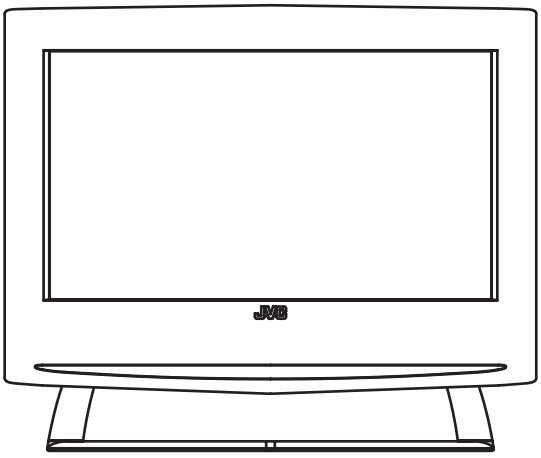
JVC

SERVICE MANUAL

WIDE LCD PANEL TELEVISION

LT-23B60SU,
LT-23B60SJ

InteriArt



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No.YA305
2005/8

SPECIFICATION

Items		Contents
Dimensions (W × H × D)		61.2cm × 51.3cm × 20.0cm [Included stand] 61.2cm × 44.5cm × 8.1cm [TV only]
Mass		10.7kg [Included stand] 8.8kg [TV only]
Power Input		DC12V (TV) AC220 ~ 240V 50Hz (Adaptor)
Power Consumption		110W (Standby: 3.0W)
TV RF System		CCIR (B/G, DK, I, L)
Colour System		PAL / SECAM / NTSC 3.58/4.43 [EXT only]
Stereo System		A2 (B/G) / NICAM (B/G, I, L)
Receiving Frequency	VHF UHF CATV	47 MHz - 470 MHz 470 MHz - 862 MHz S1 - S20 / S21 - S41
Intermediate Frequency	VIF SIF	38.9 MHz (B/G, I, L) 33.4 MHz (5.5MHz : B/G) 32.9 MHz (6.0MHz : I) 32.4 MHz (6.5MHz : L)
Colour Sub Carrier Frequency	PAL SECAM NTSC	4.43 MHz 4.40625 MHz / 4.25MHz 3.58 MHz / 4.43 MHz
Teletext System		FLOF (Fastext level 2.5), WST(World Standard system) TOP (German system)
LCD panel		23V-inch wide aspect (15:9)
Screen Size		Diagonal : 58.4cm (H: 50.8cm × V : 28.6cm)
Display Pixels		Horizontal : 1366 dots × Vertical : 768 dots (W-XGA)
Audio Power Output		5W + 5W(10% THD)
Speaker		3.3cm × 14.5cm (Speaker + Tweeter)
Aerial terminal (VHF/UHF)		F-type connector, 75Ω unbalanced, coaxial
EXT-1 / EXT-2 (Input / Output)		21-pin Euro connector (SCART socket) × 2
EXT-3 (Input)	S-Video Video Audio	Mini-DIN 4 pin × 1 Y: 1V (p-p), Positive (Negative sync provided), 75 Ω C: 0.286V (p-p) (Burst signal), 75 Ω 1V (p-p), Positive (Negative sync provided), 75 Ω, RCA pin jack × 1 500mV (rms), High impedance, RCA pin jack × 2
PC (RGB) Input		D-sub 15pin × 1 R/G/B : 0.7V (p-p), 75Ω HD / VD : 1V (p-p) to 5V (p-p), high impedance < Available signal > VGA : 640 pixels × 480 pixels (Horizontal : 31.5kHz / Vertical : 60Hz) XGA : 1024 pixels × 768 pixels (Horizontal : 48.4kHz / Vertical : 60Hz)
PC AUDIO input		3.5mm stereo mini jack × 1
Audio output		500mV (rms), Low impedance, RCA pin jack × 2
Headphone		3.5mm stereo mini jack × 1
Remote Control Unit		RM-C1861 (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.

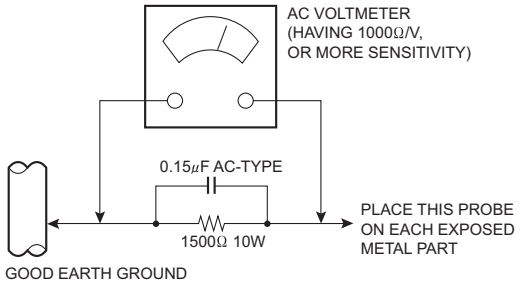
(5) When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement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



1.2 SAFETY PRECAUTIONS [FOR UK]

(1) The design of this product contains special hardware and 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 product 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 product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessary 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 the 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) The leads in the products are routed and dressed with ties, clamps, tubing's, barriers and the like to be separated from live parts, high temperature parts, moving parts and / or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

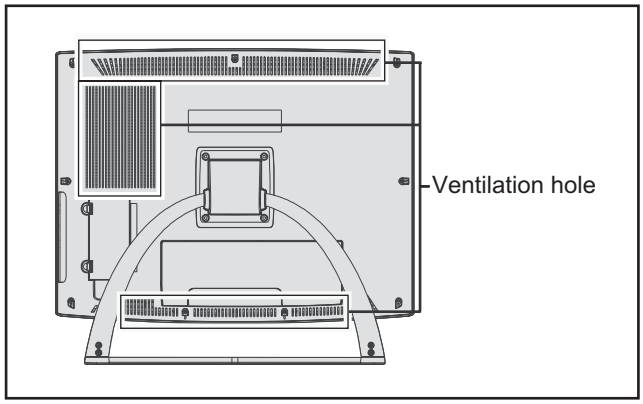
WARNING

(1) The equipment has been designed and manufactured to meet international safety standards.
(2) It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
(3) Repairs must be made in accordance with the relevant safety standards.
(4) It is essential that safety critical components are replaced by approved parts.
(5) If mains voltage selector is provided, check setting for local voltage.

1.3 INSTALLATION

1.3.1 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.



1.3.2 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.

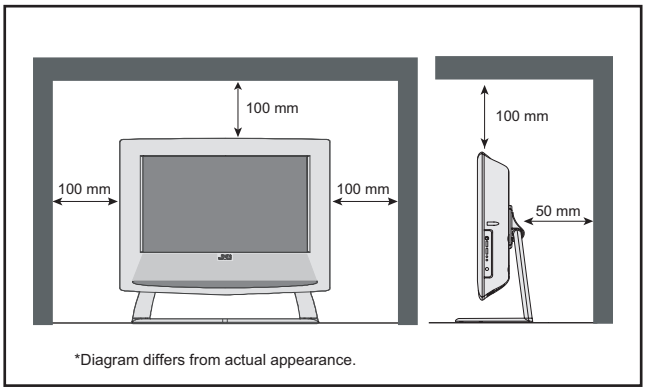


*Diagram differs from actual appearance.

1.3.3 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.

1.4 HANDLING LCD PANEL

1.4.1 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.

1.4.2 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.

1.4.3 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

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

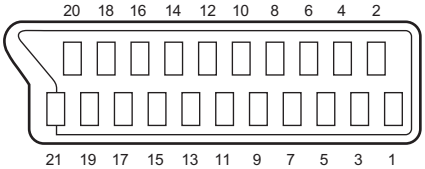
If the picture is not clear or no colour appears, change the current colour system to another colour system.

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	$700mV_{(B-W)}$, 75Ω	Used	Used
8	FUNCTION SW (SLOW SW)	Low : 0V-3V High : 8V-12V, High impedance	Used	Used
9	GND (G)		Used	Used
10	SCL / T-V LINK		Not used	Used (SCL2 / TV-LINK)
11	G input	$700mV_{(B-W)}$, 75Ω	Used	Used
12	SDA		Not used	Used (SDA2)
13	GND (R)		Used	Used
14	GND (YS)		Used	Not used
15	R / C input	R : $700mV_{(B-W)}$, 75Ω C : $300mV_{(P-P)}$, 75Ω	Used (R)	Used (C2/R)
16	Ys input (FAST SW)	Low : 0V-0.4V, High : 1V-3V, 75Ω	Used	Used
17	GND (VIDEO output)		Used	Used
18	GND (VIDEO input)		Used	Used
19	VIDEO output	$1V_{(P-P)}$ (Negative sync), 75Ω	Used (TV OUT)	Used (LINE OUT)
20	VIDEO / Y input	$1V_{(P-P)}$ (Negative sync), 75Ω	Used	Used
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	400: 1	
Response time	25ms	
View angle	Horizontally: 176°, Vertically: 176°	

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.

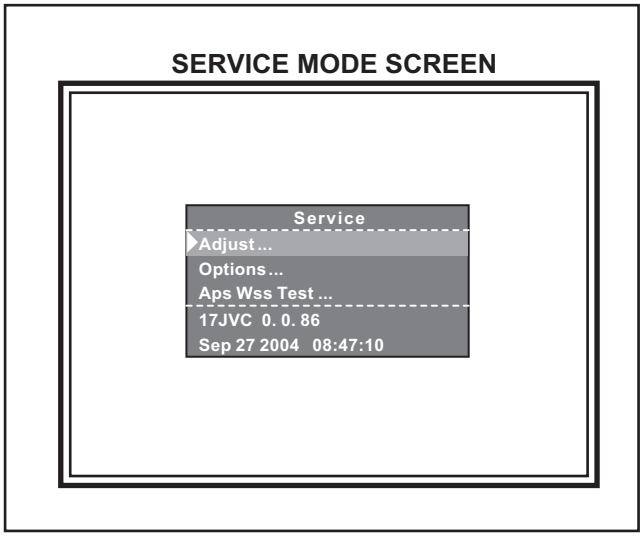
■ **FLICKER FAULT**

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.

2.4 BASIC OPERATION OF SERVICE MODE

2.4.1 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.



2.4.2 HOW TO EXIT THE SERVICE MODE

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

2.4.3 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

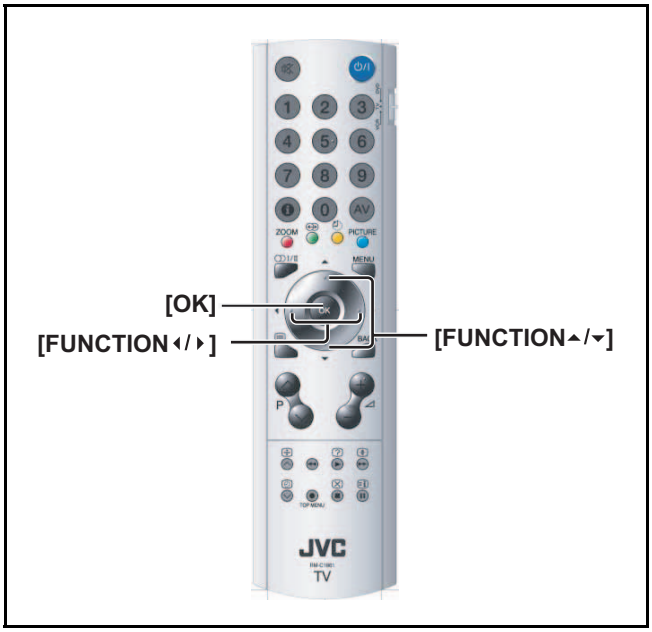
■ **CHANGE OF SETTING VALUE (DATA)**

- **[FUNCTION ◀/▶]** key.

■ **MEMORY OF SETTING VALUE (DATA)**

The setting value will be stored automatically when release the REMOTE CONTROL UNIT keys

2.4.4 SERVICE MODE SELECT KEY LOCATION



2.4.5 SERVICE MODE SETTING ITEMS

Setting menu	Setting items	Contents
Adjust	Group	----
	Mode	----
	Col. Temp.	----
	Contrast	----
	Brightness	----
	Colour	----
	Sharpness	----
	Red	----
	Green	----
	Blue	----
	Aps Volume	----
Option 1	First APS	If ON, TV starts with APS menu at Start-up
	BG	----
	DK	----
	I	----
	L	----
	L'	----
	FM Prs Avl On	Adjusts the FM Prescaler value, when Automatic Volume Levelling is On
	Nicam Prs Avl On	Adjusts the Nicam Prescaler value, when Automatic Volume Levelling is On
	Scart Prs Avl On	Adjusts the Scart Volume value, when Automatic Volume Levelling is On
	Scart Volume Avl On	Adjusts the Scart Volume value, when Automatic Volume Levelling is On
	FM Prs Avl Off	Adjusts the FM Prescaler value, when Automatic Volume Levelling is Off
Option 2	Nicam Prs Avl Off	Adjusts the Nicam Prescaler value, when Automatic Volume Levelling is Off
	Scart Prs Avl Off	Adjusts the Scart Prescaler value, when Automatic Volume Levelling is Off
	Scart Volume Avl Off	Adjusts the Scart Volume value, when Automatic Volume Levelling is On
	Avl	Enable/disable Automatic Volume Levelling System
	Sound	----
	Carrier	----
	LDLY	----
	AGC	----
Aps Wss Test	Programme	----
	VPS	----
	Scart Volume Avl Off	----
	Pdc Format 1	----
	Pdc Format 2	----
	Name	----
	WSS	----

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 FOOT ASSEMBLY

- Remove the HINGE COVER.
  (1) Remove the 4 screws **[A]**, then remove the FOOT ASSEMBLY.

3.1.2 REMOVING THE BACK COVER

- Remove the HINGE COVER & the FOOT ASSEMBLY.
  (1) Remove the DOOR SOCKET.
  (2) Remove the 9 screws **[B]**.
  (3) Remove the BACK COVER toward you.

3.1.3 REMOVING THE AV JACK BRACKET

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
  (1) Remove the 2 screws **[C]**.
  (2) Remove the AV JACK BRACKET.

3.1.4 REMOVING THE AV JACK PWB

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
- Remove the AV JACK BRACKET.
  (1) Remove the 2 screws **[D]**.
  (2) Remove the AV JACK PWB.

3.1.5 REMOVING THE SIDE CONTROL PWB

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
  (1) Remove the 2 screws **[E]**.
  (2) Remove the SIDE CONTROL PWB with BUTTON FUNCTION.
  (3) Remove the SIDE CONTROL PWB from BUTTON FUNCTION.

3.1.6 REMOVING THE HEADPHONE JACK PWB

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
  (1) Remove the 1 screw **[F]**.
  (2) Remove the HEADPHONE JACK PWB.

3.1.7 REMOVING THE SPEAKERS

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
  (1) Remove the 2 screws **[G]**.
  (2) Remove the SPEAKER from the FRONT COVER.
  (3) Follow the same when removing the other hand speakers.

3.1.8 REMOVING THE LED PWB

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
  (1) Remove the 2 screws **[H]**.
  (2) Remove the LED PWB from the FRONT COVER.

3.1.9 REMOVING THE BRACKET SCART

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
  (1) Remove the 2 screws **[J]**.
  (2) Remove the BRACKET SCART.

3.1.10 REMOVING THE MAIN PWB

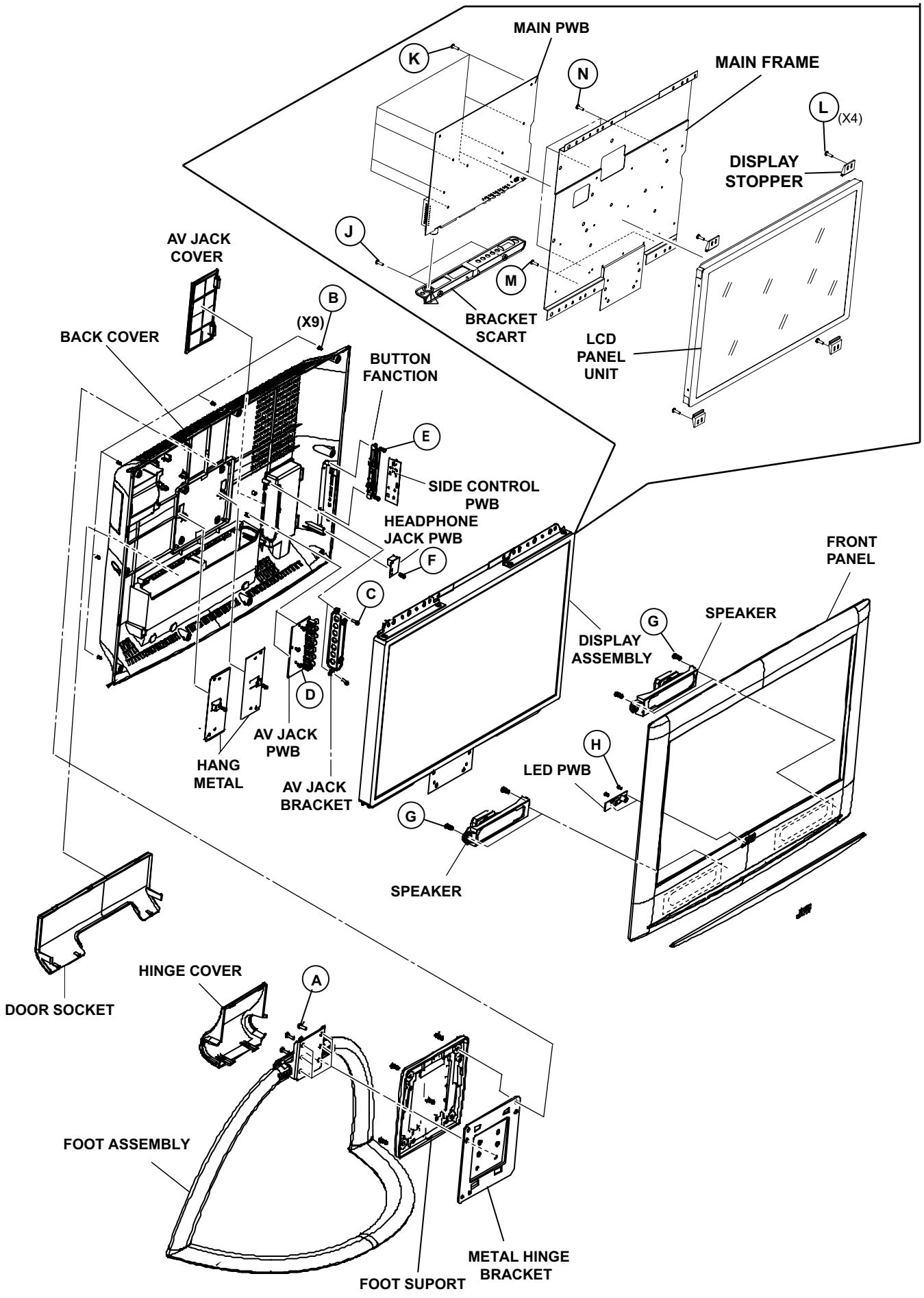
- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
- Remove the BRACKET SCART.
  (1) Remove the 9 screws **[K]**.
  (2) Remove the MAIN PWB.

3.1.11 REMOVING THE LCD PANEL UNIT

- Remove the HINGE COVER & the FOOT ASSEMBLY.
- Remove the BACK COVER.
- Remove the BRACKET SCART.
- Remove the MAIN PWB.
  (1) Remove the 1 screw **[L]**, then remove the DISPLAY SUPPORT from the FRONT COVER.
  (2) Follow the same step when removing the other three DISPLAY SUPPORTS.
  (3) Remove the 2 screws **[M]**.
  (4) Remove the MAIN FRAME with the LCD PANEL UNIT from the FRONT COVER.
  (5) Remove the 7 screws **[N]**.
  (6) Remove the LCD PANEL UNIT from the MAIN FRAME.

NOTE:

- Pay special attention not to break or damage on the LCD PANEL face or frame.
- 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 PANELslowly.


MAIN PWB
K
N
MAIN FRAME
L
(X4)
DISPLAY
STOPPER
J
M
BRACKET
SCART
LCD
PANEL
UNIT
AV JACK
COVER
B
(X9)
BACK COVER
BUTTON
FANCTION
E
SIDE CONTROL
PWB
HEADPHONE
JACK PWB
F
C
FRONT
PANEL
SPEAKER
G
DISPLAY
ASSEMBLY
D
AV JACK
PWB
HANG
METAL
AV JACK
BRACKET
H
LED PWB
G
SPEAKER
DOOR SOCKET
HINGE COVER
A
FOOT ASSEMBLY
METAL HINGE
BRACKET
FOOT SUPORT

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

3.2.1.3 REMOTE CONTROL MENU OPERATION

(1) PICTURE

Setting item	Setting position
MODE	Bright
Contrast	33 Step
Bright-1	26 Step
Sharpness	11 Step
Colour	36 Step
Bright-2	7 Step
Colour Temp.	Cool
Nolse Red.	Min

(2) SOUND

Setting item	Setting position
Volume	10 Step
Bass	16 Step
Treble	15 Step
Balance	16 Step
Hyper Sound	Off
Sound Mode	Mono

(3) FEATURES

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

(4) Install [TV MODE]

Setting item	Setting position
Colour System	Auto
Decorder(EXT-2)	On
VCR	Off

(5) Install [EXT MODE]

Setting item	Setting position
Colour System	Auto
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

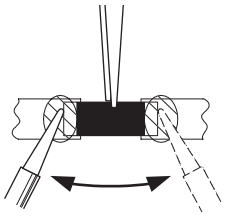
(1) Use a high insulation soldering iron with a thin pointed end of it.
(2) A 30w soldering iron is recommended for easily removing parts.

3.3.3 REPLACEMENT STEPS

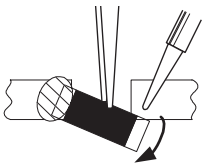
1. How to remove Chip parts

[Resistors, capacitors, etc.]

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



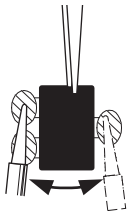
(2) Shift with the tweezers and remove the chip part.



[Transistors, diodes, variable resistors, etc.]

(1) Apply extra solder to each lead.

(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.

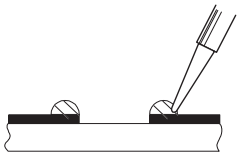


NOTE :
After removing the part, remove remaining solder from the pattern.

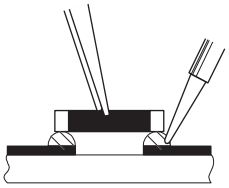
2. How to install Chip parts

[Resistors, capacitors, etc.]

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

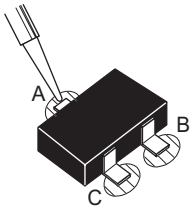


(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

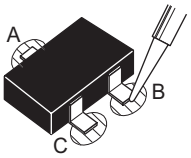


[Transistors, diodes, variable resistors, etc.]

(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

This service manual does not describe ADJUSTMENT.

SECTION 5
TROUBLESHOOTING

This service manual does not describe TROUBLESHOOTING.

JVC

Victor Company of Japan, Limited
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ITALIANO

InteriArt

LT-23B60SU

WIDE LCD PANEL TV — INSTRUCTIONS

BREITBILD-LCD-TV — BEDIENUNGSANLEITUNG
TÉLÉVISEUR À GRAND ÉCRAN LCD — MANUEL D'INSTRUCTIONS
TV A PIENO SCHERMO LCD — ISTRUZIONI

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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.

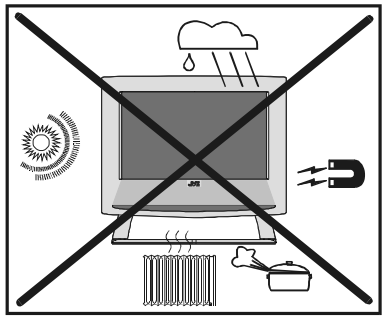
Some "DOs" and "DON'Ts" for you

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 V 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 nightlights 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 the equipment off 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 adaptor

- Be careful! May become hot.
- For indoor and dry location use only.
- Risk of electric shock.
- Shock hazard, do not open.
- Keep all power adaptors away from any other heat source.
- Always use power adaptor(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.

