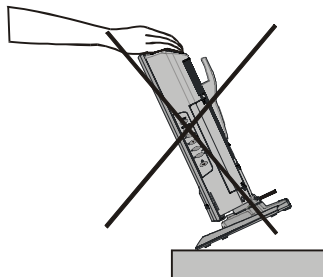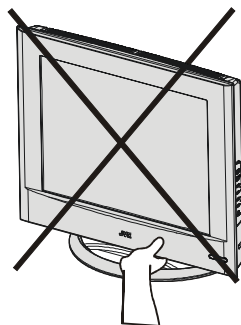
*CAUTION:*

• To avoid electric shock or damage to the unit, first firmly insert the small end of the power cord into the AC Adapter unit it is no longer wobbly, and then plug the larger end of power cord into an AC outlet.
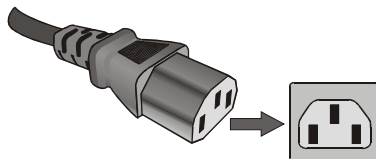
# Where to install

Locate the TV away from direct sunlight and strong lights, soft, indirect lighting is recommended for comfortable viewing. Place on a sturdy platform, the mounting surface should be flat and steady, it should then be secured to the wall with a sturdy tie using the hook on the back of the TV, this will prevent it from falling over. Use curtains or blinds to prevent direct sunlight falling on the screen.

A floor and table top stand are available for this television, or and angled bracket which enables the TV to be wall-mounted.

The LCD display panels are manufactured using an extremely high level of precision technology, however sometimes some parts of the screen may be missing picture elements or have luminous spots. This is not a sign of a malfunction.

Make sure the TV is located in a position where it cannot be pushed or hit by objects, as pressure will break or damage the screen.

## Distance Recommendation

Install the TV on solid horizontal surface such as a table or desk.

For ventilation, leave a space of at least 10 cm free all around the set. To prevent any fault and unsafe situations, please do not place any objects on top of the set.
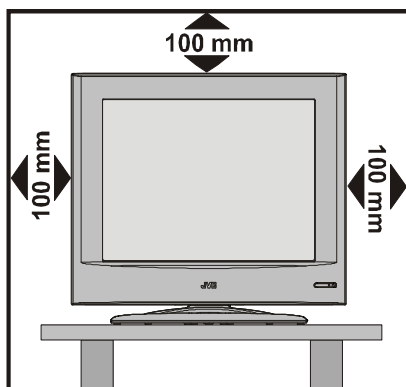
# Important Information

## Please take note

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### EXCLUSION CLAUSE

JVC shall under no circumstances be liable for loss and/or damage to the product caused by:

• fire;

• earthquake;

• accidental damage;

• intentional misuse of the product;

• use of the product in improper conditions;

• loss and/or damage caused to the product whilst in the possession of a third party;

• any damage or loss caused as a result of the owner' s failure and/or neglect to follow the instructions set out in the owner's manual;

• any loss or damage caused directly as a result of misuse or malfunction of the product when used simultaneously with associated equipment;

Furthermore, under no circumstances shall JVC be liable for any consequential loss and/or damage including but not limited to the following, loss of profit, interruption of business, the loss of recorded data whether caused during normal operation or misuse of the product.

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### WARNING! NEVER LEAVE A STATIONARY IMAGE ON THE SCREEN

If stationary images generated by TELETEXT, CHANNEL IDENTIFICATION LOGOS, COMPUTER DISPLAYS, VIDEO GAMES, ON SCREEN MENUS, etc. are left on the TV screen for any length of time, they could become permanently ingrained.

If you use your television to display completely still images, or moving pictures which have a permanent still image superimposed e.g. broadcast network logos, it is always advisable to reduce BOTH the brightness and contrast settings.

### Care and disposal

**Cleaning the screen and cabinet...**

Turn off the power, clean the screen and cabinet with a soft, dry cloth. We recommend that you do not use any proprietary polishes or solvents on the screen or cabinet as this may cause damage.

**Disposal...**

When the set reaches the end of its useful life please dispose of it in accordance with Local Government Regulations or at a recycling centre.

# Control Panel Buttons

POWER LAMP

INFRARED RECEIVER

SPEAKER

SPEAKER

TV/AV/OK

MENU

PROGRAM

- VOLUME +

STAND-BY

## FOOT TOP COVER
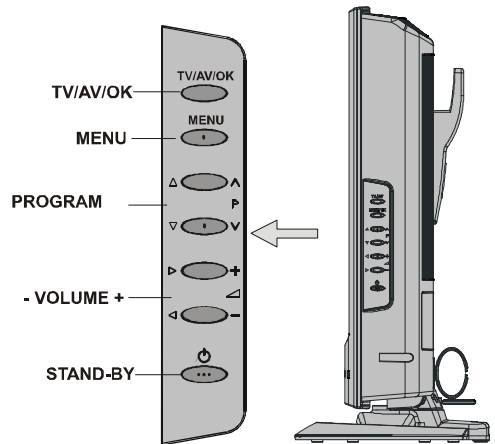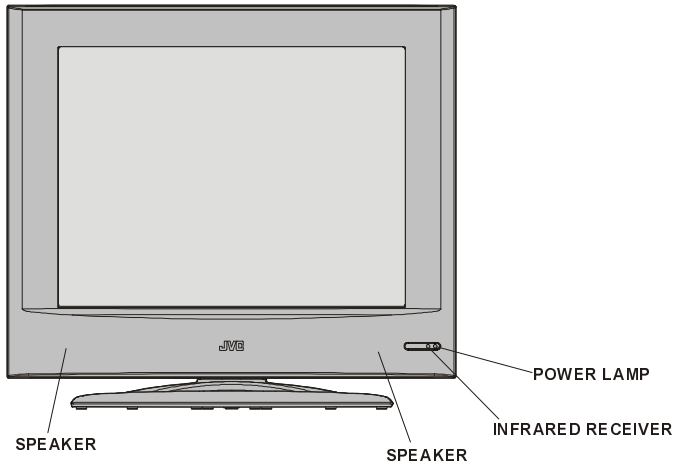
With certain combinations of connectors and leads the back cover may not be easily fitted. If the cover is left off, this in no way infringes safety requirements.

## Using the stand

**This TV comes with a Table Top Stand already attached.**

This stand can be used to adjust the direction of the TV screen 10° backward and 5° forward.

**Tilt the TV up and down:**

While holding the bottom of the stand with one hand, use your other hand to hold the middle of the top of the TV and slowly tilt the TV up and down.
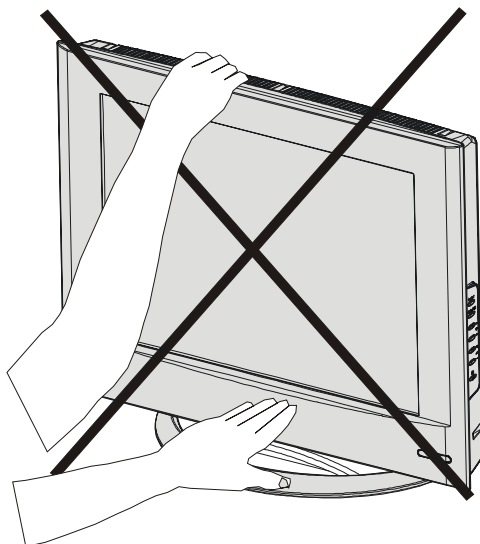
# Remote Control Buttons

① ⏻ / I = (Stand By) button

② TV / VCR / DVD Switch

③ Number buttons

④ **AV** button
   (EXT-1, EXT-2, EXT-2S, EXT-3,
   EXT-4, EXT-4S, PC, DIGITAL TV)

⑤ Colour button

⑥ **MENU** = Menu button

⑦ ▲ = Cursor Up button

⑧ OK button

⑨ ▶ = Cursor Right button

⑩ **BACK =** Back button

⑪ ◢ = Volume - /+ buttons

⑫ GUIDE button

⑬ **TV/RADIO =** No Function

⑭ ⏛ = **SUBTITLE** button

⑮ I/II = Audio Language

⑯ PC Control buttons

⑰ ⊕ = Hyper Sound On/Off button

⑱ **ZOOM** = Zoom button

⑲ ∧/∨ buttons

⑳ IDTV/ VCR/ DVD/ Teletext Control buttons

㉑ P∧/∨ buttons

㉒ ▼ = Cursor Down button

㉓ ▤ = Teletext button

㉔ ◀ = Cursor Left button

㉕ **TV / DTV** button

㉖ ❶ = Information Button / T-V Link in
        Program Menu

㉗ ⊗ = Mute button
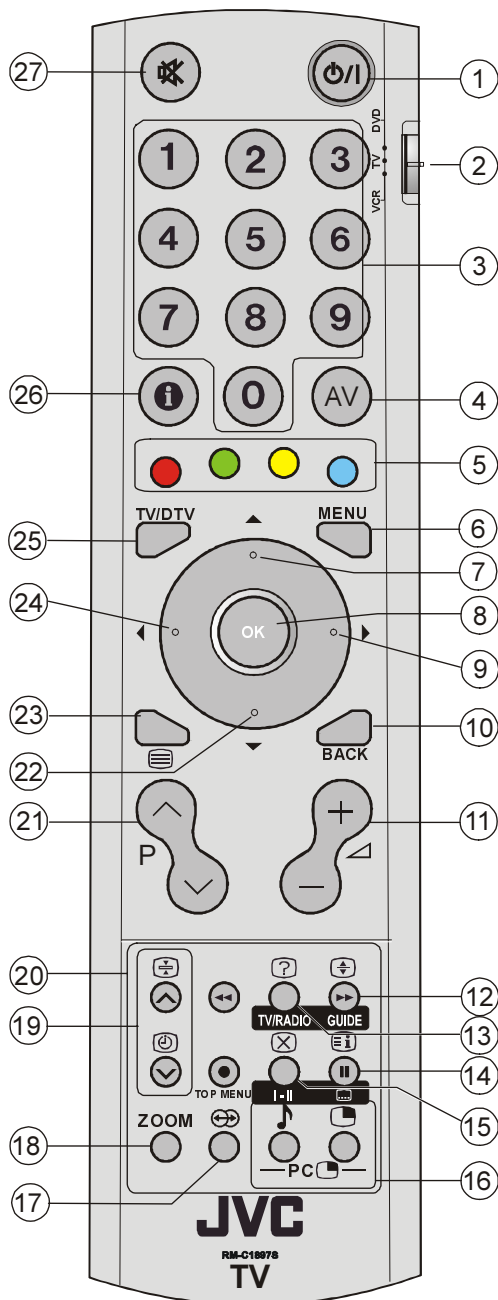
# Features

- It is a remote controlled Integrated Digital colour television and PC monitor.
- 100 programmes from VHF, UHF bands or cable channels can be preset.
- It can tune cable channels.
- Controlling the TV is very easy by its menu driven system.
- It has 2 pieces of Euroconnector socket for external devices (such as video, video games, audio set, etc.)
- S-Video and AV inputs are available.
- Optional stereo sound systems (German or German+Nicam) are available.
- Multilanguage OSD.
- Teletext (FLOF (Fastext), TOP, WST (World Standard System)).
- It is possible to connect headphone.
- A.P.S. (Automatic programming system).
- PLL (Frequency Search).
- All programmes can be named.
- Forward or backward automatic tuning.
- Sleep timer.
- Child lock.
- Auto, 4:3, 16:9.
- Automatic sound mute when no transmission.
- When no valid signal is detected, after 5 minutes the TV switches itself automatically to stand-by mode.
- NTSC Playback.
- TV Picture in PC (if PC input available).
- PC input (Support Up to 800 x 600).
- Plug&Play for Windows 9X, ME, 2000, XP.
- PC Audio input.

**Follow Step 1 to 7 to set up your TV:**

*Step 1: Checking the accessories supplied*

• Remote control unit x 1

• AA/R6 battery x 2

• AC adapter x 1

• Power cord x 1

*Step 2: Inserting batteries*

• Remove the battery cover located on the back of the remote control by gently pulling upwards from the indicated part.

• Insert two AA/R6 dry cell or equivalent type of batteries inside.

• Replace the battery cover.
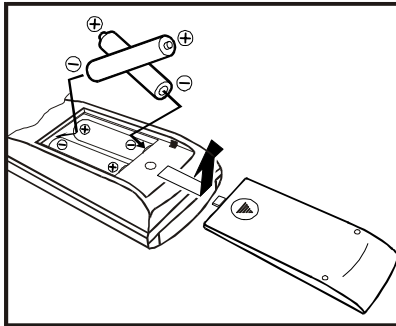


*NOTE: Remove the batteries from remote control when it is not to be used for a long period.Otherwise it can be damaged due to any leakage of battery.*

*Old batteries must be disposed in a designated area. If performance of the remote control reduces, replace the batteries with the correct type. Do not combine a used, old battery or a new one or mixed battery types. Remove dead batteries immediately to prevent acid from leaking into the battery compartment.*

*Step 3: Removing the terminal cover*

There are connection terminals and a card socket behind the covers of the rear of the TV. Remove the cover before connecting an antenna, VCR, DVD and other devices.

Remove the covers by removing the hooks. When replacing the covers, place the side or bottom of the covers against the TV and insert the hooks.

• Leave the covers off if they do not fit properly. DO NOT force to replace the covers. Doing so may cause damages of the connection cables and the covers.

• Leave these covers off when mounting the TV on a wall.

card socket
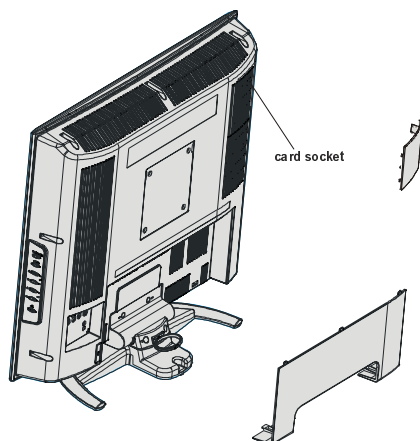
- 100 mm mount based on VESA regulation is equipped.
- The handle and the stand can be left by loosing the screws with a screwdriver when mounting the TV on a wall.
- Spread a soft cloth on a flat table and then place the TV on the cloth with the screen facing downwards when you leave the handle and the stand.

*Step 4: Connecting an aerial VCR and mains*

Please read the user manual of each device before connecting, to ensure a correct setup.

It is necessary to connect aerial to watch TV.

Please see "**Peripheral Equipment Connections**" on **page 38** for connections to other devices.



## Connect the aerial

AERIAL

AC adapter

to DC IN

## Connect a video device

---
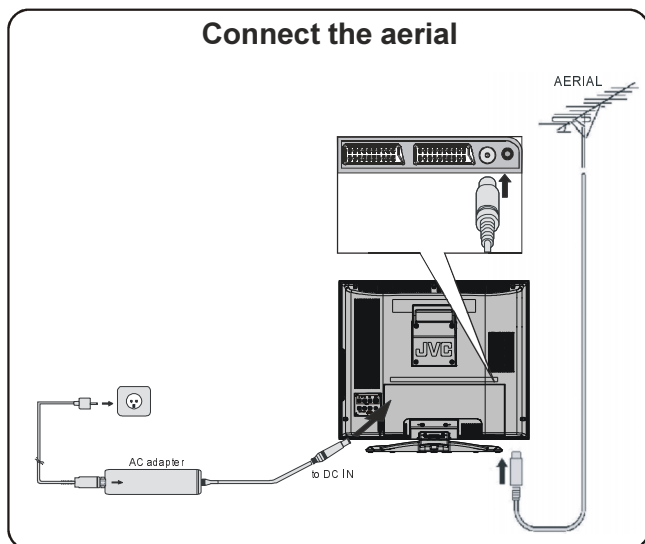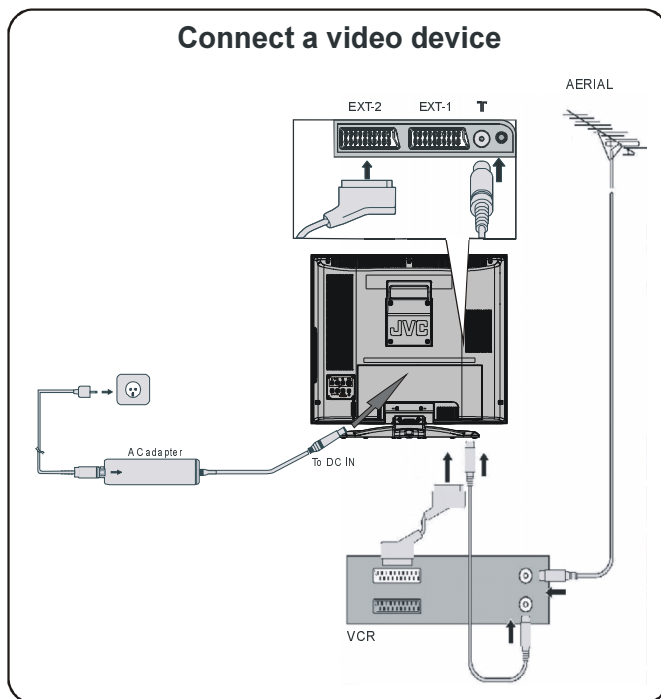
**IMPORTANT:**

• Only use the adaptor supplied with this TV.

• The TV set is designed to operate on 12 V DC. For this, an adaptor is used which gives 12 V DC voltage. Connect this adaptor to a system that supplies 100-240 V AC, 50 Hz.

### *Step 5: Using the cable holder*

A cable holder which is used to keep the connection cables tidy is supplied. Attach the cable holder to the hole on the back of the stand, then gather together the connection cables and put them inside the holder.



cable holder
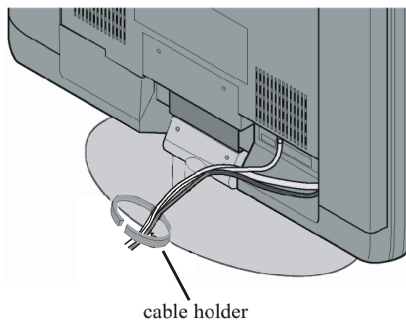
### Step 6: Switching the TV ON/OFF

**To switch the TV on**

Your TV will switch on by two steps:

**1-** Connect the power supply cord to the system. Then the TV switches itself to stand-by mode and the power lamp becomes red located on the front of the TV.

**2-** To switch on the TV from stand-by mode either:

Press the "⏻ / |" button on the remote control or on the right side of the TV

or.

press a digit button on the remote control so that a programme number is selected,

or,

Press **"P∨"** or **"P∧"** buttons on the right side of the TV or on the remote control, so that last switched off programme is selected.

By either ways the TV will switch on and the power lamp will become green.

**To switch the TV off**

• Press the "⏻ / |" button on the remote control or on the right side of the TV, so the TV will switch to stand-by mode and the power lamp will become red.

**NOTE:** To switch the TV off completely remove the mains plug from the socket.

### Step 7: Initial settings

When the TV is first turned on, it goes into the initial settings mode. Follow the instructions on the screen display to make the initial settings.

*Note: If the TV does not go into the initial settings mode this is because your TV has already been turned on for the first time. (Perform the initial settings with "INSTALLATION" (see page 25) in the DTV menu and "AUTO STORE" (Analogue) (see page 32) in the PROGRAM menu.)*

Because this is the first time that IDTV has been used, there are no channels stored in the memory and below information will be displayed on the screen.

**1. Press the OK button to start the automatic search.**



PR List Empty. Start automatic search.

OK

The IDTV will automatically tune to the UHF transmission channels 21 to 68 looking for digital terrestrial TV broadcasts and displaying the names of channels found. This process will take about five minutes. To cancel searching, you can press MENU button at any time during the process.

<u>HINT:</u> Depending on the reception conditions in your particular area, you may find that the list of channels found includes one or more repeated names. This is because the receiver may detect and store some channels, including those it cannot receive clearly, from adjacent areas alongside the strong channels from a transmitter nearby. This is not a problem and the weaker channels can be deleted from the receiver later, as described in - Edit PR List on **page 23**.

**2. When the automatic search has finished, the EDIT PR LIST menu appears.**

• If you want to, you can now edit the programme numbers (PR) using the EDIT PR LIST function. For details, see "Edit PR List" on **page 23**.

• If you do not want to edit programme numbers (PR), go to the next step.

**3. Press the MENU button.**

The EDIT PR LIST menu disappears and the following message appears.



Do you want to search for analogue channels?

Yes          No

If you select "Yes", Analogue terrestrial broadcasting AUTOMATIC PROGRAMMING SYSTEM (A.P.S.) window is displayed.



Auto Program
Please Check Antenna Cable
Auto. Programming System
Language       ?
► Country        ?
: OK        : Cancel

To cancel APS before starting, press BLUE button.

First of all choose the "**Language**" which the menus of the analogue part of the TV will appear. As soon as you change the language, the menu items will be displayed in the selected language. By pressing the " ▲ " or " ▼ " button, come to the "**Country**" item and select the country. This will affect the sort process in APS. Press RED button to start A.P.S.

After APS is finalized, a programme list will appear on the screen. In the programme list you will see the programme numbers and names assigned to the programmes.

If you press the BLUE button at any time while the A.P.S. is running, the A.P.S. will be ended.

If you do not accept the locations and / or the programme names of programmes, you can change them in Program menu. For details see PROGRAM menu on .

If you do not have a T-V LINK compatible VCR, press MENU button to exit the menu.

If you have a T-V LINK compatible VCR connected to the EXT-2 terminal, press " 🛈 " button to display T-V LINK menu. Then follow the operating procedure "Downloading data to VCR" in the following T-V LINK section.

## T-V LINK

When a T-V LINK compatible VCR connected to the EXT-2 terminal on the TV, it is easier to set up the VCR and to view videos. T-V LINK uses the following features:

### To use T-V LINK functions

A "T-V LINK compatible VCR" means a JVC video cassette recorder with the T-V LINK logo, or with one of the following logos. For details see your VCR instruction manual.

"**Q-LINK**" (A trademark of Panasonic Corporation)

"**Data Logic**" (A trademark of Metz Corporation)

"**Easy Link**" (A trademark of Philips Corporation)

"**Megalogic**" (A trademark of Grundig Corporation)

"**SMARTLINK**" (A trademark of Sony Corporation)

### Downloading data to VCR:

The VCR will automatically download the registered data on the TV channels from the TV. This means you do not need to set up the programme channels on your VCR manually.

The "T-V LINK" menu will be displayed when you press the " 🛈 " button while PROGRAM menu is displayed.
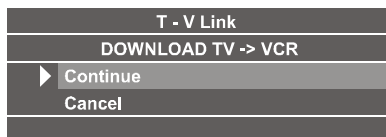
| T - V Link |
| --- |
| DOWNLOAD TV -> VCR |
| ▶ Continue |
| Cancel |
| |

If you do not have a T-V LINK compatible VCR, select Cancel and press "▶" or "OK" button to exit the menu.

Press "▶" or "OK" button to start downloading data to VCR. "TRANSFER" is displayed in the menu.

| T - V Link |
| --- |
| DOWNLOAD TV -> VCR |
| |
| TRANSFER... |
| |

If "FEATURE NOT AVAILABLE" is displayed, download was not performed correctly. Before trying to download again, check that:

• The VCR power is turned on.

• The VCR is T-V LINK compatible.

• The VCR is connected to EXT-2.

• The scart cable is fully wired.

### Direct REC:

You can easily record to VCR the images that you are watching on the TV. For details, read the manual for your VCR. Use your VCR controls you can not carry out Direct REC using your TV control.

When the VCR is not ready (For example when there is no tape inserted), "NO RECORDING" is displayed.

When you press the following buttons ( ⏻ / I, 📺, TV / DTV, ZOOM, ⬅➡, 🛈, AV, MENU, ⋯ (SUBTITLE), GUIDE, ▢, BACK, P∨ / P∧,

number buttons) during recording, a message appears asking if you want to stop recording or not. Press **OK** button to stop recording or BLUE button to continue recording.

**Do not turn the TV off in the following cases:**

• When recording images from an external device connected to TV (For example camcorder).

• When recording a TV channel after it has been unscrambled on a decoder.

• When recording a TV channel by using the TV's output because the VCR's own tuner can not properly receive that channel.

• When recording Digital terrestrial broadcasting (DVB-T).

**TV autopower on/VCR image view:**

When the VCR starts playing, the TV automatically turns on and images from EXT-2 appear on the screen.

This function does not happen if your TV's main power is turned off. Set your TV's main power to on (StandBy Mode).

## Basic Operations

***You can operate your TV using both the remote control and TV buttons.***

### Operation with the buttons on the TV

#### Volume Setting

• Press "◢ -" button to decrease volume or "◢ +" button to increase volume, so a volume level scale (slider) will be displayed at the middle of the bottom on the screen.

#### Programme Selection

• Press "P∧" button to select the next programme or "P∨" button to select the previous programme.

#### Switching input mode

• Pressing TV/AV/OK button will change the input mode.

#### Entering Main Menu

• Press "**MENU**" button to enter Main menu. In the Main menu select submenu using "P∨" or "P∧" button and enter the submenu using "◢ -" / "◢ +" or TV/AV/OK or MENU button. To learn the usage of the menus, refer to the Menu System sections.

## Operation with Remote Control

The remote control of your TV is designed to control all the functions of the model you selected. The functions will be described in accordance with the menu system of your TV.

Functions of the menu system are described in following sections.

### Volume Setting

Press "◢ +" button to increase volume. Press "◢ -" button to decrease volume. A volume level scale (slider) will be displayed in the middle at the bottom of the screen.



### Programme Selection (Previous or next programme)

• Press "P∨" button to select the previous programme.

• Press "P∧" button to select the next programme.

### Programme Selection (direct access):

Press digit buttons on the remote control to select programmes between 0 and 9. TV will switch to the selected programme. To select programmes between 10 - 99, press the digit buttons consecutively which programme you want to select (eg. for programme 27, first press 2 and then 7). When it is late to press second digit button only the first digit programme will be displayed. The limit of the delay time is 3 seconds.

Example: PR6 → press 6, PR12 → press 1 and 2.

Press directly the programme number to reselect single digit programmes.

*Hint: The channel list numbers are assigned by the broadcasters. Because not all channels are broadcast free-to-air and stored by the receiver, the channel list numbers do not run continuously. The fifteenth channel in the list, for example, may not be channel number 15 but channel number 17.*

*Hint: If you enter a number which does not correspond to a stored channel, the next valid channel number is selected instead. If you enter a number greater than the highest numbered channel in the channel list, the IDTV will select the last channel in the list.*

## Operating while watching IDTV

Pressing the **TV/DTV** button at any time while watching television programmes will switch the TV set between displaying the digital terrestrial television broadcasting and its normal analogue broadcasting.

It is also used to switch to the last watched mode (TV or DIGITAL TV) from the EXT mode. For example; if a DVD player is connected with a SCART cable and powered on, then the IDTV will automatically switch to EXT mode. The IDTV will switch to the last watched mode (TV or DIGITAL TV) if DVD player is switched off or "TV/DTV" button is pressed.

### EVERYDAY OPERATION

While using the **IDTV** to the full, there are great many buttons to use in different situations. Many of the menu screens displayed by the IDTV have reminders as to which button do what, at the base of the screen. In addition, many screens have further help available which is displayed when the 🛈 button is pressed, as prompted at the bottom right of the screen.

#### INFORMATION BANNER

Whenever you change channel, using the P∨ / P∧ buttons or the number buttons, an information banner is displayed at the bottom of the screen. This will remain on the screen for approximately three seconds. The information banner can also be displayed at any time while watching TV by pressing the

🛈 button on the remote control. Pressing the

🛈 button again removes the banner.



*Hint: Not all channels broadcast the programme data. If the name and times of the programme is not available then "No Information" is displayed in the information banner.*

The information banner gives a number of facts on the channel selected and the programmes on it. The name of the channel is displayed, along with its channel list number and an in-

dication of the strength of the signal received on this tuning channel.

The name and the start and finish time of the programme currently showing on the selected channel are given, and the current time.

Icons are also displayed in the information banner and if this channel is a favourite channel.

favorite channel icon ☺

If the selected channel is locked, you must enter the correct four digit code to view the channel.
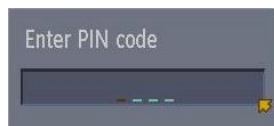


ELECTRONIC PROGRAMME GUIDE (EPG)

Another way of selecting a channel is with the electronic programme guide, or EPG. Like the Channel List, the EPG screen displays a list of the stored channels along with information on what programmes are being broadcast.

*Using the Electronic Programme Guide*

EPG can display 7 days programme guide, but in some areas only current and next programme guide is displayed.

By using EPG, you can select the channel and set the reminder for the programme which you do not want to miss.

To display the EPG screen, press the GUIDE button while watching Digital terrestrial broadcasting.

You can exit the EPG screen by pressing the GUIDE button again or the MENU button.
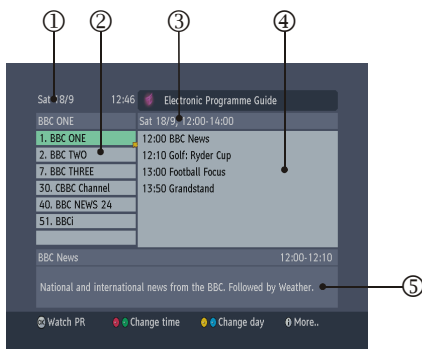
① Current date and time

② Channel listings

③ Selected date and time

④ Programme name and broadcast time

⑤ Brief description of the programme

• The programme name, broadcast time and a brief description of the programme are displayed for the programme chosen from the channel listings.

**Choosing Channel**

**1. Press " ▲ " or " ▼ " buttons to choose the channel.**

**2. Press OK button.**

The selected channel is displayed.

**Programme Reminders**

You can easily set the reminder so that you will not miss the programme you want to watch.

**1. Press " ▲ " or " ▼ " buttons to choose the channel.**

**2. Press the Red and Green buttons to change the time and Yellow and Blue buttons to change the date.**

**3. Press " ◀ " or " ▶ " buttons and then " ▲ " or " ▼ " buttons to choose the programme you want to watch.**

**4. Press the OK button.**

The reminder icon will be displayed on the right side of the chosen programme name and the setting is completed.

When the TV is being watched, it automatically changes to the channel of the reminded programme when the start time of the scheduled programme is reached.

• This function does not work when the TV is turned off.

**To cancel the reminder setting**

Display the EPG screen, choose a programme which has the reminder icon, and press the OK button.

Note:

• Reminder events are ignored if any timer event is active at that time.

• You can not set the reminder for the programme which has already started.

• "No Information" is displayed for the programme or channel which does not have any information. You can not set the reminder for these programmes.

**DISPLAYING THE SUBTITLES**

With Digital terrestrial broadcasting (DVB-T), some programmes are broadcast with subtitles. Subtitles can be displayed when watching these programmes.

• Press the ⬚ (SUBTITLE) button when watching Digital terrestrial broadcasting (DVB-T).

"Subtitle ON" appears at the top-left of the screen and, if programme has subtitles, the subtitles are displayed.

• When the ⬚ (SUBTITLE) button is pressed again, "Subtitle OFF" appears and the subtitles disappear.

Subtitle ON

Subtitle OFF

# DIGITAL TELETEXT

With Digital terrestrial broadcasting (DVB-T), in addition to pictures and sound, you can also watch digital teletext.

Digital teletext is sometimes broadcast at the same time as normal broadcasting.

**1. Press the ▤ button.**

The digital teletext information appears.

**2. Operate it with the colour buttons,**

**◀/▶/▼/▲ buttons and OK button.**

The operation method may differ depending on the contents of the digital teletext.

Follow the instructions displayed on digital teletext screen.

• When "Press SELECT" or similar message appears on the screen, press the **OK** button.

• When the ▤ (Text) button is pressed, the TV returns to television broadcasting.

• With Digital terrestrial broadcasting (DVB-T), in addition to digital teletext broadcasting at the same time as normal broadcasting, there are also channels with just digital tele-text broadcasting.

• The aspect ratio when watching a channel with just digital teletext broadcasting is the same as the aspect ratio of the picture watched previously.

• When you press the 📄 (Text) button while subtitles are on, the subtitles are turned off.

When you press the 📄 (Text) button again, the digital teletext screen is displayed.

## DTV Menus

The DTV menu can only be shown when watching Digital terrestrial broadcasting. To display the DTV menu, do the following:

**1. Press MENU button.**

The menu appears.

| Menu |
|---|
| ▶ Picture... |
| Sound... |
| Feature... |
| DIGITAL |
| Source... |

**2. Choose DIGITAL and press the OK button.**

The DTV menu appears.

| DTV |
|---|
| Timers |
| Configuration |
| Edit PR List |
| Installation |
| Common Interface |
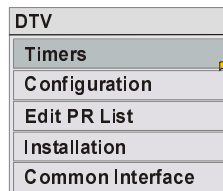
### Timers (DTV Timer Recording)

By setting the timer, you can record a Digital terrestrial broadcasting (DVB-T) programme with a VCR connected to EXT-2 while you are out.

• Before using DTV timer recording, the VCR and TV must  be connected correctly. For details, see T-V LINK on .

• When you have a T-V LINK compatible VCR connected to Ext-2, all you need to do is set the TV timer settings and the programme will be recorded.

By using "Direct Rec" of the T-V LINK func-tion, the Direct Rec commands are sent from the TV to the VCR to automatically start and end the recording. It is not necessary to set the timer on the VCR.

• When your VCR is not T-V LINK compatible, you also need to set the VCR timer settings to match the TV timer settings.

• The recording may not start and stop at ex-actly the right times for some programmes. It is recommended that you allow some lee-way when setting the recording times.

- Provided that the days and times are not the same, you can set up to ten timer settings.
- When subtitles are ON, the subtitles displayed with the broadcast will be recorded. When you do not want to record the subtitles, you need to turn OFF the subtitles settings beforehand ( See "**Displaying the subtitles**" on **Page18**).
- During DTV timer recording, you are unable to view the DTV menu.

**1. Choose Timers and press the OK button.**

The TIMER MENU appears.

| No. | Name | Start | End | Date | Mode |
|---|---|---|---|---|---|
| 1 | BBC THREE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 2 | BBC ONE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 3 | BBC ONE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 4 | BBC ONE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 5 | BBC ONE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 6 | BBC ONE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 7 | BBC ONE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 8 | BBC ONE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 9 | BBC ONE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 10 | BBC ONE | 00:00 | 00:00 | 01/01/2005 | Inactive |

Timer Menu    00:03    21/11/2006

Change Mode    Edit timer settings    More.

- When the BACK button is pressed, the previous screen is returned to.

**2. Press " ▲ " / " ▼ " buttons to choose the timer number, and then press the OK button.**

The timer setting window appears.

| No. | Name | Start | End | Date | Mode |
|---|---|---|---|---|---|
| 1 | BBC THREE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 2 | BBC ONE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 3 | BBC ONE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 4 | BBC ONE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 5 | BBC ONE | 00:00 | 00:00 | 01/01/2005 | Inactive |
| 6 | BBC ONE | 00:00 | 0 | | |
| 7 | BBC ONE | 00:00 | 0 | | |
| 8 | BBC ONE | 00:00 | 0 | | |
| 9 | BBC ONE | 00:00 | 0 | | |
| 10 | BBC ONE | 00:00 | 0 | | |

Timer Menu    00:03    21/11/2006

| Name | BBC THREE |
|---|---|
| Start | 00:00 |
| End | 00:00 |
| Date | 01/01/2004 |
| Mode | Once |

Select Programme    Confirm Timer    Cancel    More..

**3. Use the " ▲ " / " ▼ " buttons, number buttons and OK button to set the timer.**

- When setting the start time and end time, input 1200 for 12:00 PM, 1500 for 3:00 PM and 0000 for 12:00 AM.

**Name:**

Use the " ◀ " / " ▶ " buttons to choose the channel for which the timer is to be set.
Press the " ▼ " button.

**Start:**

Set the timer start time with the number buttons.

- When the " ◀ " / " ▶ " buttons are pressed, the input position moves.
Press the " ▼ " button.

**End:**

Set the timer end time with the number buttons.

- When the " ◀ " / " ▶ " buttons are pressed, the input position moves.
Press the " ▼ " button.

**Date:**

Set the date for the timer to work with the numbers.

- When the " ◀ " / " ▶ " buttons are pressed, the input position moves.
Press the " ▼ " button.

**Mode:**

Use the " ◀ " / " ▶ " buttons to choose the timer mode (Once/Daily/Weekly), and then press the **OK** button.

**4. Prepare your VCR for recording**

*When recording on a T-V LINK compatible VCR:*

1. Insert the videotape for recording into the VCR and set the recording mode.
2. Make sure the VCR is ready to receive Direct Rec commands from the TV.
3. Make sure VCR timer settings do not coincide with the TV timer settings.

- For details, see your VCR instruction manual.

### *When recording on a T-V LINK incompatible VCR:*

1. Insert the videotape for recording into the VCR and set the recording mode.
2. Set the VCR recording timer settings.
3. Make sure that the start and end time match with the TV timer.
4. Set the VCR to record the signal from the external input that the TV is connected to.

• For details, see your VCR instruction manual.

When you have finished the step 4, you have set the timer.

When you are not watching TV, make sure the TV is in stand by.

### *WARNING :*

*Do not turn off the main power. The timer function will not work with the main power switched off.*

The TV power lamp begins flashing before the timer start time. When you are watching TV at that time, a message appears on the screen to inform you the timer is about to start.

• When performing timer recording with a T-V LINK compatible device, test the timer recording before you record the programme. There are some T-V LINK compatible recording device that will not correctly receive the Direct Rec command from the TV.

 If the recording device does not operate when the recording start time is reached, it means VCR is not receiving the Direct Rec command from the TV. In this case, follow the instructions of "When recording on a T-V LINK incompatible VCR:".

**While the timer is in operation:**

• You can  turn the TV on or off (Stand by).

 WARNING: Do not turn off the main power.

• You can watch analogue  terrestrial broadcasting channels or the pictures via an Ext terminal.

• Please note that any programme information that appears on the screen, such as when making changes to the Digital terrestrial broadcasting (DVB-T) channel picture, will be superimposed over the picture in the VCR recording.

• When you press the following buttons (🛈, AV, MENU, 💬 (SUBTITLE), GUIDE, 🔲, BACK, P∨ / P∧, number buttons) during recording, a message appears asking if you want to stop recording or not. Press **OK** button to stop recording or BLUE button to continue recording.

### *Cancelling the timer setting*

Display the TIMER MENU and press the "▲" / "▼" buttons to choose which timer setting to cancel. Press the "◀" / "▶" buttons so that "Inactive" appears in the Mode column.

### *Reactivating the cancelled  timer setting*

Display the TIMER MENU and press the "▲" / "▼" buttons to choose which timer setting to reactivate. Press the "◀" / "▶" buttons so that "Active" appears in the Mode column.

## Configuration

Set the basic setting when watching Digital terrestrial broadcasting (DVB-T).

Choose configuration and press the **OK** button.

CONFIGURATION appears.



| CONFIGURATION | | |
|---|---|---|
| Menu | ◀ | English ▶ |
| Audio Language | ◀ | English ▶ |
| Dolby Digital | | Off |
| Subtitle | | English |
| Favourite Mode | | Off |
| Antenna power | | Off |
| Software Version | | V.1 .5 |
| Parental Settings | | |

Change preferred audio language     🛈 More..
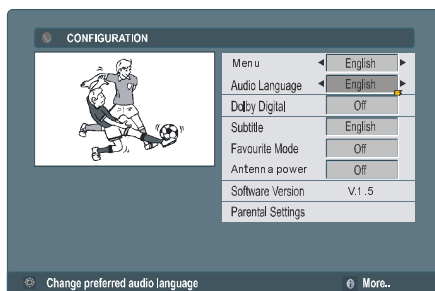
• When the BACK button is pressed, the previous screen is returned to. When MENU button is pressed, the menu disappears.

• When the 🛈 (Information) button is pressed, the help screen appears. When it is pressed again, the previous screen is returned to.

## MENU

When the Configuration menu is entered, MENU is highlighted. Use left or right buttons to change language between English or Français

MENU Language determines the on-screen menu language.

### Audio Language

With Digital terrestrial broadcasting (DVB-T), a number of languages can be broadcast at the same time. Choose language you want to listen when watching these broadcasts.

1. Press the " ▲ " / " ▼ " buttons and choose Audio Language.

2. Press the " ◀ " / " ▶ " buttons and choose the language.

   Language changes every time the button is pressed.

• If the selected language is not broadcast, the default language will be played.

• You can change the Audio language directly by pressing **I-II** button

### Dolby Digital

By pressing " ◀ " / " ▶ " button, select Dolby Digital. Dolby Digital can be set to On or Off.

After press " ◀ " / " ▶ " button the following message appears on the screen.

> Dolby diigital audio can only be listened to using a home entertainment system

### Subtitle

With Digital terrestrial broadcasting (DVB-T), a number of subtitles can be broadcast at the same time. Choose the subtitle you want to display when watching these broadcasts.

1. Press the " ▲ " / " ▼ " buttons and choose Subtitle.

2. Press the " ◀ " / " ▶ " buttons and choose a subtitle that appears when the 💬 (SUBTITLE) button is pressed.

### Favourite Mode

Enable/disable the Edit PR List Favourites settings.

1. Press the " ▲ " / " ▼ " buttons and choose Favourite Mode.

2. Press the " ◀ " / " ▶ " buttons and choose ON or OFF.

**On:**

The Edit PR List Favourites settings are enabled.

When the **P∨** / **P∧** button is pressed, only the channels chosen in the Edit PR List favourites (those with the icon) can be chosen.

• For details on how to set your favourite channels, see "Setting the favourite channels" on **page 24.**

**Off:**

The Edit PR List Favourites settings are disabled.

When the **P∨** / **P∧** button is pressed, all the channels registered in the Edit PR List can be chosen.

### Parental Settings

Some channels broadcast material which you do not want younger members of the family to watch. Any channel can be 'locked' so that it cannot be selected for viewing without first a four-digit PIN code being entered. In this way any channel not suitable for younger viewers can be protected.

This function enables or disables the menu protection system and allows the PIN code to be changed. Channel And Menu Protection Lock feature.

Use up or down buttons to highlight Parental Settings. Press "OK" button to enter Parental Settings Menu. A box asking for the lock key is displayed.

> Enter PIN code
> — — — —

There is only one key which is set to "0000" initially. Enter lock key. If wrong Lock key is entered, the following message is displayed on the screen and it is returned back.

> Wrong PIN code!

If it is correct, the Parental Settings Menu including following items is displayed:

| Maturity Lock | Age 10 |
| Menu Lock | Installation |
| Enter PIN code | |
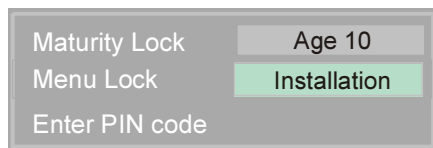
Use  or  buttons to highlight the menu item that will be adjusted.

*Maturity Lock:*

Use  or  buttons to set Maturity Lock to the "Off, Age 10, Age 12,Age16 or Age 18".

*Menu Lock:*

There you can set/reset locking for the Main Menu or the Installation Menu to restrict access. If the menu lock is disabled, there will be free access to the menu system.

**Disable:** All menus are unlocked.

**Main Menu:** Main menu is accessible only with the correct lock key.

**Installation:** Installation menu is locked, so the user cannot add channels.

Changes will be updated after exiting Configuration Menu.

*Enter PIN code:*

Also in this menu you can change the pin code and set/change parental lock mode.

Choose Enter PIN code to change the PIN code for the Edit PR List menu's "Lock". The PIN code factory setting (how it is set when you purchase the television) is 0000.

1. Press the "▲" / "▼" buttons and choose Enter PIN code, and press the **OK** button.

2. Input the current PIN code.
   When you are making this setting for the first time, input 0000.

When a PIN code has already been set, enter the correct PIN code.

The PIN code setting window appears.

3. Press the number buttons to input a new PIN code (password).

4. Input the new PIN code (password) again in the Confirm box.

   "Pin code is changed" appears.

Your newly chosen PIN code is now set. You will now need to use the PIN code (password) you choose. Here to lock or to unlock the Edit PR List's "Lock".

## Edit PR List

Choose Edit PR List and press the **OK** button.
EDIT PR LIST appears.
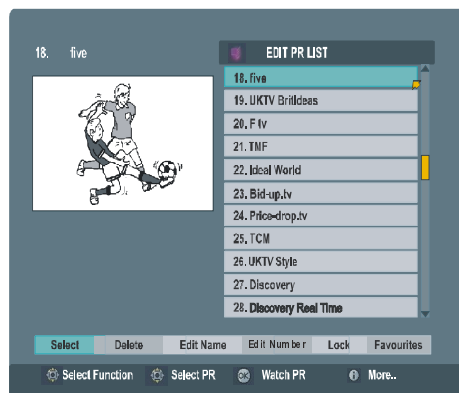


The Edit PR List can be used to do the following:

• delete registered channels

• edit channel names.

• lock channels so that they can not be watched by children.

• set Favourites so that you can easily choose from only the channels you often watch.

• Sometimes you may notice a drop in picture quality while watching your programme in the quarter-screen. This is not a fault.

• When the BACK button is pressed, the previous screen is returned to. When the TV/DTV or MENU button is pressed, the menu disappears.

• When the 🛈 (information) button is pressed, the help screen appears. When it is pressed again, the previous screen is returned to.

Here, you can preview any channel stored by the receiver before viewing it full screen. The complete list of channels is displayed in **pages of 20** channels at a time, with their channel list number and a favourite channel icon if appropriate.

### Choosing a channel

The chosen channel is shown on the quarter-screen.

1. Press the "◀" / "▶" buttons and choose Select on the bar at the bottom of the screen.

2. Press the "▲" / "▼" buttons and choose a channel, and then press the **OK** button.

   The picture of the chosen channel is shown on the quarter-screen.

### Deleting a channel

1. Press the "◀" / "▶" buttons and choose Delete on the bar at the bottom of the screen.

2. Press the "▲" / "▼" buttons and choose the channel to be deleted, and then press the OK button.

The channel deletion confirmation window appears.

3. Choose Yes and press the **OK** button.

The chosen channel is deleted.

• If you do not want to delete the chosen channel, choose NO and press the **OK** button.

• Perform "**Installation**" (**see page 25**) to re-register a channel that you have deleted.

### Editing a channel name

1. Press the "◀" / "▶" buttons and choose Edit Name on the bar at the bottom of the screen.

2. Press the "▲" / "▼" buttons and choose the channel to be edited, and then press the **OK** button.

   The EDIT window appears.

3. Press the "▲" / "▼" buttons and choose a character, press the "◀" / "▶" buttons to move the cursor and edit the name, and then press the **OK** button.

   The edited channel appears in the Edit PR List.

### Locking a channel

When there is a channel you do not want your children to watch, you can lock the channel.

1. Press the "◀" / "▶" buttons and choose Lock on the bar at the bottom of the screen.

2. Press the "▲" / "▼" buttons and choose the channel to be locked, and then press the **OK** button.

   The Enter PIN code input window appears.
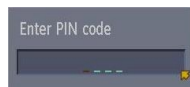


3. Press the number buttons to input to correct PIN code.

   If you have not changed the PIN code in the CONFIGURATION menu's "**Enter PIN Code**" (**see page 23**), input the PIN code you chose.

   The lock icon appears next to the channel name in the Edit PR List.

   When a locked channel is chosen, the Enter PIN code input window will appear. If the correct PIN code is input, the picture appears.

   • When you forget the PIN code for the "Lock", you can unlock locked channels by performing Automatic Search (see INSTALLATION).

### Setting the favourite channels

If only channels that you often watch are set as favourite channels, you can choose from just those channels by pressing **P∨** / **P∧**.

• After setting the favourite channels, check the "**Favourite Mode**" in "**Configuration**" (**see page 21**) is set to ON.

1. Press the "◀" / "▶" buttons and choose Favourites on the bar at the bottom of the screen.

2. Press the "▲" / "▼" buttons and choose the channel to be registered as a favourite channel, and then press the **OK** button.

   The favourite icon ( 😊 ) appears on the right side of the chosen channel.

When you leave the Channel List screen, by pressing "MENU" the channel showing on the quarter screen is selected for normal viewing on the whole screen.

# Installation

Although your TV will not lose its settings or stored channels when switched off, you may wish to re-install the programs because you have moved to a different area with different broadcast frequencies, you wish to reinstate a channel previously deleted from the channel list, or you want to watch new channels which have started broadcasting.

Display the DTV Menu and using the "▲" or "▼" buttons, highlight the Installation line and press **OK** to display the Installation Menu.

The Installation menu appears.

You can either select Factory Settings, effectively resetting the receiver to its factory setting condition, or just search for channels.
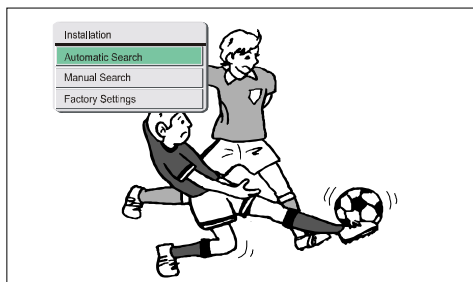


## Automatic Search:

The receiver can search for channels automatically (searching all the broadcast frequencies for free-to-air channels).

To perform Automatic search, Select Automatic Search with the "▲" or "▼" buttons and press **OK**. A warning message is displayed.
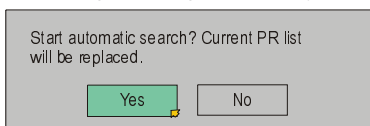


This starts the automatic tuning process and searches through all the available broadcast frequencies for free-to-air channels.
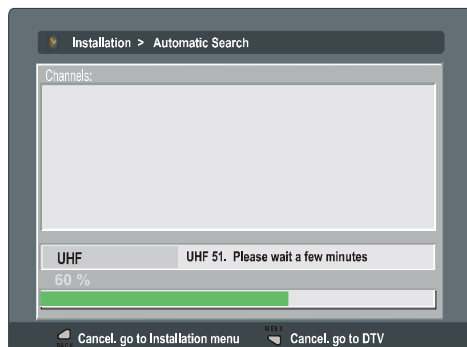


Previous channels will be replaced on automatic search.

If no digital terrestrial television broadcasts are found, the TV will display a message:
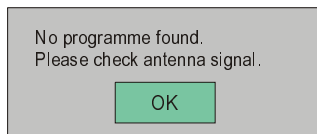


When "OK" button is pressed, following message will appear on the right bottom side of the screen:
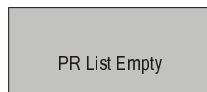


## Manual Search:

This is for searching for digital channels on a single broadcast frequency. The frequency channel number (21-68) is entered in the box at the top left of the screen and the received signal level and signal quality can be observed on the two bar graphs at the bottom. When **OK** is pressed, the TV searches that frequency and display a list of the channels found.
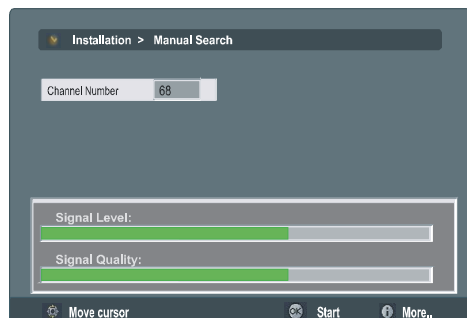
***The bar graphs of signal quality and signal level give a good indication of whether any channels are likely to be found. If only the signal level graph shows a high value then it is likely that an analogue channel occupies that broadcast frequency. If the signal quality bar is high as well then it is a digital frequency and digital channels will probably be found.***

Again, channels which duplicate those already in the channel list are ignored. However, the manual channel search will find all channels on the broadcast frequency.

When either search is finished, press the MENU key to return to normal broadcast viewing, to watch the new digital terrestrial television channels found.

**Factory Settings:**

To reset the TV, highlight the Factory Settings line in the menu and press **OK**. A warning screen is displayed in case of accidental operation.

```
Are you sure you want to delete the PR list
and reset all settings?

        Yes              No
```
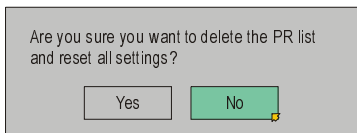
Highlight the YES button with the "◀" or "▶" key and press **OK** to erase all the channels and settings. A message will be displayed on the screen.

```
PR List Empty. Start automatic search.

              OK
```
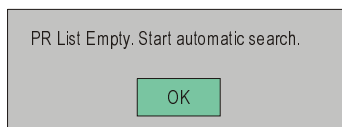
• Press the **OK** button to start the automatic search**.**

• When the automatic search has finished, the EDIT PR LIST menu appears.

## Common Interface

It is required to subscribe to a pay channel company to view the pay channels of the Digital Terrestrial broadcasting.

Obtain the Conditional Access Module (CAM) and the Viewing card by subscribing to a pay

channel company, then insert those to the Television using the following procedure.

1. Switch off the TV and unplug from the mains.

2. Insert the CAM, then Viewing Card to the slot that is located in the terminal cover at the left-hand side of the TV (from front view).

• The CAM should be correctly inserted, it is impossible to insert fully if reversed. The CAM or the TV terminal may be damaged if the CAM is forcefully inserted.

**3. Connect the TV to the mains supply, switch on and then wait for few moments until the card is activated.**

• Some CAMs may require the following set up. Please set the CAM by entering the DTV menu, Common Interface then pressing **OK** button. (CAM set up menu is not displayed when it is not required.)

• To see the viewing contract information, press **MENU**, Select DIGITAL and Press **OK**, then Select Common Interface and press **OK**.

• When no module is inserted, "**No CI Module**" appears.

• Refer to the module instruction manual for details of the settings.

## Setting The TV

## Menu System

Your TV's analogue part has been designed with a menu system to provide an easy manipulation of a multi-function system. The TV is controlled by choosing the commands, which are displayed on the screen.

## MAIN MENU

Press the "**MENU**" button. The main menu will be displayed in the middle of the screen.

```
              Menu
▶ Picture...
  Sound...
  Feature...
  Install...
  Program...
  Source...
```

To select a sub-menu use " ▲ " or " ▼ " but-

ton, and press "◀" or "▶" button or directly press "**OK**" button.

In EXT-1, EXT-2 and EXT-4 modes, main menu appears the same as in TV mode but without Program sub-menu.

In EXT-3 mode, Main Menu appears as follows:

```
                    Menu
▶ Picture...
  Sound...
  Feature...
  Install...
  Source...

  - - - -
  H: - - Khz      V: - - Hz
```
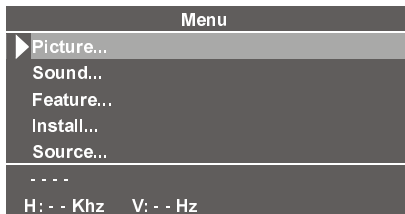
In DIGITAL TV mode, DIGITAL will appear on the Main menu. Install and Program do not appear.

Menu does not  disappear automatically if it is left on the screen.

Press "**MENU**" button again to remove menu.

## Picture Menu

Press "**MENU**" button, now you are in main menu. In the Main menu, select "**Picture**" using "▲" or "▼" button, then enter  the Picture menu by pressing "◀" / "▶" or "**OK**" button.

### Setting Mode

• As you enter the picture menu, Mode will be the first item.

• By pressing "◀" or "▶" button you may choose one of these options:

  Soft, Standard and Bright.

```
                    Picture
▶ Mode            Bright
  Contrast        ◀_____▶
  Bright-1        ◀_____▶
  Sharpness       ◀_____▶
  Colour          ◀_____▶
  Bright-2        ◀_____▶
  Colour Temp.    Cool
  Noise Red.      Off
  ▮ : RESET
```
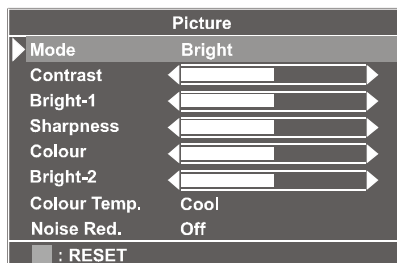
### Setting Contrast

• Using "▲" or "▼" button select Contrast.

• Press "▶" button to increase contrast level.

• Press "◀" button to decrease contrast level.

```
                    Picture
  Mode            Bright
▶ Contrast        ◀_____▶
  Bright-1        ◀_____▶
  Sharpness       ◀_____▶
  Colour          ◀_____▶
  Bright-2        ◀_____▶
  Colour Temp.    Cool
  Noise Red.      Off
  ▮ : RESET
```
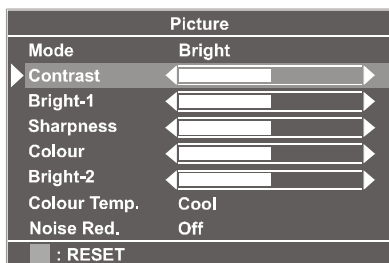
### Setting Bright-1

• Using "▲" or "▼" button select Bright-1.

• Press "▶" button to increase brightness.

• Press "◀" button  to decrease brightness.

```
                    Picture
  Mode            Bright
  Contrast        ◀_____▶
▶ Bright-1        ◀_____▶
  Sharpness       ◀_____▶
  Colour          ◀_____▶
  Bright-2        ◀_____▶
  Colour Temp.    Cool
  Noise Red.      Off
  ▮ : RESET
```
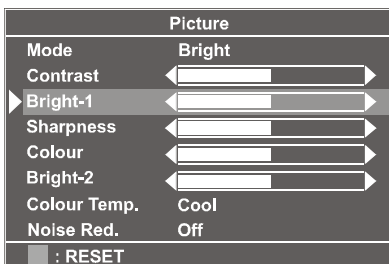
### Setting Sharpness

• Using "▲" or "▼" button select Sharpness.