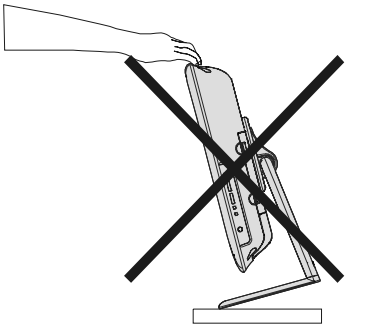
Warning:

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: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

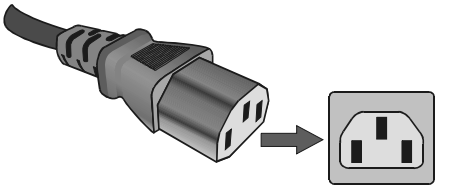
WARNING

- *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:

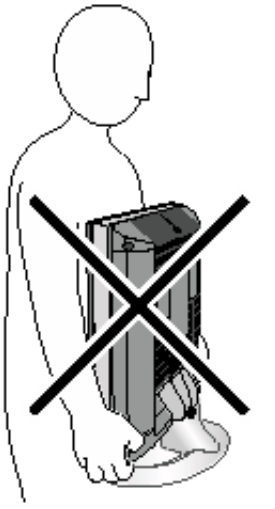
- *To avoid electric shock or damage to the unit, first firmly insert the small end of the power cord into the AC Adaptor unit it is no longer wobbly, and then plug the larger end of power cord into an AC outlet.*



CAUTION:

- *The TV screen may be damaged if the TV is carried as shown in the diagram.*

The TV should always be carried by two people.



Important Information

Please take note

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.

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...

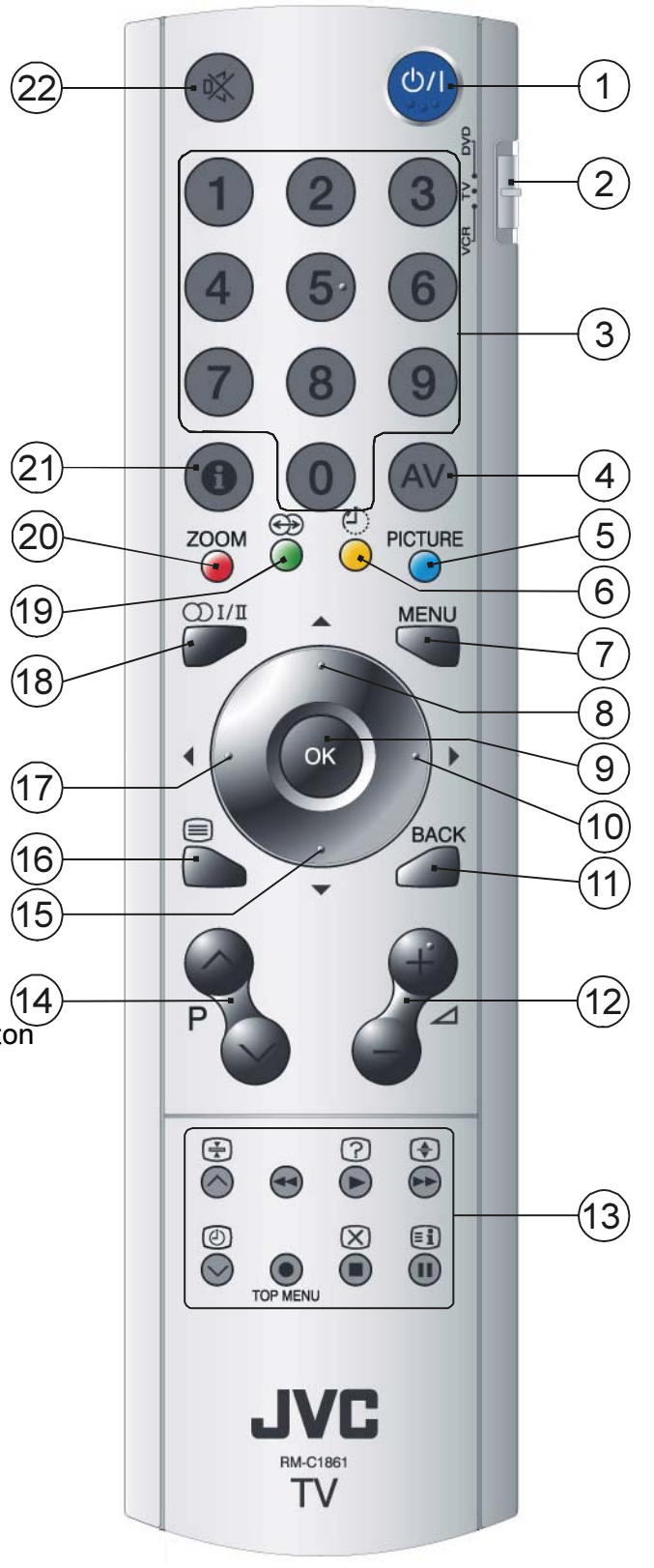
Turn off the power, clean the screen and cabinet with a soft, dry cloth. We recommend that you do not use any proprietary polishes or solvents on the screen or cabinet as this may cause damage.

Disposal...

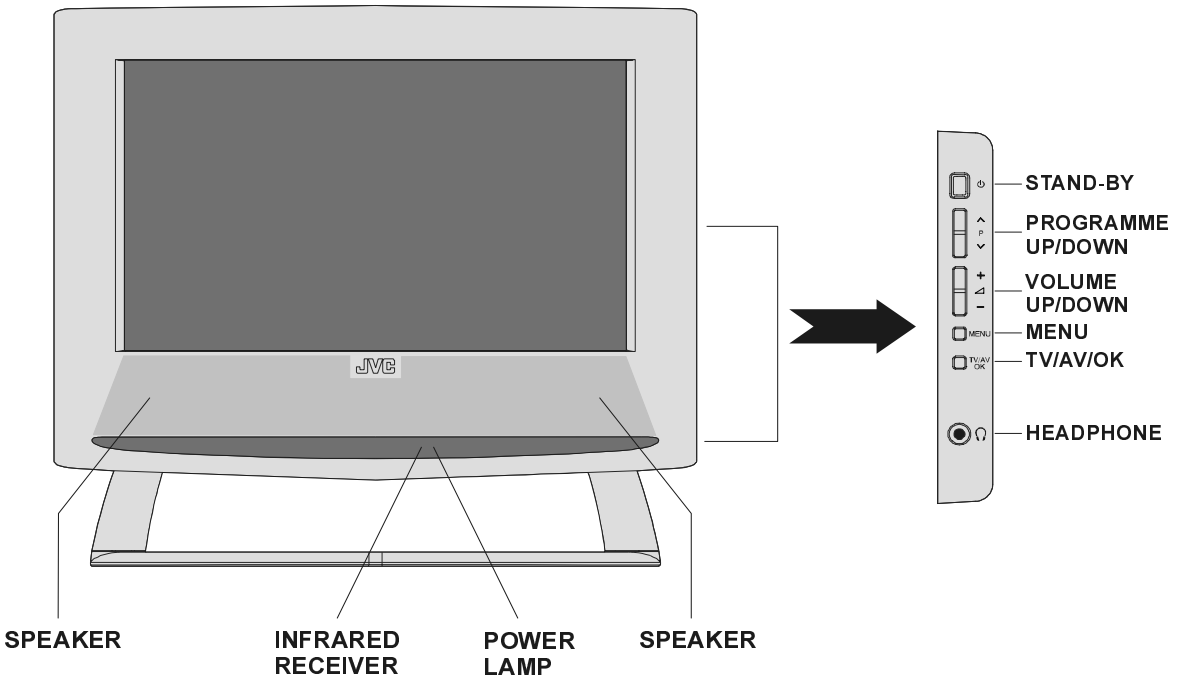
When the set reaches the end of its useful life please dispose of it in accordance with Local Government Regulations or at a recycling centre.

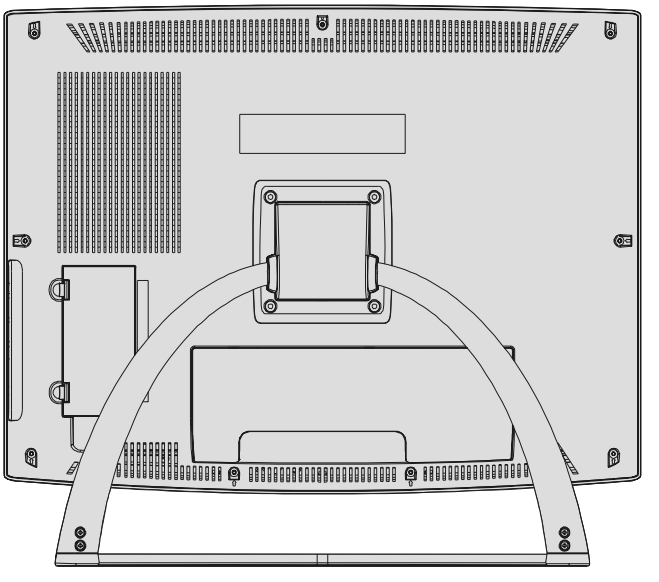
Remote Control Buttons

① ⏻ / **I** = (Stand By) button
② TV / VCR / DVD Switch
③ Number buttons
④ **AV** button (TV, EXT-1, EXT-2, EXT-2 S, EXT-3, EXT-3 S or PC)
⑤ **BLUE / PICTURE** Mode button
⑥ **YELLOW** / Sleep Timer button
⑦ **MENU** button
⑧ ▲ = Cursor Up button
⑨ OK button
⑩ ▶ = Cursor Right button
⑪ **BACK** button
⑫ Volume Up/Down buttons
⑬ Teletext / VCR /DVD Control buttons
⑭ Programme Up/Down buttons
⑮ ▼ = Cursor Down button
⑯ = Teletext Button
⑰ ◀= Cursor Left button
⑱ I/II = Stereo / Bilingual button
⑲ **GREEN** / Hyper Sound On/Off button
⑳ **RED / ZOOM** Mode button
㉑ = Information Button / T-V Link in Programme Menu
㉒ = Mute button



Control Panel Buttons





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

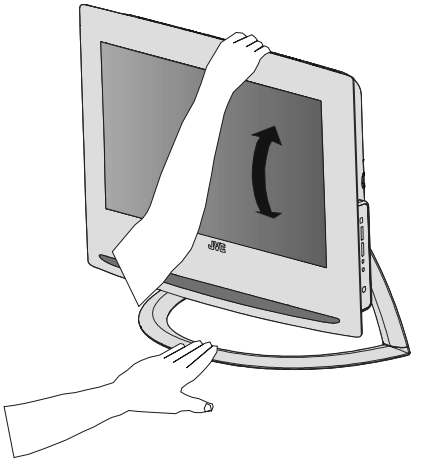
This TV comes with a Table Top Stand already attached.

This stand can be used to adjust the direction of the TV screen.

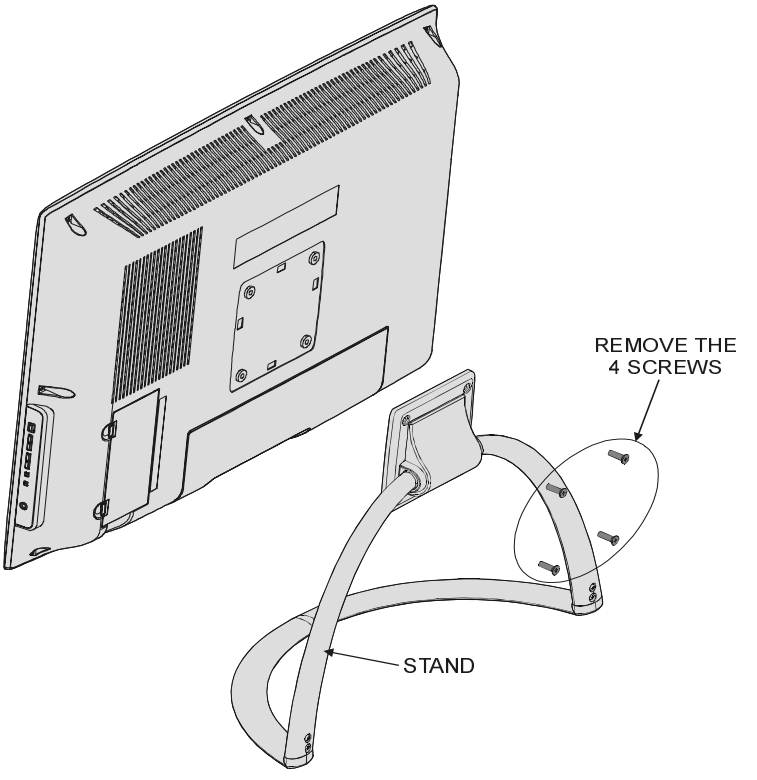
Tilt the TV up and down:

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.

• As a safety measure, the stand is constructed so that it requires a certain amount of force to tilt the TV.



How to remove the stand



Installing TV on the wall

WARNING

• When you install the TV on the wall, only use a JVC wall mounting unit (optional) which is designed for this TV.

• Make sure that the TV is installed on the wall by a skilled installer.

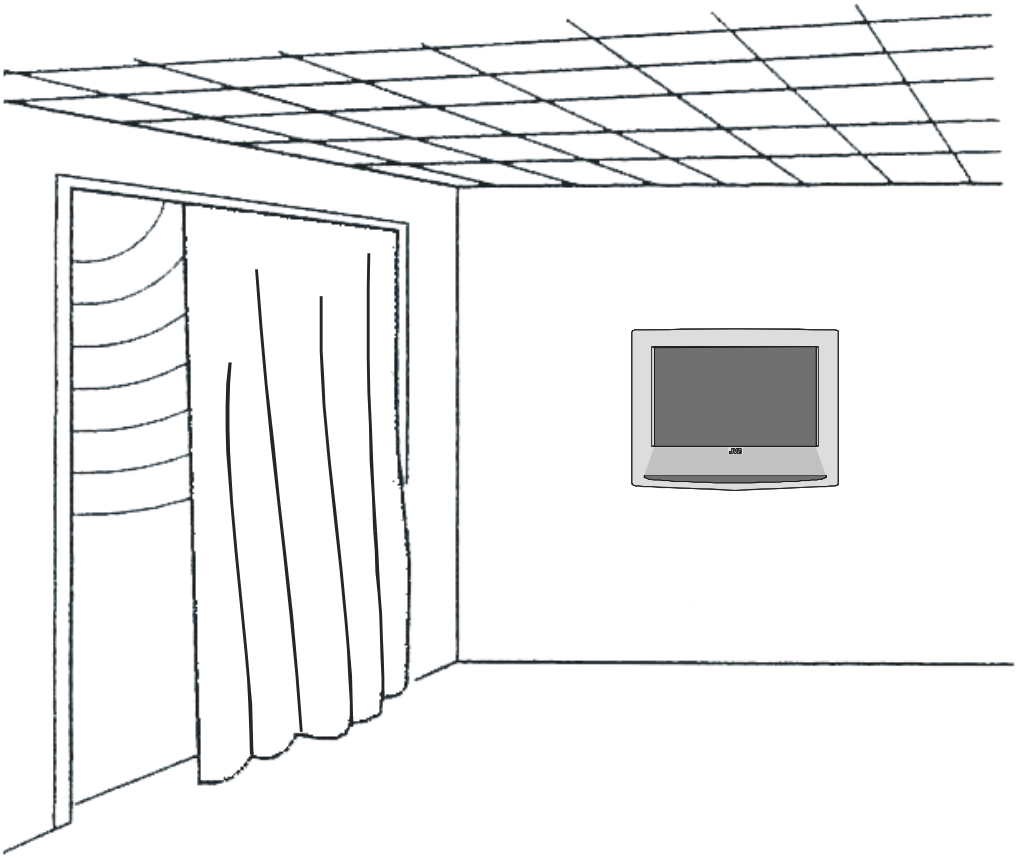
Locate the TV away from direct sunlight and strong lights, soft, indirect lighting is recommended for comfortable viewing. Place on a sturdy platform, the mounting surface should be flat and steady, it should then be secured to the wall with a sturdy tie using the hook on the back of the TV, this will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

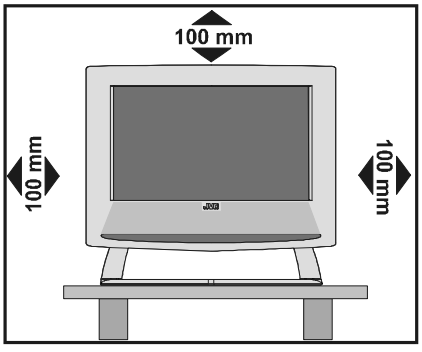
• 100 mm mount based on VESA regulation is equipped.



Preparation

Install Display 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.



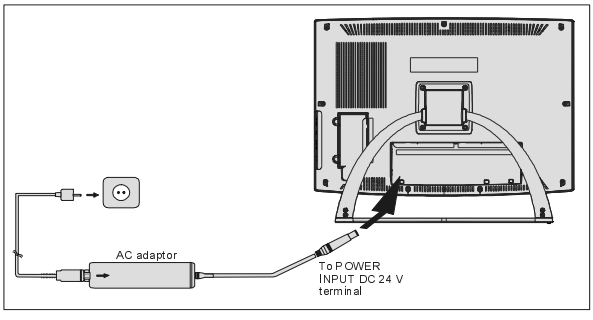
Features

- It is a remote controlled 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.)
- German+Nicam stereo sound system.
- Multilanguage OSD.
- Teletext (Fastext, 7 pages).
- It is possible to connect headphone.
- A.P.S. (Automatic programming system)
- All programmes can be named.
- Forward or backward automatic tuning.
- Sleep timer.
- Child lock.
- Auto, Full, Regular, Panoramic, 14:9 Zoom, 16:9 Zoom,16:9 Zoom Subtitle modes.
- 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.
- PLL (Channel Search)
- PC input (Support Up to 1366 x 768)

Before Switching on your TV

Power connection

Only use the adaptor supplied with this product.

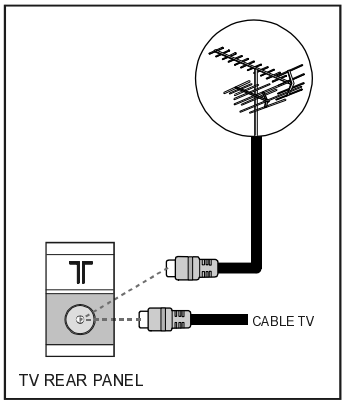


IMPORTANT: The TV set is designed to operate on 24 **V DC. For this, an adaptor is used which gives** 24 **V DC voltage. Connect this adaptor to a system that supplies 100 -240V AC, 50 Hz.**

- After unpacking, allow the TV set to reach the ambient room temperature before you connect the set to the mains.

Connections to the RF input socket

- Connect the aerial or cable TV plug to the RF input socket located at the back of the TV and connect the cable plug coming out from the TV out socket located at the devices (VCR, DVB etc.) to this socket as well.



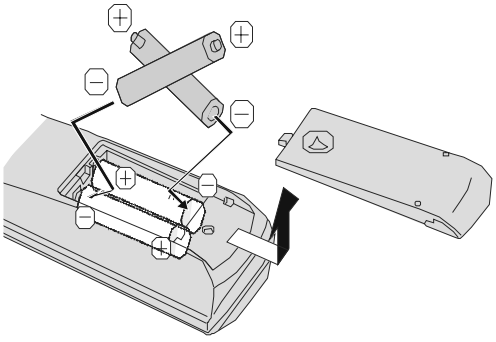
How to connect other devices

IMPORTANT: Switch off the TV before connecting any external device.

Sockets for external connections are at the back of the TV. For connection of other devices via Euroconnector refer to the manuals of the related devices.

Inserting batteries in the remote control handset

- Remove the battery cover located on the back of the handset by gently pulling downwards 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 handset 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.

Switching the TV ON/OFF

To switch the TV on

Your TV will switch on in 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 "⏻ / **I**" 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 remote control or on the right side of the TV, so that last switched off programme is selected.

Either way the TV will switch on and the power lamp will become green.

To switch the TV off

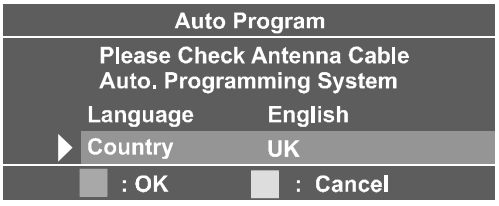
- Press the "⏻ / **I**" button on the remote control or on the right side of the TV, so the TV will switch to stand-by mode and the power lamp will become red.

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

First A.P.S. (Automatic Programming System)

When you turn the TV on for the first time, the first APS menu appears.

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



To cancel APS before starting, press BLUE button.

First of all choose the "**Language**" which the menus 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 page 17.

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)

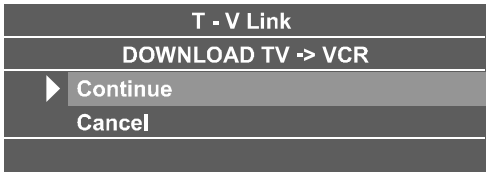
"**Megalogic**" (A trademark of Grundig Corporation)

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

Downloading data to VCR:

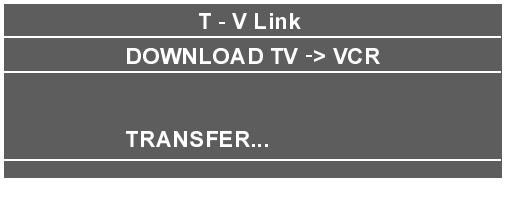
The VCR will automatically download the registered data on the TV channels from the TV. This means you do not need to set up the programme channels on your VCR manually.

The "**T-V Link**" menu will be displayed when you press the "ⓘ" button while **Program** menu is displayed.



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.



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 the 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. In the following situations, the VCR will stop recording if the TV is turned off, if the TV channel or input is changed, or if the menu is displayed on the TV:

• 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.

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).

Operating the TV

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

Volume setting and programme selection can be made by using the buttons at the control panel on the right side of the TV.

Operating 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 button. To learn the usage of the menus, refer to the Menu System sections.

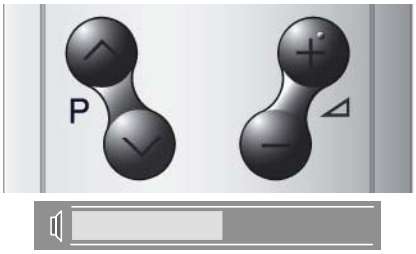
Operating with Remote Control

The remote control handset 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 handset 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 1and 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.*

Menu System

Your TV has been designed with a menu system to provide an easy manipulation of a multifunction 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.

To select a sub-menu use "▲" or "▼" button, and press "◀" or "▶" button or directly press "**OK**" button.

In EXT-1, EXT-2 and EXT-3 modes, main menu appears the same as in TV mode but without Program sub-menu.

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

- Press the "**MENU**" button again to remove menu.
- Press the "**BACK**" button to return to the previous menu.

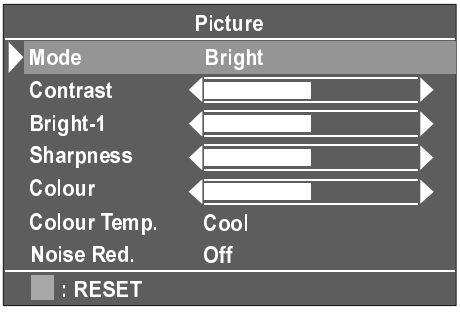
Picture Menu

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**.

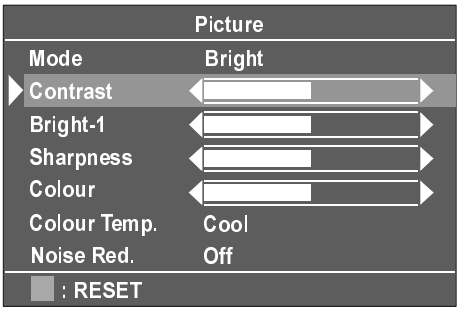


Setting Contrast

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

• Press "▶" button to increase contrast level.

• Press "◀" button to decrease contrast level.

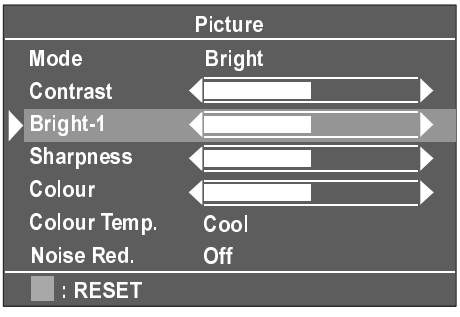


Setting Bright-1

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

• Press "▶" button to increase brightness.

• Press "◀" button to decrease brightness.

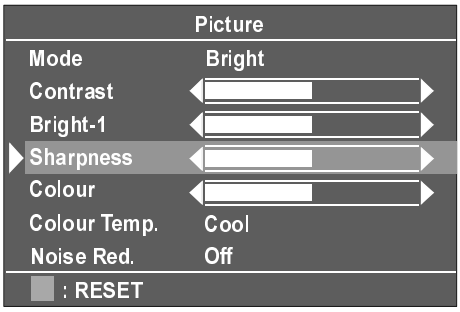


Setting Sharpness

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

• Press "▶" button to increase sharpness level.

• Press "◀" button to decrease sharpness level.

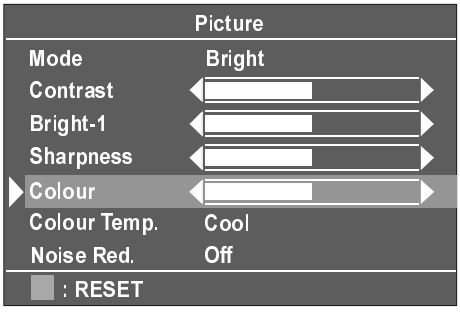


Setting Colour

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

• Press "▶" button to increase colour level.

• Press "◀" button to decrease colour level.



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 Red.**

• 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 appear 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

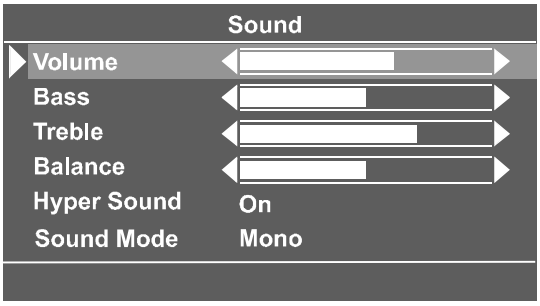
Press BLUE button to reset the picture modes to factory default settings.

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.

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 this feature on or off.

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. Hyper Sound selection will be displayed on the screen when the TV Status button is pressed or programme is changed.

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 Sound Mode.

You can also change sound mode directly pressing "**I-II**" button on your remote control.

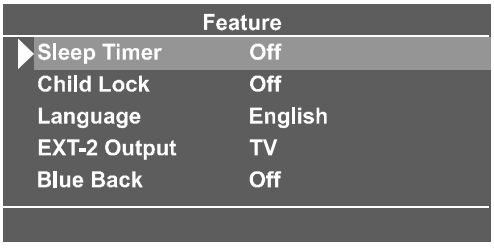
In case of bilingual broadcast (Dual Sound), you can select original or dubbed language using Sound Mode option. So when somebody listens to the original language from the loudspeakers, somebody else can listen to the dubbed language from headphone.

To Store The Settings

In the **Sound** Menu, all settings are stored automatically.

Feature Menu

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



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 .

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 handset. In this case the control panel buttons except "⏻" button on the right side of the TV will not work.

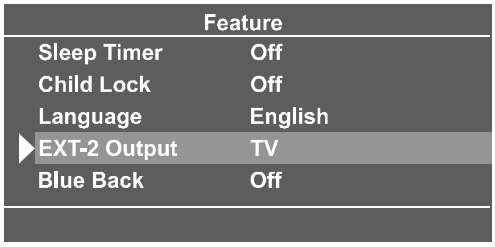
Selecting Menu Language

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

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

EXT-2 Output

From EXT-2 Output; **TV**, **EXT-1** or **EXT-3** can be given. These modes can be chosen by pressing "◀" or "▶" button on "**EXT-2 Output**".



Blue Back (During No Signal)

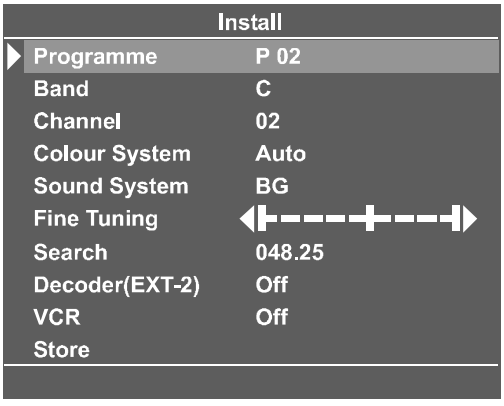
The **Blue Back** Feature can be set by "◀" or "▶" button to either **On** or **Off**.

To Store Settings

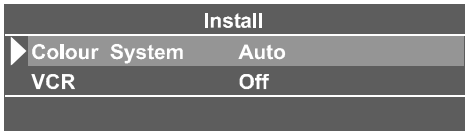
In **Feature** menu all settings are stored automatically.

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.



In EXT mode, Install menu appears like this:



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** and **EXT-3** 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

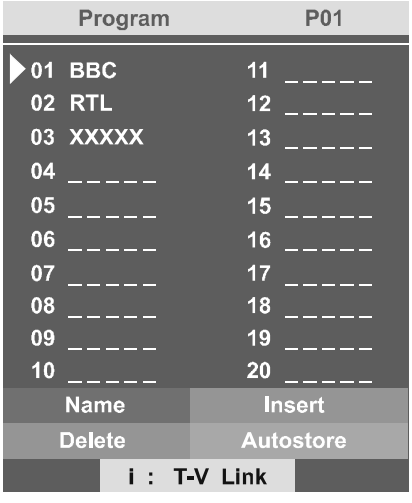
• Press "◀" / "▶" or "**OK**" button on **Store** option to store Install menu settings.

• 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 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

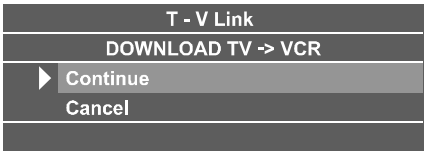
Press ▲ / ▼ / ◀ / ▶ buttons.

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 "ℹ" button to display the T-V Link menu. Then follow the operating procedure "**Downloading the data to VCR**"



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.

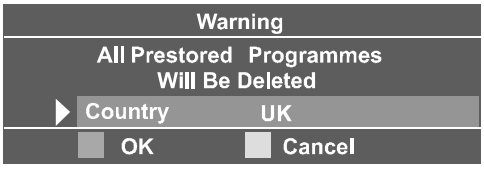
To change the programme number of a channel (Insert)

1. Choose the channel you want to change the programme number.
2. Press the GREEN button to enter the Insert mode.
3. Press ▲ / ▼ / ◀ / ▶ buttons 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.



First of all choose the "**Country**" by using "◀" or "▶" button.

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.

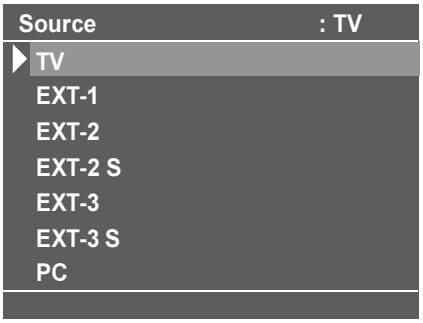
If you do not accept the locations and/or the programme names of programmes, you can change them in **Programme** menu.

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.



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. "**I-II**" button is used to select Mono or Stereo, or Dual I or Dual II.

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.

Dual II

If Dual II is 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 be introduced to end-user.

In stereo transmission it yields a phase difference between left and right channels. Hyper Sound selection will be displayed on the screen when the TV Status button is pressed or programme is changed.

Picture Mode

Picture mode OSD is displayed when BLUE button is pressed. Picture mode can be changed to standard, soft, and bright.

Sleep Timer

Sleep Timer mode OSD is displayed when YELLOW button is pressed.

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.

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.

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 amber and PC will be in PC standby mode. Press "**AV**" button, digit buttons or "P∨" / "P∧" 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

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 on the right side 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-3 S** and **PC**.

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

Zoom Modes

Zoom mode can be changed by pressing the Red button. You can change the screen size according to the picture aspect ratio. Select the optimum one from the following **ZOOM** modes.

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 **16:9 ZOOM** mode, **PANORAMIC** or **FULL** mode 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.

Using the different screen formats

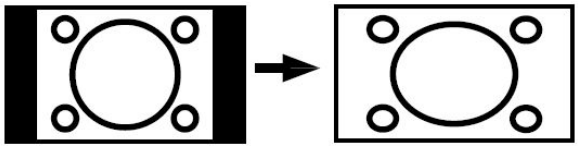
Press the Red button to select the different modes: **AUTO, FULL, REGULAR, PANORAMIC, 14:9 ZOOM, 16:9 ZOOM, 16:9 ZOOM SUBTITLE** modes.

You can change the position of the picture in Zoom modes, except Full and Regular modes, by pressing the "▲" or "▼" button.

Note: *You can only choose REGULAR and FULL in PC mode.*

FULL:

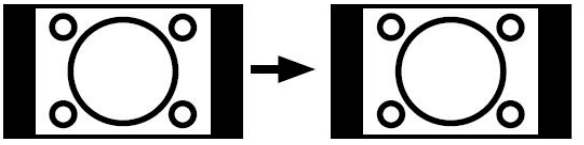
This uniformly stretches the left and right sides of a normal picture (4:3 aspect ratio) to fill the wide TV screen.



- For 16:9 aspect ratio pictures that have been squeezed into a normal picture (4:3 aspect ratio), use the **FULL** mode to restore the picture to its original shape.

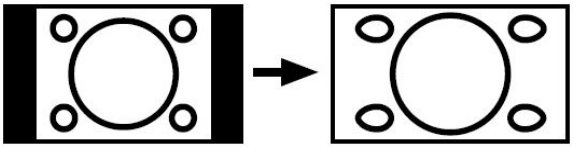
REGULAR:

Use to view a normal picture (4:3 aspect ratio) as this is its original shape.



PANORAMIC:

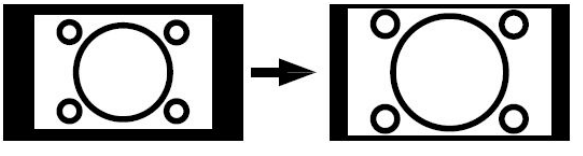
This stretches the left and right sides of a normal picture (4:3 aspect ratio) to fill the screen, without making the picture appear unnatural.



The top and bottom of the picture are slightly cut off.

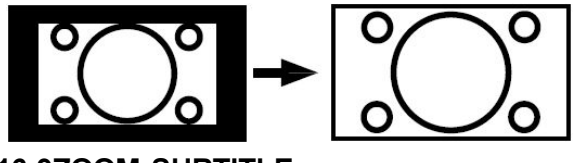
14:9 ZOOM:

This zooms up the wide picture (14:9 aspect ratio) to the upper and lower limits of the screen.



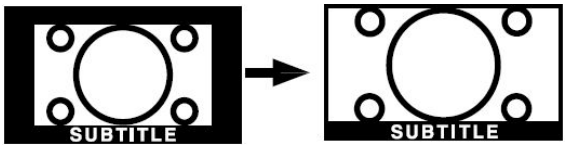
16:9 ZOOM:

This zooms up the wide picture (16:9 aspect ratio) to the full screen.



16:9ZOOM SUBTITLE:

This zooms up the wide picture (16:9 aspect ratio) with subtitles to the full screen.

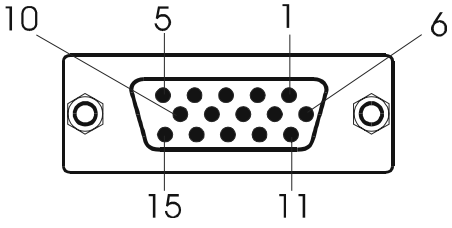


PC Mode

Installation

- Power off both Computer and Display before making any connections.
- Set your PC's resolution correctly before connecting to the TV. See the table in page 29 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.

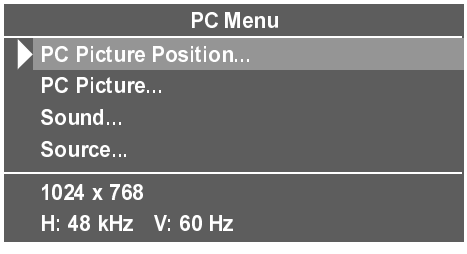
15 Pin Mini D-Sub Connector



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

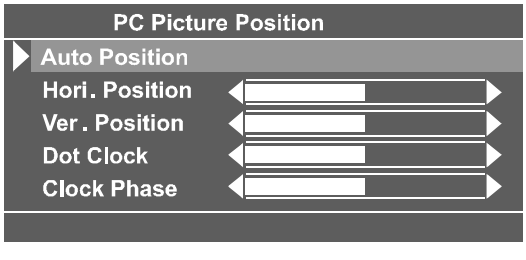
Main Menu in PC mode

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.

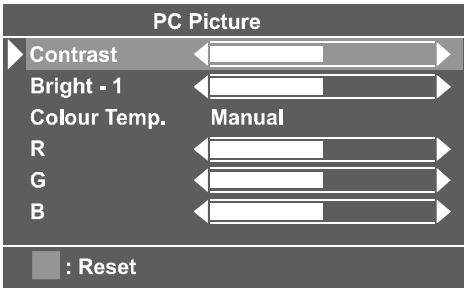
PC Picture Menu

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)

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



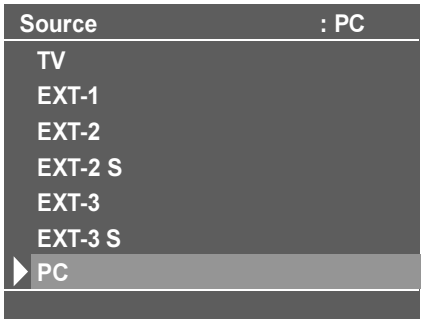
Sound Menu

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 15**.

Source Menu

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



Select the available sources of **TV, EXT-1, EXT-2, EXT-2 S, EXT-3, EXT-3 S** 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.

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).

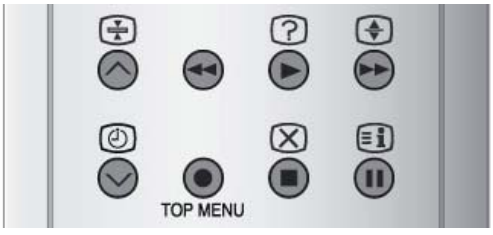
On screen display is not available in text mode.

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∧" 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.

To Select Index Page

• To select the page number of the index (generally page 100), press "" 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. The page will be searched and the page number will be displayed on the upper left corner of the screen when the selected page is found. Now you can display this teletext page by 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 **SCART** input.

If an external device is connected via the Euroconnector socket, the 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-3** terminal with the video and audio cables.

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 **page 16** 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) (optional). 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) (optional).

TV and Video Recoder (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-3** 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-3 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 an 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

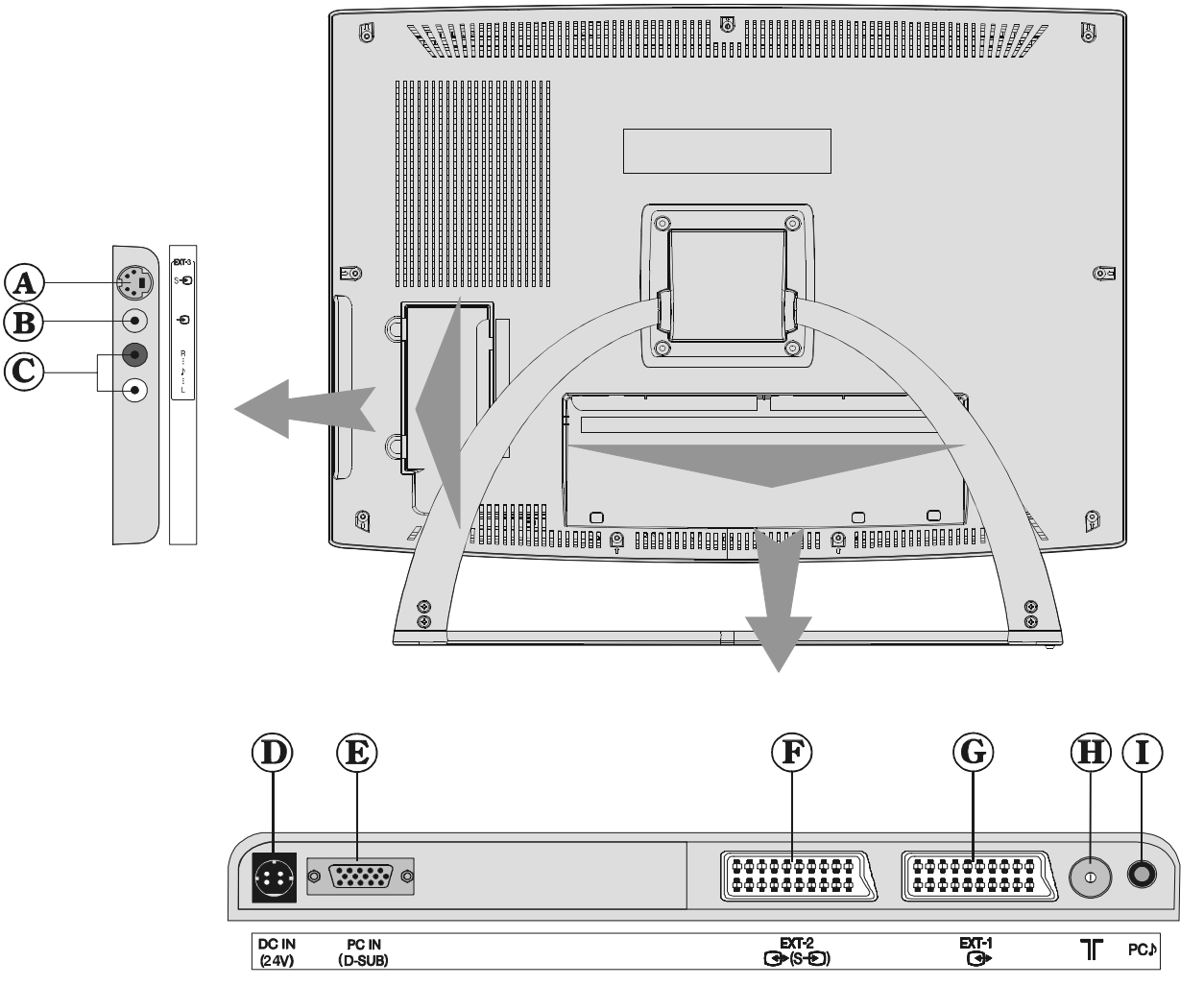
Connect PC monitor with 15-pin PC cable to the 15-pin connector on the rear of the computer. For detailed installation procedure see **Installation** in PC mode.

To connect to S-Video input

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

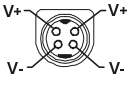
- Connect your equipment to the TV via S-Video input at the back side by using S-Video cables.

Peripheral Equipment Connections



Ⓐ S-VIDEO IN
Ⓑ VIDEO IN
Ⓒ AUDIO R/L
EXT-3

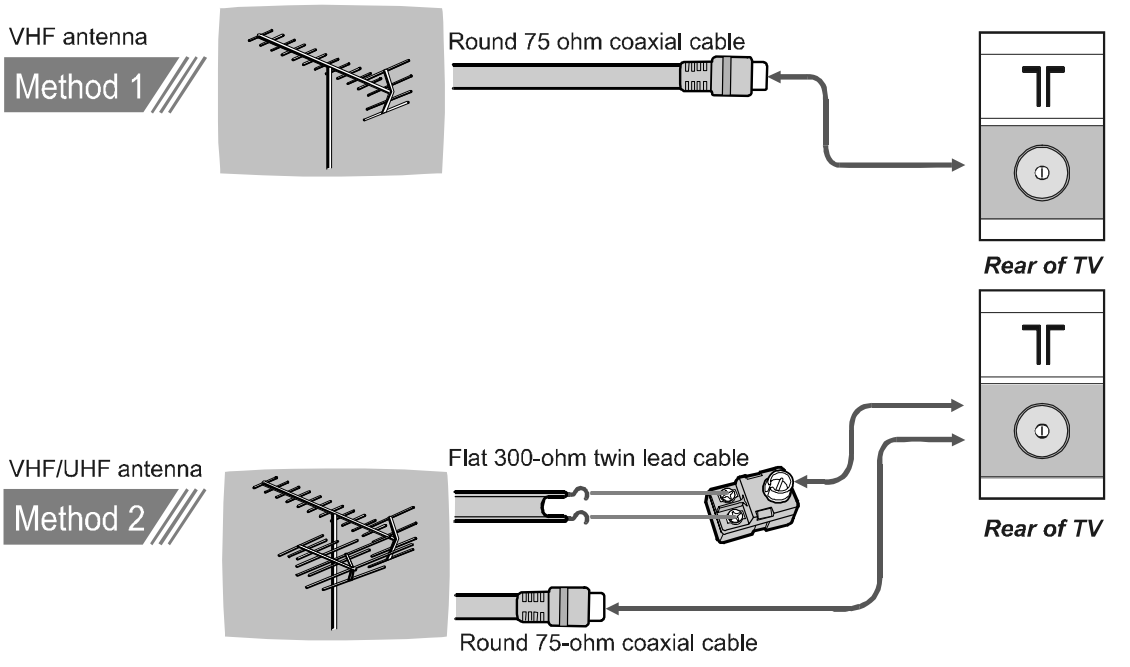
Ⓓ DC IN (ADAPTOR)



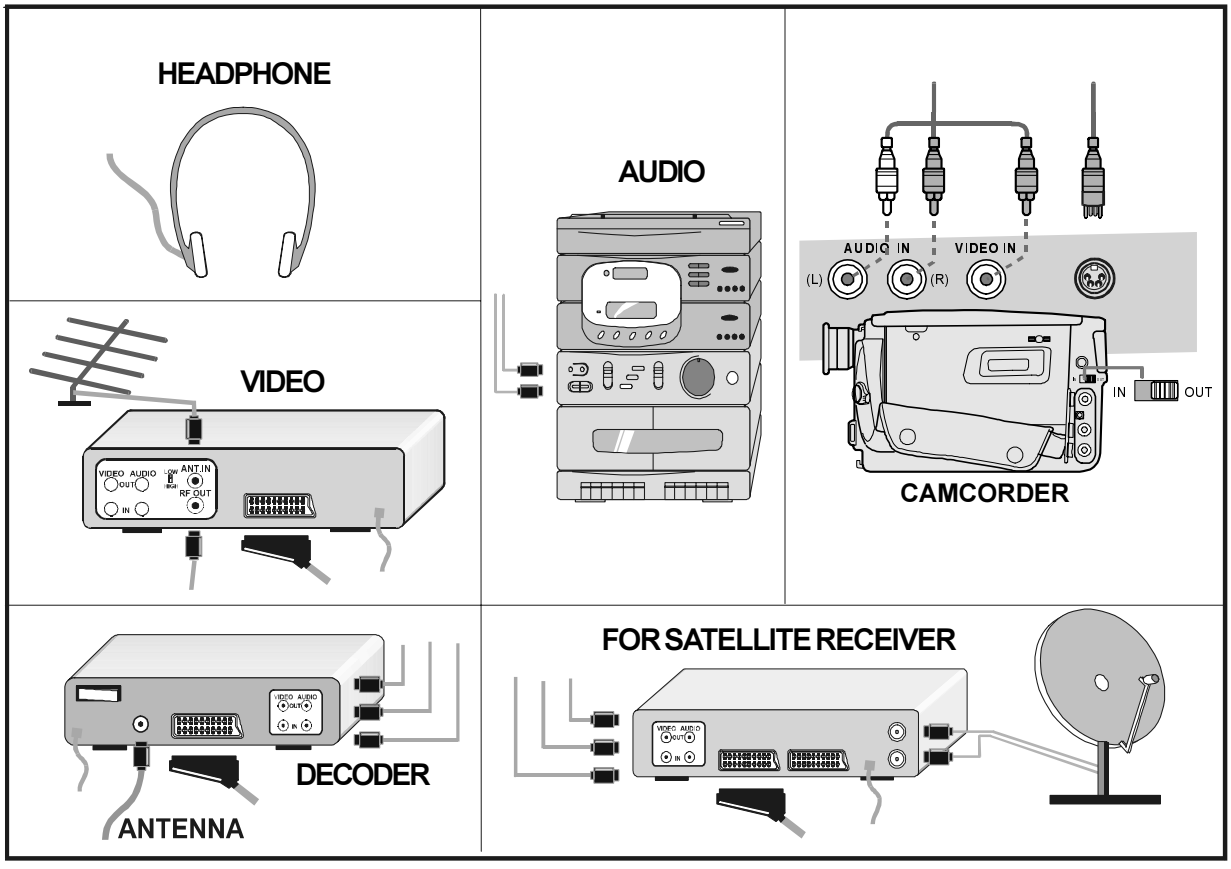
Ⓔ PC INPUT
Ⓕ EXT-2
Ⓖ EXT-1
Ⓗ ANTENNA
Ⓘ PC AUDIO IN

Antenna Connections

Outdoor Antenna Connections



Peripheral Equipment Connections



PC Input Typical Display Modes

The display has a maximum resolution of 1366 x 768, vertical sync. frequency range of 50-75 Hz and a horizontal sync. frequency range of 30-69 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	400	31.5	70
2	640	480	31.5	60
3	640	480	37.9	72
4	640	480	37.5	75
5	720	400	31.5	70
6	800	600	35.2	56
7	800	600	37.9	60
8	800	600	48.1	72
9	800	600	46.9	75
10	1024	768	48.4	60
11	1024	768	56.5	70
12	1024	768	60.0	75
13	1280	720	44.6	60
14	1280	768	47.6	60
15	1366	768	47.6	60

The native resolution of the TFT-LCD Panel is 1366 x 768. Therefore using Mode 15 is advised to get the best PC input display quality.