• Press "▶" button to increase sharpness level.

• Press "◀" button to decrease sharpness level.

```
                    Picture
  Mode            Bright
  Contrast        ◀_____▶
  Bright-1        ◀_____▶
▶ Sharpness       ◀_____▶
  Colour          ◀_____▶
  Bright-2        ◀_____▶
  Colour Temp.    Cool
  Noise Red.      Off
  ▮ : RESET
```
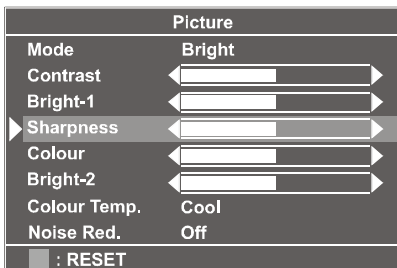
### Setting Colour

• Using "▲" or "▼" button select Colour.

• Press "▶" button to increase colour level.

• Press "◀" button to decrease colour level.

| Picture | |
|---|---|
| Mode | Bright |
| Contrast | ◀�b████████████▷ |
| Bright-1 | ◀▷ |
| Sharpness | ◀▷ |
| ▶ Colour | ◀▷ |
| Bright-2 | ◀▷ |
| Colour Temp. | Cool |
| Noise Red. | Off |
| ▨ : RESET | |
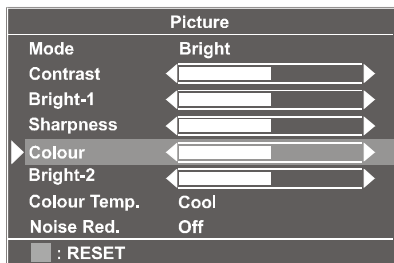
## Setting Bright-2

• Using "▲" or "▼" button select Bright-2.

• Press "▶" button to increase the back light.

• Press "◀" button to decrease the back light.

| Picture | |
|---|---|
| Mode | Bright |
| Contrast | ◀████████████▷ |
| Bright-1 | ◀▷ |
| Sharpness | ◀▷ |
| Colour | ◀▷ |
| ▶ Bright-2 | ◀▷ |
| Colour Temp. | Cool |
| Noise Red. | Off |
| ▨ : RESET | |
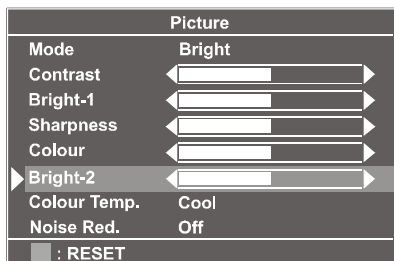
## Setting Colour Temp.

• Using "▲" or "▼" button select Colour Temp.

• Press "◀" or "▶" button to select "Warm", "Cool" or "Normal".

## Setting Noise Reduction

• Using "▲" or "▼" button select Noise Reduction.

• Press "◀" or "▶" button to select Noise Reduction level "**Off**" or "**Minimum**" or "**Medium**" or "**Maximum**".

*Note 1:*

*At low signal level, the changings on the Noise Reduction function are not effective when there is menu on the screen. If the menu is removed, the effect of this function is seen. At normal broadcasting, Noise Reduction changings are effective at once.*

*Note 2:*

*At moving pictures, while Noise Reduction is at maximum level, some picture distortions may occur. If Noise Reduction is set to medium or minimum, the picture will improve.*

## Setting Hue

During Playback NTSC system, this will ap-

pear in AV mode only when NTSC video source is applied. Otherwise, HUE option is invisible in Picture menu in TV mode :

• Using "▲" or "▼" button select Hue.

• Press "▶" button to increase hue level.

• Press "◀" button to decrease hue level.

Center value is indicated with one arrow.

## Reset

Press BLUE button to reset the picture modes to factory default settings.

## To Store the Settings

In the Picture Menu, all settings are stored automatically.

# Sound Menu

As you enter the main menu, sound will be the second item. In the main menu, select **Sound** using "▲" or "▼" button, then enter the sound menu by pressing "◀" / "▶" or **"OK"** button.

## Setting Volume

As you enter the sound menu, Volume will be the first selected option.

• Press "▶" button to increase volume.

• Press "◀" button to decrease volume.

Or you can directly change the volume settings using "◢◢ +" (to increase) or "- ◢◢" (to decrease) button.

| Sound | |
|---|---|
| ▶ Volume | ◀████████████▷ |
| Bass | ◀████████▷ |
| Treble | ◀████████████▷ |
| Balance | ◀████████▷ |
| Hyper Sound | On |
| Audio Out... | |
| Sound Mode | Mono |
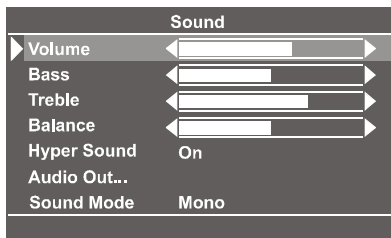
## Setting Bass Level

• Using "▲" or "▼" button select Bass Level.

• Press "▶" button to increase bass level.

• Press "◀" button to decrease bass level.

## Setting Treble Level

• Using "▲" or "▼" button select Treble

• Press "▶" button to increase treble level.

• Press "◀" button to decrease treble level

## Setting Balance

It allows adjusting the distribution between the left and right speakers.

• Using "▲" or "▼" button select Balance.

• Press "▶" button to change balance rightward.

• Press "◀" button to change balance leftward.

## Hyper Sound

• Using "▲" or "▼" button select Hyper Sound.

• Pressing "◀" or "▶" button will turn on or off this feature.

Pseudo/spatial effect can be turned on or off via the Hyper Sound item in the Sound menu or by remote control. In Mono transmission the left and right channels will be added at left channel and dummy stereo effect will be introduced to end-user.

In stereo transmission it yields a phase difference between left and right channels.

## To Change Audio Out Settings

Audio Out is a sub-menu of Sound menu.

Use this settings to adjust volume for audio out terminal which is located at the right side of the TV.

• Using "▲" or "▼" button select Audio Out.

• Press "◀" or "▶" button or directly press "**OK**" button on Audio **Out**, to enter the Audio Out menu.

```
                 Audio Out
▶ Volume         ◀███████████▶
```

## Audio Out Volume

• As you enter the Audio Out sound menu, Volume will be the only option.

• Press "▶" button to increase volume.

• Press "◀" button to decrease volume.

While you are connecting headphones, when you change the Audio OutVolume, "◀" or "▶" Volume setting is changed at the same time."

## Selecting Sound Mode

• Using "▲" or "▼" button select Sound Mode.

• Press "◀" or "▶" button to change Sound Mode.

You can choose **Mono**, **Stereo** or **Dual (I-II)** mode, only if the selected channel supports that mode.

In case of bilingual broadcast (Dual Sound), you can select original or dubbed language using mode option. So when somebody listens to the original language from the loudspeakers, somebody else can listen to the dubbed language from headphone.

## To Store The Settings

In the Sound Menu, all settings are stored automatically.

# Feature Menu

Press "**MENU**" button, now you are in mainmenu. In the main menu, select **Feature** using "▲" or "▼" button. Then enter the Feature menu by pressing "◀" / "▶" or "**OK**" button.

```
                 Feature
▶ Sleep Timer        Off
  Child Lock         Off
  Language           English
  EXT-2 Output       TV
  Blue Back          Off
```

## Sleep Timer

The Sleep Timer is used to turn the TV off after a defined period of time after selecting this item. The timer can be programmed between Off and 120 minutes in steps of 10 minutes. (Off, 010, 020, 030, 040, ... , 120)

If sleep timer is activated, at the end of the selected time, the TV goes automatically to stand-by mode.

## Child Lock

You can use this feature to prevent children turning the TV on/off or changing programmes or adjustments etc. without remote control.

• Using "▲" or "▼" button select Child Lock.

• Press "◀" / "▶" button to select Child Lock On or Off .

The **Child Lock** feature can be set **On** or **Off** by "◀" / "▶" button. When **Off** is selected, there will be no difference in the operation of your TV. When **On** is selected, the TV can only be controlled by the remote control. In this case the control panel buttons except "⏻" button on the right side of the TV will not work.

### Selecting Menu Language

• Using "▲" or "▼" button select Language.

• Press "◀" or "▶" button to select menu language.

### EXT-2 Output

From EXT-2 Output; TV, EXT-1, EXT-4 or DIGITAL can be given. These modes can be chosen by pressing "◀" or "▶" button on "**EXT-2 OUTPUT**".

| Feature | |
|---|---|
| Sleep Timer | Off |
| Child Lock | Off |
| Language | English |
| ▶ EXT-2 Output | TV |
| Blue Back | Off |
| | |

### Blue Back (During No Signal)

The Blue Back Feature can be set by "▲" or "▼" button to either On or Off.

### To Store Settings

In Feature menu all settings are stored automatically.

## Install Menu

Press "**MENU**" button, now you are in main menu. In the main menu, select "**Install**" using "▲" or "▼" button. Then enter the Install menu by pressing "◀" / "▶" or "**OK**" button.

| Install | |
|---|---|
| ▶ Programme | P 02 |
| Band | C |
| Channel | 02 |
| Colour System | Auto |
| Sound System | BG |
| Fine Tuning | ◀▮----▮----▮▶ |
| Search | 048.25 |
| Decoder(EXT-2) | Off |
| VCR | Off |
| Store | |
| | |

In EXT mode, Install menu appears like this:

| Install | |
|---|---|
| ▶ Colour System | Auto |
| VCR | Off |
| | |

You can change only Colour system and VCR.

### Selecting Programme

• Using "▲" or "▼" button select **Programme**.

• To select programme number, you can use "◀" / "▶" button or Digit Buttons.

### Selecting Band

Band, can be chosen either,

• "C" or "S" by "◀" or "▶" button.

### Selecting Channel

**Channel** can be changed by "◀" or "▶" button or by Digit Buttons.

### Selecting Colour System

Using "◀" or "▶" button on **Colour System**, you can change the colour system to **PAL, SECAM** or **Auto**.

**Note:** In EXT mode, you can choose NTSC 3.58 and NTSC 4.43 as well.

### Selecting Sound System

Using "◀" or "▶" button on **Sound System**, you can change the standard to **BG, DK, I, L, Lp**.

### Selecting Fine Tuning

You can use the Fine Tuning process for fine adjustment (after coarse adjustment), if you are not happy about the image on the screen.

Use "◀" or "▶" button on **Fine Tuning** item, until getting the best image on the screen.

### Selecting Search

To start the search process, press "▶" button for forward search or "◀" button for backward search. If a signal is found or reaches to end of the band after searching, press "◀" or "▶" buttons to continue search process. To stop the search process when you want, press "◀" or "▶" buttons at any time.

## Decoder (EXT-2)

You can use this mode to connect any decoder to your TV.

• Press the "◀" or "▶" buttons to set it "On" or "Off".

When you select Decoder (EXT-2) "On", EXT-2 output will be chosen as TV mode only and any scrambled channels will be unscrambled through decoder connected your TV via EXT-2 output.

## Setting VCR ( Video Cassette Recorder ) Mode

• This item can be seen in **TV, EXT-1**, **EXT-2**, **EXT-2S**, **EXT-3**, **EXT-4** and **EXT-4S** modes.

• If you want to watch a **VCR** source from one of these modes, then it will be better to set **VCR** mode "**On**". For this, while the cursor is on this item press the "◀" or "▶" buttons to set it "**On**".

• If you want to watch a **DVD**, then you must set this item "off"; because **DVD** is not a source like a **VCR** and to see the picture better, you must set the **VCR** mode "**Off**".

## To Store Settings

• Press "◀" / "▶" or "**OK**" button on **Store** option to store Install menu settings.

• After stored, T-V LINK menu will appear. If you do not need to do T-V LINK, select Cancel and press "▶" or "**OK**" button to exit the menu.

# Program Menu

Press "**MENU**" button, now you are in main menu. In the main menu, select "**Program**" using "▲" or "▼" button. Then enter the Programme menu by pressing "◀" / "▶" or "**OK**" button.

**Note:** There is no Program menu in any EXT modes.



| Program | P01 |
| --- | --- |
| ▶ 01 BBC | 11 _ _ _ _ _ |
| 02 RTL | 12 _ _ _ _ _ |
| 03 XXXXX | 13 _ _ _ _ _ |
| 04 _ _ _ _ _ | 14 _ _ _ _ _ |
| 05 _ _ _ _ _ | 15 _ _ _ _ _ |
| 06 _ _ _ _ _ | 16 _ _ _ _ _ |
| 07 _ _ _ _ _ | 17 _ _ _ _ _ |
| 08 _ _ _ _ _ | 18 _ _ _ _ _ |
| 09 _ _ _ _ _ | 19 _ _ _ _ _ |
| 10 _ _ _ _ _ | 20 _ _ _ _ _ |
| Name | Insert |
| Delete | Autostore |
| i : T-V Link | |

Program Menu is used to delete a channel, to change the programme number of a channel, to give a channel name to a channel, and to start the A.P.S (Autostore) function.

## To choose a channel in the PROGRAM menu

Press "▲" / "▼" / "◀" / "▶" button. The programme number that you choose is highlighted in the Program.

*Caution:*

*Using "Delete" or "Insert" function rewrite the current channel list in the Program menu. Therefore, the programme numbers of some of channels will change.*

## When you complete the settings of Program menu:

If you have a T-V LINK compatible VCR, press

"🛈" button to display the T-V LINK menu. then follow the operating procedure "Downloading the data to VCR".



| T - V Link |
| --- |
| DOWNLOAD TV -> VCR |
| ▶ Continue |
| Cancel |

If you do not have a T-V LINK compatible VCR, select Cancel and press "▶" or "**OK**" button to exit the menu.

## To give a channel name (Name):

1. Choose the channel you want to give a channel name.

2. Press the RED button to enter the Name mode.

3. Press "◀" or "▶" button to choose the position,and press "▲" or "▼" button to

choose each character of channel name.

4. Press the RED button to store the channel name.

• To cancel the Name mode, press the BLUE button.

**To delete a channel (Delete):**

1. Choose the channel you want to delete.

2. Press the YELLOW button to enter the Delete mode.

3. Press the YELLOW button to delete it.

• To cancel the Delete mode, press the BLUE button.

**To change the programme number of a channel (Insert)**

1. Choose the channel you want to change the programme number.

2. Press the GREEN button to enter the Insert mode.

3. Press "▲" / "▼" / "◀" / "▶" button to choose new programme number.

4. Press the GREEN button to Insert the channel to the chosen programme number.

**Autostore:**

To enter Autostore menu, press the BLUE button. To learn the features of this function see "**Autostore**" below.

Autostore, searches and stores all channels automatically on your TV, according to the transmission of programme systems in your area.

| Warning |
|---|
| All Prestored Programmes Will Be Deleted |
| ▶ Country ? |
| OK Cancel |
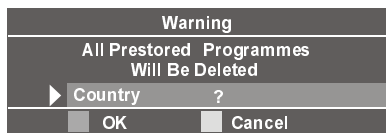
First of all choose the "**Country**" by using "◀" or "▶" button. Then press the Red button to start Autostore.

After Autostore is finalized, a programme list will appear on the screen. In the program list you will see the programme numbers and names assigned to the programmes.

If you do not accept the locations and/or the programme names of programmes, you can change them in Programme menu.

## Source Menu

You can switch your TV to EXT modes by pressing directly to "**AV**" button or by selecting in source menu from the main menu.

While in EXT mode, you can also switch your TV to TV or other EXT modes by selecting in source menu from the main menu.

In main menu, firstly use "▲" or "▼" button then use "◀" / "▶" or "**OK**" button to enter Source menu. In source menu, move the cursor by "▲" or "▼" button and then press "**OK**" button or "◀" / "▶" buttons when the cursor is on the required item. The selected mode comes automatically on the screen.

| Source : TV |
|---|
| DIGITAL |
| ▶ TV |
| EXT-1 |
| EXT-2 |
| EXT-2 S |
| EXT-3 |
| EXT-4 |
| EXT-4 S |
| PC |
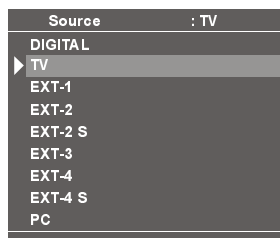
## Other Features

### TV Status

**Programme Number**, **Programme Name** (or **EXT**), (they are displayed on the upper left of the screen). The **sound indicator** is displayed with them too. They are displayed after programme change for 3 seconds.

### Sound Indicator

The alternatives of the indicator are Mono, Stereo, Dual I and Dual II. This indicator is displayed under the programme number indicator on the screen.

Mono

In Mono broadcast or in forced-mono (for stereo broadcast).

Stereo

**In Stereo** broadcast.

Dual I

If dual broadcast detected. Dual I is selected in default and also can be selected after Dual II by Remote Control.

If Dual II selected by Remote Control.

## Hyper Sound

By selecting Hyper Sound in sound menu or by pressing the "⊕" button on your remote control, Pseudo/Spatial effect can be turned on or off. In Mono transmission the left and right channels will be added at left channel and dummy stereo effect will introduced to end-user.

In stereo transmission it yields a phase difference between left and right channels.

## Mute Indicator

It is placed in the upper middle of the screen when enabled, and it stays there until it is disabled.



To cancel mute, there are two alternatives; the first one is by pressing the "🔇" button, this volume is set to the preceding value, and the second one is increasing or decreasing the volume level.

## No-Signal Detection (TV mode)

If no valid signal detected, it takes 5 minutes to switch to the Stand-By mode unless any signal detected or any Remote Control command is accessed.

After a Remote Control command (if No-Signal Timer is active) the timer stops and if no signal detected again the timer is initialized to 5 minutes and starts 3 seconds later again to count down.

It is not valid in EXT modes.

## Volume Bar

It is displayed in the lower middle of the screen. When a volume command is received (pressing "◢ +" or "◢ -" by Remote Control or Control panel at the top of the TV) and no menu is active, it stays on the screen for 3 seconds, after the last volume command or until another command is received in between.



## EXT Modes

By pressing the "**AV**" button you can switch your TV to EXT modes (except being in Teletext). Pressing this button consecutively will switch the TV in one of the optional EXT modes: **EXT-1, EXT-2, EXT-2 S, EXT-3, EXT-4, EXT-4 S, PC** and **DIGITAL TV**.

In order to quit the EXT mode press any digit buttons or **"P∨"** or **"P∧"**

## Zoom Modes

Zoom mode can be changed by pressing **ZOOM** button. You can change the screen size according to the picture aspect ratio. Select the optimum one from the following **ZOOM** modes: **Auto**, **4:3** and **16:9**.

### AUTO

When a **WSS (Wide Screen Signalling)** signal, which shows the aspect ratio of the picture, is included in the broadcast signal or the signal from an external device, the TV automatically changes the **ZOOM** mode to **4:3** or **16:9** according to the **WSS** signal.

• When the **AUTO** mode does not function correctly due to poor **WSS** signal quality or when you want to change the **ZOOM** mode, change to another **ZOOM** mode manually.

## PC Mode

### Installation

• Power off both Computer and the TV before making any connections.

• Set your PC's resolution correctly before connecting to the TV. See the table in **page 42** for supported modes.

• Use a D-SUB cable to connect the TV's PC input to the computer's RGB output terminal. If you want to listen to the sound from the computer, use an audio cable to connect the PC AUDIO IN to the computer's sound output terminal.

15 Pin Mini D-Sub Connector
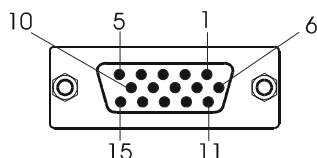


• Tighten the screws of the Display cable until the connectors are fastened securely (finger-tighten only).

### Main Menu in PC mode

Enter the main menu by pressing the "**MENU**" button on the remote control.
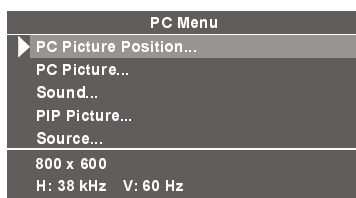


### PC Picture Position Menu

In the Main menu, select "**PC Picture Position**" using "▲" or "▼" button, then enter the menu by pressing "◀" / "▶" or "**OK**" buttons.
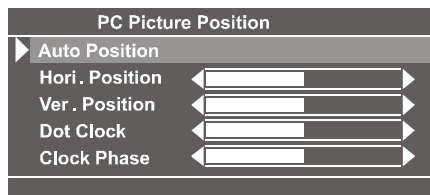


**Auto Position**

If you shift the picture horizontally or vertically to an unwanted position, use this item to put the picture into correct place automatically.

• Select Auto position item by using "▲" or "▼" buttons.

• Press "**OK**" button.

• Press "**MENU**" button or "**BACK**" button to store the value.

**Warning:** Auto position adjustment recommended to be done with the full screen image for the proper adjustment.

**Horizontal Position**

This item shifts the image horizontally to right hand side or left hand side of the screen.

• Select **Hor. Position** item by using "▲" or "▼" button.

• Use "◀" or "▶" button to adjust the value.

• Press "**MENU**" button or "**BACK**" button to store the value.

**Vertical Position**

This item shifts the image vertically towards the top or bottom of the screen.

• Select **Ver. Position** item by using "▲" or "▼" button.

• Use "◀" or "▶" button to adjust the value.

• Press "**MENU**" button or "**BACK**" button to store the value.

**Dot Clock**

Dot Clock adjustments correct interference that appear as vertical banding in dot intensive presentations like spreadsheets or paragraphs or text in smaller fonts.

• Use "◀" or "▶" button to adjust the value.

**Clock Phase**

Depending on the resolution and scan frequency that you input to the TV Set, you may see a muddy or noisy picture on the screen. In such a case you can use this item to get a clear picture by trial and error method.

• Use "◀" or "▶" button to adjust the value.

# PC Picture Menu

In the Main menu, select "**PC Picture**" using "▲" or "▼" button, then enter the PC Picture menu by pressing "◀" / "▶" or "**OK**" buttons.

Contrast, Bright-1 and Colour Temperature adjustments in this menu are identical to adjustments defined in TV picture menu.

R, G, and B adjust the TV image colour in PC mode. You can change the TV colour to your desired colour: R (Red), G (Green), B (Blue)

| PC Picture | |
|---|---|
| ▶ Contrast | ◀▬▬▬▬▬▶ |
| Bright - 1 | ◀▬▬▬▬▬▶ |
| Colour Temp. | Manual |
| R | ◀▬▬▬▬▬▶ |
| G | ◀▬▬▬▬▬▶ |
| B | ◀▬▬▬▬▬▶ |
| ▬ : Reset | |
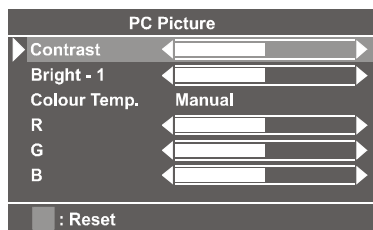
# Sound Menu

In the main menu select "**Sound**" using "▲" or "▼" button then enter the Sound menu by pressing "◀" / "▶" or "**OK**" buttons.

The items in this menu are described at Sound menu starting **page 28**.

# PIP Picture

In the Main menu, select "**PIP Picture**" using "▲" or "▼" button, then enter the PIP Picture menu by pressing "◀" / "▶" or "**OK**" buttons.

This menu is displayed when PIP is displayed on the screen. Otherwise "PIP No Signal" message will be displayed at the bottom of menu.

| PIP Picture | |
|---|---|
| ▶ Contrast | ◀▬▬▬▬▬▶ |
| Bright - 1 | ◀▬▬▬▬▬▶ |
| Colour | ◀▬▬▬▬▬▶ |
| Sharpness | ◀▬▬▬▬▬▶ |
| PIP Size | |
| PIP Position | |
| ▬ : RESET | |

PIP picture is displayed on the screen by "▭" button.

Contrast, Bright-1, Colour and Sharpness are described at Picture menu on **page 27**.

## Setting PIP Size

• Using "▲" or "▼" button select PIP Size.

• Press "◀" or "▶" button to change PIP size. Two different PIP sizes are available.

## Setting PIP Position

• Using "▲" or "▼" button select PIP Position.

• Press "◀" or "▶" button to change PIP position.

There are four different PIP positions.

Programme in the PIP window can be changed by "P∨ / P∧", digit buttons or AV button. All EXT modes (Except EXT-3) are also available in PIP window. PIP window is removed from the screen by "▭" button.

# Source Menu

In the Main menu, select "**Source**" using "▲" or "▼" button, then enter the Source menu by pressing "◀" / "▶" or "**OK**" buttons.

| Source | : PC |
|---|---|
| DIGITAL | |
| TV | |
| EXT-1 | |
| EXT-2 | |
| EXT-2 S | |
| EXT-3 | |
| EXT-4 | |
| EXT-4 S | |
| ▶ PC | |
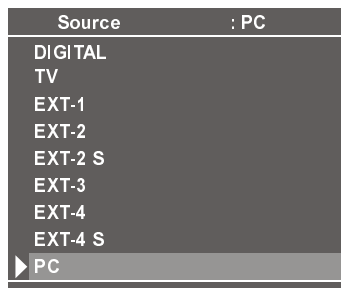
Select the available sources of **DIGITAL, TV, EXT-1, EXT-2, EXT-2 S, EXT-3, EXT-4, EXT-4S** or **PC** using "▲" or "▼" button and by pressing "◀" / "▶" or "**OK**" buttons.

# Sound in PC mode

• Connect the PC's Audio output to the TV's **PC Audio In** socket with an audio cable.

• On your remote control, using "♪" button to select sound source from **TV, EXT-1, EXT-2, EXT-3, EXT-4, PC** and **DIGITAL** options.

• When PIP is displayed on the screen, "♪" button allows you to switch sound between PC and selected PIP source.

### No-Signal and Out Of Range Detection (PC mode)

In PC Mode,as no menu is displayed,in case that there is no PC input to the TV, it is displayed an OSD message:

**No input signal detected**

then the power lamp turns to orange and PC will switch to PC standby mode. Press AV button, digit buttons or "P$\vee$" / "P$\wedge$" buttons to exit standby mode.

In PC Mode, if the resolution and the vertical frequency is not supported by the concept, it is displayed an OSD message:

**Signal out of range**

## Analogue Teletext

Teletext is an information system that displays text on your TV screen. Using the Teletext information system you can view a page of information on a subject that is available in the list of contents (index).

On screen display is not available in text mode.

Contrast, brightness or colour control is not available, but volume control is available in text mode.

### To operate Teletext

• Select a TV station on which Teletext is being transmitted.

• Press (TELETEXT) "▤" button. Usually the list of contents (index) is displayed on the screen.
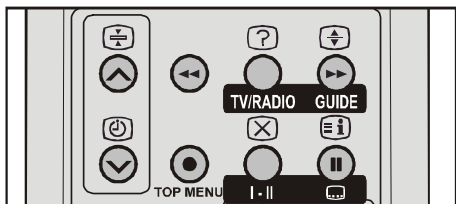


### To select a page of Teletext

• Press the appropriate digit buttons for the required Teletext page number.

The selected page number is displayed at the top left corner of the screen. The Teletext page counter searches until the selected page number is located, so that the desired page is displayed on the screen.

• Press "P$\wedge$" button  to move the Teletext screen forward one page at a time.

• Press "P$\vee$" button  to move the Teletext screen backward one page at a time.

### To Select Index Page

• To select the page number of the index (generally page 100), press "▤i" button.

### Searching for a teletext  page while watching TV

• In the Teletext mode pressing "⊠" button will switch the screen to the TV mode. In the TV mode enter a page number using digit buttons. As you enter last digit of page number, "▤" sign will replace the page number and flash until the entered page number is found. Then the page number will replace "▤" sign again. Now you can display this teletext page pressing "⊠" button.

### To Select Double Height Text

• Press "⇕" button for the top half of the information page to be displayed in double height text.

• Press "⇕" button again for the bottom half of the information page to be displayed in double height text.

• Press "⇕" button once more for the full page of normal height text.

### To Reveal "concealed" Information

• Pressing "?" button once will reveal answers on a quiz or games page.

• Pressing "?" button again will conceal the revealed answers.

## To Stop Automatic Page Change

The teletext page you have selected may contain more information than what is on the screen; the rest of the information will be displayed after a period of time.

• Press "⊟" button to stop the automatic page change.

• Press "⊟" button again to allow the next page to be displayed.

## To Select a Subcode Page

Subcode pages are subsections of long Teletext pages that can only be displayed on the screen one section at a time.

• Select the required Teletext page.

• Press "⏲" button.

• Select the required subcode page number by pressing four digit buttons (e.g. 0001).

• If the selected subcode page is not displayed in a short time, press "⊠" button. TV programme will be displayed on the screen.

• Teletext page number will be displayed on the upper left corner of the screen when the selected page is found.

• Press "⊠" button to display the selected Teletext page.

## To exit Teletext

• Press "▤" button. The screen will switch to TV mode.