Tips

Can not turn the TV on?

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

TV may go to standby 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.

Colors 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. See **page 29** for supported modes.

Sound

You can not hear any sound. Did you perhaps interrupt the sound by 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

Switch your TV set off and on. If this does not work, switch off, remove the mains plug and call the service personnel; never attempt to repair it yourself.

Specifications

Item \ Model	LT-23B60SU
Broadcasting Systems	PAL SECAM BG, DK, I, L, Lp
Channels and Frequencies	VHF (VL) 46,25 MHz - 168,25 MHz VHF (VH) 175,25 MHz - 463,25 MHz UHF 471,25 MHz - 863,25 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	23" (584 mm) (measured diagonally)
Visible Picture Size	508 mm horizontal x 286 mm vertical
Display Resolution	1366 x 768 max. (WXGA)
Number of Preset Channels	100
Channel Indicator	On Screen Display (OSD)
RF Aerial Output	75 Ohm (unbalanced)
Power Requirements	**Adaptor:** 100-240 V AC, 50 Hz / **TV:** 24 V DC
Power Consumption (W)	110 W (max) / STANDBY <3W
Sound Systems	German, Nicam Stereo
Audio Output	2 x 5 $W_{RMS.}$ (%10 THD)
EXT-1 Terminal	Euroconnector (21-pin, SCART 1) (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 2) (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 3 (side of the cabinet) S-VIDEO connector x 1 (side of the cabinet)
PC IN terminal	Analog RGB D-SUB 15 x 1 • PC signal is available (refer to **page 29** for details of the signals which can be input)
PC AUDIO IN terminal	Stereo mini-jack (3.5 mm diameter)
Dimensions (W x H x D)	612 mm x 513 mm x 200 mm 612 mm x 445 mm x 81 mm (TV only)
Weight	10.7 kg (with stand) / 8.8 kg (TV only)
Accessories	Remote control unit x 1 (RM-C1861) / AA/R6 dry cell battery x 2 AC adaptor x 1 Power cord x 1
Headphone jack	Stereo mini-jack (3.5 mm diameter)

JVC

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InteriArt

LT-23B60SJ

WIDE LCD PANEL TV INSTRUCTIONS

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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.

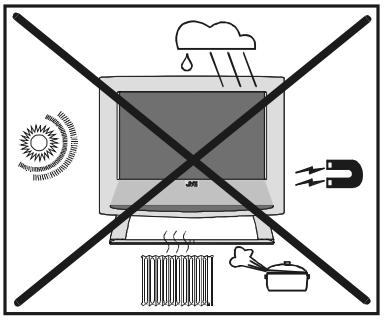
Some “DOs” and “DON’Ts” for you

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 V 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 nightlights 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 the equipment off 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 adaptor

- Be careful! May become hot.
- For indoor and dry location use only.
- Risk of electric shock.
- Shock hazard, do not open.
- Keep all power adaptors away from any other heat source.
- Always use power adaptor(s) well-ventilated area.

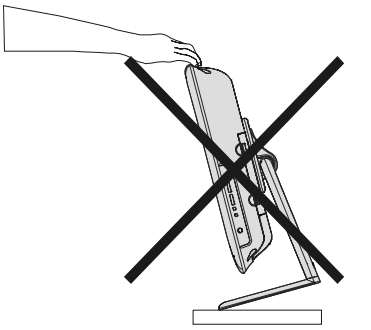
*** Cold cathode fluoresant lamp in LCD PANEL contains a small amount of mercury, please follow local ordinates or regulations for disposal.*

"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:

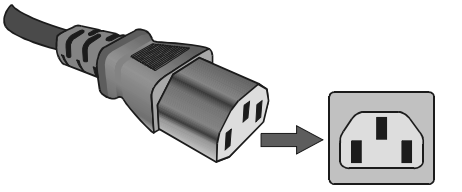
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



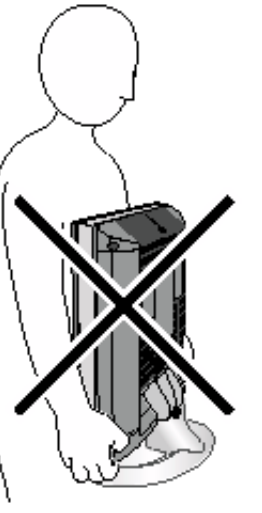
WARNING

- *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 Adaptor unit it is no longer wobbly, and then plug the larger end of power cord into an AC outlet.*



CAUTION:

- *The TV screen may be damaged if the TV is carried as shown in the diagram.*

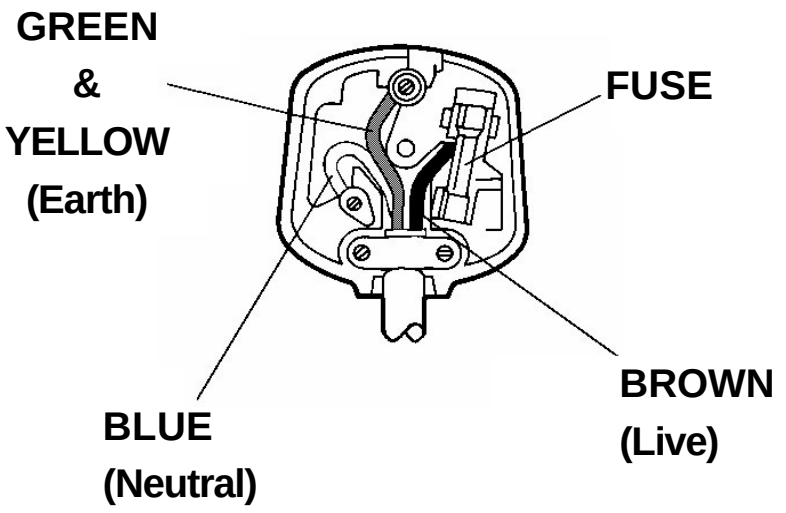
The TV should always be carried by two people.

Important Instruction

For your own safety read following instruction carefully before attempting to connect this unit to the mains supply.

MAINS (AC) OPERATION

The wires in the mains lead are coloured in accordance with the following code :



IMPORTANT

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured green and yellow must be connected to the terminal which is marked with the letter E, or by the earth symbol, or coloured green or green and yellow.

The wire which is coloured blue or black must be connected to the terminal which is marked with the letter N or coloured Black.

The wire which is coloured brown or red must be connected to the terminal which is marked with the letter L or coloured Red.

For continued protection against risk of fire, replace only with same type and rating of fuse (ASTA approved 10A 250VAC fuse)(If approved by the qualified TV service personel, 13A fuse may also be used).

If your product is fitted with a moulded plug which requires replacement please cut off and dispose of safely, then rewire as shown above.

CAUTION

TO PREVENT ELECTRIC SHOCK DISCONNECT FROM THE MAINS BEFORE REMOVING COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

SAFETY PRECAUTION

THIS EQUIPMENT MUST BE DISCONNECTED FROM THE MAINS WHEN NOT IN USE. DO NOT ALLOW THIS UNIT TO BE EXPOSED TO RAIN OR MOISTURE.

Important Information

Please take note

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.

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...

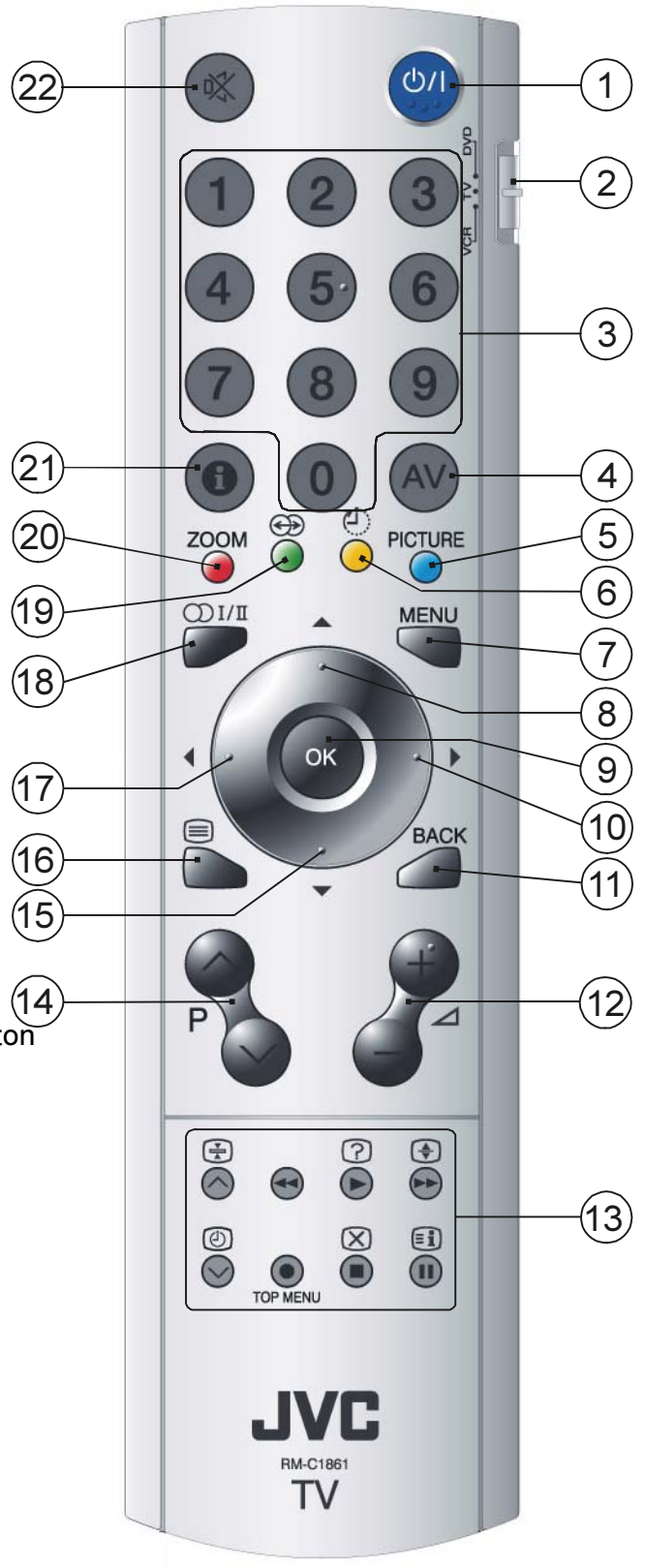
Turn off the power, clean the screen and cabinet with a soft, dry cloth. We recommend that you do not use any proprietary polishes or solvents on the screen or cabinet as this may cause damage.

Disposal...

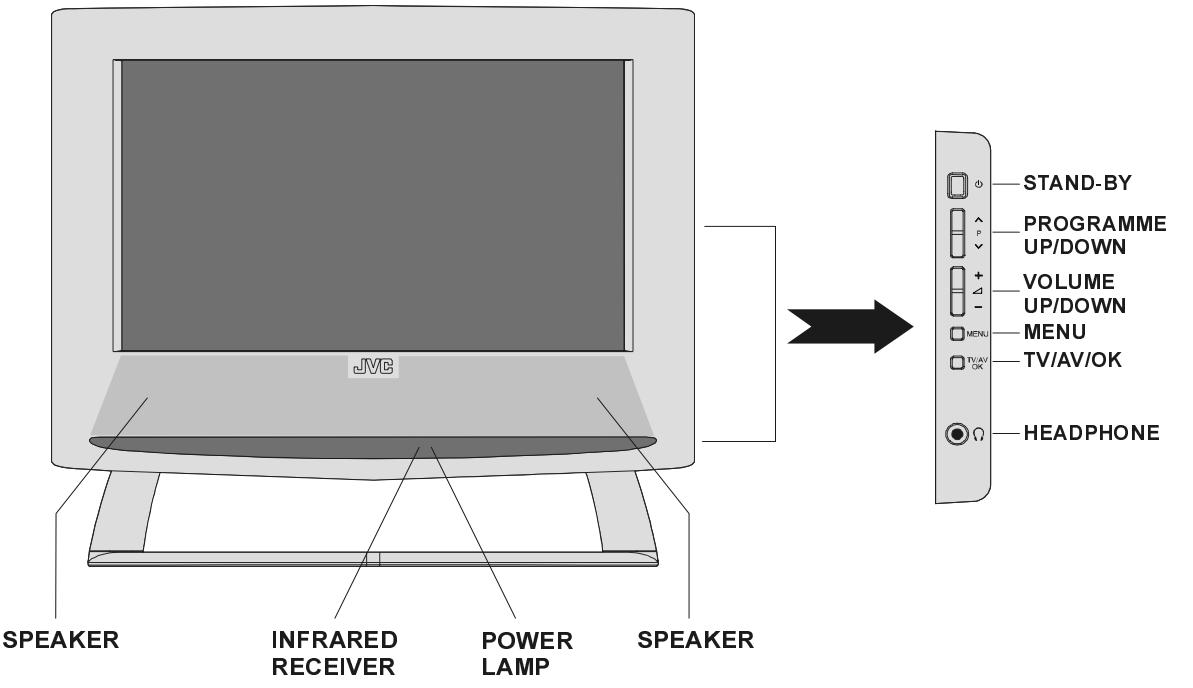
When the set reaches the end of its useful life please dispose of it in accordance with Local Government Regulations or at a recycling centre.

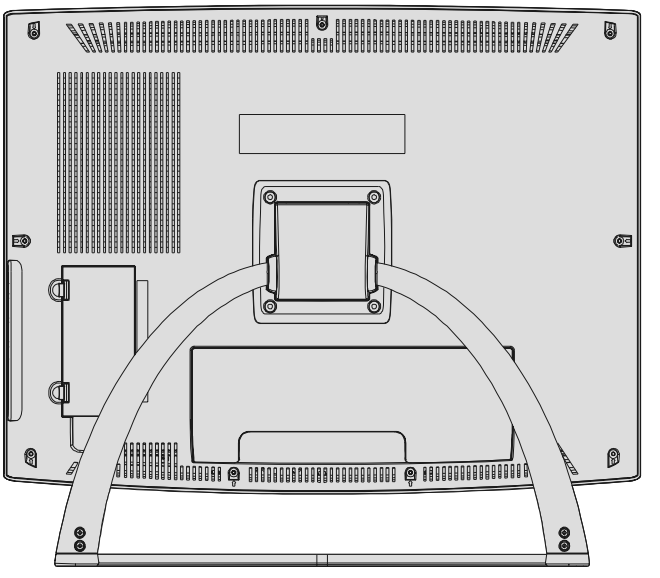
Remote Control Buttons

① ⏻ / **I** = (Stand By) button
② TV / VCR / DVD Switch
③ Number buttons
④ **AV** button (TV, EXT-1, EXT-2, EXT-2 S, EXT-3, EXT-3 S or PC)
⑤ **BLUE / PICTURE** Mode button
⑥ **YELLOW** / Sleep Timer button
⑦ **MENU** button
⑧ ▲ = Cursor Up button
⑨ OK button
⑩ ▶ = Cursor Right button
⑪ **BACK** button
⑫ Volume Up/Down buttons
⑬ Teletext / VCR /DVD Control buttons
⑭ Programme Up/Down buttons
⑮ ▼ = Cursor Down button
⑯ = Teletext Button
⑰ ◀= Cursor Left button
⑱ I/II = Stereo / Bilingual button
⑲ **GREEN** / Hyper Sound On/Off button
⑳ **RED / ZOOM** Mode button
㉑ = Information Button / T-V Link in Programme Menu
㉒ = Mute button



Control Panel Buttons





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

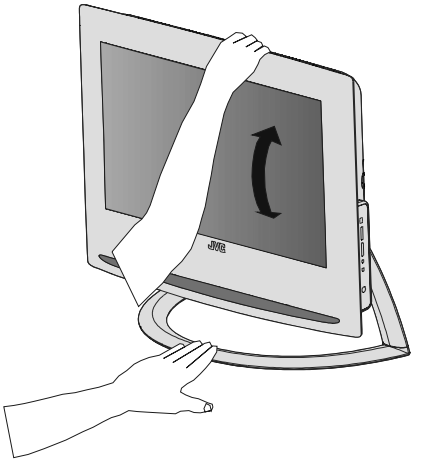
This TV comes with a Table Top Stand already attached.

This stand can be used to adjust the direction of the TV screen.

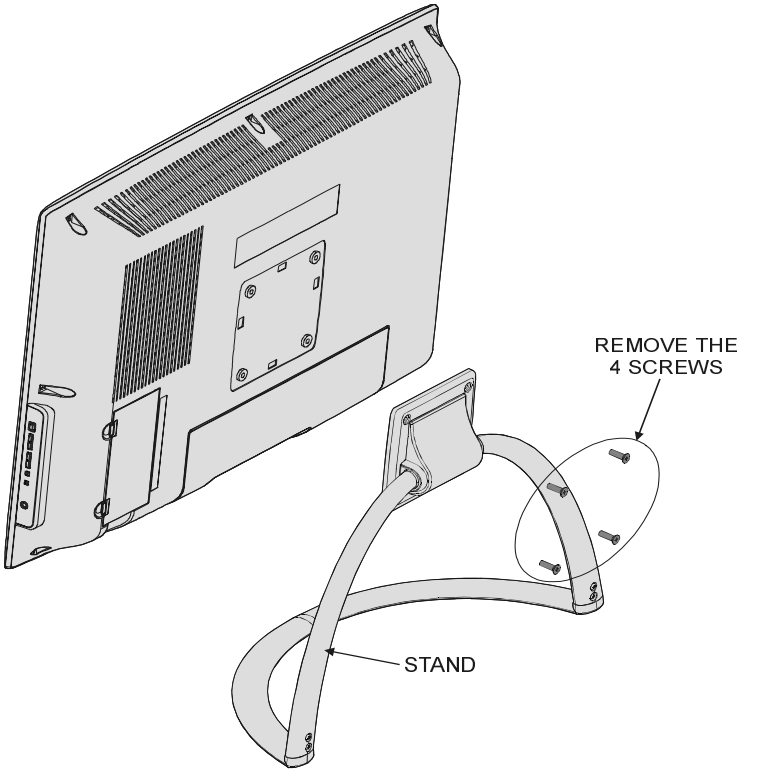
Tilt the TV up and down:

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.

• As a safety measure, the stand is constructed so that it requires a certain amount of force to tilt the TV.



How to remove the stand



Installing TV on the wall

WARNING

• When you install the TV on the wall, only use a JVC wall mounting unit (optional) which is designed for this TV.

• Make sure that the TV is installed on the wall by a skilled installer.

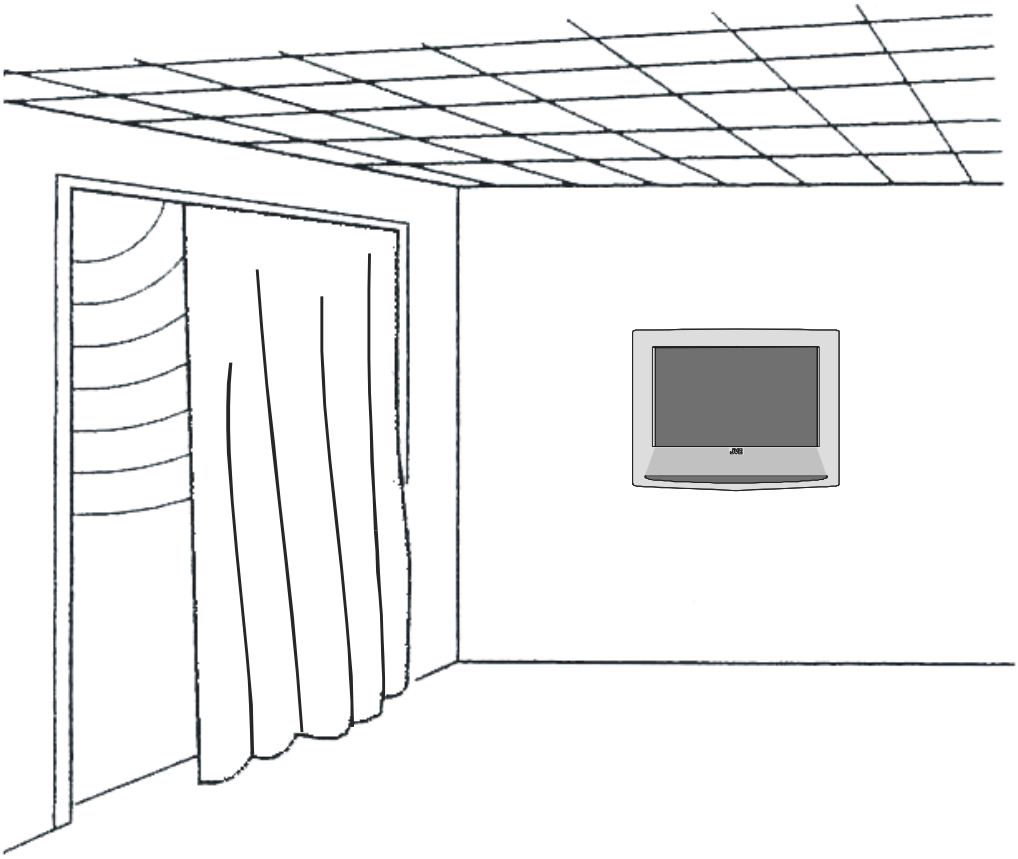
Locate the TV away from direct sunlight and strong lights, soft, indirect lighting is recommended for comfortable viewing. Place on a sturdy platform, the mounting surface should be flat and steady, it should then be secured to the wall with a sturdy tie using the hook on the back of the TV, this will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

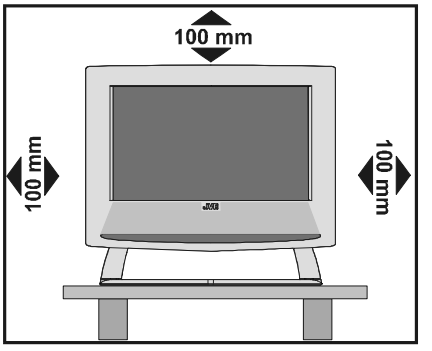
• 100 mm mount based on VESA regulation is equipped.



Preparation

Install Display 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.



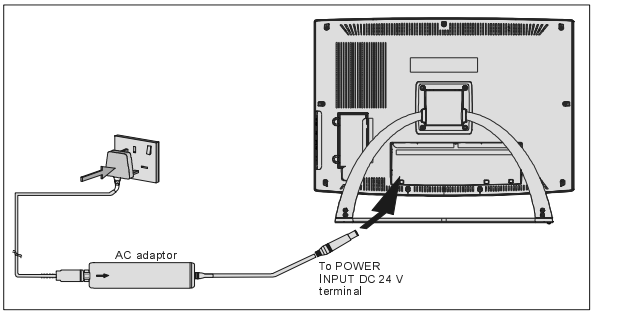
Features

- It is a remote controlled 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.)
- German+Nicam stereo sound system.
- Multilanguage OSD.
- Teletext (Fastext, 7 pages).
- It is possible to connect headphone.
- A.P.S. (Automatic programming system)
- All programmes can be named.
- Forward or backward automatic tuning.
- Sleep timer.
- Child lock.
- Auto, Full, Regular, Panoramic, 14:9 Zoom, 16:9 Zoom,16:9 Zoom Subtitle modes.
- 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.
- PLL (Channel Search)
- PC input (Support Up to 1366 x 768)

Before Switching on your TV

Power connection

Only use the adaptor supplied with this product.

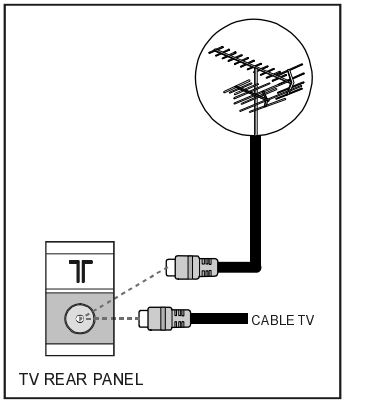


IMPORTANT: The TV set is designed to operate on 24 **V DC. For this, an adaptor is used which gives 24 V DC voltage. Connect this adaptor to a system that supplies 100 -240V AC, 50 Hz.**

- After unpacking, allow the TV set to reach the ambient room temperature before you connect the set to the mains.

Connections to the RF input socket

- Connect the aerial or cable TV plug to the RF input socket located at the back of the TV and connect the cable plug coming out from the TV out socket located at the devices (VCR, DVB etc.) to this socket as well.



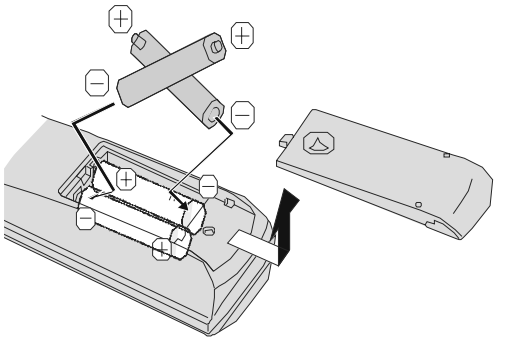
How to connect other devices

IMPORTANT: Switch off the TV before connecting any external device.

Sockets for external connections are at the back of the TV. For connection of other devices via Euroconnector refer to the manuals of the related devices.

Inserting batteries in the remote control handset

- Remove the battery cover located on the back of the handset by gently pulling downwards 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 handset 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.

Switching the TV ON/OFF

To switch the TV on

Your TV will switch on in 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 "⏻ / **I**" 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 remote control or on the right side of the TV, so that last switched off programme is selected.

Either way the TV will switch on and the power lamp will become green.

To switch the TV off

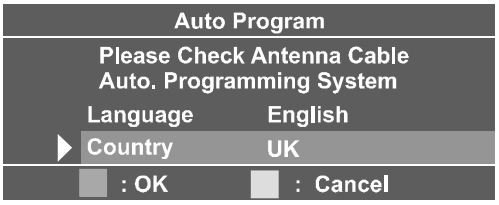
- Press the "⏻ / **I**" button on the remote control or on the right side of the TV, so the TV will switch to stand-by mode and the power lamp will become red.

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

First A.P.S. (Automatic Programming System)

When you turn the TV on for the first time, the first APS menu appears.

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



To cancel APS before starting, press BLUE button.

First of all choose the "**Language**" which the menus 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 **page 18**.

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 "ℹ" 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)

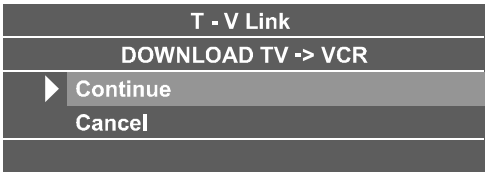
"**Megalogic**" (A trademark of Grundig Corporation)

"**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 "ℹ" button while **Program** menu is displayed.



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.

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 the 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. In the following situations, the VCR will stop recording if the TV is turned off, if the TV channel or input is changed, or if the menu is displayed on the TV:

• 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.

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).

Operating the TV

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

Volume setting and programme selection can be made by using the buttons at the control panel on the right side of the TV.

Operating 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 button. To learn the usage of the menus, refer to the Menu System sections.

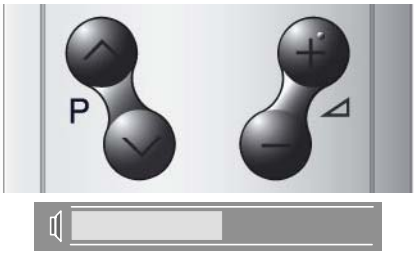
Operating with Remote Control

The remote control handset 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 handset 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 1and 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.*

Menu System

Your TV has been designed with a menu system to provide an easy manipulation of a multifunction 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.

To select a sub-menu use "▲" or "▼" button, and press "◀" or "▶" button or directly press "**OK**" button.

In EXT-1, EXT-2 and EXT-3 modes, main menu appears the same as in TV mode but without Program sub-menu.

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

- Press the "**MENU**" button again to remove menu.
- Press the "**BACK**" button to return to the previous menu.

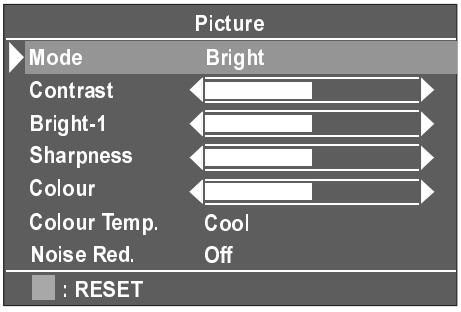
Picture Menu

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**.

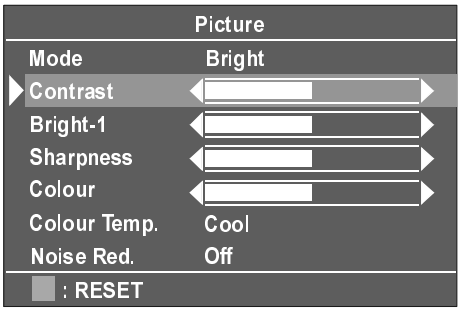


Setting Contrast

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

• Press "▶" button to increase contrast level.

• Press "◀" button to decrease contrast level.

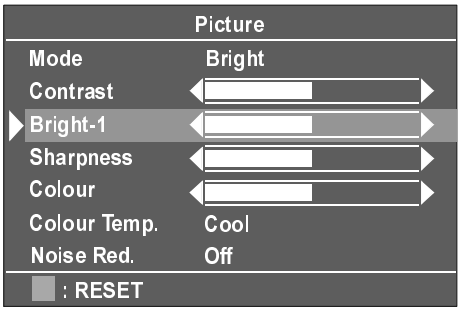


Setting Bright-1

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

• Press "▶" button to increase brightness.

• Press "◀" button to decrease brightness.

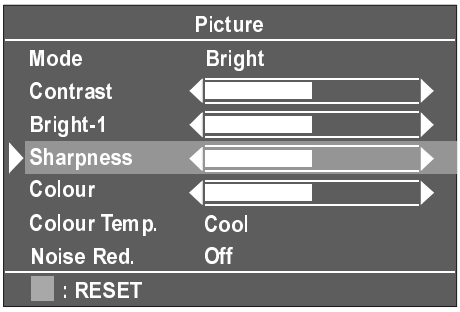


Setting Sharpness

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

• Press "▶" button to increase sharpness level.

• Press "◀" button to decrease sharpness level.

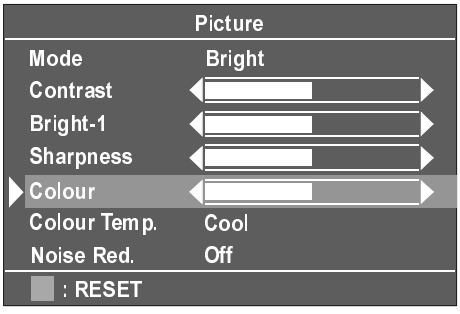


Setting Colour

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

• Press "▶" button to increase colour level.

• Press "◀" button to decrease colour level.



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 Red.**

• 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 appear 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

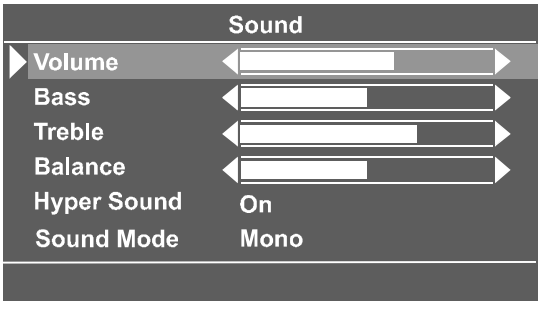
Press BLUE button to reset the picture modes to factory default settings.

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.

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 this feature on or off.

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. Hyper Sound selection will be displayed on the screen when the TV Status button is pressed or programme is changed.

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 Sound Mode.

You can also change sound mode directly pressing "**I-II**" button on your remote control.

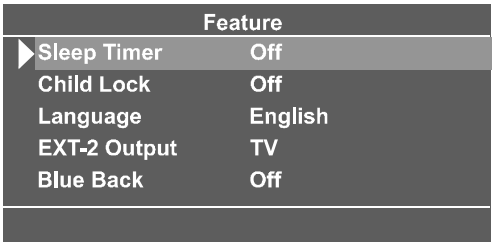
In case of bilingual broadcast (Dual Sound), you can select original or dubbed language using Sound Mode option. So when somebody listens to the original language from the loudspeakers, somebody else can listen to the dubbed language from headphone.

To Store The Settings

In the **Sound** Menu, all settings are stored automatically.

Feature Menu

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



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 .

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 handset. In this case the control panel buttons except "⏻" button on the right side of the TV will not work.

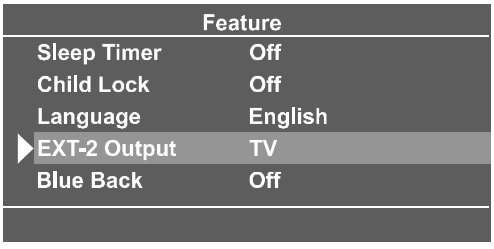
Selecting Menu Language

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

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

EXT-2 Output

From EXT-2 Output; **TV**, **EXT-1** or **EXT-3** can be given. These modes can be chosen by pressing "◀" or "▶" button on "**EXT-2 Output**".



Blue Back (During No Signal)

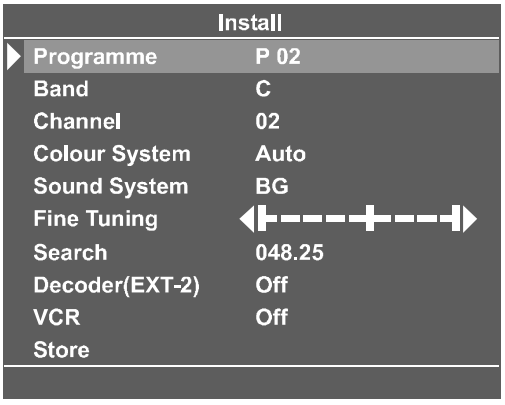
The **Blue Back** Feature can be set by "◀" or "▶" button to either **On** or **Off**.

To Store Settings

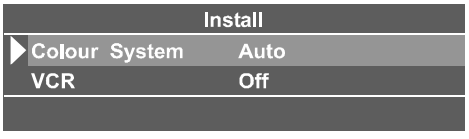
In **Feature** menu all settings are stored automatically.

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.



In EXT mode, Install menu appears like this:



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** and **EXT-3** 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

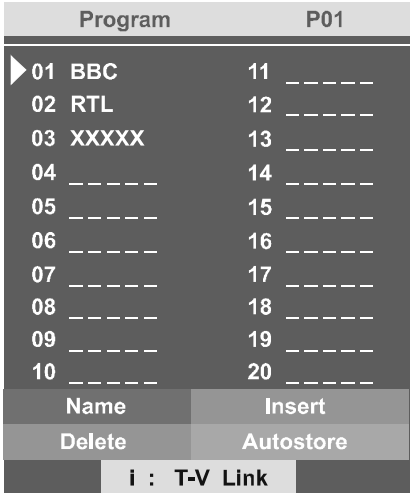
• Press "◀" / "▶" or "**OK**" button on **Store** option to store Install menu settings.

• 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 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

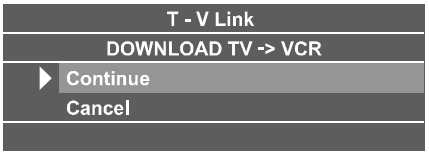
Press ▲ / ▼ / ◀ / ▶ buttons.

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**"



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 ▲ / ▼ / ◀ / ▶ buttons 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.

First of all choose the "**Country**" by using "◀" or "▶" button.

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.

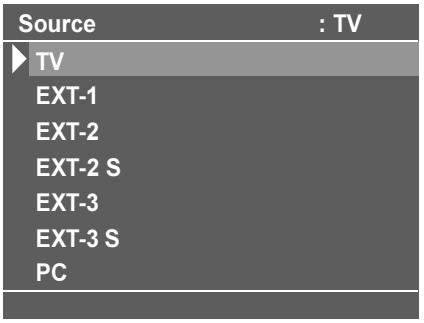
If you do not accept the locations and/or the programme names of programmes, you can change them in **Programme** menu.

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.



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. "**I-II**" button is used to select Mono or Stereo, or Dual I or Dual II.

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.

Dual II

If Dual II is 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 be introduced to end-user.

In stereo transmission it yields a phase difference between left and right channels. Hyper Sound selection will be displayed on the screen when the TV Status button is pressed or programme is changed.

Picture Mode

Picture mode OSD is displayed when BLUE button is pressed. Picture mode can be changed to standard, soft, and bright.

Sleep Timer

Sleep Timer mode OSD is displayed when YELLOW button is pressed.

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.

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.

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 amber and PC will be in PC standby mode. Press "**AV**" button, digit buttons or "P∨" / "P∧" 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

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 on the right side 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-3 S** and **PC**.

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

Zoom Modes

Zoom mode can be changed by pressing the Red button. You can change the screen size according to the picture aspect ratio. Select the optimum one from the following **ZOOM** modes.

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 **16:9 ZOOM** mode, **PANORAMIC** or **FULL** mode 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.

Using the different screen formats

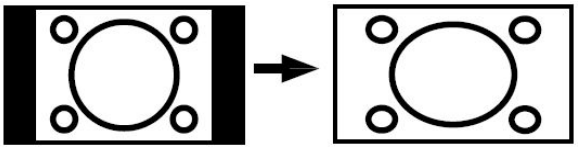
Press the Red button to select the different modes: **AUTO, FULL, REGULAR, PANORAMIC, 14:9 ZOOM, 16:9 ZOOM, 16:9 ZOOM SUBTITLE** modes.

You can change the position of the picture in Zoom modes, except Full and Regular modes, by pressing the "▲" or "▼" button.

Note: *You can only choose REGULAR and FULL in PC mode.*

FULL:

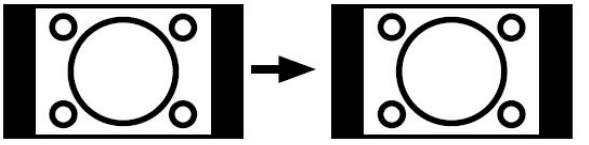
This uniformly stretches the left and right sides of a normal picture (4:3 aspect ratio) to fill the wide TV screen.



- For 16:9 aspect ratio pictures that have been squeezed into a normal picture (4:3 aspect ratio), use the **FULL** mode to restore the picture to its original shape.

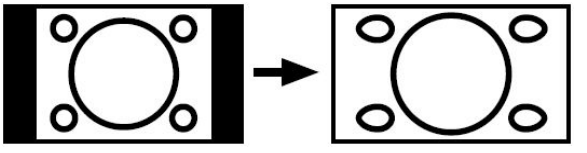
REGULAR:

Use to view a normal picture (4:3 aspect ratio) as this is its original shape.



PANORAMIC:

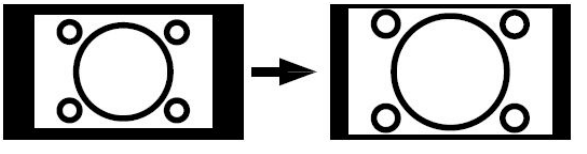
This stretches the left and right sides of a normal picture (4:3 aspect ratio) to fill the screen, without making the picture appear unnatural.



The top and bottom of the picture are slightly cut off.

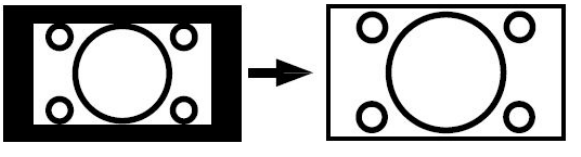
14:9 ZOOM:

This zooms up the wide picture (14:9 aspect ratio) to the upper and lower limits of the screen.



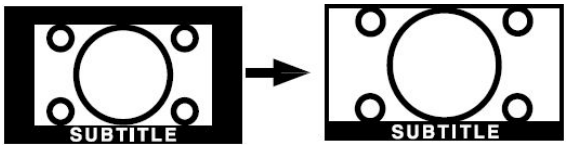
16:9 ZOOM:

This zooms up the wide picture (16:9 aspect ratio) to the full screen.



16:9ZOOM SUBTITLE:

This zooms up the wide picture (16:9 aspect ratio) with subtitles to the full screen.

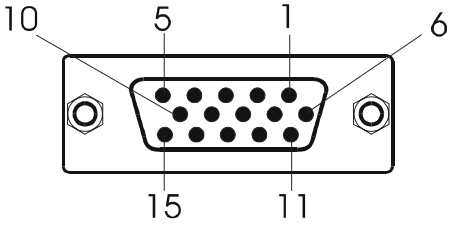


PC Mode

Installation

- Power off both Computer and Display before making any connections.
- Set your PC's resolution correctly before connecting to the TV. See the table in page 30 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.

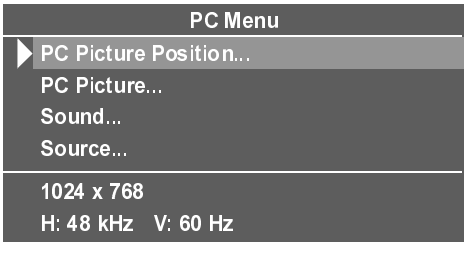
15 Pin Mini D-Sub Connector



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

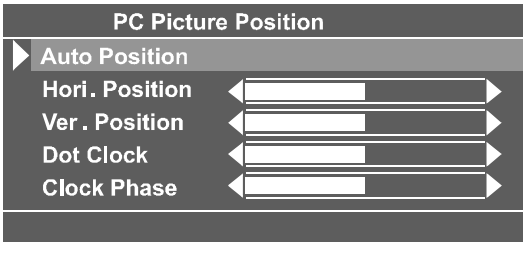
Main Menu in PC mode

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.

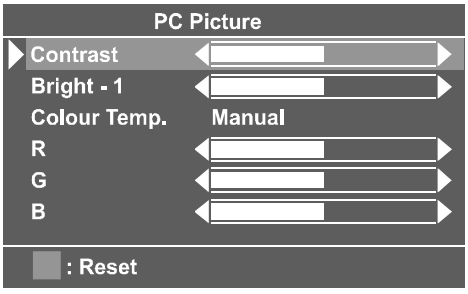
PC Picture Menu

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)

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



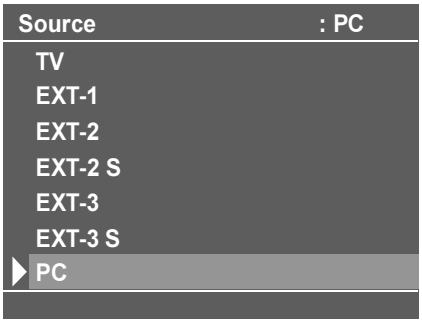
Sound Menu

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 16**.

Source Menu

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



Select the available sources of **TV, EXT-1, EXT-2, EXT-2 S, EXT-3, EXT-3 S** 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.

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).

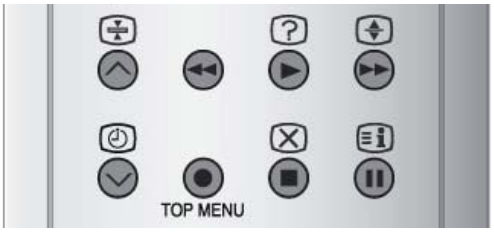
On screen display is not available in text mode.

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∧" 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.

To Select Index Page

• To select the page number of the index (generally page 100), press "" 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. The page will be searched and the page number will be displayed on the upper left corner of the screen when the selected page is found. Now you can display this teletext page by 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 **SCART** input.

If an external device is connected via the Euroconnector socket, the 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-3** terminal with the video and audio cables.

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 **page 17** 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) (optional). 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) (optional).

TV and Video Recoder (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-3** 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-3 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 euro-connector for decoder.