## Fastext and Toptext

Your TV supports the 7 page Teletext system. When the page number of any of the 7 pages in memory is entered, the system will not search for the requested page; instead it will display the page automatically.

• Press "**P**⋀" button to move the Teletext screen forward one page at a time.

• Press "**P**⋁" button to move the Teletext screen backward one page at a time.

### For Fastext and Toptext

The subject-heading for the information may have a particular colour.

• Press an appropriate **RED**, **GREEN**, **YELLOW** or **BLUE** button in order to reach the relevant page quickly.

### For TOPTEXT

If Toptext transmission is present, colour coded buttons will appear in status row.

If Toptext transmission is not present, status row will not appear.

In Toptext mode the "**P**⋀" or "**P**⋁" commands will request the next or previous page respectively. If Toptext transmission is not available, in case of operation of these commands, wraparound occurs. For example page 100 appears to be one greater than page 199.

## Peripheral Equipment Connections

There is a wide range of audio and video equipment that can be connected to your TV.

Connection diagrams at the end of this section show you where the different equipment should be connected at the back side of the TV.

### Via the Euroconnector

Your TV set has 2 Euroconnector sockets. If you want to connect peripherals (e.g. video, decoder, etc.) which have Euroconnectors, to your TV, use **EXT-1 or EXT-2** input.

If an external device is connected via Euroconnector sockets TV is switched to AV mode automatically. In this case if both sockets are connected, **SCART1** has the precedence.

### T-V LINK compatible VCR

Be sure to connect the T-V LINK compatible VCR to the **EXT.2** terminal. If not, the T-V LINK function will not work properly.

• When connecting a T-V LINK compatible VCR to the EXT.2 terminal, be sure to connect the decoder to the VCR. If not, the **T-V LINK** function may not work properly. And then set the **Decoder (EXT-2)** function for the channel to **ON** to unscramble a scrambled channel.

### RGB mode

If an equipment can output the **RGB** signals, connect it to the **EXT-1** or **EXT-2** terminal.

### EXT-2 S Mode

If the equipment connected to your TV set supports S-Video (Y/C) output from Euroconnector, you can have a better picture quality by selecting **EXT-2 S** mode and connecting your equipment to the **EXT.2 (EXT-2 S)** terminal of TV. See your equipment's booklet to check if your equipment has such feature.

### Via the RCA jacks

If you have an equipment (such as a Camcorder) which has the RCA jacks, connect it to the **EXT-4** terminal with the video and audio cables.

If you have a device which outputs component video (Y/Pb/Pr), connect it to the **EXT-3** terminal with a component video cable and an audio cable.

### Via the ANT (aerial) socket

If your equipment does not have an Euroconnector or RCA jacks, connect it to the TV with an aerial cable. For details, see the manual provided with the equipment.

• To store the test signal that comes from the equipment, see "**Install Menu**" on and store it to the program number 0. You can watch images from that equipment to select the program number which you stored the test signal.

### Decoder

Cable TV offers you a wide choice of programmes. Most of them are free, others are to be paid for by the viewer. This means that you will need to subscribe to the broadcasting organisation whose programmes you wish to receive. This organisation will supply you a corresponding decoder unit to allow the programmes to be unscrambled.

For further information ask your dealer. See also the booklet supplied with your decoder.

**Connect a decoder with an aerial socket to the TV**

• Connect the aerial cable.

**Connect a decoder without an aerial socket to the TV**

• Connect the decoder to your TV with a eurocable (RCA Jack Cable) to **EXTERNAL** (RCA Jack). When your decoder has a Euroconnector / RCA Jack you can obtain better picture quality if you connect a eurocable (RCA Jack Cable) to **EXTERNAL** (RCA Jack).

### TV and Video Recorder (VCR)

• Connect the Video Recorder to the ANT (antenna input) socket of the TV with the aerial cable.

• Connect the Video Recorder to the **EXT-1** or **EXT-2** terminal with the SCART cable, or connect it to the **EXT-4** terminal with the audio and video cables.

## NTSC Playback

Connect a NTSC video recorder to a terminal. Then press "**AV**" button to select the corresponding AV mode.

**NTSC 3.58/4.43** system is detected automatically in AV mode.

## Camera and Camcorder

**To connect to the EXT-4 terminal**

Connect your camera or camcorder at the back side of your TV.

• Connect your equipment to the TV via **VIDEO** (yellow), **AUDIO R** (red) and **AUDIO L** (white) inputs. You should connect the jacks to the input in the same colour.

## Connect the decoder to the video recorder

Some video recorders have a special euroconnector for decoder.

• Connect a eurocable to the euroconnector of your decoder and to the special euroconnector of your video recorder. See also the handbook of your video recorder.

• To connect your video recorder to the TV, see TV and Video Recorder section.

If you want to connect more equipment to your TV, consult your dealer.

## Connecting Headphones

Use the stereo headphone socket on the right side of your TV, to connect headphones.

## Connecting the PC

Connect PC monitor with 15-pin PC cable to the 15-pin connector on the rear of the computer. For detail installation procedure see **Installation** in PC mode.

## To connect to S-Video input

Connect your camera or camcorder at the back side of your TV.

• Connect your equipment to the TV via S-Video input at the back side by using S-Video cables.

# Peripheral Equipment Connections



| | | |
|---|---|---|
| Ⓐ | **DC IN** | |
| Ⓑ | **PC INPUT** | |
| Ⓒ | **EXT-3** | Y <br> Pb <br> Pr <br> Component Audio In R <br> Component Audio In L |
| Ⓓ | **EXT-2** | |
| Ⓔ | **EXT-1** | |
| Ⓕ | **ANTENNA** | |
| Ⓖ | **PC AUDIO IN** | |
| Ⓗ | **EXT-4** | S-Video In <br> Video In <br> Audio R <br> Audio L |
| Ⓘ | **HEADPHONE** | |
| Ⓙ | **AUDIO OUT TERMINAL** | |
| Ⓚ | **CARD SLOT** | Audio R <br> Audio L <br> Digital Audio Out |

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# Antenna Connections

## Outdoor Antenna Connections

VHF antenna
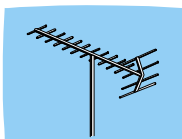
Round 75 ohm coaxial cable
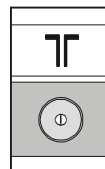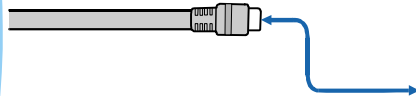
*Rear of TV*

VHF/UHF antenna
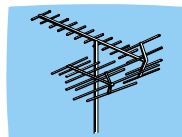
Flat 300-ohm twin lead cable
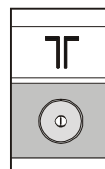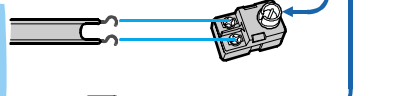
*Rear of TV*

Round 75-ohm coaxial cable

# Peripheral Equipment Connections

**HEADPHONE**

**AUDIO**

AUDIO IN          VIDEO IN

(L)          (R)

IN          OUT

**VIDEO**

VIDEO AUDIO    LOW A NT IN
    OUT        HIGH
              RF OUT
    IN

**CAMCORDER**

**DECODER**

VIDEO AUDIO
    OUT
    IN
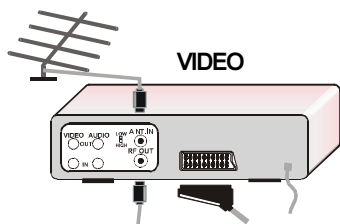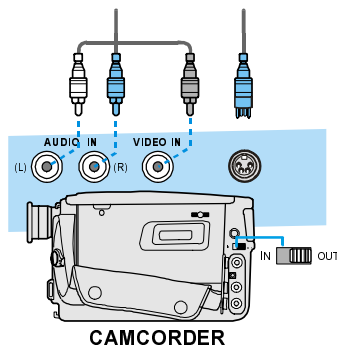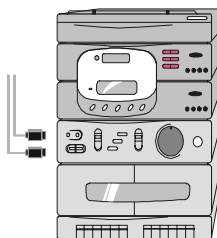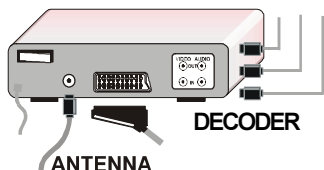
**ANTENNA**

**FOR SATELLITE RECEIVER**

VIDEO AUDIO
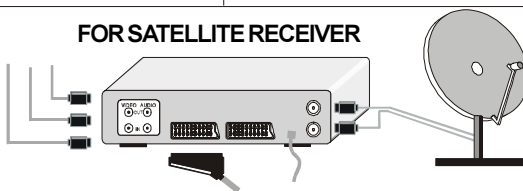
# PC Input Typical Display Modes

The display has a maximum resolution of 800 x 600, vertical sync. frequency range of 50-75 Hz and a horizontal sync. frequency range of 30-47 KHz.

The following table is an illustration of some of the typical video display modes.

| Mode | Resolution | | Frequency | |
|:---:|:---:|:---:|:---:|:---:|
| | Horizontal | Vertical | Hor. (kHz) | Ver. (Hz) |
| 1 | 640 | 480 | 31.4 | 60 |
| 2 | 640 | 480 | 35.1 | 56 |
| 3 | 640 | 480 | 37.9 | 60 |
| 4 | 720 | 400 | 37,8 | 70 |
| 5 | 800 | 600 | 35,1 | 56 |
| 6 | 800 | 600 | 37,8 | 60 |
| 7 | 800 | 600 | 48 | 72 |
| 8 | 800 | 600 | 46,8 | 75 |

The native resolution of the TFT-LCD Panel is 800 x 600. Therefore using Mode 6 is advised to get the best PC input display quality.

## Can not turn the TV on?

Check that TV/VCR/DVD switch is set to TV position.

TV may go to stand-by mode when you turn the TV on soon after you turn the TV off. If you can turn the TV on again, it is not a problem.

## Can not turn the TV off?

Check that TV/VCR/DVD switch is set to TV position.

## Care of the Screen

Clean the screen with a slightly damp, soft cloth. Do not use abrasive solvents as they may damage the TV screen coating layer.

## Colours of image on screen are abnormal

Have you selected the correct TV system? Is your TV set or house aerial located too close to the loudspeakers, non-earthed audio equipment or neon lights, etc. ?

Mountains or high buildings can cause double pictures or ghost images. Sometimes you can improve the picture quality by changing the direction of the aerial.

Is the picture or Teletext unrecognisable? Check if you have entered the correct frequency.

The picture quality may degrade when two peripherals are connected to the TV at the same time. In such a case, disconnect one of the peripherals.

## No Image on Display Screen

Is the aerial connected properly? Are the plugs connected tightly to the aerial socket? Is the aerial cable damaged? Are suitable plugs used to connect the aerial? If you are in doubt, consult your dealer.

**No Image** means that your TV is not receiving any transmission. Have you pressed the correct buttons on the remote control? Try once more.

## PC Picture

If no PC picture appears, check that the D-SUB cable is connected properly. Check that your PC's resolution set correctly. for supported modes.

## Sound

You can not hear any sound. Did you perhaps interrupt the sound, pressing "⚊" button? Are external speakers connected to the TV?

Sound is coming from only one of the speakers. Is the balance set to one direction extreme? See **Sound** menu.

## Remote Control

If your TV no longer responds to the remote control, perhaps the batteries are exhausted. Replace the batteries.

Have you selected the wrong menu? Press "**MENU**" button to return to normal screen or press "**BACK**" button to return to the previous menu.

## No solution

If the TV suddenly stops responding, disconnect the power cord of the TV from the AC outlet. Connect themto the AC outlet again to turn on the TV. If the TV returns to a normal state, it is not a failure. If this does not work, switch off, remove the mains plug and call the service personnel; never attempt to repair it yourself.

## Bad picture (in digital mode)

Although this TV can receive both Digital terrestrial broadcasting (DVB-T) and Analogue terrestrial broadcasting, you may not be able to receive DVB-T depending on the area in which you live.

If the picture freezes a lot, or block effect is seen frequently on screen, probably there is a problem with your reception.

Please contact customer services of your service provider if you are a subscriber.

# Specifications

| Item \ Model | LT-20DJ5SFR |
|---|---|
| Broadcasting Systems | PAL SECAM BG, DK, I, L, Lp |
| Channels and Frequencies | Digital : 474 MHz - 858 MHz |
| | Analogue : 46.25 MHz - 862.25 MHz |
| | Cable TV    (S1-S20/ S21-S41) |
| Input Signal | **Video:** Analog 0,7 Vp-p 75 ohm positive |
| | **Sync:** TTL Level positive or negative, Seperate sync. |
| Horizontal Timing | 30 - 69 kHz |
| Vertical Timing | 50 - 75 khz |
| Dot Rate | 78,75 MHz max. |
| Panel Size | 20,01" (509 mm) (measured diagonally) |
| Visible Picture Size | 408 mm horizontal  x  306 mm vertical |
| Display Resolution | 800 x 600 max. |
| Number of Preset Channels | Analogue: 100 |
| Channel Indicator | On Screen Display (OSD) |
| RF Aerial Output | 75 Ohm (unbalanced) |
| Power Requirements | **Adaptor:** 100-240 V AC, 50 Hz  /  **TV:** 12 V DC |
| Power Consumption (W) | 60 W (max)  /  STAND-BY  <3W |
| Sound Systems | German , Nicam Stereo |
| Audio Output | 2 x 5 W$_{RMS.}$ (%10 THD) |
| EXT-1 Terminal | Euroconnector (21-pin, SCART) (back of the cabinet) |
| | • Video Input, Audio L/R Inputs and RGB inputs are available. |
| | • TV broadcast outputs (Video and Audio L/R) are available. |
| EXT-2 Terminal | Euroconnector (21-pin, SCART) (back of the cabinet) |
| | • Video Input, S-VIDEO (Y/C) input,  Audio L/R and RGB inputs are available. |
| | • Video and Audio L/R outputs are available. |
| | • T-V LINK functions are available. |
| EXT-3 Terminal | RCA connectors x 5 (rear side of the cabinet) |
| | • Component video (Pr, Pb, Y) inputs and Audio L-R inputs are available |
| | • 625p/50Hz and 525p/60Hz signals are available. |
| EXT-4 Terminal | RCA connectors x 3 (rear side of the cabinet) |
| | S-VIDEO connector x 1 (rear side of the cabinet) |
| | • Video input, S-VIDEO (Y/C) input and Audio L/R inputs are available. |
| AUDIO OUT Terminal | RCA connectors x 3 |
| | • Audio L/R output are available. |
| | • Digital Audio Out is available. |
| PC IN terminal | Analog RGB D-SUB 15 x 1 |
| | • PC signal is available (refer to **page 42** for details of the signals which can be input) |
| PC AUDIO IN terminal | Stereo mini-jack (3.5 mm diameter) |
| Card Slot | Card Slot for the Conditional Access Module (CAM) x1 |
| Dimensions (W x H x D) | 530 mm x 477 mm x 213 mm |
| | 530 mm x 440 mm x 125 mm (TV only) |
| Weight | 8,2 kg (with stand) / 7,2 kg (TV only) |
| Accessories | Remote control unit x 1 (RM-C1897S) / AA/R6 dry cell battery x 2 |
| | AC adapter x 1 / Power cord x 1 |
| Headphone jack | Stereo mini-jack (3.5 mm diameter) |
| Wall Mount VESA Compatible | Yes. Wall Mount Hole Pitch:100mm×100mm (4 holes) |

# PARTS LIST

## CAUTION

■ The parts identified by the ⚠ symbol are important for the safety . Whenever replacing these parts, be sure to use specified ones to secure the safety.

■ The parts not indicated in this Parts List and those which are filled with lines --- in the Parts No. columns will not be supplied.

■ P.W. BOARD Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied.


ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

| RESISTORS | | CAPACITORS | |
|---|---|---|---|
| CR | Carbon Resistor | C CAP. | Ceramic Capacitor |
| FR | Fusible Resistor | E CAP. | Electrolytic Capacitor |
| PR | Plate Resistor | M CAP. | Mylar Capacitor |
| VR | Variable Resistor | CH CAP. | Chip Capacitor |
| HV R | High Voltage Resistor | HV CAP. | High Voltage Capacitor |
| MF R | Metal Film Resistor | MF CAP. | Metalized Film Capacitor |
| MG R | Metal Glazed Resistor | MM CAP. | Metalized Mylar Capacitor |
| MP R | Metal Plate Resistor | MP CAP. | Metalized Polystyrol Capacitor |
| OM R | Metal Oxide Film Resistor | PP CAP. | Polypropylene Capacitor |
| CMF R | Coating Metal Film Resistor | PS CAP. | Polystyrol Capacitor |
| UNF R | Non-Flammable Resistor | TF CAP. | Thin Film Capacitor |
| CH V R | Chip Variable Resistor | MPP CAP. | Metalized Polypropylene Capacitor |
| CH MG R | Chip Metal Glazed Resistor | TAN. CAP. | Tantalum Capacitor |
| COMP. R | Composition Resistor | CH C CAP. | Chip Ceramic Capacitor |
| LPTC R | Linear Positive Temperature Coefficient Resistor | BP E CAP. | Bi-Polar Electrolytic Capacitor |
| | | CH AL E CAP. | Chip Aluminum Electrolytic Capacitor |
| | | CH AL BP CAP. | Chip Aluminum Bi-Polar Capacitor |
| | | CH TAN. E CAP. | Chip Tantalum Electrolytic Capacitor |
| | | CH AL BP E CAP. | Chip Tantalum Bi-Polar Electrolytic Capacitor |


| RESISTORS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| F | G | J | K | M | N | R | H | Z | P |
| ±1% | ±2% | ±5% | ±10% | ±20% | ±30% | +30% -10% | +50% -10% | +80% -20% | +100% -0% |

# CONTENTS

# USING P.W. BOARD & REMOTE CONTROL UNIT

| P.W.B ASS'Y name | P.W.B ASS'Y No. | | |
| --- | --- | --- | --- |
| | LT-20DJ5SFR | LT-20DJ5SGE | LT-20DJ5SSP |
| MAIN P.W.B | VE-20267685 | ← | ← |
| SIDE CONTROL P.W.B | VE-20224821 | ← | ← |
| AV JACK P.W.B | VE-20242334 | ← | ← |
| LED PWB | VE-20238538 | ← | ← |
| REMOTE CONTROL UNIT | VE-30044649 | ← | ← |

# EXPLODED VIEW PARTS LIST

| ⚠ | Ref.No. | Part No. | Part Name | Description | Local |
|---|---------|----------|-----------|-------------|-------|
| ⚠ | 1 | VE-20242970 | FRONT COVER | | |
| | 2 | VE-20181267 | LOGO JVC | | |
| ⚠ | 3 | VE-20233912 | LED LENS | | |
| ⚠ | 4 | VE-20102039 | IR LENS | | |
| | 5 | VE-30030145 | SPEAKER | 8ohm 5W 3x10cm(x2) | |
| | 6 | VE-40024101 | RUBBER BUSH | (x4) | |
| ⚠ | 7 | VE-30040893 | INVERTOR UNIT | | |
| ⚠ | 8 | VE-20224812 | FUNCTION BUTTON | | |
| | 9 | VE-35012930 | METAL HANG | (x2) | |
| | 10 | VE-20173333 | BRACKET SOCKET COVER | | |
| | 11 | VE-20184550 | CI BRACKET | | |
| | 12 | VE-20242976 | BACK DOOR | | |
| | 13 | VE-20242983 | CARD SLOT DOOR | | |
| | 14 | VE-20182430 | HANDLE | | |
| ⚠ | 15 | VE-20242975 | BACK COVER | | |
| | 16 | VE-35008191 | SCREW | (M3x12) For BACK COVER(x7) | |
| | 17 | VE-35000185 | SCREW | (M4x8) For HANDLE(x4) | |
| | 18 | VE-20176416 | CABLE HOLDER | | |
| ⚠ | 19 | VE-30046385 | LCD PANEL UNIT | | |
| | 20 | VE-35012866 | FRAME | | |
| | 21 | VE-20225352 | DISPLAY BRACKET | LEFT(x2) | |
| | 22 | VE-20225353 | DISPLAY BRACKET | RIGHT(x2) | |
| | 50 | VE-20255288 | FOOT ASSEMBLY | | |
| | 51 | VE-20224795 | HINGE COVER | | |
| | 52 | VE-20224794 | FOOT TOP COVER | | |
| | 53 | VE-35008090 | SCREW | (M3.5x12) For FOOT TOP COVER(x2) | |
| | 71 | VE-30032464 | E-HARNESS ASSY | MAIN PL704 - SPEAKER LEFT | |
| | 72 | VE-30036412 | E-HARNESS ASSY | MAIN PL703 - SPEAKER RIGHT | |
| | 73 | VE-30044690 | E-HARNESS ASSY | MAIN PL707 - AV JACK PL101 | |
| | 74 | VE-30032123 | E-HARNESS ASSY | MAIN PL702 - AV JACK PL100 | |
| | 75 | VE-30023196 | E-HARNESS ASSY | MAIN PL303 - LED | |
| | 76 | VE-30041133 | E-HARNESS ASSY | MAIN PL302 - SIDE CONTROL PL1 | |
| | 77 | VE-30029793 | E-HARNESS ASSY | MAIN PL306 - INVERTERUNIT | |
| | 78 | VE-30029798 | E-HARNESS ASSY | MAIN PL801 - LCD PANEL UNIT | |
| ⚠ | 101 | VE-20267685 | MAIN PWB | | |
| ⚠ | 102 | VE-20242334 | AV JACK PWB | | |
| ⚠ | 103 | VE-20224821 | SIDE CONTROL PWB | | |
| ⚠ | 104 | VE-20238538 | LED PWB | | |

# EXPLODED VIEW
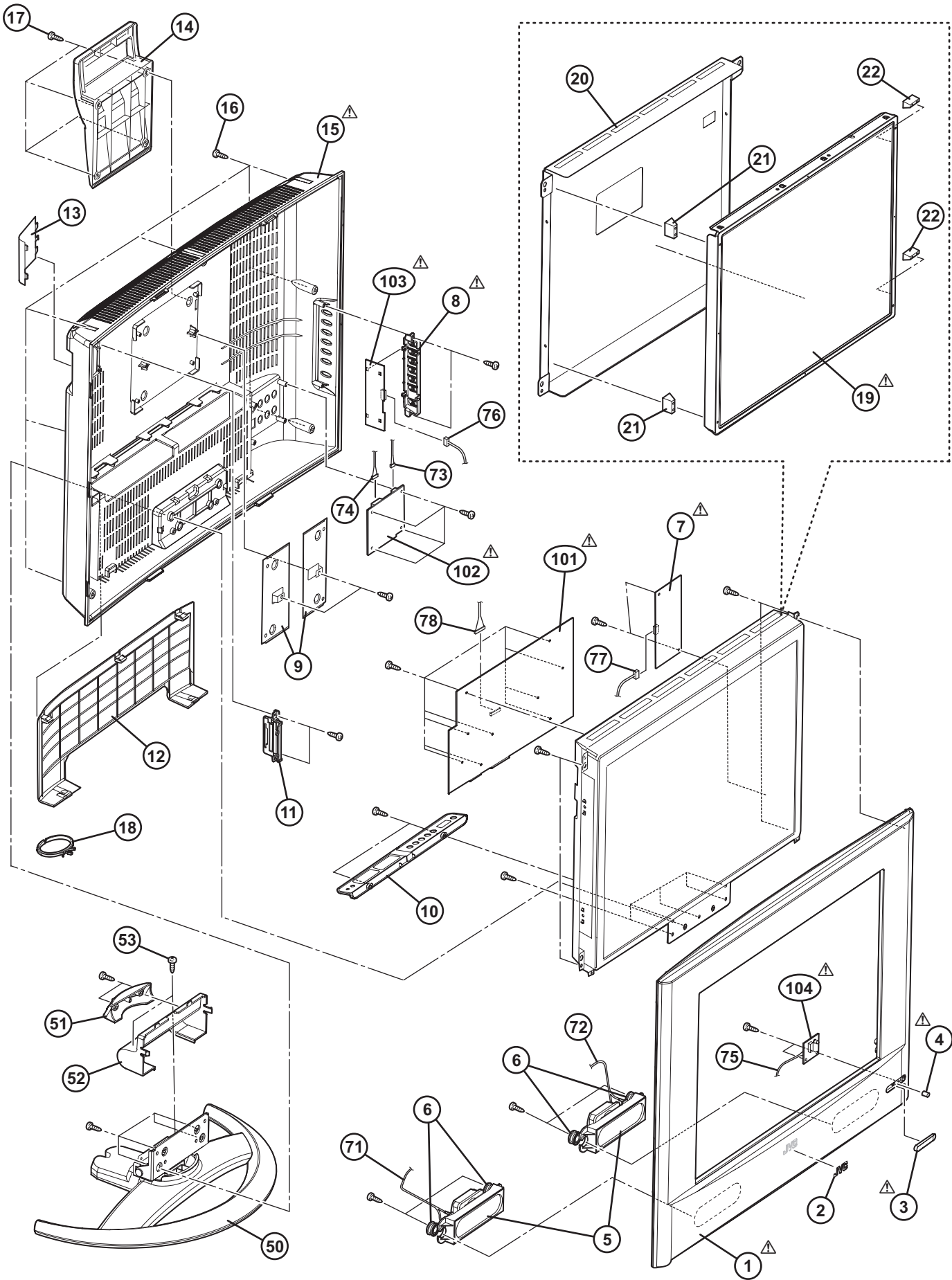
# PRINTED WIRING BOARD PARTS LIST [LT-20DJ5SFR]

## MAIN P.W. BOARD ASS'Y (VE-20267685)

| ⚠Ref No. | Part No. | Part Name | Description Local |
|---|---|---|---|
| IC100 | VE-30033063 | IC | |
| IC101 | VE-30047934 | IC | |
| IC102 | VE-30018006 | IC | |
| IC104 | VE-30019132 | IC | |
| IC105 | VE-30047670 | IC | |
| IC106 | VE-30033064 | IC | |
| IC107 | VE-30019372 | IC | |
| IC108 | VE-30027533 | IC | |
| IC301 | VE-30013571 | IC | |
| IC302 | VE-20267686 | IC | (SERVICE) |
| IC400 | VE-30015059 | IC | |
| IC402 | VE-30004999 | IC | |
| IC403 | VE-30019372 | IC | |
| IC500 | VE-30021083 | IC | |
| IC600 | VE-30013686 | IC | |
| IC700 | VE-30018263 | IC | |
| IC701 | VE-30010024 | IC | |
| IC702 | VE-30027663 | IC | |
| IC706 | VE-30013416 | IC | |
| IC708 | VE-30031906 | IC | |
| IC901 | VE-30027613 | IC | |
| IC904 | VE-30027612 | IC | |
| IC905 | VE-30018029 | TRANSISTOR | |
| IC906 | VE-30018326 | IC | |
| IC908 | VE-30018029 | TRANSISTOR | |
| IC910 | VE-30007739 | IC | |
| IC911 | VE-30030067 | IC | |
| IC913 | VE-30018574 | DIODE | |
| IC914 | VE-30018574 | DIODE | |
| IC915 | VE-30018574 | DIODE | |
| IC1100 | VE-30036171 | IC | |
| IC1101 | VE-30039048 | IC | |
| IC1102 | VE-30030268 | IC | |
| IC1103 | VE-30007366 | IC | |
| IC1201 | VE-30036169 | IC | |
| IC1300 | VE-30030321 | IC | |
| IC1301 | VE-30030321 | IC | |
| IC1302 | VE-30037013 | IC | |
| IC1303 | VE-30010056 | IC | |
| IC1402 | VE-30020607 | IC | |
| IC1403 | VE-30039715 | IC | |
| IC1600 | VE-30048063 | IC | |
| IC1601 | VE-30039055 | IC | |
| IC1602 | VE-30039055 | IC | |
| IC1603 | VE-30039054 | IC | |
| | | | |
| Q100 | VE-30001457 | TRANSISTOR | |
| Q101 | VE-30018060 | TRANSISTOR | |
| Q103 | VE-30001457 | TRANSISTOR | |
| Q104 | VE-30001457 | TRANSISTOR | |
| Q105 | VE-30001457 | TRANSISTOR | |
| Q300 | VE-30001458 | TRANSISTOR | |
| Q301 | VE-30001457 | TRANSISTOR | |
| Q302 | VE-30001457 | TRANSISTOR | |
| Q303 | VE-30001457 | TRANSISTOR | |
| Q304 | VE-30001457 | TRANSISTOR | |
| Q305 | VE-30001457 | TRANSISTOR | |
| Q306 | VE-30001457 | TRANSISTOR | |
| Q307 | VE-30001457 | TRANSISTOR | |
| Q308 | VE-30001458 | TRANSISTOR | |
| Q309 | VE-30001457 | TRANSISTOR | |
| Q311 | VE-30001423 | TRANSISTOR | |
| Q312 | VE-30001457 | TRANSISTOR | |
| Q313 | VE-30001457 | TRANSISTOR | |
| Q314 | VE-30001457 | TRANSISTOR | |
| Q315 | VE-30001457 | TRANSISTOR | |
| Q316 | VE-30001457 | TRANSISTOR | |
| Q317 | VE-30001457 | TRANSISTOR | |
| Q318 | VE-30001457 | TRANSISTOR | |
| Q400 | VE-30001457 | TRANSISTOR | |
| Q501 | VE-30001457 | TRANSISTOR | |
| Q502 | VE-30001457 | TRANSISTOR | |
| Q600 | VE-30001457 | TRANSISTOR | |
| Q601 | VE-30001457 | TRANSISTOR | |
| Q602 | VE-30001457 | TRANSISTOR | |
| Q603 | VE-30001457 | TRANSISTOR | |
| Q700 | VE-30001458 | TRANSISTOR | |
| Q701 | VE-30001457 | TRANSISTOR | |
| Q702 | VE-30001457 | TRANSISTOR | |
| Q703 | VE-30001457 | TRANSISTOR | |
| Q704 | VE-30001457 | TRANSISTOR | |
| Q708 | VE-30001458 | TRANSISTOR | |
| Q709 | VE-30001457 | TRANSISTOR | |
| Q900 | VE-30001457 | TRANSISTOR | |
| Q901 | VE-30001457 | TRANSISTOR | |