- Connect an 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

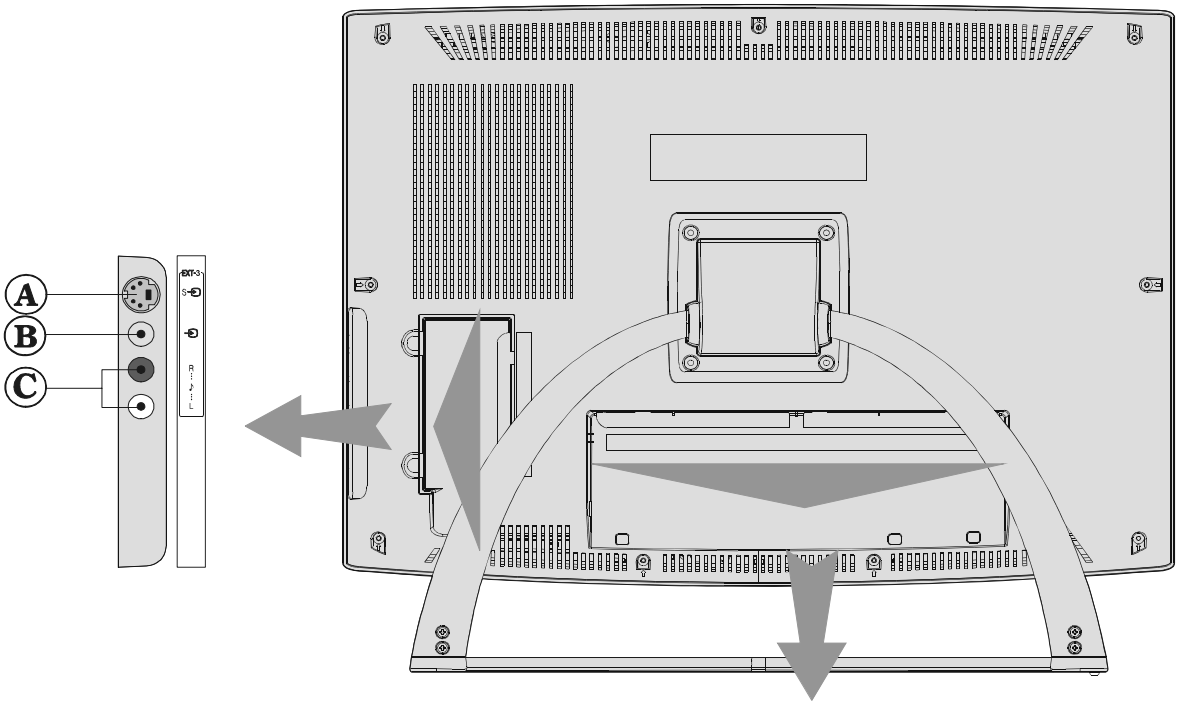
Connect PC monitor with 15-pin PC cable to the 15-pin connector on the rear of the computer. For detailed installation procedure see **Installation** in PC mode.

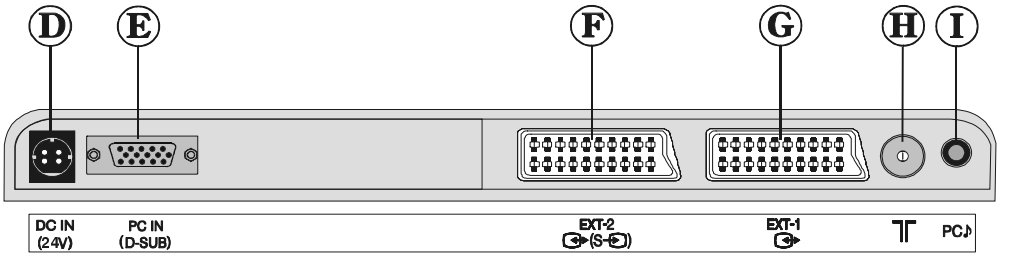
To connect to S-Video input

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

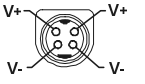




Ⓐ **S-VIDEO IN**
Ⓑ **VIDEO IN**
Ⓒ **AUDIO R/L**

→ **EXT-3**

Ⓓ **DC IN (ADAPTOR)**



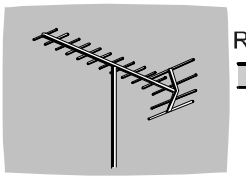
Ⓔ **PC INPUT**
Ⓕ **EXT-2**
Ⓖ **EXT-1**
Ⓗ **ANTENNA**
Ⓘ **PC AUDIO IN**

Antenna Connections

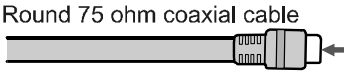
Outdoor Antenna Connections

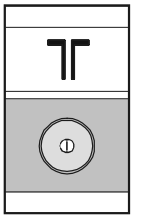
VHF antenna

Method 1



Round 75 ohm coaxial cable

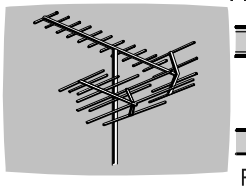




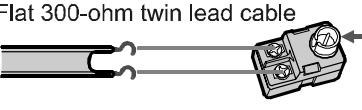
Rear of TV

VHF/UHF antenna

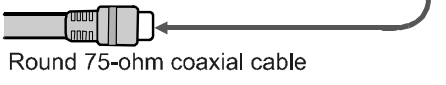
Method 2

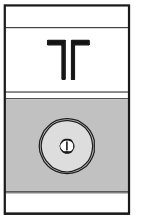


Flat 300-ohm twin lead cable



Round 75-ohm coaxial cable

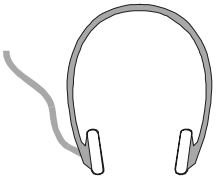




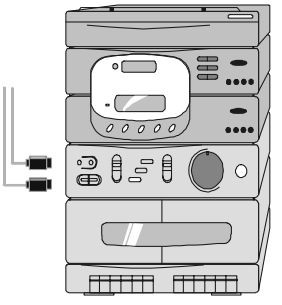
Rear of TV

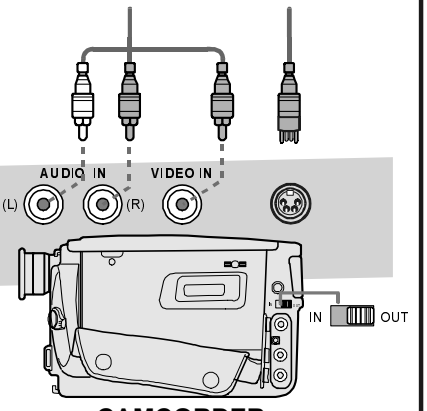
Peripheral Equipment Connections

HEADPHONE



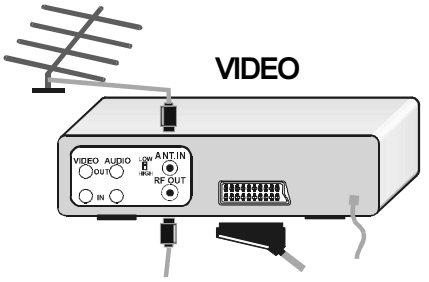
AUDIO

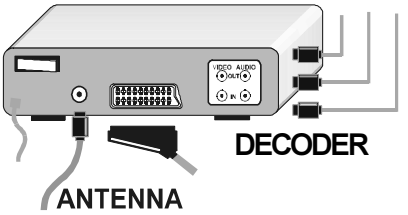




CAMCORDER

VIDEO

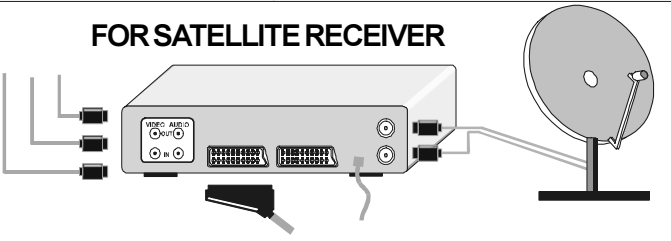




DECODER

ANTENNA

FOR SATELLITE RECEIVER



PC Input Typical Display Modes

The display has a maximum resolution of 1366 x 768, vertical sync. frequency range of 50-75 Hz and a horizontal sync. frequency range of 30-69 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	400	31.5	70
2	640	480	31.5	60
3	640	480	37.9	72
4	640	480	37.5	75
5	720	400	31.5	70
6	800	600	35.2	56
7	800	600	37.9	60
8	800	600	48.1	72
9	800	600	46.9	75
10	1024	768	48.4	60
11	1024	768	56.5	70
12	1024	768	60.0	75
13	1280	720	44.6	60
14	1280	768	47.6	60
15	1366	768	47.6	60

The native resolution of the TFT-LCD Panel is 1366 x 768. Therefore using Mode 15 is advised to get the best PC input display quality.

Tips

Can not turn the TV on?

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

TV may go to standby 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.

Colors 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. See **page 30** for supported modes.

Sound

You can not hear any sound. Did you perhaps interrupt the sound by 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

Switch your TV set off and on. If this does not work, switch off, remove the mains plug and call the service personnel; never attempt to repair it yourself.

For users in the UK:

If you have any problems setting up your new TV, please call the JVC Helpline on 0870330 5000

For users in the Republic of Ireland:

If you have any problems setting up your new TV, please call the JVC Helpline on 1890 - 582500

Specifications

Item \ Model	LT-23B60SJ
Broadcasting Systems	PAL SECAM BG, DK, I, L, Lp
Channels and Frequencies	VHF (VL) 46,25 MHz - 168,25 MHz VHF (VH) 175,25 MHz - 463,25 MHz UHF 471,25 MHz - 863,25 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	23" (584 mm) (measured diagonally)
Visible Picture Size	508 mm horizontal x 286 mm vertical
Display Resolution	1366 x 768 max. (WXGA)
Number of Preset Channels	100
Channel Indicator	On Screen Display (OSD)
RF Aerial Output	75 Ohm (unbalanced)
Power Requirements	**Adaptor:** 100-240 V AC, 50 Hz / **TV:** 24 V DC
Power Consumption (W)	110 W (max) / STANDBY <3W
Sound Systems	German, Nicam Stereo
Audio Output	2 x 5 $W_{RMS.}$ (%10 THD)
EXT-1 Terminal	Euroconnector (21-pin, SCART 1) (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 2) (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 3 (side of the cabinet) S-VIDEO connector x 1 (side of the cabinet)
PC IN terminal	Analog RGB D-SUB 15 x 1 • PC signal is available (refer to **page 30** for details of the signals which can be input)
PC AUDIO IN terminal	Stereo mini-jack (3.5 mm diameter)
Dimensions (W x H x D)	612 mm x 513 mm x 200 mm 612 mm x 445 mm x 81 mm (TV only)
Weight	10.7 kg (with stand) / 8.8 kg (TV only)
Accessories	Remote control unit x 1 (RM-C1861) / AA/R6 dry cell battery x 2 AC adaptor x 1 Power cord x 1
Headphone jack	Stereo mini-jack (3.5 mm diameter)

JVC

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1004MKH-VT-VT

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	
CR	Carbon Resistor
FR	Fusible Resistor
PR	Plate Resistor
VR	Variable Resistor
HV R	High Voltage Resistor
MF R	Metal Film Resistor
MG R	Metal Glazed Resistor
MP R	Metal Plate Resistor
OM R	Metal Oxide Film Resistor
CMF R	Coating Metal Film Resistor
UNF R	Non-Flammable Resistor
CH V R	Chip Variable Resistor
CH MG R	Chip Metal Glazed Resistor
COMP. R	Composition Resistor
LPTC R	Linear Positive Temperature Coefficient Resistor

CAPACITORS	
C CAP.	Ceramic Capacitor
E CAP.	Electrolytic Capacitor
M CAP.	Mylar Capacitor
CH CAP.	Chip Capacitor
HV CAP.	High Voltage Capacitor
MF CAP.	Metalized Film Capacitor
MM CAP.	Metalized Mylar Capacitor
MP CAP.	Metalized Polystyrol Capacitor
PP CAP.	Polypropylene Capacitor
PS CAP.	Polystyrol Capacitor
TF CAP.	Thin Film Capacitor
MPP CAP.	Metalized Polypropylene Capacitor
TAN. CAP.	Tantalum Capacitor
CH C CAP.	Chip Ceramic Capacitor
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 3-2
EXPLODED VIEW PARTS LIST 3-2
EXPLODED VIEW 3-3
PRINTED WIRING BOARD PARTS LIST 3-4
PACKING 3-10
PACKING PARTS LIST 3-10

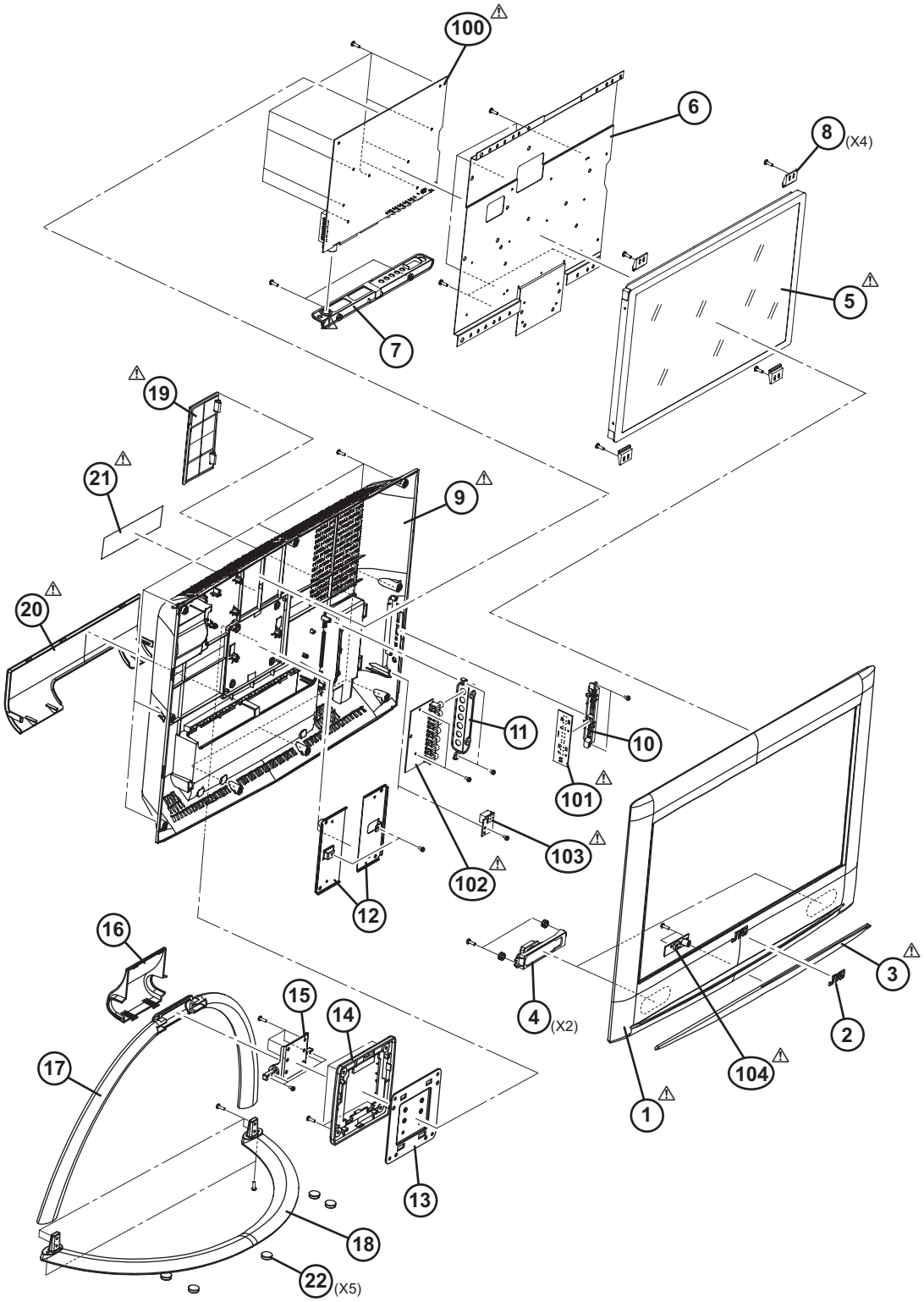
USING P.W. BOARD & REMOTE CONTROL UNIT

P.W.B ASS'Y	LT-23B60SJ	LT-23B60SU
MAIN P.W.B	VE-20202747	←
SIDE CONTROL P.W.B	VE-20198956	←
AV JACK P.W.B	VE-20214362	←
HEADPHONE JACK P.W.B	VE-20177874	←
LED P.W.B	VE-20198076	←
REMOTE CONTROL UNIT	VE-30039453	←

EXPLODED VIEW PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description	Local
⚠	1	VE-20202743	FRONT COVER		
	2	VE-20181315	LOGO JVC		
⚠	3	VE-40024235	LENS		
	4	VE-30026613	SPEAKER	8R 5W 33 X 145MM COMBI (x2)	
⚠	5	VE-30031695	LCD PANEL UNIT	16:9 TFT Inc.INVERTER UNIT	
	6	VE-35011392	MAIN FRAME		
	7	VE-20195291	SCART BRACKET		
	8	VE-20195325	DISPLAY SUPPORT	(x4)	
⚠	9	VE-20202745	BACK COVER		
	10	VE-20182421	FUNCTION BUTTON		
	11	VE-20199486	FAV BRACKET		
	12	VE-35012930	HANG METAL	(x2)	
	13	VE-35011433	METAL HINGE BRACKET		
	14	VE-20197265	FOOT SUPPORT		
	15	VE-45004767	METAL HINGE		
	16	VE-20197266	HINGE COVER		
	17	VE-35012282	FOOT HINGE		
	18	VE-35012283	FOOT		
⚠	19	VE-20202754	AV DOOR SOCKET		
⚠	20	VE-20202755	TFT DOOR SOCKET		
⚠	21	VE-20216448	LABEL		LT-23B60SJ
⚠	21	VE-20212917	LABEL		LT-23B60SU
	22	VE-40024515	FOOT RUBBER	(x5)	
⚠	100	VE-20202747	MAIN PWB		
⚠	101	VE-20198956	SIDE CONTROL PWB		
⚠	102	VE-20214362	AV JACK PWB		
⚠	103	VE-20177874	HEADPHONE JACK PWB		
⚠	104	VE-20198076	LED PWB		

EXPLODED VIEW



PRINTED WIRING BOARD PARTS LIST

⚠Ref No.	Part No.	Part Name	Description Local
IC10	VE-30001670	PREAMPLIFIER TFMS5360	
IC100	VE-30020865	IC	
IC101	VE-30032066	IC	
IC102	VE-30018006	IC	
IC104	VE-30019132	IC	
IC105	VE-30034805	IC	
IC106	VE-30017956	IC	
IC300	VE-30018652	IC	
IC301	VE-20182313	IC(MICOM)	(SERVICE)
IC302	VE-20191738	IC(MEMORY)	(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	
IC705	VE-30010822	IC	
IC800	VE-30040058	IC	
IC901	VE-30027613	IC	
IC902	VE-30014344	TRANSISTOR	
IC904	VE-30027612	IC	
IC906	VE-30018326	IC	
IC907	VE-30027635	IC	
IC909	VE-30007739	IC	
IC910	VE-30007739	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	
Q310	VE-30001458	TRANSISTOR	
Q311	VE-30001423	TRANSISTOR	
Q312	VE-30001458	TRANSISTOR	
Q313	VE-30001457	TRANSISTOR	
Q314	VE-30001457	TRANSISTOR	
Q315	VE-30001457	TRANSISTOR	
Q316	VE-30001457	TRANSISTOR	
Q317	VE-30001457	TRANSISTOR	
Q318	VE-30001458	TRANSISTOR	
Q319	VE-30001458	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	
Q705	VE-30001457	TRANSISTOR	
Q706	VE-30001457	TRANSISTOR	
Q708	VE-30001458	TRANSISTOR	
Q709	VE-30001457	TRANSISTOR	
Q900	VE-30001457	TRANSISTOR	
Q901	VE-30001457	TRANSISTOR	
Q902	VE-30001454	TRANSISTOR	
Q904	VE-30001457	TRANSISTOR	
Q905	VE-30001457	TRANSISTOR	
D1	VE-30016020	Z DIODE	
D10	VE-30001279	LED	RED/GREEN LTL293SJ
D100	VE-30001285	DIODE	
D101	VE-30001285	DIODE	
D103	VE-30007169	DIODE	
D105	VE-30007169	DIODE	
D107	VE-30007169	DIODE	
D108	VE-30025773	Z DIODE	
D109	VE-30025773	Z DIODE	
D111	VE-30007169	DIODE	
D112	VE-30007169	DIODE	
D114	VE-30007763	Z DIODE	
D300	VE-30012412	Z 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-30007760	Z DIODE	
D700	VE-30007761	Z DIODE	
D701	VE-30001285	DIODE	
D702	VE-30001285	DIODE	
D703	VE-30001285	DIODE	
D704	VE-30007760	Z DIODE	
D706	VE-30007760	Z DIODE	
D707	VE-30007760	Z DIODE	
D708	VE-30007760	Z DIODE	
D709	VE-30007760	Z DIODE	
D710	VE-30007760	Z DIODE	
D711	VE-30003720	Z DIODE	
D712	VE-30003720	Z DIODE	
D713	VE-30003720	Z DIODE	
D714	VE-30003720	Z DIODE	
D715	VE-30007760	Z DIODE	
D716	VE-30003720	Z DIODE	
D717	VE-30003720	Z DIODE	
D719	VE-30001285	DIODE	
D723	VE-30018574	DIODE	
D726	VE-30009699	Z DIODE	
D900	VE-30001313	DIODE	
D901	VE-30001313	DIODE	
D902	VE-30001285	DIODE	
D903	VE-30001343	Z DIODE	
D904	VE-30001313	DIODE	
D905	VE-30001285	DIODE	
D906	VE-30001285	DIODE	
C10	VE-30000371	CAPACITOR EL	22uF 50V M
C100	VE-30012589	CAPACITOR	4.7nF 50V K
C100	VE-30012566	CAPACITOR	22pF 50V J
C101	VE-30012589	CAPACITOR	4.7nF 50V K
C101	VE-30012566	CAPACITOR	22pF 50V J
C102	VE-30016654	CAPACITOR	100nF 16V K R
C102	VE-30000190	C CAPACITOR	100pF 50V J CH
C103	VE-30000190	C CAPACITOR	100pF 50V J CH
C104	VE-30016654	CAPACITOR	100nF 16V K R
C104	VE-30000190	C CAPACITOR	100pF 50V J CH
C105	VE-30016654	CAPACITOR	100nF 16V K R
C105	VE-30000190	C CAPACITOR	100pF 50V J CH
C106	VE-30016654	CAPACITOR	100nF 16V K R
C107	VE-30016654	CAPACITOR	100nF 16V K R
C108	VE-30012582	CAPACITOR	10nF 50V K R
C109	VE-30012582	CAPACITOR	10nF 50V K R
C110	VE-30012582	CAPACITOR	10nF 50V K R
C111	VE-30012582	CAPACITOR	10nF 50V K R
C112	VE-30016654	CAPACITOR	100nF 16V K R
C113	VE-30012582	CAPACITOR	10nF 50V K R
C114	VE-30016654	CAPACITOR	100nF 16V K R
C115	VE-30000371	CAPACITOR EL	22uF 50V M
C116	VE-30012590	CAPACITOR	47nF 50V K
C117	VE-30012590	CAPACITOR	47nF 50V K
C118	VE-30012590	CAPACITOR	47nF 50V K
C120	VE-30016654	CAPACITOR	100nF 16V K R
C121	VE-30016654	CAPACITOR	100nF 16V K R
C122	VE-30016654	CAPACITOR	100nF 16V K R
C123	VE-30016654	CAPACITOR	100nF 16V K R
C124	VE-30016654	CAPACITOR	100nF 16V K R
C125	VE-30016654	CAPACITOR	100nF 16V K R
C126	VE-30016654	CAPACITOR	100nF 16V K R
C127	VE-30016654	CAPACITOR	100nF 16V K R
C128	VE-30016654	CAPACITOR	100nF 16V K R
C129	VE-30016654	CAPACITOR	100nF 16V K R
C130	VE-30016654	CAPACITOR	100nF 16V K R
C131	VE-30016654	CAPACITOR	100nF 16V K R
C132	VE-30012581	CAPACITOR	1nF 50V K R
C133	VE-30012587	CAPACITOR	3.3nF 50V K
C134	VE-30012605	CAPACITOR	39nF 50V M
C136	VE-30016654	CAPACITOR	100nF 16V K R
C137	VE-30016654	CAPACITOR	100nF 16V K R

⚠Ref No.	Part No.	Part Name	Description Local
C138	VE-30000371	CAPACITOR EL	22uF 50V M
C139	VE-30000371	CAPACITOR EL	22uF 50V M
C146	VE-30000109	CAPACITOR MKT	470nF 63V J
C147	VE-30016654	CAPACITOR	100nF 16V K R
C148	VE-30012575	CAPACITOR	4.7pF 50V C CH
C149	VE-30012575	CAPACITOR	4.7pF 50V C CH
C150	VE-30016654	CAPACITOR	100nF 16V K R
C151	VE-30016654	CAPACITOR	100nF 16V K R
C152	VE-30016654	CAPACITOR	100nF 16V K R
C153	VE-30012567	CAPACITOR	220pF 50V J
C154	VE-30012567	CAPACITOR	220pF 50V J
C155	VE-30012567	CAPACITOR	220pF 50V J
C156	VE-30000371	CAPACITOR EL	22uF 50V M
C157	VE-30016654	CAPACITOR	100nF 16V K R
C158	VE-30012567	CAPACITOR	220pF 50V J
C159	VE-30016654	CAPACITOR	100nF 16V K R
C160	VE-30012567	CAPACITOR	220pF 50V J
C161	VE-30012567	CAPACITOR	220pF 50V J
C162	VE-30000371	CAPACITOR EL	22uF 50V M
C163	VE-30016654	CAPACITOR	100nF 16V K R
C164	VE-30012567	CAPACITOR	220pF 50V J
C165	VE-30016654	CAPACITOR	100nF 16V K R
C166	VE-30012567	CAPACITOR	220pF 50V J
C167	VE-30016654	CAPACITOR	100nF 16V K R
C168	VE-30016654	CAPACITOR	100nF 16V K R
C169	VE-30012567	CAPACITOR	220pF 50V J
C170	VE-30012567	CAPACITOR	220pF 50V J
C171	VE-30016654	CAPACITOR	100nF 16V K R
C172	VE-30012567	CAPACITOR	220pF 50V J
C174	VE-30016654	CAPACITOR	100nF 16V K R
C175	VE-30012567	CAPACITOR	220pF 50V J
C176	VE-30016654	CAPACITOR	100nF 16V K R
C177	VE-30000371	CAPACITOR EL	22uF 50V M
C178	VE-30016654	CAPACITOR	100nF 16V K R
C183	VE-30016654	CAPACITOR	100nF 16V K R
C185	VE-30000352	E CAPACITOR	100uF 16V M
C187	VE-30012573	CAPACITOR	47pF 50V J
C189	VE-30016654	CAPACITOR	100nF 16V K R
C217	VE-30012581	CAPACITOR	1nF 50V K R
C218	VE-30012575	CAPACITOR	4.7pF 50V C CH
C219	VE-30000345	E CAPACITOR	10uF 50V M
C300	VE-30000352	E CAPACITOR	100uF 16V M
C301	VE-30016654	CAPACITOR	100nF 16V K R
C302	VE-30000371	CAPACITOR EL	22uF 50V M
C303	VE-30016654	CAPACITOR	100nF 16V K R
C304	VE-30016654	CAPACITOR	100nF 16V K R
C305	VE-30000371	CAPACITOR EL	22uF 50V M
C306	VE-30016654	CAPACITOR	100nF 16V K R
C307	VE-30016654	CAPACITOR	100nF 16V K R
C308	VE-30000371	CAPACITOR EL	22uF 50V M
C309	VE-30016654	CAPACITOR	100nF 16V K R
C310	VE-30016654	CAPACITOR	100nF 16V K R
C311	VE-30016654	CAPACITOR	100nF 16V K R
C312	VE-30016654	CAPACITOR	100nF 16V K R
C313	VE-30016654	CAPACITOR	100nF 16V K R
C314	VE-30000109	CAPACITOR MKT	470nF 63V J
C315	VE-30016654	CAPACITOR	100nF 16V K R
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	CAPACITOR EL	22uF 50V M
C320	VE-30016654	CAPACITOR	100nF 16V K R
C321	VE-30016654	CAPACITOR	100nF 16V K R
C324	VE-30000371	CAPACITOR EL	22uF 50V M
C325	VE-30012611	CAPACITOR	120pF 50V J
C326	VE-30012576	CAPACITOR	56pF 50V J CH
C327	VE-30016654	CAPACITOR	100nF 16V K R
C328	VE-30000393	E CAPACITOR	3.3uF 50V M
C331	VE-30012607	CAPACITOR	150pF 50V J
C332	VE-30016654	CAPACITOR	100nF 16V K R
C333	VE-30016654	CAPACITOR	100nF 16V K R
C334	VE-30000354	E CAPACITOR	100uF 35V M
C335	VE-30016654	CAPACITOR	100nF 16V K R
C336	VE-30012611	CAPACITOR	120pF 50V J
C337	VE-30016654	CAPACITOR	100nF 16V K R
C338	VE-30016654	CAPACITOR	100nF 16V K R
C339	VE-30016654	CAPACITOR	100nF 16V K R
C340	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C400	VE-30012609	CAPACITOR	68nF 50V K
C401	VE-30012583	CAPACITOR	1.5nF 50V K
C402	VE-30012590	CAPACITOR	47nF 50V K
C403	VE-30016654	CAPACITOR	100nF 16V K R
C404	VE-30012613	CAPACITOR	3.3pF 50V C CH
C405	VE-30012613	CAPACITOR	3.3pF 50V C CH
C406	VE-30000315	CAPACITOR	220nF 25V Z
C407	VE-30012583	CAPACITOR	1.5nF 50V K
C408	VE-30012572	CAPACITOR	390pF 50V J
C409	VE-30000345	E CAPACITOR	10uF 50V M
C410	VE-30012590	CAPACITOR	47nF 50V K
C411	VE-30000068	CAPACITOR MKT	1nF 63V K
C412	VE-30007082	CAPACITOR MKT	680nF 63V J
C413	VE-30007082	CAPACITOR MKT	680nF 63V J
C414	VE-30012582	CAPACITOR	10nF 50V K R
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 R
C425	VE-30000315	CAPACITOR	220nF 25V Z
C426	VE-30012583	CAPACITOR	1.5nF 50V K
C427	VE-30012572	CAPACITOR	390pF 50V J
C428	VE-30012590	CAPACITOR	47nF 50V K
C429	VE-30012583	CAPACITOR	1.5nF 50V K
C430	VE-30012609	CAPACITOR	68nF 50V K
C431	VE-30000315	CAPACITOR	220nF 25V Z
C432	VE-30000315	CAPACITOR	220nF 25V Z
C433	VE-30000315	CAPACITOR	220nF 25V Z
C434	VE-30012570	CAPACITOR	330pF 50V J
C435	VE-30012570	CAPACITOR	330pF 50V J
C436	VE-30012570	CAPACITOR	330pF 50V J
C437	VE-30007082	CAPACITOR MKT	680nF 63V J
C438	VE-30000371	CAPACITOR EL	22uF 50V M
C439	VE-30012609	CAPACITOR	68nF 50V K
C440	VE-30000352	E CAPACITOR	100uF 16V M
C441	VE-30016654	CAPACITOR	100nF 16V K R
C442	VE-30012569	CAPACITOR	33pF 50V J
C443	VE-30016654	CAPACITOR	100nF 16V K R
C485	VE-30016654	CAPACITOR	100nF 16V K R
C486	VE-30016654	CAPACITOR	100nF 16V K R
C487	VE-30016654	CAPACITOR	100nF 16V K R
C488	VE-30016654	CAPACITOR	100nF 16V K R
C489	VE-30016654	CAPACITOR	100nF 16V K R
C490	VE-30016654	CAPACITOR	100nF 16V K R
C491	VE-30016654	CAPACITOR	100nF 16V K R
C492	VE-30000345	E CAPACITOR	10uF 50V M
C493	VE-30000294	CAPACITOR	100nF 50V K
C494	VE-30012569	CAPACITOR	33pF 50V J
C495	VE-30012569	CAPACITOR	33pF 50V J
C496	VE-30012569	CAPACITOR	33pF 50V J
C502	VE-30016654	CAPACITOR	100nF 16V K R
C503	VE-30000345	E CAPACITOR	10uF 50V M
C505	VE-30000400	E CAPACITOR	47uF 50V M
C506	VE-30012582	CAPACITOR	10nF 50V K R
C507	VE-30012572	CAPACITOR	390pF 50V J
C508	VE-30000109	CAPACITOR MKT	470nF 63V J
C509	VE-30012582	CAPACITOR	10nF 50V K R
C510	VE-30012566	CAPACITOR	22pF 50V J
C511	VE-30000109	CAPACITOR MKT	470nF 63V J
C512	VE-30016654	CAPACITOR	100nF 16V K R
C513	VE-30012583	CAPACITOR	1.5nF 50V K
C514	VE-30016654	CAPACITOR	100nF 16V K R
C515	VE-30016654	CAPACITOR	100nF 16V K R
C517	VE-30012569	CAPACITOR	33pF 50V J
C519	VE-30016654	CAPACITOR	100nF 16V K R
C520	VE-30012582	CAPACITOR	10nF 50V K R
C522	VE-30000315	CAPACITOR	220nF 25V Z
C523	VE-30000371	CAPACITOR EL	22uF 50V M
C524	VE-30016654	CAPACITOR	100nF 16V K R
C525	VE-30000407	E CAPACITOR	470uF 16V M
C526	VE-30016654	CAPACITOR	100nF 16V K R
C527	VE-30000345	E CAPACITOR	10uF 50V M
C600	VE-30000352	E CAPACITOR	100uF 16V M
C601	VE-30000074	CAPACITOR MKT	100nF 63V J
C602	VE-30000074	CAPACITOR MKT	100nF 63V J
C603	VE-30000074	CAPACITOR MKT	100nF 63V J
C604	VE-30016654	CAPACITOR	100nF 16V K R
C605	VE-30016654	CAPACITOR	100nF 16V K R
C606	VE-30000074	CAPACITOR MKT	100nF 63V J
C607	VE-30012569	CAPACITOR	33pF 50V J
C608	VE-30016654	CAPACITOR	100nF 16V K R
C609	VE-30016654	CAPACITOR	100nF 16V K R
C610	VE-30016654	CAPACITOR	100nF 16V K R
C611	VE-30016654	CAPACITOR	100nF 16V K R
C612	VE-30016654	CAPACITOR	100nF 16V K R
C613	VE-30016654	CAPACITOR	100nF 16V K R
C614	VE-30016654	CAPACITOR	100nF 16V K R
C700	VE-30016654	CAPACITOR	100nF 16V K R
C701	VE-30012587	CAPACITOR	3.3nF 50V K
C702	VE-30000352	E CAPACITOR	100uF 16V M
C703	VE-30012587	CAPACITOR	3.3nF 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

⚠Ref No.	Part No.	Part Name	Description Local
C707	VE-30012589	CAPACITOR	4.7nF 50V K
C708	VE-30016654	CAPACITOR	100nF 16V K R
C709	VE-30000315	CAPACITOR	220nF 25V Z
C710	VE-30000315	CAPACITOR	220nF 25V Z
C711	VE-30000315	CAPACITOR	220nF 25V Z
C712	VE-30000315	CAPACITOR	220nF 25V Z
C713	VE-30012576	CAPACITOR	56pF 50V J CH
C714	VE-30016654	CAPACITOR	100nF 16V K R
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 R
C720	VE-30012581	CAPACITOR	1nF 50V K R
C721	VE-30012565	CAPACITOR	1.8pF 50V J CH
C722	VE-30012565	CAPACITOR	1.8pF 50V J CH
C723	VE-30012581	CAPACITOR	1nF 50V K R
C724	VE-30012581	CAPACITOR	1nF 50V K R
C725	VE-30012585	CAPACITOR	2.2nF 50V K R
C726	VE-30012576	CAPACITOR	56pF 50V J CH
C727	VE-30016654	CAPACITOR	100nF 16V K R
C728	VE-30016654	CAPACITOR	100nF 16V K R
C729	VE-30012585	CAPACITOR	2.2nF 50V K R
C730	VE-30012607	CAPACITOR	150pF 50V J
C731	VE-30012607	CAPACITOR	150pF 50V J
C732	VE-30000315	CAPACITOR	220nF 25V Z
C733	VE-30000315	CAPACITOR	220nF 25V Z
C734	VE-30016654	CAPACITOR	100nF 16V K R
C735	VE-30012568	CAPACITOR	270pF 50V J
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-30000362	E CAPACITOR	1uF 50V M
C740	VE-30012568	CAPACITOR	270pF 50V J
C741	VE-30012589	CAPACITOR	4.7nF 50V K
C742	VE-30000371	CAPACITOR EL	22uF 50V M
C743	VE-30000371	CAPACITOR EL	22uF 50V M
C744	VE-30000371	CAPACITOR EL	22uF 50V M
C745	VE-30000371	CAPACITOR EL	22uF 50V M
C746	VE-30012567	CAPACITOR	220pF 50V J
C747	VE-30012574	CAPACITOR	470pF 50V J
C748	VE-30012582	CAPACITOR	10nF 50V K R
C749	VE-30016654	CAPACITOR	100nF 16V K R
C750	VE-30012576	CAPACITOR	56pF 50V J CH
C751	VE-30000407	E CAPACITOR	470uF 16V M
C752	VE-30012585	CAPACITOR	2.2nF 50V K R
C753	VE-30012585	CAPACITOR	2.2nF 50V K R
C754	VE-30012578	CAPACITOR	68pF 50V J
C755	VE-30012578	CAPACITOR	68pF 50V J
C756	VE-30012585	CAPACITOR	2.2nF 50V K R
C757	VE-30012585	CAPACITOR	2.2nF 50V K R
C758	VE-30000315	CAPACITOR	220nF 25V Z
C759	VE-30000315	CAPACITOR	220nF 25V Z
C760	VE-30012581	CAPACITOR	1nF 50V K R
C761	VE-30012581	CAPACITOR	1nF 50V K R
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 R
C767	VE-30012607	CAPACITOR	150pF 50V J
C768	VE-30012607	CAPACITOR	150pF 50V J
C769	VE-30000371	CAPACITOR EL	22uF 50V M
C770	VE-30000371	CAPACITOR EL	22uF 50V M
C771	VE-30000315	CAPACITOR	220nF 25V Z
C772	VE-30012581	CAPACITOR	1nF 50V K R
C773	VE-30000315	CAPACITOR	220nF 25V Z
C774	VE-30012581	CAPACITOR	1nF 50V K R
C775	VE-30000345	E CAPACITOR	10uF 50V M
C776	VE-30000294	CAPACITOR	100nF 50V 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 R
C781	VE-30012582	CAPACITOR	10nF 50V K R
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 R
C786	VE-30012581	CAPACITOR	1nF 50V K R
C787	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C788	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C789	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C790	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C791	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C792	VE-30000294	CAPACITOR	100nF 50V K
C793	VE-30012582	CAPACITOR	10nF 50V K R
C794	VE-30012582	CAPACITOR	10nF 50V K R
C795	VE-30012581	CAPACITOR	1nF 50V K R
C796	VE-30012581	CAPACITOR	1nF 50V K R
C797	VE-30000294	CAPACITOR	100nF 50V K
C798	VE-30012574	CAPACITOR	470pF 50V J
C799	VE-30012567	CAPACITOR	220pF 50V J
C801	VE-30000294	CAPACITOR	100nF 50V K
C802	VE-30000294	CAPACITOR	100nF 50V K
C803	VE-30000345	E CAPACITOR	10uF 50V M
C804	VE-30016654	CAPACITOR	100nF 16V K R
C805	VE-30012581	CAPACITOR	1nF 50V K R
C806	VE-30000354	E CAPACITOR	100uF 35V M
C807	VE-30012574	CAPACITOR	470pF 50V J
C808	VE-30016654	CAPACITOR	100nF 16V K R
C808	VE-30000315	CAPACITOR	220nF 25V Z
C809	VE-30000315	CAPACITOR	220nF 25V Z
C810	VE-30012582	CAPACITOR	10nF 50V K R
C811	VE-30016654	CAPACITOR	100nF 16V K R
C812	VE-30000315	CAPACITOR	220nF 25V Z
C814	VE-30016654	CAPACITOR	100nF 16V K R
C815	VE-30012582	CAPACITOR	10nF 50V K R
C816	VE-30012582	CAPACITOR	10nF 50V K R
C817	VE-30016654	CAPACITOR	100nF 16V K R
C818	VE-30016654	CAPACITOR	100nF 16V K R
C820	VE-30000315	CAPACITOR	220nF 25V Z
C823	VE-30012560	CAPACITOR	100pF 50V J
C824	VE-30012560	CAPACITOR	100pF 50V J
C825	VE-30012581	CAPACITOR	1nF 50V K R
C827	VE-30000352	E CAPACITOR	100uF 16V M
C828	VE-30016654	CAPACITOR	100nF 16V K R
C829	VE-30012582	CAPACITOR	10nF 50V K R
C830	VE-30016654	CAPACITOR	100nF 16V K R
C831	VE-30000371	CAPACITOR EL	22uF 50V M
C832	VE-30012562	CAPACITOR	15pF 50V J
C833	VE-30016654	CAPACITOR	100nF 16V K R
C834	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C835	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C837	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C839	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C840	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C846	VE-30000407	E CAPACITOR	470uF 16V M
C849	VE-30012574	CAPACITOR	470pF 50V J
C851	VE-30012574	CAPACITOR	470pF 50V J
C852	VE-30012574	CAPACITOR	470pF 50V J
C853	VE-30012574	CAPACITOR	470pF 50V J
C861	VE-30020694	CAPACITOR	1uF 16V Z Y5V
C862	VE-30016654	CAPACITOR	100nF 16V K R
C900	VE-30000354	E CAPACITOR	100uF 35V M
C903	VE-30000354	E CAPACITOR	100uF 35V M
C904	VE-30012582	CAPACITOR	10nF 50V K R
C908	VE-30000359	E CAPACITOR	1000uF 16V M
C909	VE-30016654	CAPACITOR	100nF 16V K R
C910	VE-30000354	E CAPACITOR	100uF 35V M
C911	VE-30012582	CAPACITOR	10nF 50V K R
C912	VE-30000359	E CAPACITOR	1000uF 16V M
C913	VE-30016654	CAPACITOR	100nF 16V K R
C915	VE-30016654	CAPACITOR	100nF 16V K R
C916	VE-30016654	CAPACITOR	100nF 16V K R
C917	VE-30000371	CAPACITOR EL	22uF 50V M
C918	VE-30000371	CAPACITOR EL	22uF 50V M
C919	VE-30016654	CAPACITOR	100nF 16V K R
C920	VE-30000354	E CAPACITOR	100uF 35V M
C921	VE-30012582	CAPACITOR	10nF 50V K R
C922	VE-30000359	E CAPACITOR	1000uF 16V M
C923	VE-30016654	CAPACITOR	100nF 16V K R
C924	VE-30012576	CAPACITOR	56pF 50V J CH
C925	VE-30012560	CAPACITOR	100pF 50V J
C926	VE-30000371	CAPACITOR EL	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-30000371	CAPACITOR EL	22uF 50V M
C932	VE-30000294	CAPACITOR	100nF 50V K
C933	VE-30000294	CAPACITOR	100nF 50V K
C934	VE-30031594	E CAPACITOR	2200uF 10V M 10X20 LL
C935	VE-30016654	CAPACITOR	100nF 16V K R
C936	VE-30016654	CAPACITOR	100nF 16V K R
C937	VE-30000371	CAPACITOR EL	22uF 50V M
C938	VE-30000352	E CAPACITOR	100uF 16V M
C941	VE-30000294	CAPACITOR	100nF 50V K
R1	VE-30000459	RESISTOR CF	1/4W 100R J
R1	VE-30000689	RESISTOR CF	1/4W 3.9K J
R2	VE-30000526	RESISTOR CF	1/4W 1.5K J
R3	VE-30000770	RESISTOR CF	1/4W 680R J
R4	VE-30000712	RESISTOR CF	1/4W 470R J
R5	VE-30000622	RESISTOR CF	1/4W 270R J