| ⚠Ref No. | Part No. | Part Name | Description Local |
|---|---|---|---|
| Q902 | VE-30001454 | TRANSISTOR | |
| Q903 | VE-30001457 | TRANSISTOR | |
| Q904 | VE-30007798 | TRANSISTOR | |
| Q905 | VE-30007798 | TRANSISTOR | |
| Q906 | VE-30001457 | TRANSISTOR | |
| Q907 | VE-30001457 | TRANSISTOR | |
| Q1120 | VE-30001457 | TRANSISTOR | |
| Q1121 | VE-30001457 | TRANSISTOR | |
| Q1206 | VE-30012551 | TRANSISTOR | |
| Q1207 | VE-30012552 | TRANSISTOR | |
| Q1400 | VE-30016424 | TRANSISTOR | |
| Q1401 | VE-30016424 | TRANSISTOR | |
| Q1402 | VE-30016424 | TRANSISTOR | |
| Q1403 | VE-30001457 | TRANSISTOR | |
| Q1600 | VE-30001457 | TRANSISTOR | |
| | | | |
| D100 | VE-30001285 | DIODE | |
| D101 | VE-30001285 | DIODE | |
| D103 | VE-30007169 | DIODE | |
| D105 | VE-30007169 | DIODE | |
| D107 | VE-30007169 | DIODE | |
| D108 | VE-30038502 | DIODE | |
| D109 | VE-30038502 | DIODE | |
| D110 | VE-30007169 | DIODE | |
| D111 | VE-30007169 | DIODE | |
| D112 | VE-30007169 | DIODE | |
| D116 | VE-30007169 | DIODE | |
| D117 | VE-30007169 | DIODE | |
| D118 | VE-30007169 | DIODE | |
| D119 | VE-30007169 | DIODE | |
| D120 | VE-30038475 | DIODE | |
| D1X1 | VE-30038502 | DIODE | |
| D300 | VE-30038493 | DIODE | |
| D301 | VE-30001285 | DIODE | |
| D302 | VE-30001285 | DIODE | |
| D305 | VE-30001285 | DIODE | |
| D306 | VE-30001285 | DIODE | |
| D307 | VE-30001285 | DIODE | |
| D500 | VE-30001285 | DIODE | |
| D501 | VE-30012411 | DIODE | |
| D600 | VE-30038475 | DIODE | |
| D700 | VE-30038479 | DIODE | |
| D701 | VE-30001285 | DIODE | |
| D702 | VE-30001285 | DIODE | |
| D703 | VE-30001285 | DIODE | |
| D704 | VE-30038475 | DIODE | |
| D705 | VE-30038475 | DIODE | |
| D708 | VE-30038475 | DIODE | |
| D709 | VE-30038475 | DIODE | |
| D710 | VE-30038480 | DIODE | |
| D711 | VE-30038502 | DIODE | |
| D712 | VE-30038502 | DIODE | |
| D713 | VE-30038475 | DIODE | |
| D714 | VE-30038502 | DIODE | |
| D715 | VE-30038475 | DIODE | |
| D716 | VE-30038502 | DIODE | |
| D717 | VE-30038502 | DIODE | |
| D719 | VE-30001285 | DIODE | |
| D720 | VE-30038475 | DIODE | |
| D721 | VE-30038475 | DIODE | |
| D722 | VE-30038475 | DIODE | |
| D723 | VE-30038475 | DIODE | |
| D724 | VE-30018574 | DIODE | |
| D725 | VE-30038475 | DIODE | |
| D726 | VE-30038475 | DIODE | |
| D902 | VE-30001285 | DIODE | |
| D903 | VE-30001343 | DIODE | |
| D905 | VE-30001285 | DIODE | |
| D1100 | VE-30010689 | DIODE | |
| D1101 | VE-30010689 | DIODE | |
| D1400 | VE-30016425 | DIODE | |
| D1401 | VE-30019192 | DIODE | |
| D1402 | VE-30019192 | DIODE | |
| | | | |
| C100 | VE-30012566 | CAPACITOR | 22pF 50V J |
| C101 | VE-30012566 | CAPACITOR | 22pF 50V J |
| C102 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C104 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C105 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C106 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C107 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C108 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C109 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C110 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C111 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C112 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C113 | VE-30012582 | CAPACITOR | 10nF 50V K |

| Ref No. | Part No. | Part Name | Description Local |
|---|---|---|---|
| C114 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C115 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C116 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C117 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C118 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C120 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C121 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C122 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C123 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C124 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C125 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C126 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C127 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C128 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C129 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C130 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C131 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C132 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C133 | VE-30012589 | CAPACITOR | 4.7nF 50V K |
| C134 | VE-30012589 | CAPACITOR | 4.7nF 50V K |
| C136 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C137 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C138 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C139 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C140 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C141 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C142 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C143 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C144 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C146 | VE-30000109 | CAPACITOR | 470nF 63V J |
| C147 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C148 | VE-30012575 | CAPACITOR | 4.7pF 50V C |
| C149 | VE-30012575 | CAPACITOR | 4.7pF 50V C |
| C150 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C151 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C152 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C153 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C154 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C155 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C156 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C157 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C158 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C159 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C160 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C161 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C162 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C163 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C164 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C165 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C166 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C167 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C168 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C169 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C170 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C171 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C172 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C174 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C175 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C176 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C177 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C178 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C183 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C185 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C187 | VE-30012576 | CAPACITOR | 56pF 50V J |
| C189 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C190 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C191 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C192 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C193 | VE-30000375 | E CAPACITOR | 220uF 16V M |
| C217 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C225 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C300 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C301 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C302 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C303 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C304 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C305 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C306 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C307 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C308 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C309 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C310 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C311 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C312 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C313 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C314 | VE-30000109 | CAPACITOR | 470nF 63V J |
| C315 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C316 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C317 | VE-30012569 | CAPACITOR | 33pF 50V J |
| C318 | VE-30012569 | CAPACITOR | 33pF 50V J |
| C319 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C320 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C321 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C324 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C325 | VE-30012607 | CAPACITOR | 150pF 50V J |
| C326 | VE-30012569 | CAPACITOR | 33pF 50V J |
| C327 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C328 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C336 | VE-30012560 | CAPACITOR | 100pF 50V J |
| C337 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C343 | VE-30012560 | CAPACITOR | 100pF 50V J |
| C400 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C401 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C402 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C403 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C404 | VE-30012613 | CAPACITOR | 3.3pF 50V C |
| C405 | VE-30012613 | CAPACITOR | 3.3pF 50V C |
| C406 | VE-30000315 | CAPACITOR | 220nF 25V Z |
| C407 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C408 | VE-30012572 | CAPACITOR | 390pF 50V J |
| C409 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C410 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C411 | VE-30000068 | CAPACITOR | 1nF 63V K |
| C412 | VE-30007082 | CAPACITOR | 680nF 63V J |
| C413 | VE-30007082 | CAPACITOR | 680nF 63V J |
| C414 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C415 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C416 | VE-30012590 | CAPACITOR | 47nF 50V K |
| C420 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C421 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C422 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C424 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C425 | VE-30000315 | CAPACITOR | 220nF 25V Z |
| C426 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C427 | VE-30012572 | CAPACITOR | 390pF 50V J |
| C428 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C429 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C430 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C437 | VE-30007082 | CAPACITOR | 680nF 63V J |
| C438 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C439 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C440 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C441 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C442 | VE-30012569 | CAPACITOR | 33pF 50V J |
| C443 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C485 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C486 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C487 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C488 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C489 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C490 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C491 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C492 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C493 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C494 | VE-30012574 | CAPACITOR | 470pF 50V J |
| C495 | VE-30012574 | CAPACITOR | 470pF 50V J |
| C496 | VE-30012574 | CAPACITOR | 470pF 50V J |
| C502 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C503 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C504 | VE-30000407 | E CAPACITOR | 470uF 16V M |
| C505 | VE-30000400 | E CAPACITOR | 47uF 50V M |
| C506 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C507 | VE-30012572 | CAPACITOR | 390pF 50V J |
| C508 | VE-30000109 | CAPACITOR | 470nF 63V J |
| C509 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C510 | VE-30012566 | CAPACITOR | 22pF 50V J |
| C511 | VE-30000109 | CAPACITOR | 470nF 63V J |
| C512 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C513 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C514 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C515 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C519 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C520 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C522 | VE-30000315 | CAPACITOR | 220nF 25V Z |
| C523 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C524 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C525 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C526 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C600 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C601 | VE-30000074 | CAPACITOR | 100nF 63V J |
| C603 | VE-30000074 | CAPACITOR | 100nF 63V J |
| C604 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C605 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C606 | VE-30000074 | CAPACITOR | 100nF 63V J |
| C607 | VE-30012569 | CAPACITOR | 33pF 50V J |
| C608 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C609 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C610 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C611 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C613 | VE-30016654 | CAPACITOR | 100nF 16V K |

| ⚠Ref No. | Part No. | Part Name | Description Local |
|---|---|---|---|
| C614 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C615 | VE-30012569 | CAPACITOR | 33pF 50V J |
| C616 | VE-30000074 | CAPACITOR | 100nF 63V J |
| C700 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C701 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C702 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C703 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C704 | VE-30012589 | CAPACITOR | 4.7nF 50V K |
| C705 | VE-30012589 | CAPACITOR | 4.7nF 50V K |
| C706 | VE-30012589 | CAPACITOR | 4.7nF 50V K |
| C707 | VE-30012589 | CAPACITOR | 4.7nF 50V K |
| C708 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C709 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C710 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C711 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C712 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C713 | VE-30012579 | CAPACITOR | 82pF 50V J |
| C714 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C715 | VE-30000393 | E CAPACITOR | 3.3uF 50V M |
| C716 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C717 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C718 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C719 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C720 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C721 | VE-30012565 | CAPACITOR | 1.8pF 50V J |
| C722 | VE-30012565 | CAPACITOR | 1.8pF 50V J |
| C723 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C724 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C725 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C726 | VE-30012579 | CAPACITOR | 82pF 50V J |
| C727 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C728 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C729 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C730 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C731 | VE-30012607 | CAPACITOR | 150pF 50V J |
| C732 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C733 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C734 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C735 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C736 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C737 | VE-30012589 | CAPACITOR | 4.7nF 50V K |
| C738 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C739 | VE-30000400 | E CAPACITOR | 47uF 50V M |
| C740 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C741 | VE-30012589 | CAPACITOR | 4.7nF 50V K |
| C742 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C743 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C744 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C745 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C746 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C747 | VE-30012574 | CAPACITOR | 470pF 50V J |
| C748 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C749 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C750 | VE-30012576 | CAPACITOR | 56pF 50V J |
| C751 | VE-30000407 | E CAPACITOR | 470uF 16V M |
| C752 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C753 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C754 | VE-30012574 | CAPACITOR | 470pF 50V J |
| C755 | VE-30012574 | CAPACITOR | 470pF 50V J |
| C756 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C757 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C758 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C759 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C760 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C761 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C762 | VE-30012589 | CAPACITOR | 4.7nF 50V K |
| C763 | VE-30012589 | CAPACITOR | 4.7nF 50V K |
| C764 | VE-30012589 | CAPACITOR | 4.7nF 50V K |
| C765 | VE-30012589 | CAPACITOR | 4.7nF 50V K |
| C766 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C767 | VE-30012607 | CAPACITOR | 150pF 50V J |
| C768 | VE-30012607 | CAPACITOR | 150pF 50V J |
| C769 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C770 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C771 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C772 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C773 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C774 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C775 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C776 | VE-30010555 | CAPACITOR | 1uF 16V K |
| C777 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C778 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C779 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C780 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C781 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C782 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C783 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C784 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C785 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C786 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C787 | VE-30020694 | CAPACITOR | 1uF 16V Z |
| C788 | VE-30020694 | CAPACITOR | 1uF 16V Z |
| C789 | VE-30020694 | CAPACITOR | 1uF 16V Z |
| C790 | VE-30020694 | CAPACITOR | 1uF 16V Z |
| C791 | VE-30020694 | CAPACITOR | 1uF 16V Z |
| C792 | VE-30010555 | CAPACITOR | 1uF 16V K |
| C793 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C794 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C795 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C796 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C797 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C798 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C799 | VE-30012568 | CAPACITOR | 270pF 50V J |
| C808 | VE-30012574 | CAPACITOR | 470pF 50V J |
| C809 | VE-30012574 | CAPACITOR | 470pF 50V J |
| C818 | VE-30012576 | CAPACITOR | 56pF 50V J |
| C819 | VE-30012560 | CAPACITOR | 100pF 50V J |
| C822 | VE-30012559 | CAPACITOR | 10pF 50V D |
| C825 | VE-30012574 | CAPACITOR | 470pF 50V J |
| C826 | VE-30012574 | CAPACITOR | 470pF 50V J |
| C827 | VE-30012574 | CAPACITOR | 470pF 50V J |
| C830 | VE-30012574 | CAPACITOR | 470pF 50V J |
| C831 | VE-30012574 | CAPACITOR | 470pF 50V J |
| C832 | VE-30020694 | CAPACITOR | 1uF 16V Z |
| C833 | VE-30020694 | CAPACITOR | 1uF 16V Z |
| C846 | VE-30000353 | E CAPACITOR | 100uF 25V M |
| C858 | VE-30012569 | CAPACITOR | 33pF 50V J |
| C859 | VE-30012569 | CAPACITOR | 33pF 50V J |
| C860 | VE-30012569 | CAPACITOR | 33pF 50V J |
| C866 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C867 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C868 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C900 | VE-30000354 | E CAPACITOR | 100uF 35V M |
| C903 | VE-30018901 | E CAPACITOR | 100uF 50V M |
| C904 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C908 | VE-30005819 | E CAPACITOR | 1000uF 16V M |
| C909 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C910 | VE-30018901 | E CAPACITOR | 100uF 50V M |
| C911 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C912 | VE-30031826 | E CAPACITOR | 4700uF 6.3V M |
| C913 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C921 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C924 | VE-30012576 | CAPACITOR | 56pF 50V J |
| C925 | VE-30012560 | CAPACITOR | 100pF 50V J |
| C926 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C927 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C928 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C929 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C930 | VE-30024336 | E CAPACITOR | 22uF 50V |
| C932 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C933 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C934 | VE-30005819 | E CAPACITOR | 1000uF 16V M |
| C935 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C936 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C937 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C938 | VE-30018901 | E CAPACITOR | 100uF 50V M |
| C939 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C940 | VE-30000359 | E CAPACITOR | 1000uF 16V M |
| C941 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C942 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C943 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C1025 | VE-30020694 | CAPACITOR | 1uF 16V Z |
| C1041 | VE-30000407 | E CAPACITOR | 470uF 16V M |
| C1050 | VE-30020694 | CAPACITOR | 1uF 16V Z |
| C1051 | VE-30020694 | CAPACITOR | 1uF 16V Z |
| C1052 | VE-30020694 | CAPACITOR | 1uF 16V Z |
| C1053 | VE-30000375 | E CAPACITOR | 220uF 16V M |
| C1101 | VE-30010555 | CAPACITOR | 1uF 16V K |
| C1102 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C1103 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C1104 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C1109 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1110 | VE-30012564 | CAPACITOR | 18pF 50V J |
| C1111 | VE-30012564 | CAPACITOR | 18pF 50V J |
| C1112 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1113 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1114 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1115 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1116 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1117 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1118 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1119 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1120 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C1121 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1122 | VE-30012570 | CAPACITOR | 330pF 50V J |
| C1123 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1124 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1125 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1126 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1127 | VE-30016654 | CAPACITOR | 100nF 16V K |

| ⚠Ref No. | Part No. | Part Name | Description Local |
|---|---|---|---|
| C1128 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1129 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1130 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1131 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1132 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C1133 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C1134 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C1135 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C1137 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C1145 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1146 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1147 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1148 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1201 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1204 | VE-30000353 | E CAPACITOR | 100uF 25V M |
| C1211 | VE-30000384 | E CAPACITOR | 2.2uF 50V M |
| C1212 | VE-30000384 | E CAPACITOR | 2.2uF 50V M |
| C1218 | VE-30012576 | CAPACITOR | 56pF 50V J |
| C1220 | VE-30012576 | CAPACITOR | 56pF 50V J |
| C1221 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C1227 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1235 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1236 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C1252 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C1253 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C1254 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C1255 | VE-30012567 | CAPACITOR | 220pF 50V J |
| C1300 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1301 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1302 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1303 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1304 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1305 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1306 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1307 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1308 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1309 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1310 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1311 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1312 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1313 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1314 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1315 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1316 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1401 | VE-30000400 | E CAPACITOR | 47uF 50V M |
| C1402 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1403 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1404 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C1405 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1406 | VE-30016085 | E CAPACITOR | 10uF 63V |
| C1408 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1409 | VE-30012560 | CAPACITOR | 100pF 50V J |
| C1410 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C1411 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C1412 | VE-30000315 | CAPACITOR | 220nF 25V Z |
| C1414 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C1415 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C1416 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1420 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C1422 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1423 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1424 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1428 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1429 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C1430 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1433 | VE-30012582 | CAPACITOR | 10nF 50V K |
| C1434 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1435 | VE-30012564 | CAPACITOR | 18pF 50V J |
| C1436 | VE-30012559 | CAPACITOR | 10pF 50V D |
| C1437 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1438 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1439 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1440 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1445 | VE-30012560 | CAPACITOR | 100pF 50V J |
| C1446 | VE-30012560 | CAPACITOR | 100pF 50V J |
| C1451 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1452 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C1453 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C1456 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1457 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1458 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1459 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1460 | VE-30012579 | CAPACITOR | 82pF 50V J |
| C1461 | VE-30012579 | CAPACITOR | 82pF 50V J |
| C1462 | VE-30012607 | CAPACITOR | 150pF 50V J |
| C1463 | VE-30014180 | CAPACITOR | 180pF 50V J |
| C1464 | VE-30012559 | CAPACITOR | 10pF 50V D |
| C1471 | VE-30012565 | CAPACITOR | 1.8pF 50V J |
| C1472 | VE-30000384 | E CAPACITOR | 2.2uF 50V M |
| C1473 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C1474 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C1475 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C1476 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C1477 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1480 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C1481 | VE-30000375 | E CAPACITOR | 220uF 16V M |
| C1484 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C1485 | VE-30000375 | E CAPACITOR | 220uF 16V M |
| C1486 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C1487 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1489 | VE-30020694 | CAPACITOR | 1uF 16V Z |
| C1600 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1601 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1602 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1603 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1604 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1605 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1606 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1607 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1608 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1609 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1610 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1800 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C1801 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C1802 | VE-30000294 | CAPACITOR | 100nF 50V K |
| C1803 | VE-30000345 | E CAPACITOR | 10uF 50V M |
| C1804 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1805 | VE-30012581 | CAPACITOR | 1nF 50V K |
| C1806 | VE-30000355 | E CAPACITOR | 100uF 50V M |
| C1807 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C1817 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C1818 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C1822 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C1823 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C1824 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C1825 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C1826 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C1827 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C1828 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C1829 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C1830 | VE-30000371 | E CAPACITOR | 22uF 50V M |
| C1831 | VE-30016654 | CAPACITOR | 100nF 16V K |
| C1832 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C1833 | VE-30016126 | CAPACITOR | 220nF 16V K |
| C1834 | VE-30000352 | E CAPACITOR | 100uF 16V M |
| C1835 | VE-30000359 | E CAPACITOR | 1000uF 16V M |
| C1836 | VE-30012611 | CAPACITOR | 120pF 50V J |
| C1837 | VE-30012611 | CAPACITOR | 120pF 50V J |
| R100 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R101 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R102 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R103 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R104 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R105 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R106 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R107 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R108 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R109 | VE-30012692 | RESISTOR | 1/16W 4.7K J |
| R110 | VE-30012692 | RESISTOR | 1/16W 4.7K J |
| R111 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R112 | VE-30012509 | RESISTOR | 1/16W 100K J |
| R113 | VE-30012509 | RESISTOR | 1/16W 100K J |
| R114 | VE-30012509 | RESISTOR | 1/16W 100K J |
| R115 | VE-30012509 | RESISTOR | 1/16W 100K J |
| R116 | VE-30012509 | RESISTOR | 1/16W 100K J |
| R117 | VE-30012509 | RESISTOR | 1/16W 100K J |
| R118 | VE-30020896 | FERRITE | |
| R119 | VE-30017653 | RESISTOR ARRAY | 1/16W 47RX4 J |
| R120 | VE-30017653 | RESISTOR ARRAY | 1/16W 47RX4 J |
| R121 | VE-30012679 | RESISTOR | 1/16W 3.9K J |
| R122 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R123 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R127 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R128 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R136 | VE-30012506 | RESISTOR | 1/16W 1.5K J |
| R137 | VE-30012506 | RESISTOR | 1/16W 1.5K J |
| R138 | VE-30012506 | RESISTOR | 1/16W 1.5K J |
| R139 | VE-30012657 | RESISTOR | 1/16W 1K J |
| R141 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R142 | VE-30012657 | RESISTOR | 1/16W 1K J |
| R143 | VE-30012657 | RESISTOR | 1/16W 1K J |
| R145 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R146 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R147 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R148 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R149 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R150 | VE-30012657 | RESISTOR | 1/16W 1K J |
| R151 | VE-30012657 | RESISTOR | 1/16W 1K J |
| R152 | VE-30012655 | RESISTOR | 1/16W 180R J |

| ⚠Ref No. | Part No. | Part Name | Description | Local |
|---|---|---|---|---|
| R153 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R154 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R155 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R156 | VE-30017653 | RESISTOR ARRAY | 1/16W 47RX4 J | |
| R157 | VE-30017653 | RESISTOR ARRAY | 1/16W 47RX4 J | |
| R158 | VE-30017653 | RESISTOR ARRAY | 1/16W 47RX4 J | |
| R159 | VE-30017653 | RESISTOR ARRAY | 1/16W 47RX4 J | |
| R160 | VE-30017653 | RESISTOR ARRAY | 1/16W 47RX4 J | |
| R161 | VE-30017653 | RESISTOR ARRAY | 1/16W 47RX4 J | |
| R162 | VE-30012509 | RESISTOR | 1/16W 100K J | |
| R165 | VE-30025836 | FERRITE NET | | |
| R166 | VE-30025836 | FERRITE NET | | |
| R168 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R169 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R170 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R172 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R173 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R174 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R175 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R176 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R177 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R178 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R179 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R180 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R181 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R182 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R183 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R184 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R185 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R189 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R193 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R199 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R300 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R301 | VE-30018409 | RESISTOR ARRAY | 1/16W 330R J | |
| R302 | VE-30018409 | RESISTOR ARRAY | 1/16W 330R J | |
| R303 | VE-30018409 | RESISTOR ARRAY | 1/16W 330R J | |
| R304 | VE-30018409 | RESISTOR ARRAY | 1/16W 330R J | |
| R305 | VE-30018409 | RESISTOR ARRAY | 1/16W 330R J | |
| R306 | VE-30018409 | RESISTOR ARRAY | 1/16W 330R J | |
| R307 | VE-30018409 | RESISTOR ARRAY | 1/16W 330R J | |
| R308 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R309 | VE-30012669 | RESISTOR | 1/16W 22K J | |
| R310 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R311 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R312 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R313 | VE-30012705 | RESISTOR | 1/16W 6.8K J | |
| R314 | VE-30012705 | RESISTOR | 1/16W 6.8K J | |
| R315 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R316 | VE-30012679 | RESISTOR | 1/16W 3.9K J | |
| R317 | VE-30016230 | RESISTOR | 1/16W 16K F | |
| R318 | VE-30012659 | RESISTOR | 1/16W 2.2K J | |
| R319 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R320 | VE-30012659 | RESISTOR | 1/16W 2.2K J | |
| R321 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R322 | VE-30012695 | RESISTOR | 1/16W 470R J | |
| R323 | VE-30012987 | RESISTOR | 1/16W 56R J | |
| R324 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R325 | VE-30012695 | RESISTOR | 1/16W 470R J | |
| R326 | VE-30012695 | RESISTOR | 1/16W 470R J | |
| R327 | VE-30012695 | RESISTOR | 1/16W 470R J | |
| R328 | VE-30012685 | RESISTOR | 1/16W 33K J | |
| R329 | VE-30012685 | RESISTOR | 1/16W 33K J | |
| R330 | VE-30012685 | RESISTOR | 1/16W 33K J | |
| R331 | VE-30012685 | RESISTOR | 1/16W 33K J | |
| R332 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R333 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R334 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R335 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R336 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R337 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R339 | VE-30012642 | RESISTOR | 1/16W 120K J | |
| R340 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R341 | VE-30012644 | RESISTOR | 1/16W 12K J | |
| R342 | VE-30012668 | RESISTOR | 1/16W 220R J | |
| R343 | VE-30012668 | RESISTOR | 1/16W 220R J | |
| R344 | VE-30013001 | RESISTOR | 1/16W 1K F | |
| R345 | VE-30012669 | RESISTOR | 1/16W 22K J | |
| R346 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R347 | VE-30014022 | RESISTOR | 1/16W 47R J | |
| R348 | VE-30012655 | RESISTOR | 1/16W 180R J | |
| R349 | VE-30014022 | RESISTOR | 1/16W 47R J | |
| R350 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R351 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R352 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R353 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R354 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R355 | VE-30012659 | RESISTOR | 1/16W 2.2K J | |
| R356 | VE-30012669 | RESISTOR | 1/16W 22K J | |
| R357 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R358 | VE-30012695 | RESISTOR | 1/16W 470R J | |
| R359 | VE-30012659 | RESISTOR | 1/16W 2.2K J | |
| R360 | VE-30012506 | RESISTOR | 1/16W 1.5K J | |
| R361 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R367 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R368 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R369 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R372 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R373 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R374 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R375 | VE-30012684 | RESISTOR | 1/16W 330R J | |
| R376 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R379 | VE-30012684 | RESISTOR | 1/16W 330R J | |
| R380 | VE-30012669 | RESISTOR | 1/16W 22K J | |
| R381 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R383 | VE-30016230 | RESISTOR | 1/16W 16K F | |
| R384 | VE-30012679 | RESISTOR | 1/16W 3.9K J | |
| R385 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R386 | VE-30012506 | RESISTOR | 1/16W 1.5K J | |
| R387 | VE-30012506 | RESISTOR | 1/16W 1.5K J | |
| R388 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R389 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R390 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R391 | VE-30012696 | RESISTOR | 1/16W 47K J | |
| R392 | VE-30012696 | RESISTOR | 1/16W 47K J | |
| R393 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R394 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R395 | VE-30012684 | RESISTOR | 1/16W 330R J | |
| R396 | VE-30012684 | RESISTOR | 1/16W 330R J | |
| R397 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R399 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R400 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R401 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R402 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R404 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R405 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R406 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R407 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R408 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R409 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R410 | VE-30012644 | RESISTOR | 1/16W 12K J | |
| R411 | VE-30012669 | RESISTOR | 1/16W 22K J | |
| R412 | VE-30014022 | RESISTOR | 1/16W 47R J | |
| R413 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R414 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R415 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R416 | VE-30017653 | RESISTOR ARRAY | 1/16W 47RX4 J | |
| R417 | VE-30017653 | RESISTOR ARRAY | 1/16W 47RX4 J | |
| R431 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R432 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R434 | VE-30012657 | RESISTOR | 1/16W 1K J | |
| R437 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R438 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R439 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R452 | VE-30012669 | RESISTOR | 1/16W 22K J | |
| R454 | VE-30012509 | RESISTOR | 1/16W 100K J | |
| R459 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R460 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R503 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R504 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R505 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R506 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R507 | VE-30012698 | RESISTOR | 1/16W 5.6K J | |
| R508 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R509 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R510 | VE-30012644 | RESISTOR | 1/16W 12K J | |
| R511 | VE-30012696 | RESISTOR | 1/16W 47K J | |
| R512 | VE-30012684 | RESISTOR | 1/16W 330R J | |
| R513 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R514 | VE-30012669 | RESISTOR | 1/16W 22K J | |
| R515 | VE-30012669 | RESISTOR | 1/16W 22K J | |
| R516 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R517 | VE-30012659 | RESISTOR | 1/16W 2.2K J | |
| R518 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R522 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R523 | VE-30012659 | RESISTOR | 1/16W 2.2K J | |
| R524 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R525 | VE-30012702 | RESISTOR | 1/16W 560R J | |
| R527 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R529 | VE-30012982 | RESISTOR | 1/16W 10R J | |
| R530 | VE-30014022 | RESISTOR | 1/16W 47R J | |
| R531 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R600 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R602 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R603 | VE-30012510 | RESISTOR | 1/16W 100R J | |
| R604 | VE-30012982 | RESISTOR | 1/16W 10R J | |
| R605 | VE-30012695 | RESISTOR | 1/16W 470R J | |
| R606 | VE-30012641 | RESISTOR | 1/16W 10K J | |
| R607 | VE-30012692 | RESISTOR | 1/16W 4.7K J | |
| R608 | VE-30012713 | RESISTOR | 1/16W 75R J | |
| R609 | VE-30012982 | RESISTOR | 1/16W 10R J | |

| ⚠Ref No. | Part No. | Part Name | Description Local | ⚠Ref No. | Part No. | Part Name | Description Local |
|---|---|---|---|---|---|---|---|
| R610 | VE-30012695 | RESISTOR | 1/16W 470R J | R780 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R611 | VE-30012641 | RESISTOR | 1/16W 10K J | R784 | VE-30000464 | RESISTOR | 1/10W 100R J |
| R612 | VE-30012692 | RESISTOR | 1/16W 4.7K J | R785 | VE-30000464 | RESISTOR | 1/10W 100R J |
| R613 | VE-30012713 | RESISTOR | 1/16W 75R J | R786 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R614 | VE-30012713 | RESISTOR | 1/16W 75R J | R787 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R615 | VE-30012713 | RESISTOR | 1/16W 75R J | R789 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R617 | VE-30012713 | RESISTOR | 1/16W 75R J | R790 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R618 | VE-30012982 | RESISTOR | 1/16W 10R J | R791 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R619 | VE-30012695 | RESISTOR | 1/16W 470R J | R792 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R620 | VE-30012641 | RESISTOR | 1/16W 10K J | R793 | VE-30017653 | RESISTOR ARRAY | 1/16W 47RX4 J |
| R621 | VE-30012692 | RESISTOR | 1/16W 4.7K J | R809 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R622 | VE-30012713 | RESISTOR | 1/16W 75R J | R810 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R623 | VE-30012713 | RESISTOR | 1/16W 75R J | R811 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R625 | VE-30012982 | RESISTOR | 1/16W 10R J | R812 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R626 | VE-30012695 | RESISTOR | 1/16W 470R J | R813 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R627 | VE-30012641 | RESISTOR | 1/16W 10K J | R814 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R628 | VE-30012692 | RESISTOR | 1/16W 4.7K J | R815 | VE-30001968 | FERRITE | |
| R629 | VE-30012713 | RESISTOR | 1/16W 75R J | R901 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R630 | VE-30012713 | RESISTOR | 1/16W 75R J | R902 | VE-30012642 | RESISTOR | 1/16W 120K J |
| R631 | VE-30012713 | RESISTOR | 1/16W 75R J | R903 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R632 | VE-30000797 | RESISTOR | 1/10W 75R J | R904 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R633 | VE-30000797 | RESISTOR | 1/10W 75R J | R905 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R634 | VE-30012509 | RESISTOR | 1/16W 100K J | R907 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R635 | VE-30012509 | RESISTOR | 1/16W 100K J | R908 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R636 | VE-30012509 | RESISTOR | 1/16W 100K J | R909 | VE-30012677 | RESISTOR | 1/16W 3.3K J |
| R637 | VE-30012509 | RESISTOR | 1/16W 100K J | R910 | VE-30020899 | RESISTOR | 1/16W 1R J |
| R700 | VE-30012641 | RESISTOR | 1/16W 10K J | R911 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R701 | VE-30012641 | RESISTOR | 1/16W 10K J | R912 | VE-30012655 | RESISTOR | 1/16W 180R J |
| R702 | VE-30012510 | RESISTOR | 1/16W 100R J | R913 | VE-30012679 | RESISTOR | 1/16W 3.9K J |
| R703 | VE-30012510 | RESISTOR | 1/16W 100R J | R915 | VE-30012509 | RESISTOR | 1/16W 100K J |
| R704 | VE-30012692 | RESISTOR | 1/16W 4.7K J | R918 | VE-30012677 | RESISTOR | 1/16W 3.3K J |
| R705 | VE-30012712 | RESISTOR | 1/16W 8.2K J | R919 | VE-30012668 | RESISTOR | 1/16W 220R J |
| R706 | VE-30012641 | RESISTOR | 1/16W 10K J | R920 | VE-30012657 | RESISTOR | 1/16W 1K J |
| R707 | VE-30012712 | RESISTOR | 1/16W 8.2K J | R921 | VE-30012655 | RESISTOR | 1/16W 180R J |
| R708 | VE-30012669 | RESISTOR | 1/16W 22K J | R922 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R709 | VE-30012669 | RESISTOR | 1/16W 22K J | R923 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R710 | VE-30012641 | RESISTOR | 1/16W 10K J | R924 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R711 | VE-30012510 | RESISTOR | 1/16W 100R J | R925 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R712 | VE-30012657 | RESISTOR | 1/16W 1K J | R926 | VE-30012668 | RESISTOR | 1/16W 220R J |
| R713 | VE-30012657 | RESISTOR | 1/16W 1K J | R927 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R714 | VE-30012702 | RESISTOR | 1/16W 560R J | R928 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R715 | VE-30012702 | RESISTOR | 1/16W 560R J | R931 | VE-30013001 | RESISTOR | 1/16W 1K F |
| R716 | VE-30012702 | RESISTOR | 1/16W 560R J | R932 | VE-30012987 | RESISTOR | 1/16W 56R J |
| R717 | VE-30012702 | RESISTOR | 1/16W 560R J | R933 | VE-30013001 | RESISTOR | 1/16W 1K F |
| R720 | VE-30023426 | FIXED COIL | 1.2uH K | R934 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R721 | VE-30023426 | FIXED COIL | 1.2uH K | R935 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R722 | VE-30023426 | FIXED COIL | 1.2uH K | R936 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R723 | VE-30012713 | RESISTOR | 1/16W 75R J | R937 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R724 | VE-30012713 | RESISTOR | 1/16W 75R J | R938 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R725 | VE-30012713 | RESISTOR | 1/16W 75R J | R939 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R726 | VE-30012657 | RESISTOR | 1/16W 1K J | R940 | VE-30012642 | RESISTOR | 1/16W 120K J |
| R727 | VE-30012657 | RESISTOR | 1/16W 1K J | R1059 | VE-30012692 | RESISTOR | 1/16W 4.7K J |
| R728 | VE-30023426 | FIXED COIL | 1.2uH K | R1100 | VE-30012692 | RESISTOR | 1/16W 4.7K J |
| R729 | VE-30012713 | RESISTOR | 1/16W 75R J | R1101 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R730 | VE-30023426 | FIXED COIL | 1.2uH K | R1102 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R731 | VE-30012713 | RESISTOR | 1/16W 75R J | R1103 | VE-30012692 | RESISTOR | 1/16W 4.7K J |
| R732 | VE-30012713 | RESISTOR | 1/16W 75R J | R1104 | VE-30012669 | RESISTOR | 1/16W 22K J |
| R733 | VE-30023426 | FIXED COIL | 1.2uH K | R1105 | VE-30014442 | RESISTOR | 1/16W 20K F |
| R734 | VE-30012510 | RESISTOR | 1/16W 100R J | R1106 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R735 | VE-30012510 | RESISTOR | 1/16W 100R J | R1108 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R736 | VE-30012657 | RESISTOR | 1/16W 1K J | R1110 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R737 | VE-30012657 | RESISTOR | 1/16W 1K J | R1112 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R738 | VE-30012657 | RESISTOR | 1/16W 1K J | R1113 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R739 | VE-30012657 | RESISTOR | 1/16W 1K J | R1114 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R740 | VE-30012657 | RESISTOR | 1/16W 1K J | R1115 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R741 | VE-30012657 | RESISTOR | 1/16W 1K J | R1118 | VE-30012694 | RESISTOR | 1/16W 470K J |
| R742 | VE-30012642 | RESISTOR | 1/16W 120K J | R1119 | VE-30012694 | RESISTOR | 1/16W 470K J |
| R743 | VE-30012644 | RESISTOR | 1/16W 12K J | R1120 | VE-30012712 | RESISTOR | 1/16W 8.2K J |
| R744 | VE-30012696 | RESISTOR | 1/16W 47K J | R1121 | VE-30012696 | RESISTOR | 1/16W 47K J |
| R745 | VE-30012685 | RESISTOR | 1/16W 33K J | R1122 | VE-30012658 | RESISTOR | 1/16W 1M J |
| R746 | VE-30012674 | RESISTOR | 1/16W 27K J | R1123 | VE-30012669 | RESISTOR | 1/16W 22K J |
| R747 | VE-30012641 | RESISTOR | 1/16W 10K J | R1125 | VE-30012692 | RESISTOR | 1/16W 4.7K J |
| R748 | VE-30012713 | RESISTOR | 1/16W 75R J | R1126 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R749 | VE-30012668 | RESISTOR | 1/16W 220R J | R1127 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R750 | VE-30012657 | RESISTOR | 1/16W 1K J | R1128 | VE-30012712 | RESISTOR | 1/16W 8.2K J |
| R751 | VE-30012510 | RESISTOR | 1/16W 100R J | R1134 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R752 | VE-30012657 | RESISTOR | 1/16W 1K J | R1135 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R753 | VE-30012641 | RESISTOR | 1/16W 10K J | R1136 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R761 | VE-30000464 | RESISTOR | 1/10W 100R J | R1137 | VE-30012692 | RESISTOR | 1/16W 4.7K J |
| R762 | VE-30012713 | RESISTOR | 1/16W 75R J | R1144 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R764 | VE-30012677 | RESISTOR | 1/16W 3.3K J | R1147 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R765 | VE-30012641 | RESISTOR | 1/16W 10K J | R1148 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R766 | VE-30012641 | RESISTOR | 1/16W 10K J | R1151 | VE-30012659 | RESISTOR | 1/16W 2.2K J |
| R767 | VE-30012641 | RESISTOR | 1/16W 10K J | R1152 | VE-30012659 | RESISTOR | 1/16W 2.2K J |
| R768 | VE-30012641 | RESISTOR | 1/16W 10K J | R1158 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R769 | VE-30012641 | RESISTOR | 1/16W 10K J | R1159 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R770 | VE-30012641 | RESISTOR | 1/16W 10K J | R1160 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R771 | VE-30012641 | RESISTOR | 1/16W 10K J | R1161 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R778 | VE-30012641 | RESISTOR | 1/16W 10K J | R1221 | VE-30012667 | RESISTOR | 1/16W 220K J |
| R779 | VE-30012509 | RESISTOR | 1/16W 100K J | R1222 | VE-30012667 | RESISTOR | 1/16W 220K J |

| Ref No. | Part No. | Part Name | Description Local |
|---|---|---|---|
| R1231 | VE-30012702 | RESISTOR | 1/16W 560R J |
| R1232 | VE-30012702 | RESISTOR | 1/16W 560R J |
| R1233 | VE-30012692 | RESISTOR | 1/16W 4.7K J |
| R1235 | VE-30012707 | RESISTOR | 1/16W 680R J |
| R1236 | VE-30012695 | RESISTOR | 1/16W 470R J |
| R1237 | VE-30012714 | RESISTOR | 1/16W 820R J |
| R1238 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R1239 | VE-30012684 | RESISTOR | 1/16W 330R J |
| R1240 | VE-30012684 | RESISTOR | 1/16W 330R J |
| R1300 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R1302 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1305 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R1306 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R1307 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R1308 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R1310 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R1311 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1312 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1318 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R1319 | VE-30014022 | RESISTOR | 1/16W 47R J |
| R1336 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R1337 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R1338 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1339 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1400 | VE-30012506 | RESISTOR | 1/16W 1.5K J |
| R1401 | VE-30012659 | RESISTOR | 1/16W 2.2K J |
| R1402 | VE-30012659 | RESISTOR | 1/16W 2.2K J |
| R1403 | VE-30012982 | RESISTOR | 1/16W 10R J |
| R1404 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R1407 | VE-30012982 | RESISTOR | 1/16W 10R J |
| R1408 | VE-30012695 | RESISTOR | 1/16W 470R J |
| R1409 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R1410 | VE-30012659 | RESISTOR | 1/16W 2.2K J |
| R1411 | VE-30012659 | RESISTOR | 1/16W 2.2K J |
| R1413 | VE-30014022 | RESISTOR | 1/16W 47R J |
| R1414 | VE-30012982 | RESISTOR | 1/16W 10R J |
| R1415 | VE-30012659 | RESISTOR | 1/16W 2.2K J |
| R1416 | VE-30012659 | RESISTOR | 1/16W 2.2K J |
| R1417 | VE-30014022 | RESISTOR | 1/16W 47R J |
| R1418 | VE-30012692 | RESISTOR | 1/16W 4.7K J |
| R1419 | VE-30012692 | RESISTOR | 1/16W 4.7K J |
| R1421 | VE-30012657 | RESISTOR | 1/16W 1K J |
| R1428 | VE-30012655 | RESISTOR | 1/16W 180R J |
| R1431 | VE-30012506 | RESISTOR | 1/16W 1.5K J |
| R1432 | VE-30012506 | RESISTOR | 1/16W 1.5K J |
| R1441 | VE-30012657 | RESISTOR | 1/16W 1K J |
| R1443 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1444 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1447 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R1448 | VE-30012713 | RESISTOR | 1/16W 75R J |
| R1449 | VE-30012655 | RESISTOR | 1/16W 180R J |
| R1450 | VE-30012510 | RESISTOR | 1/16W 100R J |
| R1452 | VE-30012508 | RESISTOR | 1/16W 1.8K J |
| R1456 | VE-30012982 | RESISTOR | 1/16W 10R J |
| R1463 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R1465 | VE-30014022 | RESISTOR | 1/16W 47R J |
| R1466 | VE-30014022 | RESISTOR | 1/16W 47R J |
| R1467 | VE-30016230 | RESISTOR | 1/16W 16K F |
| R1468 | VE-30020847 | RESISTOR | 1/16W 510K J |
| R1470 | VE-30012696 | RESISTOR | 1/16W 47K J |
| R1600 | VE-30012696 | RESISTOR | 1/16W 47K J |
| R1601 | VE-30012692 | RESISTOR | 1/16W 4.7K J |
| R1602 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R1603 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R1604 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R1630 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R1631 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R1632 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R1649 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R1650 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R1651 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1652 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1653 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R1657 | VE-30014128 | RESISTOR | 1/16W 33R J |
| R1658 | VE-30014022 | RESISTOR | 1/16W 47R J |
| R1659 | VE-30014022 | RESISTOR | 1/16W 47R J |
| R1739 | VE-30012641 | RESISTOR | 1/16W 10K J |
| R1740 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1741 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1742 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1743 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1744 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1745 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1746 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| R1747 | VE-30026054 | RESISTOR ARRAY | 1/32W 47R J |
| L101 | VE-30001971 | FERRITE | |
| L103 | VE-30002170 | FERRITE CORE | |
| L104 | VE-30001971 | FERRITE | |
| L105 | VE-30001971 | FERRITE | |

| Ref No. | Part No. | Part Name | Description Local |
|---|---|---|---|
| L106 | VE-30020896 | FERRITE | |
| L107 | VE-30001971 | FERRITE | |
| L108 | VE-30020896 | FERRITE | |
| L109 | VE-30001971 | FERRITE | |
| L110 | VE-30001971 | FERRITE | |
| L113 | VE-30000710 | RESISTOR | 1/10W 47R J |
| L114 | VE-30020393 | FERRITE | |
| L115 | VE-30020393 | FERRITE | |
| L116 | VE-30020393 | FERRITE | |
| L300 | VE-30017542 | FIXED COIL | 10uH J |
| L301 | VE-30017542 | FIXED COIL | 10uH J |
| L302 | VE-30017542 | FIXED COIL | 10uH J |
| L303 | VE-30017542 | FIXED COIL | 10uH J |
| L305 | VE-30001990 | FIXED COIL | 6.8uH K |
| L306 | VE-30001971 | FERRITE | |
| L307 | VE-30006712 | FERRITE BEAD | |
| L308 | VE-30020393 | FERRITE | |
| L309 | VE-30020393 | FERRITE | |
| L310 | VE-30020393 | FERRITE | |
| L312 | VE-30020393 | FERRITE | |
| L313 | VE-30020393 | FERRITE | |
| L314 | VE-30020393 | FERRITE | |
| L401 | VE-30001971 | FERRITE | |
| L402 | VE-30001971 | FERRITE | |
| L408 | VE-30001971 | FERRITE | |
| L409 | VE-30017542 | FIXED COIL | 10uH J |
| L501 | VE-30001971 | FERRITE | |
| L502 | VE-30001971 | FERRITE | |
| L503 | VE-30001971 | FERRITE | |
| L504 | VE-30001996 | FIXED COIL | 22uH K |
| L600 | VE-30017542 | FIXED COIL | 10uH J |
| L700 | VE-30001971 | FERRITE | |
| L701 | VE-30001971 | FERRITE | |
| L702 | VE-30001971 | FERRITE | |
| L703 | VE-30001971 | FERRITE | |
| L704 | VE-30001971 | FERRITE | |
| L705 | VE-30001971 | FERRITE | |
| L707 | VE-30001971 | FERRITE | |
| L708 | VE-30001971 | FERRITE | |
| L709 | VE-30001971 | FERRITE | |
| L710 | VE-30006712 | FERRITE BEAD | |
| L711 | VE-30001971 | FERRITE | |
| L712 | VE-30001971 | FERRITE | |
| L713 | VE-30001971 | FERRITE | |
| L714 | VE-30001971 | FERRITE | |
| L715 | VE-30001971 | FERRITE | |
| L716 | VE-30001971 | FERRITE | |
| L717 | VE-30001971 | FERRITE | |
| L718 | VE-30024779 | FERRITE | |
| L719 | VE-30024779 | FERRITE | |
| L721 | VE-30024779 | FERRITE | |
| L722 | VE-30024779 | FERRITE | |
| L723 | VE-30001971 | FERRITE | |
| L724 | VE-30013412 | FERRITE | |
| L725 | VE-30013412 | FERRITE | |
| L726 | VE-30001971 | FERRITE | |
| L729 | VE-30001971 | FERRITE | |
| L736 | VE-30018093 | FIXED COIL | 3.3uH J |
| L739 | VE-30017143 | FIXED COIL | 22uH J |
| L740 | VE-30020393 | FERRITE | |
| L741 | VE-30020393 | FERRITE | |
| L742 | VE-30020393 | FERRITE | |
| L744 | VE-30020393 | FERRITE | |
| L745 | VE-30020393 | FERRITE | |
| L746 | VE-30020393 | FERRITE | |
| L748 | VE-30020393 | FERRITE | |
| L749 | VE-30020393 | FERRITE | |
| L801 | VE-30020394 | FERRITE | |
| L805 | VE-30020394 | FERRITE | |
| L900 | VE-30002170 | FERRITE CORE | |
| L906 | VE-30001996 | FIXED COIL | 22uH K |
| L907 | VE-30002170 | FERRITE CORE | |
| L910 | VE-30002002 | FIXED COIL | 47uH K |
| L911 | VE-30002170 | FERRITE CORE | |
| L914 | VE-30011450 | FIXED COIL | 22uH |
| L915 | VE-30036233 | FIXED COIL | 47uH |
| L916 | VE-30036233 | FIXED COIL | 47uH |
| L918 | VE-30036233 | FIXED COIL | 47uH |
| L1007 | VE-30013412 | FERRITE | |
| L1008 | VE-30013412 | FERRITE | |
| L1009 | VE-30013412 | FERRITE | |
| L1010 | VE-30013412 | FERRITE | |
| L1011 | VE-30013412 | FERRITE | |
| L1012 | VE-30013412 | FERRITE | |
| L1013 | VE-30013412 | FERRITE | |
| L1014 | VE-30013412 | FERRITE | |
| L1015 | VE-30013412 | FERRITE | |
| L1016 | VE-30013412 | FERRITE | |
| L1017 | VE-30013412 | FERRITE | |
| L1102 | VE-30017143 | FIXED COIL | 22uH J |

| ⚠Ref No. | Part No. | Part Name | Description | Local |
|---|---|---|---|---|
| L1103 | VE-30017143 | FIXED COIL | 22uH J | |
| L1106 | VE-30001971 | FERRITE | | |
| L1107 | VE-30000710 | RESISTOR | 1/10W 47R J | |
| L1108 | VE-30001971 | FERRITE | | |
| L1109 | VE-30001971 | FERRITE | | |
| L1111 | VE-30001971 | FERRITE | | |
| L1113 | VE-30013412 | FERRITE | | |
| L1203 | VE-30017143 | FIXED COIL | 22uH J | |
| L1207 | VE-30017143 | FIXED COIL | 22uH J | |
| L1208 | VE-30001968 | FERRITE | | |
| L1209 | VE-30001968 | FERRITE | | |
| L1210 | VE-30001968 | FERRITE | | |
| L1211 | VE-30001968 | FERRITE | | |
| L1212 | VE-30001968 | FERRITE | | |
| L1213 | VE-30001968 | FERRITE | | |
| L1214 | VE-30001968 | FERRITE | | |
| L1215 | VE-30001968 | FERRITE | | |
| L1216 | VE-30013412 | FERRITE | | |
| L1217 | VE-30001968 | FERRITE | | |
| L1219 | VE-30013412 | FERRITE | | |
| L1220 | VE-30017143 | FIXED COIL | 22uH J | |
| L1221 | VE-30013412 | FERRITE | | |
| L1222 | VE-30013412 | FERRITE | | |
| L1400 | VE-30046606 | FIXED COIL | | |
| L1404 | VE-30017143 | FIXED COIL | 22uH J | |
| L1405 | VE-30011011 | FIXED COIL | 22uH J | |
| L1413 | VE-30001971 | FERRITE | | |
| L1822 | VE-30016659 | COIL | 1uH | |
| L1823 | VE-30017542 | FIXED COIL | 10uH J | |
| L1824 | VE-30017143 | FIXED COIL | 22uH J | |
| L1825 | VE-30018612 | COIL | 330nH | |
| L1826 | VE-30018612 | COIL | 330nH | |
| L1827 | VE-30016659 | COIL | 1uH | |
| L1828 | VE-30016659 | COIL | 1uH | |
| ⚠F900 | VE-30035282 | FUSE | 5A/32VDC | |
| JK700 | VE-30032641 | JACK | PC AUDIO IN | |
| JK702 | VE-30032636 | JACK | EXT-3 AUDIO IN(L) | |
| JK703 | VE-30032638 | JACK | EXT-3 AUDIO IN(R) | |
| JK704 | VE-30032638 | JACK | EXT-3 Pr | |
| JK705 | VE-30032233 | JACK | EXT-3 Y | |
| JK706 | VE-30032234 | JACK | EXT-3 Pb | |
| JK901 | VE-30027932 | SOCKET | DC IN | |
| PL101 | VE-30033117 | D SOCKET | PC INPUT | |
| PL700 | VE-30018089 | SOCET SCART | EXT-1 | |
| PL701 | VE-30018089 | SOCET SCART | EXT-2 | |
| PL1600 | VE-30031603 | SOCKET PCMCIA | CARD SLOT | |
| S700 | VE-30001971 | FERRITE | | |
| S701 | VE-30001971 | FERRITE | | |
| S1001 | VE-30020394 | FERRITE | | |
| S1002 | VE-30020394 | FERRITE | | |
| S1003 | VE-30020394 | FERRITE | | |
| S1005 | VE-30012982 | RESISTOR | 1/16W 10R J | |
| S1006 | VE-30020394 | FERRITE | | |
| S1007 | VE-30020394 | FERRITE | | |
| TU500 | VE-30020655 | TUNER | | |
| TU1400 | VE-30039060 | TUNER | | |
| X100 | VE-30017946 | CLYSTAL | 14.318MHz | |
| X300 | VE-30006662 | CLYSTAL | 6.000MHz | |
| X400 | VE-30008778 | CLYSTAL | 20.250MHz | |
| X500 | VE-30021113 | CLYSTAL | 4MHz | |
| X700 | VE-30001756 | CLYSTAL | 18.432MHz | |
| X1100 | VE-30007367 | CLYSTAL | 27MHz | |
| X1400 | VE-30033132 | CLYSTAL | 27MHz | |
| Z500 | VE-30001692 | SAW FILTER | | |
| Z501 | VE-30012545 | SAW FILTER | | |
| Z1400 | VE-30019359 | SAW FILTER | | |

## AV JACK P.W. BOARD ASS'Y (VE-20242334)

| ⚠Ref No. | Part No. | Part Name | Description | Local |
|---|---|---|---|---|
| D100 | VE-30016020 | DIODE | | |
| D101 | VE-30016020 | DIODE | | |
| D102 | VE-30016020 | DIODE | | |
| D103 | VE-30016020 | DIODE | | |
| D104 | VE-30016020 | DIODE | | |
| D105 | VE-30001350 | DIODE | | |
| D106 | VE-30001350 | DIODE | | |
| D107 | VE-30016020 | DIODE | | |
| D108 | VE-30016020 | DIODE | | |
| D109 | VE-30016020 | DIODE | | |
| C100 | VE-30000239 | C CAPACITOR | 33pF 50V J | |
| C101 | VE-30000239 | C CAPACITOR | 33pF 50V J | |
| C102 | VE-30000239 | C CAPACITOR | 33pF 50V J | |
| C103 | VE-30000191 | C CAPACITOR | 100pF 50V J | |
| C104 | VE-30000191 | C CAPACITOR | 100pF 50V J | |
| C105 | VE-30000191 | C CAPACITOR | 100pF 50V J | |
| C106 | VE-30000330 | C CAPACITOR | 4.7nF 50V K | |
| C107 | VE-30000330 | C CAPACITOR | 4.7nF 50V K | |
| C108 | VE-30000191 | C CAPACITOR | 100pF 50V J | |
| C109 | VE-30000191 | C CAPACITOR | 100pF 50V J | |
| C110 | VE-30000191 | C CAPACITOR | 100pF 50V J | |
| R100 | VE-30000712 | RESISTOR | 1/4W 470R J | |
| R101 | VE-30000712 | RESISTOR | 1/4W 470R J | |
| R102 | VE-30000650 | RESISTOR | 1/4W 33R J | |
| R103 | VE-30000650 | RESISTOR | 1/4W 33R J | |
| R104 | VE-30000712 | RESISTOR | 1/4W 470R J | |
| R105 | VE-30000712 | RESISTOR | 1/4W 470R J | |
| R106 | VE-30000712 | RESISTOR | 1/4W 470R J | |
| R107 | VE-30000580 | RESISTOR | 1/4W 22R J | |
| R108 | VE-30000580 | RESISTOR | 1/4W 22R J | |
| L100 | VE-30006712 | FERRITE BEAD | | |
| L101 | VE-30006712 | FERRITE BEAD | | |
| L102 | VE-30006712 | FERRITE BEAD | | |
| L103 | VE-30006712 | FERRITE BEAD | | |
| L104 | VE-30006712 | FERRITE BEAD | | |
| L105 | VE-30006712 | FERRITE BEAD | | |
| L106 | VE-30006712 | FERRITE BEAD | | |
| L107 | VE-30006712 | FERRITE BEAD | | |
| L108 | VE-30006712 | FERRITE BEAD | | |
| L109 | VE-30006712 | FERRITE BEAD | | |
| L110 | VE-30006712 | FERRITE BEAD | | |
| L112 | VE-30006712 | FERRITE BEAD | | |
| L114 | VE-30006712 | FERRITE BEAD | | |
| L115 | VE-30006712 | FERRITE BEAD | | |
| L116 | VE-30006712 | FERRITE BEAD | | |
| L117 | VE-30006712 | FERRITE BEAD | | |
| L118 | VE-30006712 | FERRITE BEAD | | |
| L119 | VE-30006712 | FERRITE BEAD | | |
| L120 | VE-30006712 | FERRITE BEAD | | |
| JK100 | VE-30015112 | JACK | EXT-4 S-VIDEO IN | |
| JK101 | VE-30015338 | JACK | EXT-4 VIDEO IN | |
| JK102 | VE-30015337 | JACK | EXT-4 AUDIO IN(R) | |
| JK103 | VE-30015339 | JACK | EXT-4 AUDIO IN(L) | |
| JK104 | VE-30020016 | HEADPHONE JACK | HEADPHONE | |
| JK105 | VE-30015340 | JACK | DIGITAL AUDIO OUT | |
| JK106 | VE-30015339 | JACK | AUDIO OUT(L) | |
| JK107 | VE-30015337 | JACK | AUDIO OUT(R) | |

## SIDE CONTROL P.W. BOARD ASS'Y (VE-20224821)

| ⚠Ref No. | Part No. | Part Name | Description | Local |
|---|---|---|---|---|
| R1 | VE-30000689 | RESISTOR | 1/4W 3.9K J | |
| R2 | VE-30000526 | RESISTOR | 1/4W 1.5K J | |
| R3 | VE-30000770 | RESISTOR | 1/4W 680R J | |
| R4 | VE-30000702 | RESISTOR | 1/4W 430R J | |
| R5 | VE-30000623 | RESISTOR | 1/4W 270R G | |
| SW1 | VE-30032684 | TACT SWITCH | VOLUME - | |
| SW2 | VE-30032684 | TACT SWITCH | VOLUME + | |
| SW3 | VE-30032684 | TACT SWITCH | PROGRAM - | |
| SW4 | VE-30032684 | TACT SWITCH | PROGRAM + | |
| SW5 | VE-30032684 | TACT SWITCH | MENU/OK | |
| SW6 | VE-30032684 | TACT SWITCH | STAND-BY | |
| SW7 | VE-30032684 | TACT SWITCH | TV/AV | |

# PRINTED WIRING BOARD PARTS LIST [LT-20DJ5SGE]

### MAIN P.W. BOARD ASS'Y (VE-20267685)

REFER  TO PARTS LIST IN PAGE 3-5 FOR THIS P.W. BOARD.


### SIDE CONTROL P.W. BOARD ASS'Y (VE-20224821)

REFER  TO PARTS LIST IN PAGE 3-12 FOR THIS P.W. BOARD.


### AV JACK P.W. BOARD ASS'Y (VE-20242334)

REFER  TO PARTS LIST IN PAGE 3-12 FOR THIS P.W. BOARD.


# PRINTED WIRING BOARD PARTS LIST [LT-20DJ5SSP]

### MAIN P.W. BOARD ASS'Y (VE-20267685)

REFER  TO PARTS LIST IN PAGE 3-5 FOR THIS P.W. BOARD.


### SIDE CONTROL P.W. BOARD ASS'Y (VE-20224821)

REFER  TO PARTS LIST IN PAGE 3-12 FOR THIS P.W. BOARD.


### AV JACK P.W. BOARD ASS'Y (VE-20242334)

REFER  TO PARTS LIST IN PAGE 3-12 FOR THIS P.W. BOARD.

# PACKING
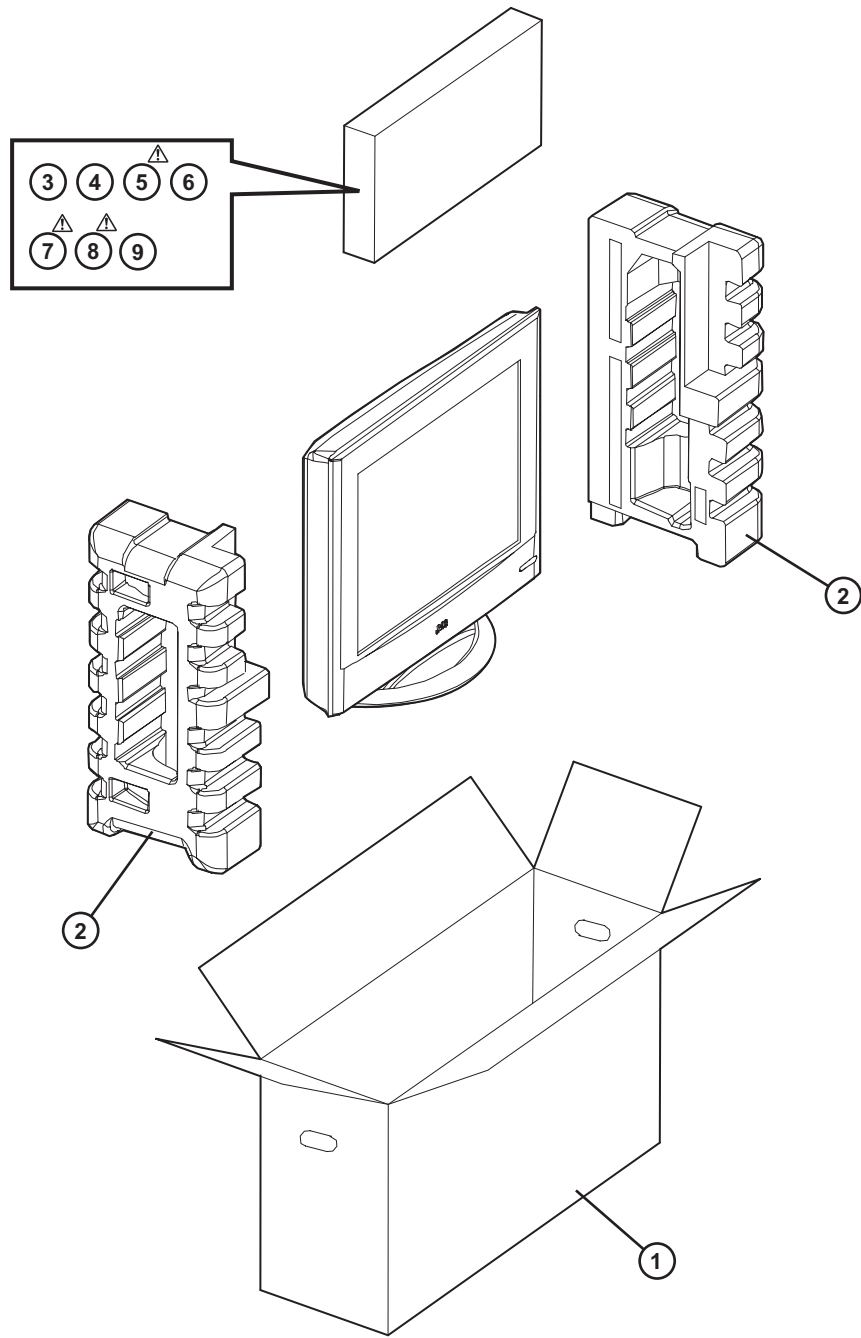


# PACKING PARTS LIST

| ⚠ | Ref.No. | Part No. | Part Name | Description | Local |
|---|---------|----------|-----------|-------------|-------|
| | 1 | VE-50087314 | CARTON BOX | | LT-20DJ5SFR |
| | 1 | VE-50087320 | CARTON BOX | | LT-20DJ5SGE |
| | 1 | VE-50087317 | CARTON BOX | | LT-20DJ5SSP |
| | 2 | VE-20235217 | CUSHION ASSEMBLY | 2pcs in 1set | |
| | 3 | VE-30044649 | REMOTE CONTROL UNIT | RM-C1897C | |
| | 4 | ------------ | BATTERY | AA/R6 type(x2) | |
| ⚠ | 5 | VE-50087311 | INST BOOK | English/French | LT-20DJ5SFR |
| ⚠ | 5 | VE-50087318 | INST BOOK | English/German | LT-20DJ5SGE |
| ⚠ | 5 | VE-50087315 | INST BOOK | English/Spanish | LT-20DJ5SSP |
| | 6 | ------------ | WARRANTY CARD | VE-50087312 | LT-20DJ5SFR |
| | 6 | ------------ | WARRANTY CARD | VE-50087319 | LT-20DJ5SGE |
| | 6 | ------------ | WARRANTY CARD | VE-50087316 | LT-20DJ5SSP |
| ⚠ | 7 | VE-30002376 | POWER CORD | | |
| ⚠ | 8 | VE-30041644 | AC ADAPTOR | DC12V 6A | |
| | 9 | VE-20176416 | CABLE HOLDER | | |

# JVC

# SCHEMATIC DIAGRAMS

## INTEGRATED DIGITAL LCD PANEL TELEVISION

# LT-20DJ5SFR,
# LT-20DJ5SGE,
# LT-20DJ5SSP

**CD-ROM No.SML200610**

DVB
**D**igital **V**ideo
**B**roadcasting
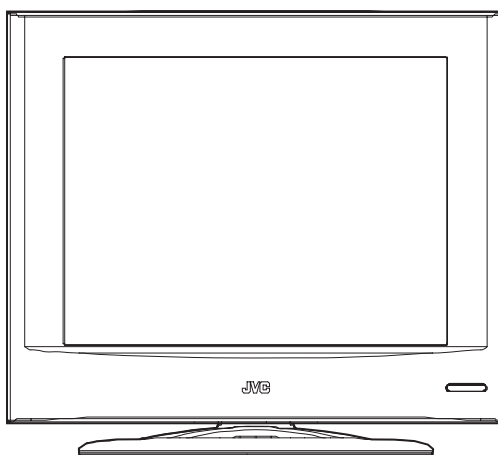
# LT-20DJ5SFR, LT-20DJ5SGE, LT-20DJ5SSP
# STANDARD CIRCUIT DIAGRAM

## ■ NOTE ON USING CIRCUIT DIAGRAMS

### 1.SAFETY

**The components identified by the ⚠ symbol and shading are critical for safety. For continued safety replace safety ciritical components only with manufactures recommended parts.**

### 2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

(1)Input signal : Colour bar signal

(2)Setting positions of each knob/button and variable resistor : Original setting position when shipped

(3)Internal resistance of tester : DC 20kΩ/V

(4)Oscilloscope sweeping time : H ⇒ 20μs / div

: V ⇒ 5ms / div

: Othters ⇒ Sweeping time is specified

(5)Voltage values : All DC voltage values

∗ Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

### 3.INDICATION OF PARTS SYMBOL [EXAMPLE]

● In the PW board : R209 → R209

### 4.INDICATIONS ON THE CIRCUIT DIAGRAM
#### (1)Resistors
● Resistance value

No unit : [Ω]
K : [kΩ]
M : [MΩ]

● Rated allowable power
No indication : 1/16 [W]
Others : As specified

● Type
No indication : Carbon resistor
OMR : Oxide metal film resistor
MFR : Metal film resistor
MPR : Metal plate resistor
UNFR : Uninflammable resistor
FR : Fusible resistor

∗ Composition resistor 1/2 [W] is specified as 1/2S or Comp.

#### (2)Capacitors
● Capacitance value

1 or higher : [pF]
less than 1 : [μF]

● Withstand voltage
No indication : DC50[V]
Others : DC withstand voltage [V]
AC indicated : AC withstand voltage [V]

∗ Electrolytic Capacitors
47/50[Example]: Capacitance value [μF]/withstand voltage[V]

### ● Type
No indication : Ceramic capacitor
MM : Metalized mylar capacitor
PP : Polypropylene capacitor
MPP : Metalized polypropylene capacitor
MF : Metalized film capacitor
TF : Thin film capacitor
BP : Bipolar electrolytic capacitor
TAN : Tantalum capacitor

#### (3)Coils
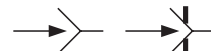No unit : [μH]
Others : As specified

#### (4)Power Supply

━━━━━━ : B1          ▮▮▮▮ : B2 (12V)

▮▯▮▯ : 9V          ▯▯▯▯ : 5V

∗Respective voltage values are indicated

#### (5)Test point

⊙ : Test point          ⦾ : Only test point display

#### (6)Connecting method

▭ : Connector          ◯ : Wrapping or soldering

→>− →>| : Receptacle

#### (7)Ground symbol
⊥ : LIVE side ground
⏚ : ISOLATED(NEUTRAL) side ground
⏚ : EARTH ground
▽ : DIGITAL ground

### 5.NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : ( ⊥ ) side GND and the ISOLATED(NEUTRAL) : ( ⏚ ) side GND. Therefore, care must be taken for the following points.

(1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. if the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.

(2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus measure with a measuring apparatus ( oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected, a fuse or any parts will be broken.

◆ **Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.**

**NOTE**
◆ **Due improvement in performance, some part numbers show in the circuit diagram may not agree with those indicated in the part list. When ordering parts, please use the numbers that appear in the Parts List.**

# CONTENTS

## USING P.W. BOARD

| P.W.B ASS'Y name | LT-20DJ5SFR | LT-20DJ5SGE | LT-20DJ5SSP |
|---|---|---|---|
| MAIN P.W. BOARD | VE-20267685 | ⟵ | ⟵ |
| SIDE CONTROL P.W. BOARD | VE-20224821 | ⟵ | ⟵ |
| AV JACK P.W. BOARD | VE-20242334 | ⟵ | ⟵ |

## SEMICONDUCTOR SHAPES

**TRANSISTOR**



**IC**



**CHIP IC**

**WIRING DIAGRAM**

LCD PANEL UNIT

INVERTER UNIT

**MAIN PWB**

TOP

PL801

PL703    PL704

PL1

**SIDE
CONTROL
PWB**

PL306

PL702

PL303

PL302

**LED PWB**

PL707

PL100    PL101

**AV JACK PWB**

**SPEAKER
(R)**

**SPEAKER
(L)**
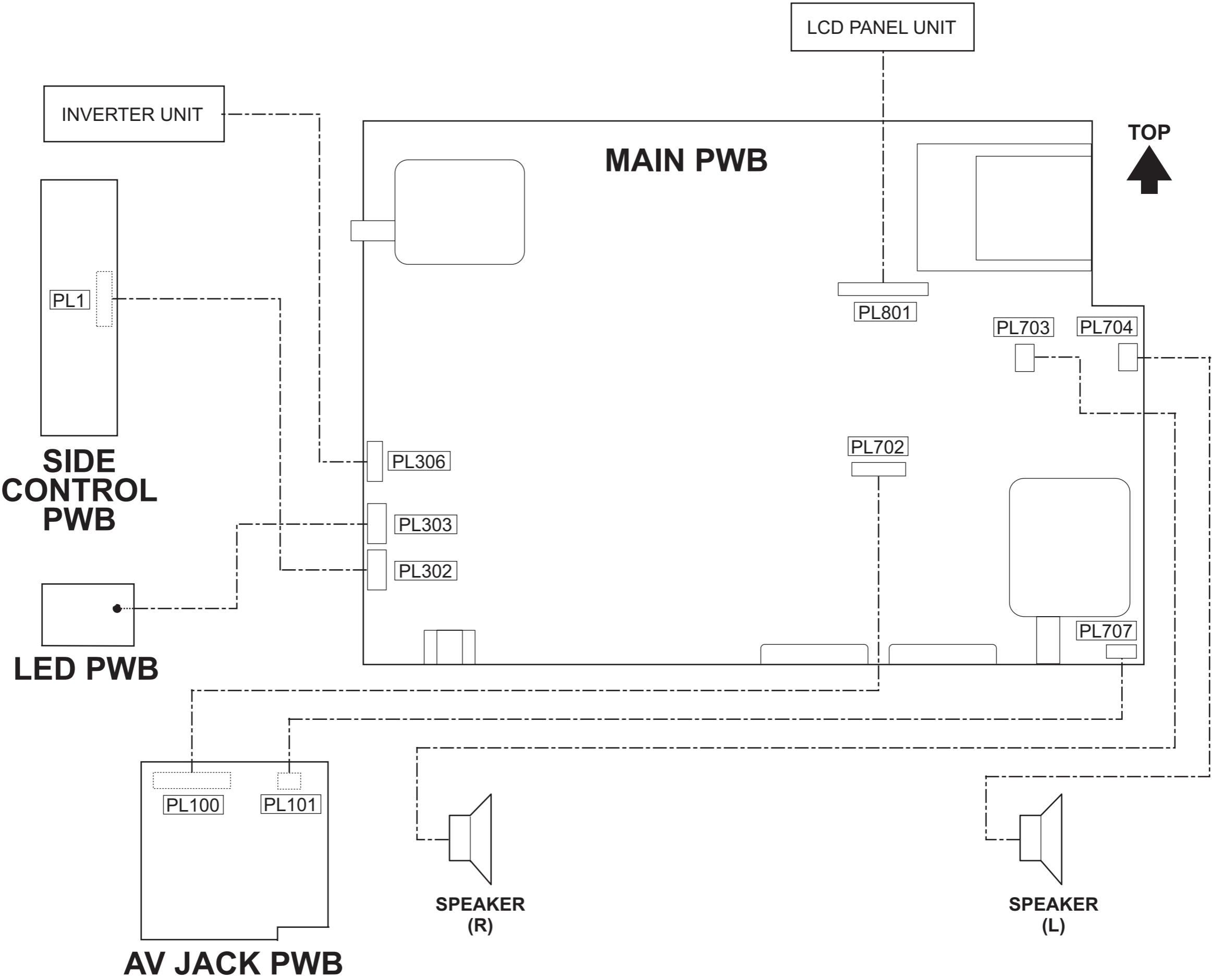
# BLOCK DIAGRAM [TV PART]



(No.YA437)2-5     2-6(No.YA437)

# BLOCK DIAGRAM [IDTV PART]



DIGITAL TUNER

$I^2C$

IF

DIGITAL FRONTEND ST0360

$I^2C$

FC_DATA(0-7)
FC_CLK
FC_SYNC
FC_VALID

FROM POWER SUPPLY

+12V
+5V
3.3V
2.5V
1.8V
S+5V
S3.3V
S2.5V
S1.8V

CI CARD INTERFACE STV0700

$I^2C$

CMD(0-7)
CMD_CLK
CMD_SYNC
CMD_VALID

MDIA_D(0-7)
MDOA_D(0-7)
MA_A(0-14)

ADR&DATA LATCH

ADR (0-14)
CPU
DATA (0-7)

EMI DRAM

SMI DRAM

CONTROLLER & MPEG DECODER STi5518

Serial Interface RX,TX,IRQ

TO SDA 5550 CONTROLLER

BT-601 8-bit, HS,VS

TO GM6015 PORT B

$I^2C$

EE PROM

FLASH

$I^2C$

CI CONNECTOR

PCM/I2S

PCM DAC

AUDIO L/R

TO AUDIO SWITCH

CVBS

TO VIDEO MATRIX

# CIRCUIT DIAGRAMS
*MAIN PWB CIRCUIT DIAGRAM (1/12) SHEET1*



# MAIN PWB ASS'Y(1/12)
VE-20267685

INVERTER UNIT

252 pages teletext option

IC304

IC303

IC300
27C4001

IC305
LM393

IC301
SDA5550M

IC302

LED PWB

SIDE CONTROL
PWB ASS'Y
PL1
(SHEET13)

NOTE : Refer to the part list for the part number of IC302.

**MAIN PWB ASS'Y(2/12)**
VE-20267685

c17mb16p-2_0602_2/12_0.0

# MAIN PWB ASS'Y(3/12)
## VE-20267685

IC403
PI5V330_SOIC

RGB SW1

IC402
TEA5114A

RGB SW2

VPC323XD
IC400

PL510

MAIN PWB ASS'Y(4/12)
VE-20267685

Video Matrix

IC600

TEA6415C

| Pin | Name | | Pin | Name |
|---|---|---|---|---|
| 1 | INPUT1 | | 20 | INPUT8 |
| 2 | DATA | | 19 | GND2 |
| 3 | INPUT2 | | 18 | OUTPUT6 |
| 4 | CLOCK | | 17 | OUTPUT5 |
| 5 | INPUT3 | | 16 | OUTPUT4 |
| 6 | INPUT4 | | 15 | OUTPUT3 |
| 7 | PROG | | 14 | OUTPUT2 |
| 8 | INPUT5 | | 13 | OUTPUT1 |
| 9 | VCC | | 12 | GND1 |
| 10 | INPUT6 | | 11 | INPUT7 |

CVBS_SC1
63V 100n C601
R600 75R

SDA_5V
100R R602

CVBS_DMP
C602 100n 63V
R601 75R
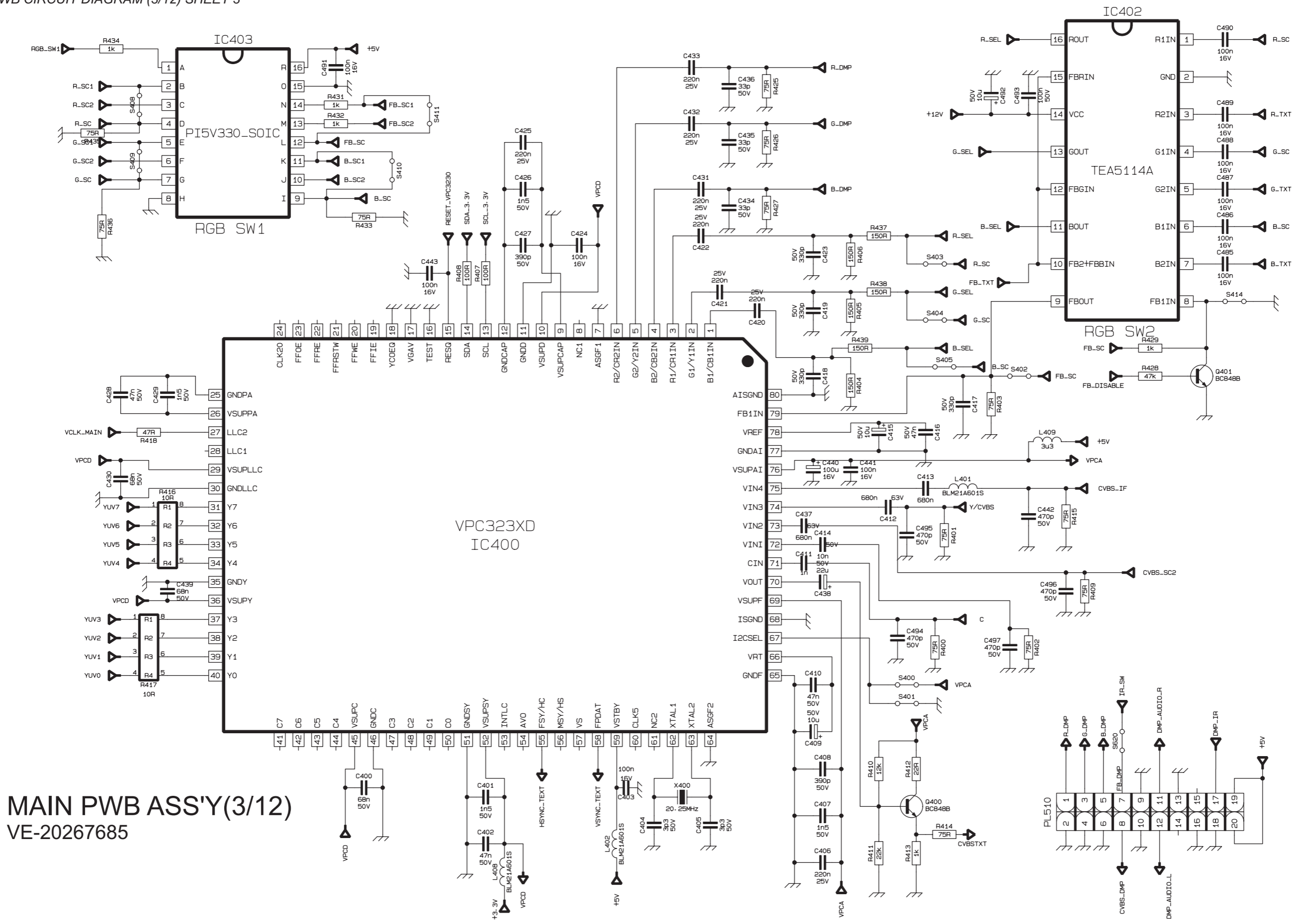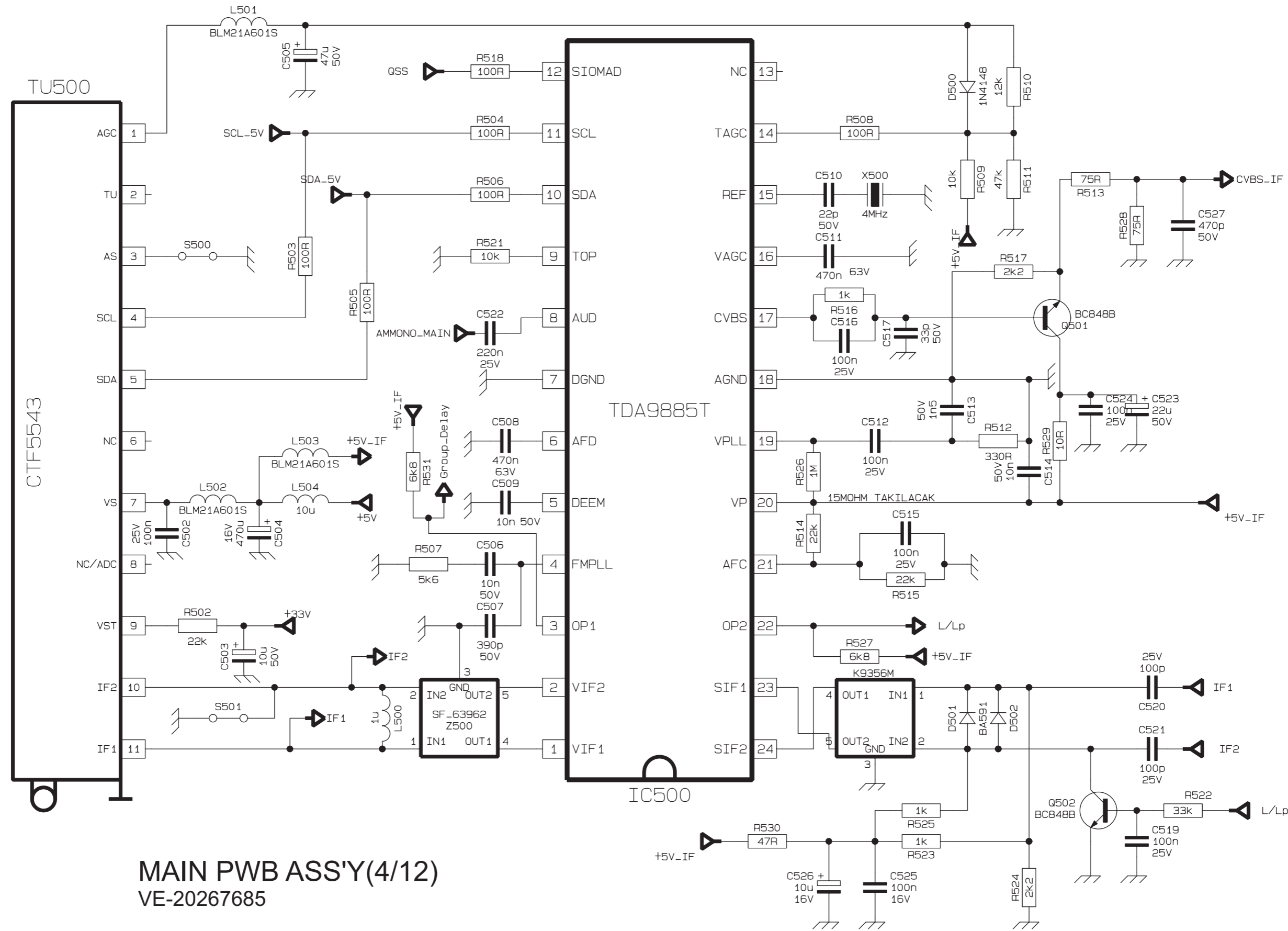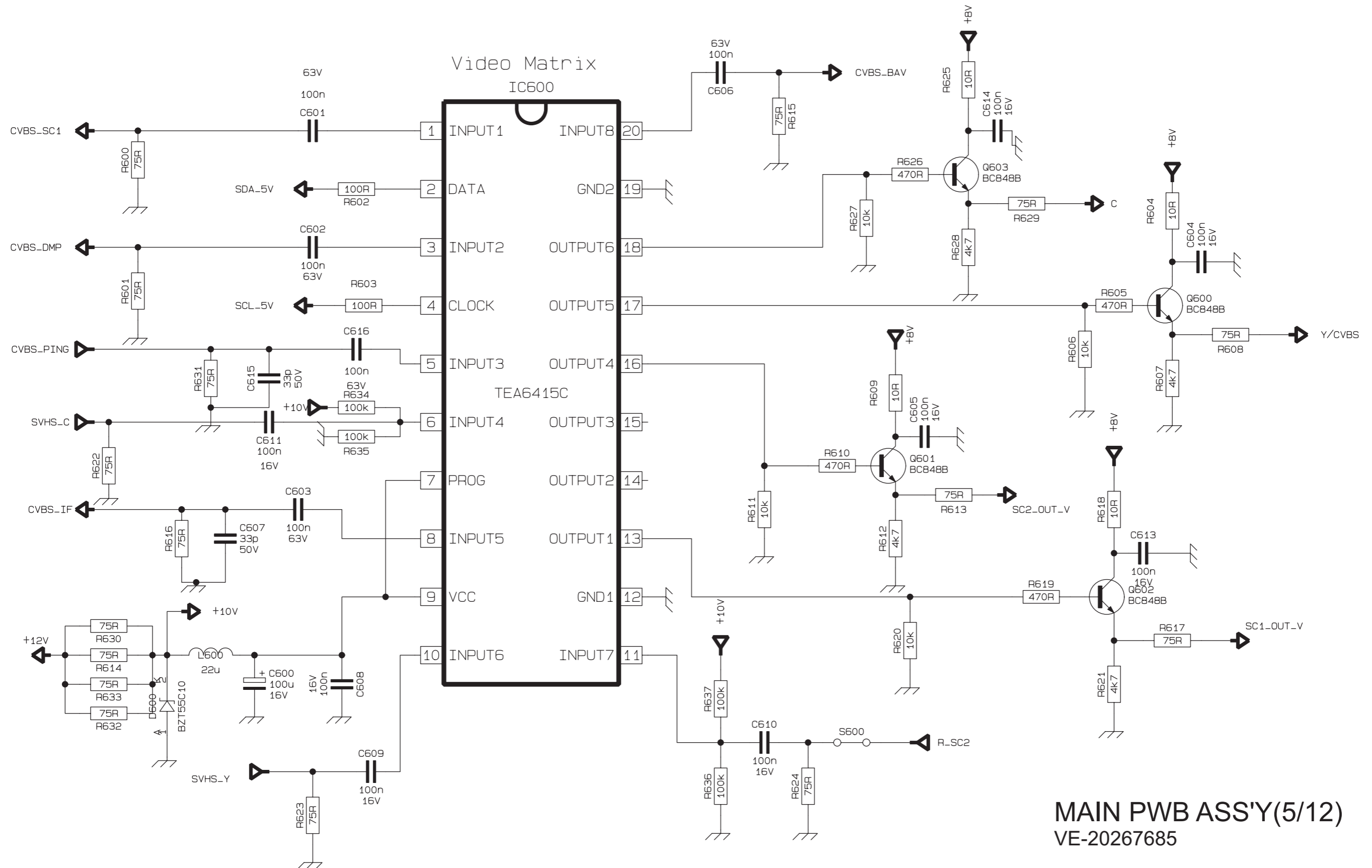
SCL_5V
R603 100R

CVBS_PING
C616 100n
R631 75R
C615 33p 50V

SVHS_C
+10V
63V R634 100k
C611 100n 16V
100k R635
R622 75R

CVBS_IF
C603 100n 63V
C607 33p 50V
R616 75R

+12V
75R R630
75R R614
75R R633
75R R632
D600 BZT55C10

+10V
L600 22u
+ C600 100u 16V
16V 100n C608

SVHS_Y
C609 100n 16V
R623 75R

CVBS_BAV
63V 100n C606
R615 75R

+8V
R625 10R
C614 100n 16V
Q603 BC848B
R626 470R
R627 10k
R628 4k7
C
R629 75R

+8V
R604 10R
C604 100n 16V
Q600 BC848B
R605 470R
R606 10k
R607 4k7
Y/CVBS
R608 75R

+8V
R609 10R
C605 100n 16V
Q601 BC848B
R610 470R
R611 10k
R612 4k7
SC2_OUT_V
R613 75R

+8V
R618 10R
C613 100n 16V
Q602 BC848B
R619 470R
R620 10k
R621 4k7
SC1_OUT_V
R617 75R

+10V
R637 100k
C610 100n 16V
S600
R_SC2
R636 100k
R624 75R

**MAIN PWB ASS'Y(5/12)**
VE-20267685

c17mb16p-2_0602_5/12_0.0

SCART 1

SCART 2

SPEAKER(R)

SVHS
30001895 TAKILACAK

FRONT V
YELLOW_FAV

SPEAKER(L)

IC706
TEA6420

IC700
MSP3452G

IC708
MAD4868A

IC701
TDA1308T

IC702
TDA3002D2

# MAIN PWB ASS'Y(6/12)
## VE-20267685

AV JACK
PWB ASS'Y
PL101
(SHEET14)

AV JACK
PWB ASS'Y
PL100
(SHEET14)

# MAIN PWB CIRCUIT DIAGRAM (7/12) SHEET 7

IC800

DS90C385MTD

LCD PANEL UNIT

PL801

PL800

PL803

# MAIN PWB ASS'Y(7/12)
## VE-20267685

# MAIN PWB CIRCUIT DIAGRAM (8/12) SHEET 8
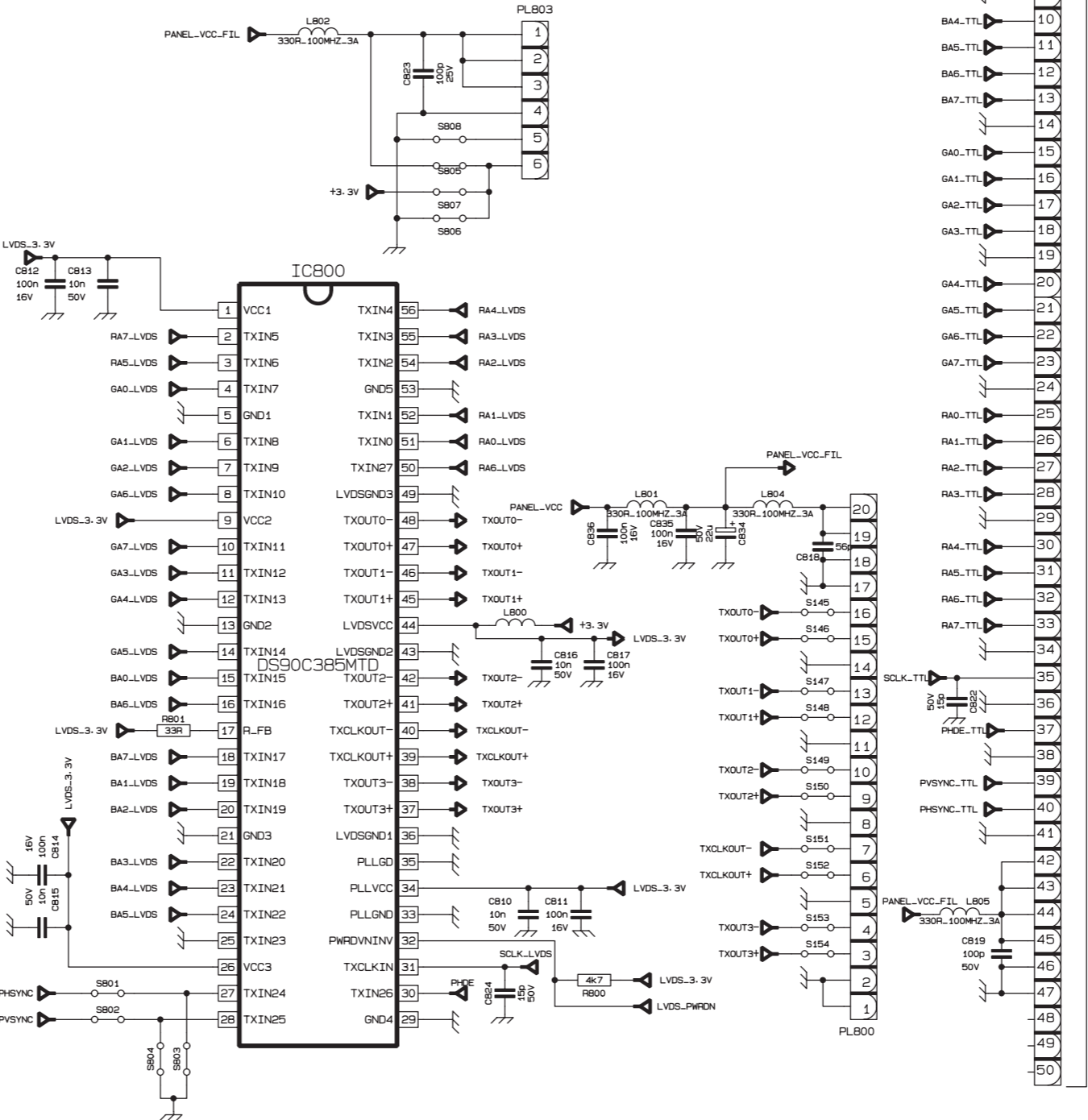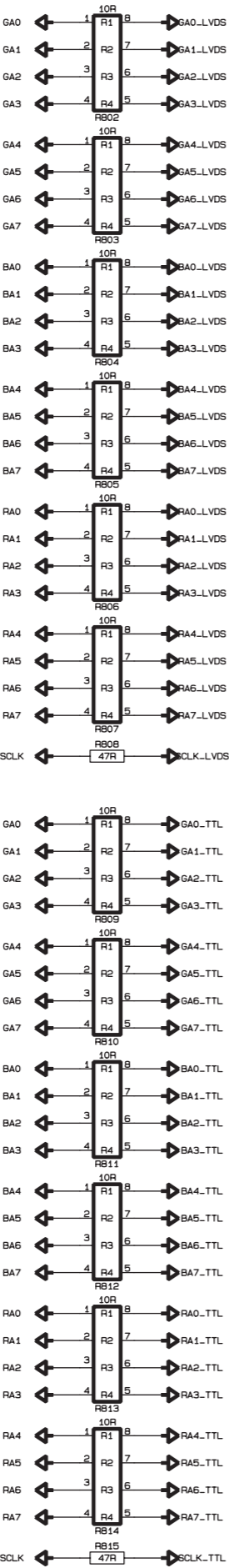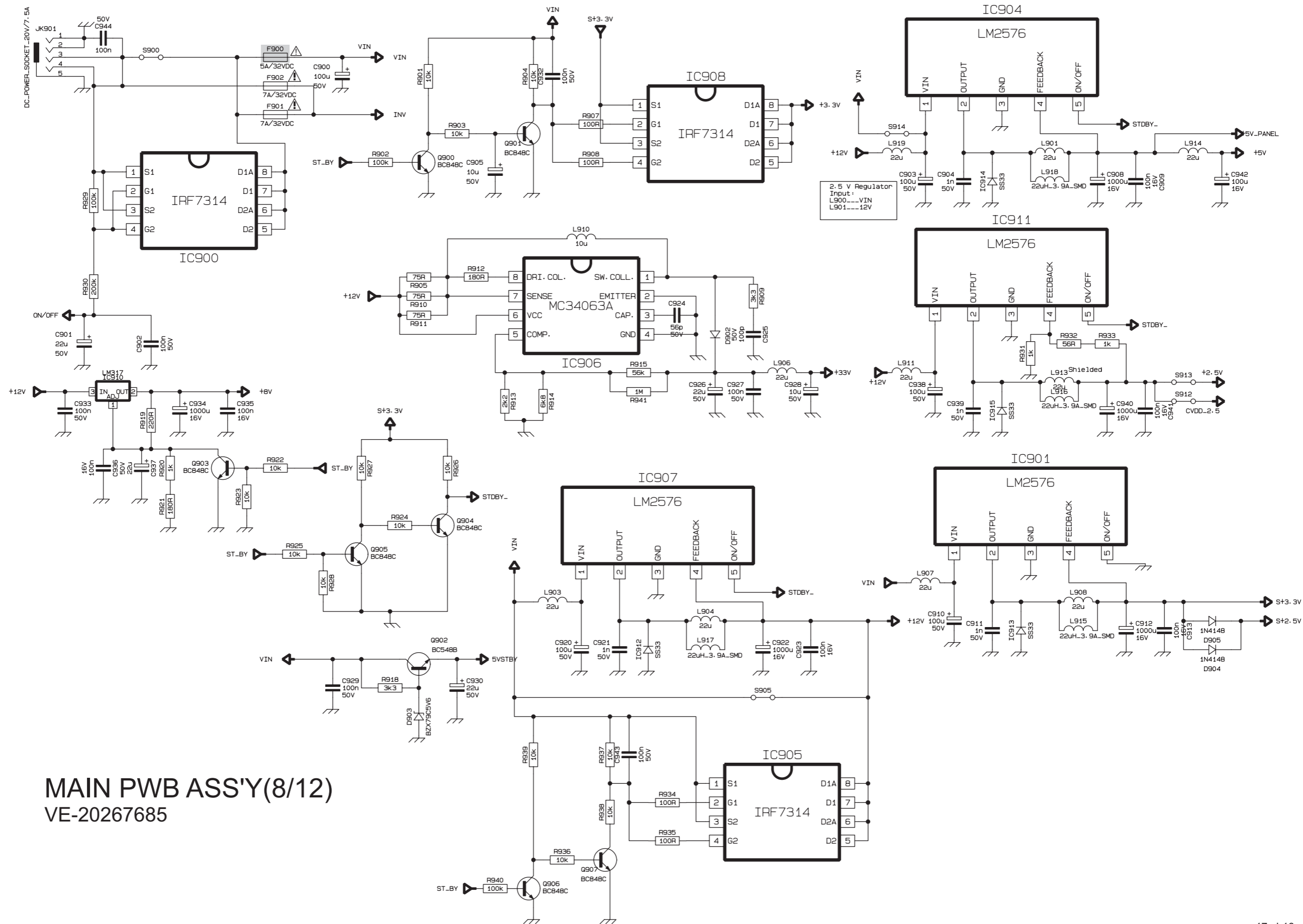


# MAIN PWB ASS'Y(8/12)
## VE-20267685

IN CASE OF NEED FOR EXTRA SPACE IN LAYOUT ALL 14 SMD_603x4 RESISTORS CAN BE REPLACED WITH SMD_402X4 RESISTORS.

STi5518

74HCU04

IC1102

TSH22

IC1103

IC1101

MAX232_SMD

IC1201

CS4334

DIGITAL VIDEO OUT BT-601
TO GM6015

**MAIN PWB ASS'Y(9/12)**
VE-20267685

c17mb16p-2_0602_9/12_0.0

MAIN PWB CIRCUIT DIAGRAM (10/12) SHEET 10

IC1300

MT48LC4M16A2

IC1301

MT48LC4M16A2

IC1302

M29W160B
* also M29W800 or M29W400 or M28F160

IC1303

24C32

**MAIN PWB ASS'Y(10/12)**
VE-20267685

c17mb16p-2_0602_10/12_0.0

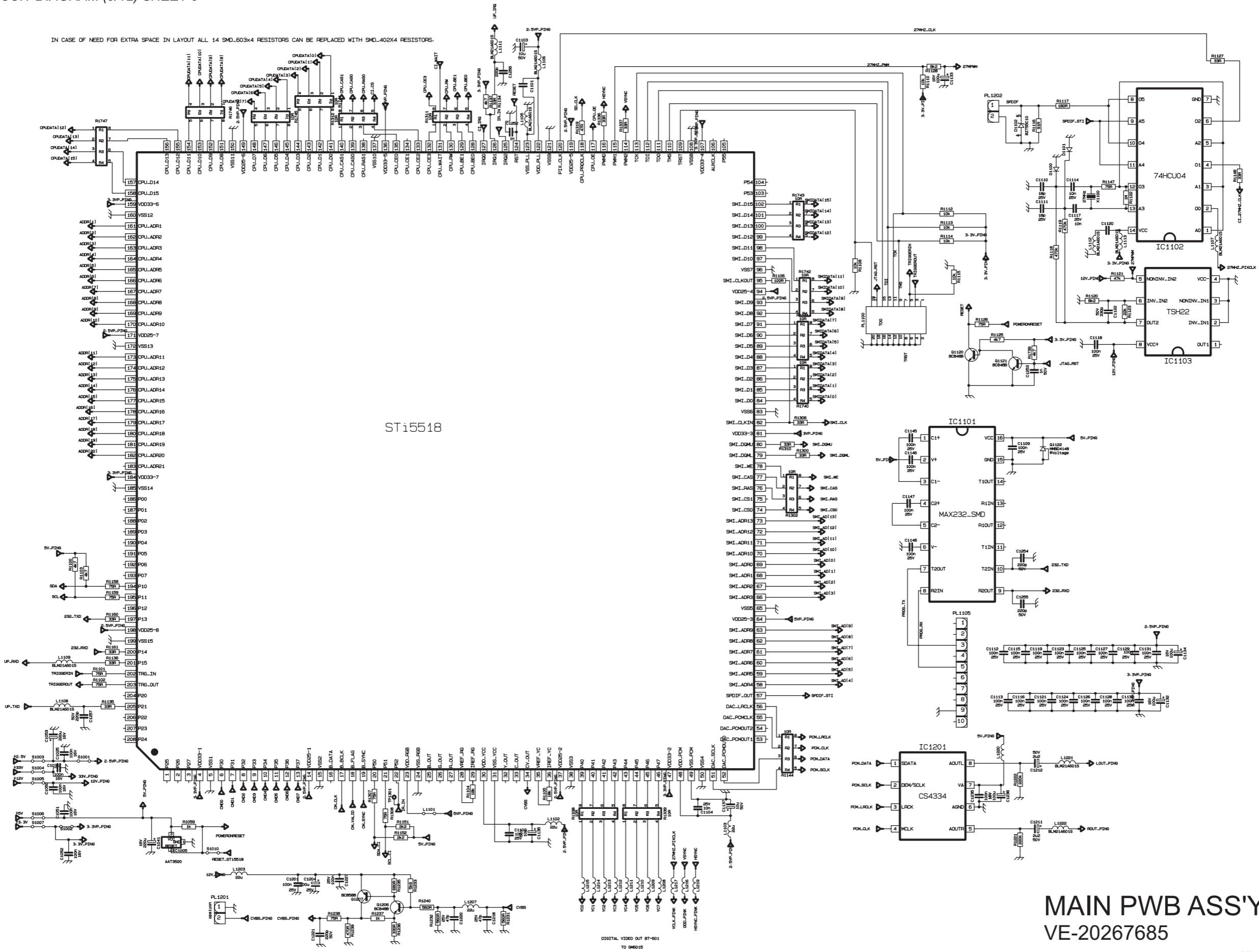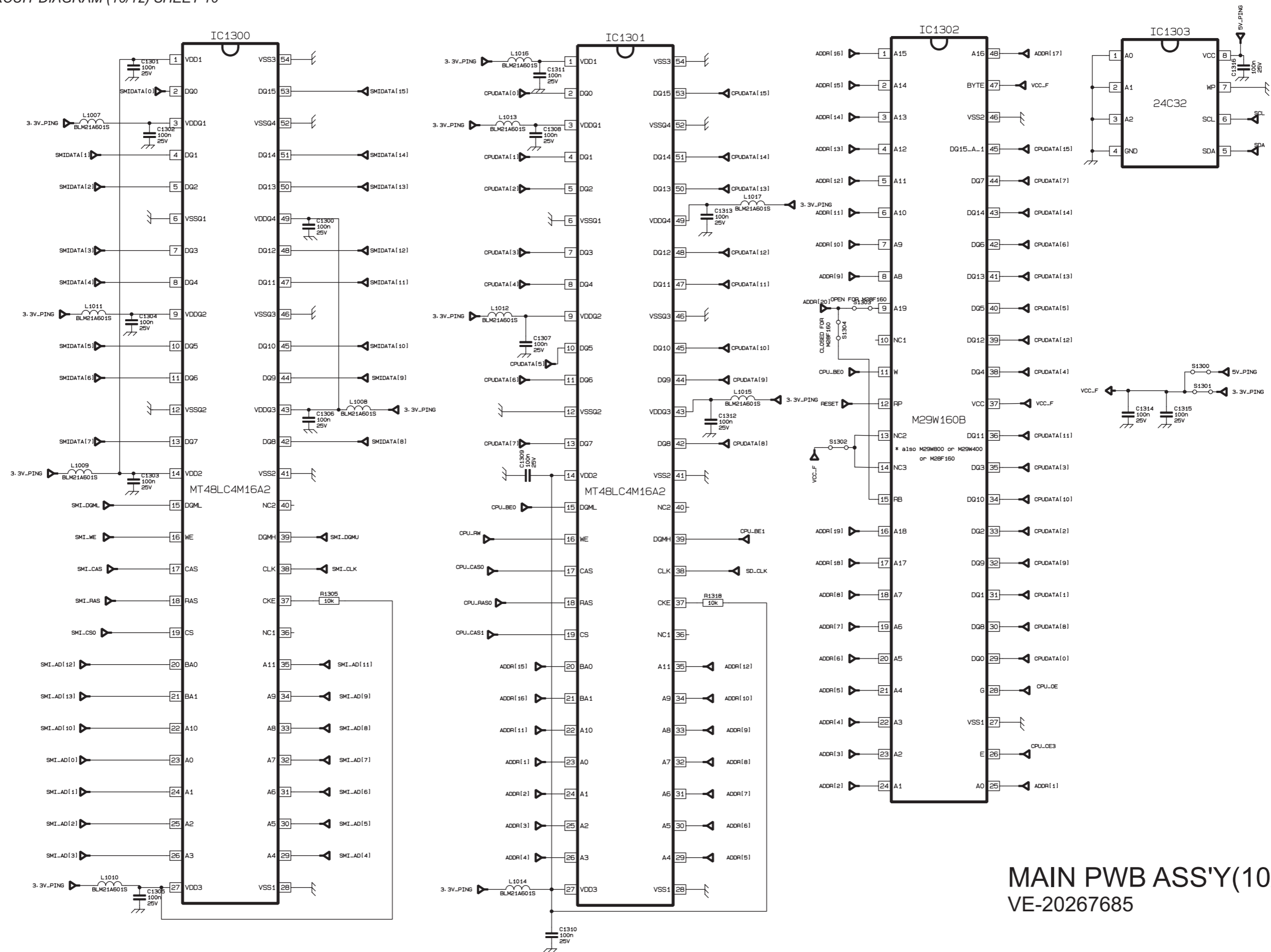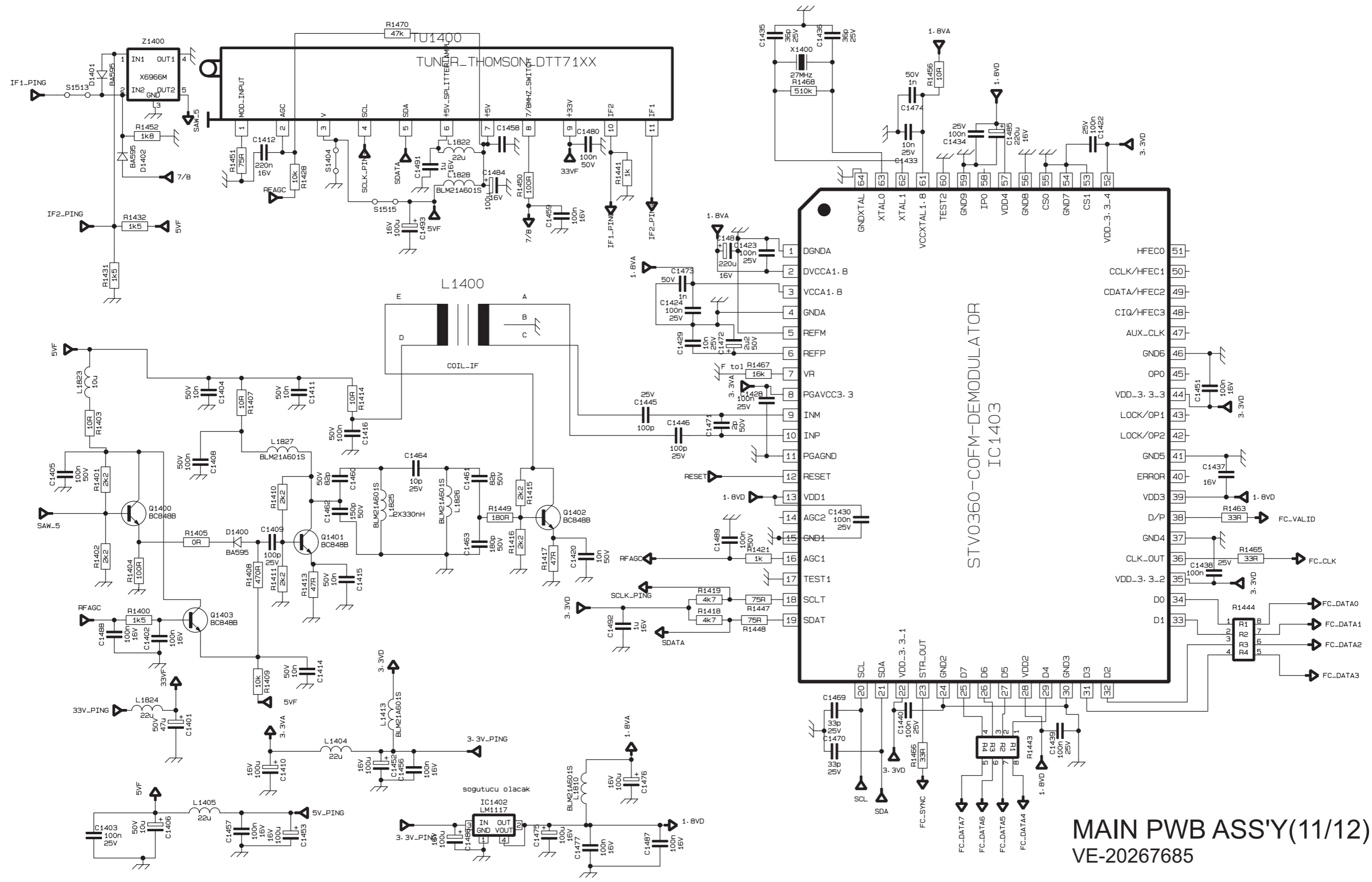**MAIN PWB ASS'Y(11/12)**
VE-20267685

MAIN PWB ASS'Y(12/12)
VE-20267685

STV0700

IC1603
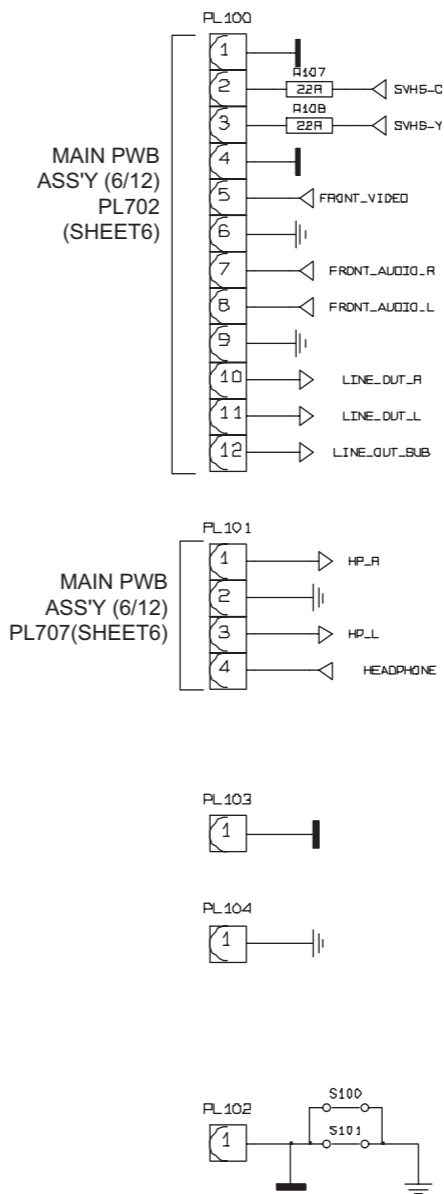IC1602
IC160

PL1600
SOCKET_PCMCIA

c17mb16p-2_0602_12/12_0.0

SIDE CONTROL
PWB ASS'Y
VE-20224821

AV JACK PWB ASS'Y
VE-20242334

# PATTERN DIAGRAMS
*MAIN PWB PATTERN [SOLDER SIDE]*

TOP

MAIN PWB PATTERN [PARTS SIDE]

TOP

17MB16P-2

LF

LF

*SIDE CONTROL PWB PATTERN*

TOP

17TK57
270605
LF

TV/AV  MENU  R5 R4  P+  P-  V+  V-  POWER

SW17  SW15  R3  SW13  SW12  R2  R1  SW16
SW7   SW5   SW3  SW14       SW2  SW11  SW6
           SW4

PL1

VESTEL

20710

*AV JACK PWB PATTERN*

TOP

17BAV01-2
071105

PL101  D103  PL100  PL102
       L107
       L106  R100       R108
C103              C102  L103
              L104  L105  C100  L102
VESTEL            D102
R101                              L100
R102    AUDIO R  VIDEO  SVHS      L101
                                  R107
L109                              D100
C104  JK103  JK102  JK101  J1  JK100
L108  AUDIO L  S100   S102  D101
D104        S101  LINEOUT SUB  S103  C101
       LINEOUT L  LINEOUT R          6  5
                                  4
                              3
                           2  1
       JK106  JK107  JK105  HP  7  9
D108          D109    D107        8
L117   L119    L115   L110  JK104  D105  L111
C109  C110   C108          R103        C106
L120   L116          L114  C105
L118  R105  R104      L113         PL104
      R106   D106
                     C107
                              OB
TFT 20710 4:3

# JVC