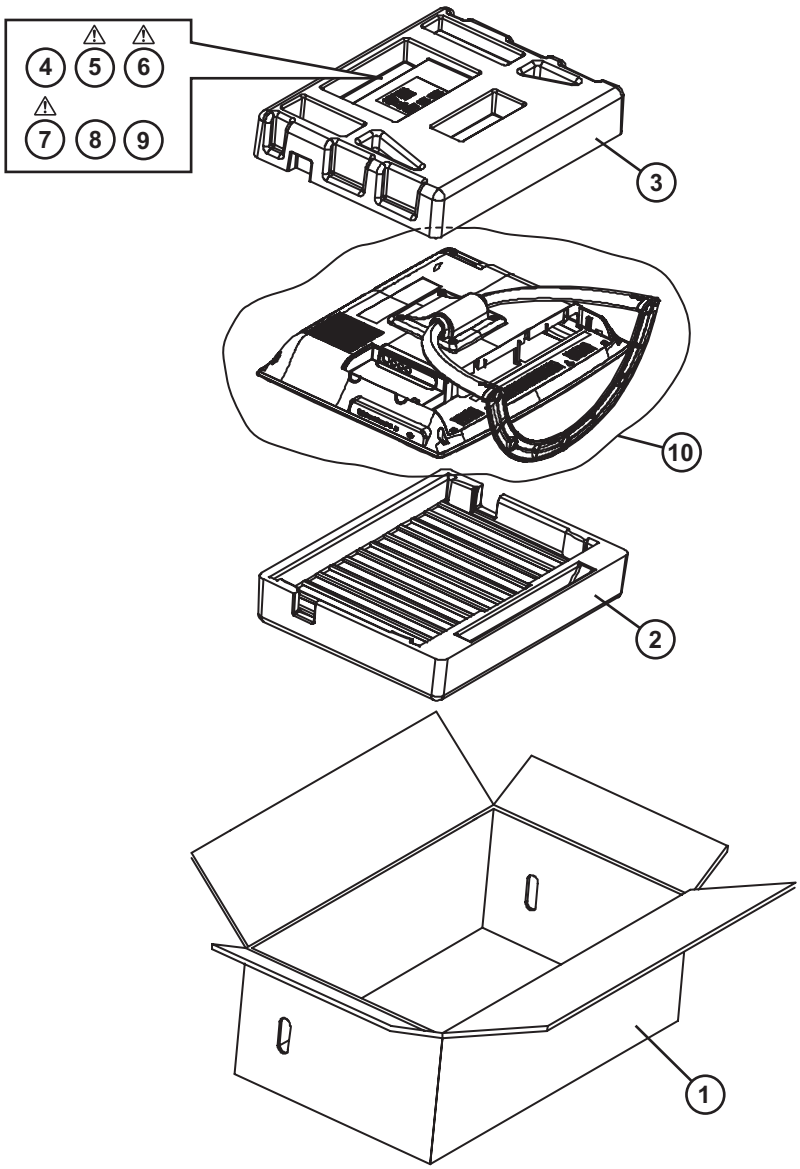
⚠Ref No.	Part No.	Part Name	Description	Local
R100	VE-30014128	RESISTOR	1/16W 33R J	
R100	VE-30012713	RESISTOR	1/16W 75R J	
R101	VE-30014128	RESISTOR	1/16W 33R J	
R101	VE-30012713	RESISTOR	1/16W 75R J	
R102	VE-30012641	RESISTOR	1/16W 10K J	
R102	VE-30012713	RESISTOR	1/16W 75R J	
R103	VE-30012641	RESISTOR	1/16W 10K J	
R103	VE-30012713	RESISTOR	1/16W 75R J	
R104	VE-30012713	RESISTOR	1/16W 75R J	
R104	VE-30000594	RESISTOR CF	1/4W 22K J	
R105	VE-30012641	RESISTOR	1/16W 10K J	
R105	VE-30000712	RESISTOR CF	1/4W 470R J	
R106	VE-30012641	RESISTOR	1/16W 10K J	
R106	VE-30000594	RESISTOR CF	1/4W 22K J	
R107	VE-30012510	RESISTOR	1/16W 100R J	
R107	VE-30000712	RESISTOR CF	1/4W 470R J	
R108	VE-30012510	RESISTOR	1/16W 100R J	
R108	VE-30000650	RESISTOR CF	1/4W 33R J	
R109	VE-30012692	RESISTOR	1/16W 4.7K J	
R109	VE-30000650	RESISTOR CF	1/4W 33R J	
R110	VE-30012692	RESISTOR	1/16W 4.7K J	
R111	VE-30012510	RESISTOR	1/16W 100R J	
R121	VE-30012677	RESISTOR	1/16W 3.3K 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	
R130	VE-30030692	FERRITE NET	120R/100MHz 150mA	
R131	VE-30030692	FERRITE NET	120R/100MHz 150mA	
R132	VE-30030692	FERRITE NET	120R/100MHz 150mA	
R133	VE-30030692	FERRITE NET	120R/100MHz 150mA	
R134	VE-30030692	FERRITE NET	120R/100MHz 150mA	
R135	VE-30030692	FERRITE NET	120R/100MHz 150mA	
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	
R156	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J	
R157	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J	
R158	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J	
R159	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J	
R160	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J	
R161	VE-30017653	RESISTOR SARRAY	1/16W 47RX4 J	
R162	VE-30012509	RESISTOR	1/16W 100K J	
R165	VE-30025836	FERRITE NET	240R/100MHz 150mA	
R166	VE-30025836	FERRITE NET	240R/100MHz 150mA	
R167	VE-30020529	FERRITE	120R/100MHz 200mA	
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	
R197	VE-30022083	RESISTOR	1/16W 330R J	
R300	VE-30012657	RESISTOR	1/16W 1K J	
R301	VE-30018409	RESISTOR SARRAY	1/16W 330R J	
R302	VE-30018409	RESISTOR SARRAY	1/16W 330R J	
R303	VE-30018409	RESISTOR SARRAY	1/16W 330R J	
R304	VE-30018409	RESISTOR SARRAY	1/16W 330R J	
R305	VE-30018409	RESISTOR SARRAY	1/16W 330R J	
R306	VE-30018409	RESISTOR SARRAY	1/16W 330R J	
R307	VE-30018409	RESISTOR SARRAY	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-30012679	RESISTOR	1/16W 3.9K J	
R314	VE-30012679	RESISTOR	1/16W 3.9K J	
R315	VE-30012692	RESISTOR	1/16W 4.7K J	
R316	VE-30012679	RESISTOR	1/16W 3.9K J	
R317	VE-30012650	RESISTOR	1/16W 15K J	
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-30012705	RESISTOR	1/16W 6.8K J	
R335	VE-30012705	RESISTOR	1/16W 6.8K J	
R336	VE-30012692	RESISTOR	1/16W 4.7K J	
R337	VE-30012692	RESISTOR	1/16W 4.7K J	
R339	VE-30012509	RESISTOR	1/16W 100K 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-30012657	RESISTOR	1/16W 1K J	
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	
R352	VE-30012669	RESISTOR	1/16W 22K 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	
R362	VE-30012982	RESISTOR	1/16W 10R J	
R363	VE-30012695	RESISTOR	1/16W 470R J	
R364	VE-30012695	RESISTOR	1/16W 470R J	
R368	VE-30012692	RESISTOR	1/16W 4.7K J	
R369	VE-30012692	RESISTOR	1/16W 4.7K J	
R370	VE-30012669	RESISTOR	1/16W 22K J	
R371	VE-30012657	RESISTOR	1/16W 1K J	
R372	VE-30014022	RESISTOR	1/16W 47R J	
R373	VE-30012655	RESISTOR	1/16W 180R 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	
R377	VE-30012684	RESISTOR	1/16W 330R J	
R378	VE-30012684	RESISTOR	1/16W 330R J	
R379	VE-30012510	RESISTOR	1/16W 100R J	
R380	VE-30012669	RESISTOR	1/16W 22K J	
R381	VE-30012657	RESISTOR	1/16W 1K J	
R382	VE-30012982	RESISTOR	1/16W 10R J	
R383	VE-30012650	RESISTOR	1/16W 15K J	
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	
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	

⚠Ref No.	Part No.	Part Name	Description Local
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-30014078	RESISTOR	1/16W 22R 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-30018254	RESISTOR SARRAY	1/16W 10R J
R417	VE-30018254	RESISTOR SARRAY	1/16W 10R J
R425	VE-30012695	RESISTOR	1/16W 470R J
R426	VE-30012695	RESISTOR	1/16W 470R J
R427	VE-30012695	RESISTOR	1/16W 470R 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
R440	VE-30012641	RESISTOR	1/16W 10K J
R441	VE-30012641	RESISTOR	1/16W 10K J
R442	VE-30012641	RESISTOR	1/16W 10K J
R443	VE-30012641	RESISTOR	1/16W 10K J
R450	VE-30012659	RESISTOR	1/16W 2.2K J
R454	VE-30012692	RESISTOR	1/16W 4.7K J
R456	VE-30012510	RESISTOR	1/16W 100R J
R457	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-30012695	RESISTOR	1/16W 470R J
R517	VE-30012659	RESISTOR	1/16W 2.2K J
R518	VE-30012510	RESISTOR	1/16W 100R J
R522	VE-30012685	RESISTOR	1/16W 33K J
R523	VE-30012677	RESISTOR	1/16W 3.3K J
R524	VE-30012643	RESISTOR	1/16W 120R J
R525	VE-30012707	RESISTOR	1/16W 680R J
R527	VE-30012705	RESISTOR	1/16W 6.8K J
R528	VE-30012574	CAPACITOR	470pF 50V 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
R601	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
R610	VE-30012695	RESISTOR	1/16W 470R J
R611	VE-30012641	RESISTOR	1/16W 10K J
R612	VE-30012692	RESISTOR	1/16W 4.7K J
R613	VE-30012713	RESISTOR	1/16W 75R J
R614	VE-30000797	RESISTOR	1/10W 75R J
R615	VE-30012713	RESISTOR	1/16W 75R J
R617	VE-30012713	RESISTOR	1/16W 75R J
R618	VE-30012982	RESISTOR	1/16W 10R J
R619	VE-30012695	RESISTOR	1/16W 470R J
R620	VE-30012641	RESISTOR	1/16W 10K J
R621	VE-30012692	RESISTOR	1/16W 4.7K J
R622	VE-30012713	RESISTOR	1/16W 75R J
R623	VE-30012713	RESISTOR	1/16W 75R J
R625	VE-30012982	RESISTOR	1/16W 10R J
R626	VE-30012695	RESISTOR	1/16W 470R J
R627	VE-30012641	RESISTOR	1/16W 10K J
R628	VE-30012692	RESISTOR	1/16W 4.7K J
R629	VE-30012713	RESISTOR	1/16W 75R J
R630	VE-30000797	RESISTOR	1/10W 75R J
R631	VE-30012713	RESISTOR	1/16W 75R J
R632	VE-30012509	RESISTOR	1/16W 100K J
R633	VE-30012509	RESISTOR	1/16W 100K J
R634	VE-30012509	RESISTOR	1/16W 100K J
R635	VE-30012509	RESISTOR	1/16W 100K J
R636	VE-30012509	RESISTOR	1/16W 100K J
R637	VE-30012509	RESISTOR	1/16W 100K J
R700	VE-30012641	RESISTOR	1/16W 10K J
R701	VE-30012641	RESISTOR	1/16W 10K J
R702	VE-30012510	RESISTOR	1/16W 100R J
R703	VE-30012510	RESISTOR	1/16W 100R J
R704	VE-30012692	RESISTOR	1/16W 4.7K J
R705	VE-30012685	RESISTOR	1/16W 33K J
R706	VE-30012641	RESISTOR	1/16W 10K J
R707	VE-30012685	RESISTOR	1/16W 33K J
R708	VE-30012715	RESISTOR	1/16W 82K J
R709	VE-30012715	RESISTOR	1/16W 82K J
R710	VE-30012641	RESISTOR	1/16W 10K J
R711	VE-30012510	RESISTOR	1/16W 100R J
R712	VE-30012657	RESISTOR	1/16W 1K J
R713	VE-30012657	RESISTOR	1/16W 1K J
R714	VE-30012702	RESISTOR	1/16W 560R J
R715	VE-30012702	RESISTOR	1/16W 560R J
R716	VE-30012702	RESISTOR	1/16W 560R J
R717	VE-30012702	RESISTOR	1/16W 560R J
R718	VE-30012657	RESISTOR	1/16W 1K J
R719	VE-30012657	RESISTOR	1/16W 1K J
R720	VE-30023426	FIXED COIL	1.2uH KQ4550mA
R721	VE-30023426	FIXED COIL	1.2uH KQ4550mA
R722	VE-30023426	FIXED COIL	1.2uH KQ4550mA
R723	VE-30012713	RESISTOR	1/16W 75R J
R724	VE-30012713	RESISTOR	1/16W 75R J
R725	VE-30012713	RESISTOR	1/16W 75R J
R726	VE-30012657	RESISTOR	1/16W 1K J
R727	VE-30012657	RESISTOR	1/16W 1K J
R728	VE-30023426	FIXED COIL	1.2uH KQ4550mA
R729	VE-30012713	RESISTOR	1/16W 75R J
R730	VE-30023426	FIXED COIL	1.2uH KQ4550mA
R731	VE-30012713	RESISTOR	1/16W 75R J
R732	VE-30012713	RESISTOR	1/16W 75R J
R733	VE-30023426	FIXED COIL	1.2uH KQ4550mA
R734	VE-30012510	RESISTOR	1/16W 100R J
R735	VE-30012510	RESISTOR	1/16W 100R J
R736	VE-30012657	RESISTOR	1/16W 1K J
R737	VE-30012657	RESISTOR	1/16W 1K J
R738	VE-30012657	RESISTOR	1/16W 1K J
R739	VE-30012657	RESISTOR	1/16W 1K J
R740	VE-30000469	RESISTOR	1/10W 1K J
R741	VE-30000469	RESISTOR	1/10W 1K J
R742	VE-30012642	RESISTOR	1/16W 120K J
R743	VE-30012644	RESISTOR	1/16W 12K J
R744	VE-30012696	RESISTOR	1/16W 47K J
R745	VE-30024719	RESISTOR	1/16W 47K F
R746	VE-30024811	RESISTOR	1/16W 33K F
R747	VE-30012713	RESISTOR	1/16W 75R J
R748	VE-30012713	RESISTOR	1/16W 75R J
R749	VE-30012668	RESISTOR	1/16W 220R J
R751	VE-30012510	RESISTOR	1/16W 100R J
R752	VE-30012657	RESISTOR	1/16W 1K J
R753	VE-30012641	RESISTOR	1/16W 10K J
R754	VE-30012641	RESISTOR	1/16W 10K J
R756	VE-30012641	RESISTOR	1/16W 10K J
R757	VE-30012641	RESISTOR	1/16W 10K J
R759	VE-30012692	RESISTOR	1/16W 4.7K J
R760	VE-30012641	RESISTOR	1/16W 10K J
R763	VE-30012692	RESISTOR	1/16W 4.7K J
R765	VE-30012641	RESISTOR	1/16W 10K J
R766	VE-30012509	RESISTOR	1/16W 100K J
R767	VE-30012509	RESISTOR	1/16W 100K J
R768	VE-30012509	RESISTOR	1/16W 100K J
R769	VE-30012509	RESISTOR	1/16W 100K J
R770	VE-30012641	RESISTOR	1/16W 10K J
R771	VE-30012641	RESISTOR	1/16W 10K J
R778	VE-30012641	RESISTOR	1/16W 10K J
R779	VE-30012509	RESISTOR	1/16W 100K J
R780	VE-30012669	RESISTOR	1/16W 22K J
R800	VE-30012692	RESISTOR	1/16W 4.7K J
R901	VE-30012641	RESISTOR	1/16W 10K J
R902	VE-30012509	RESISTOR	1/16W 100K J
R903	VE-30012641	RESISTOR	1/16W 10K J
R904	VE-30012641	RESISTOR	1/16W 10K J
R907	VE-30012510	RESISTOR	1/16W 100R J
R908	VE-30012510	RESISTOR	1/16W 100R J
R909	VE-30012677	RESISTOR	1/16W 3.3K J
R910	VE-30012510	RESISTOR	1/16W 100R J
R911	VE-30012510	RESISTOR	1/16W 100R J
R912	VE-30012655	RESISTOR	1/16W 180R J
R913	VE-30012659	RESISTOR	1/16W 2.2K J
R915	VE-30012703	RESISTOR	1/16W 56K J
R916	VE-30000833	RESISTOR	1/10W 91R J
R917	VE-30000833	RESISTOR	1/10W 91R J

⚠Ref No.	Part No.	Part Name	Description Local
R918	VE-30012705	RESISTOR	1/16W 6.8K J
R919	VE-30000833	RESISTOR	1/10W 91R J
R920	VE-30000717	RESISTOR	1/10W 470R J
R921	VE-30006462	RESISTOR	1/10W 22R J
R922	VE-30012641	RESISTOR	1/16W 10K J
R923	VE-30012641	RESISTOR	1/16W 10K J
R924	VE-30012641	RESISTOR	1/16W 10K J
R925	VE-30012641	RESISTOR	1/16W 10K J
R926	VE-30012641	RESISTOR	1/16W 10K J
R927	VE-30012641	RESISTOR	1/16W 10K J
R928	VE-30012641	RESISTOR	1/16W 10K J
R929	VE-30012642	RESISTOR	1/16W 120K J
L100	VE-30001996	FIXED COIL	22uH Q40 K
L101	VE-30001996	FIXED COIL	22uH Q40 K
L101	VE-30001971	FERRITE	600R/100MHz 200mA
L102	VE-30001979	FIXED COIL	1uH Q45 M-A
L103	VE-30001979	FIXED COIL	1uH Q45 M-A
L104	VE-30001971	FERRITE	600R/100MHz 200mA
L104	VE-30006712	FERRITE BEAD	3.5X4.7X0.8
L105	VE-30001971	FERRITE	600R/100MHz 200mA
L105	VE-30006712	FERRITE BEAD	3.5X4.7X0.8
L106	VE-30006712	FERRITE BEAD	3.5X4.7X0.8
L109	VE-30001971	FERRITE	600R/100MHz 200mA
L110	VE-30001971	FERRITE	600R/100MHz 200mA
L113	VE-30020896	FERRITE	120R/100MHz 200mA
L300	VE-30017143	FIXED COIL	22uH J Q25 125mA
L301	VE-30018093	FIXED COIL	3.3uH J 185mA
L302	VE-30018093	FIXED COIL	3.3uH J 185mA
L303	VE-30018093	FIXED COIL	3.3uH J 185mA
L304	VE-30001990	FIXED COIL	6.8uH Q75 K
L305	VE-30001990	FIXED COIL	6.8uH Q75 K
L306	VE-30001971	FERRITE	600R/100MHz 200mA
L307	VE-30006712	FERRITE BEAD	3.5X4.7X0.8
L308	VE-30002170	FERRITE CORE	1A RAD
L309	VE-30001971	FERRITE	600R/100MHz 200mA
L401	VE-30001971	FERRITE	600R/100MHz 200mA
L402	VE-30001971	FERRITE	600R/100MHz 200mA
L408	VE-30001971	FERRITE	600R/100MHz 200mA
L409	VE-30001996	FIXED COIL	22uH Q40 K
L501	VE-30001971	FERRITE	600R/100MHz 200mA
L502	VE-30001971	FERRITE	600R/100MHz 200mA
L503	VE-30001971	FERRITE	600R/100MHz 200mA
L504	VE-30001996	FIXED COIL	22uH Q40 K
L600	VE-30017143	FIXED COIL	22uH J Q25 125mA (2520)R
L700	VE-30001971	FERRITE	600R/100MHz 200mA
L701	VE-30001971	FERRITE	600R/100MHz 200mA
L702	VE-30001971	FERRITE	600R/100MHz 200mA
L703	VE-30001971	FERRITE	600R/100MHz 200mA
L704	VE-30001971	FERRITE	600R/100MHz 200mA
L705	VE-30001971	FERRITE	600R/100MHz 200mA
L707	VE-30001971	FERRITE	600R/100MHz 200mA
L708	VE-30001971	FERRITE	600R/100MHz 200mA
L709	VE-30001971	FERRITE	600R/100MHz 200mA
L710	VE-30006712	FERRITE BEAD	3.5X4.7X0.8
L711	VE-30013412	FERRITE	1.5K/100MHz 500 mA
L712	VE-30013412	FERRITE	1.5K/100MHz 500 mA
L713	VE-30001971	FERRITE	600R/100MHz 200mA
L714	VE-30001971	FERRITE	600R/100MHz 200mA
L715	VE-30001971	FERRITE	600R/100MHz 200mA
L716	VE-30001971	FERRITE	600R/100MHz 200mA
L717	VE-30001971	FERRITE	600R/100MHz 200mA
L718	VE-30024779	FERRITE	50R/100MHz 3A
L719	VE-30024779	FERRITE	50R/100MHz 3A
L721	VE-30024779	FERRITE	50R/100MHz 3A
L722	VE-30024779	FERRITE	50R/100MHz 3A
L723	VE-30001971	FERRITE	600R/100MHz 200mA
L724	VE-30013412	FERRITE	1.5K/100MHz 500 mA
L725	VE-30013412	FERRITE	1.5K/100MHz 500 mA
L726	VE-30001971	FERRITE	600R/100MHz 200mA
L727	VE-30001971	FERRITE	600R/100MHz 200mA
L728	VE-30001971	FERRITE	600R/100MHz 200mA
L734	VE-30001971	FERRITE	600R/100MHz 200mA
L800	VE-30018093	FIXED COIL	3.3uH J 185mA
L801	VE-30002170	FERRITE CORE	1A RAD
L802	VE-30020394	FERRITE	330R/100MHz 3A
L803	VE-30020394	FERRITE	330R/100MHz 3A
L900	VE-30002170	FERRITE CORE	1A RAD
L901	VE-30019475	FIXED COIL	47uH 2A RAD SH 14X16
L903	VE-30002170	FERRITE CORE	1A RAD
L904	VE-30019475	FIXED COIL	47uH 2A RAD SH 14X16
L906	VE-30001996	FIXED COIL	22uH Q40 K
L907	VE-30002170	FERRITE CORE	1A RAD
L908	VE-30019475	FIXED COIL	47uH 2A RAD SH 14X16
L910	VE-30002002	FIXED COIL	47uH Q60 K
L911	VE-30011450	FIXED COIL	22uH 5.4A 11.5*15.5

⚠Ref No.	Part No.	Part Name	Description Local
⚠F900	VE-30035282	FUSE	5A/32VDC
⚠F901	VE-30028331	FUSE	7A/32VDC 1206
JK100	VE-30001900	HEADPHONE JACK	HP01/2/3/4/5/6
JK101	VE-30001893	RCA JACK	1P YELLOW 28 FAV
JK102	VE-30001891	RCA JACK	1P WHITE 28 FAV
JK103	VE-30001892	RCA JACK	1P RED 28 FAV
JK104	VE-30001895	JACK	4P DIN TYPE FOR SVHS
JK700	VE-30001902	HEADPHONE JACK	STEREO WO/SW
JK901	VE-30027932	DC POWER SOCKET 7.5A	
PL1	VE-30041130	CNAS 5P/400 FLT W/C+FER UL2468AWG24	
PL2	VE-30040411	CNAS 4P/300 FLT W/C+FER UL2547AWG24	
PL100	VE-30030582	CONN MALE	6P MOLEX VERTICAL
PL100	VE-30041901	CNAS 1P/350 DIS W/TER	
PL101	VE-30032051	D SOCKET	D-SUB 15P FOR TFT
PL102	VE-30024732	CONN HEADER	12P 2.0mm TOP
PL300	VE-30025777	CONN HEADER	5P 2.5MM TOP BLK SD
PL301	VE-30017953	CONN MALE	5P SIDE WHITE
PL302	VE-30009477	CONN HEADER	4P 2.5MM SIDE WHT
PL306	VE-30021298	CONN MALE	12P MOLEX VERTICAL
PL700	VE-30018089	SOCET SCART BLACK TFT	
PL701	VE-30018089	SOCET SCART BLACK TFT	
PL702	VE-30021298	CONN MALE	12P MOLEX VERTICAL
PL703	VE-30001829	CONN HEADER	2P 2.5MM TOP WHT SD
PL704	VE-30015192	CONN HEADER	2P 2.5MM TOP YELLOW SD
PL707	VE-30030582	CONN MALE	6P MOLEX VERTICAL
PL800	VE-30018073	CONN HEA.	20P 1.25MM SIDE WHT SMT
PL803	VE-30030582	CONN MALE	6P MOLEX VERTICAL
S730	VE-30012695	RESISTOR	1/16W 470R J
SW5	VE-30002181	TACT SWITCH	
TU500	VE-30020654	TUNER WSP (PLL)	38.9 MK3 - HORIZONTAL
X100	VE-30017946	CLYSTAL	14.318 MHZ
X300	VE-30006662	CLYSTAL	6.000 20p HC49U
X400	VE-30008778	CLYSTAL	20.250 13p HC49U
X500	VE-30021113	CLYSTAL	4MHZ LOW PROFILE
X700	VE-30001756	CLYSTAL	18.432 12p HC49U
Z500	VE-30001692	SAW FILTER	OFWK3953M
Z501	VE-30012545	SAW FILTER	K9656M

PACKING



PACKING PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description	Local
	1	VE-50069394	CARTON BOX		LT-23B60SJ
	1	VE-50067931	CARTON BOX		LT-23B60SU
	2	VE-20178414	SNOW BOX (FRONT)		
	3	VE-20178413	SNOW BOX (BACK)		
	4	VE-30039453	REMOTE CONTROL UNIT	(RM-C1861)	
⚠	5	VE-30030071	AC ADAPTOR	DC24V 6A	
⚠	6	VE-30002375	POWER CORD	For AC ADAPTOR	LT-23B60SJ
⚠	6	VE-30002376	POWER CORD	For AC ADAPTOR	LT-23B60SU
⚠	7	VE-50069396	INST BOOK	[ENG]	LT-23B60SJ
⚠	7	VE-50066113	INST BOOK	[ENG/GER/FRA/ITA]	LT-23B60SU
⚠	7	VE-50066114	INST BOOK	[SWE/DAN/NOR/FIN]	LT-23B60SU
⚠	7	VE-50066115	INST BOOK	[POL/CZE/HUN]	LT-23B60SU
⚠	7	VE-50066116	INST BOOK	[SPA/POR/DUT]	LT-23B60SU
⚠	7	VE-50066117	INST BOOK	[BUL/RUS/ROM]	LT-23B60SU
	8	VE-50069397	WARRANTY CARD		LT-23B60SJ
	8	VE-50066120	WARRANTY CARD		LT-23B60SU
	9	----------	BATTERY	AA/R06 (x2)	
	10	VE-50018337	POLY BAG		

JVC

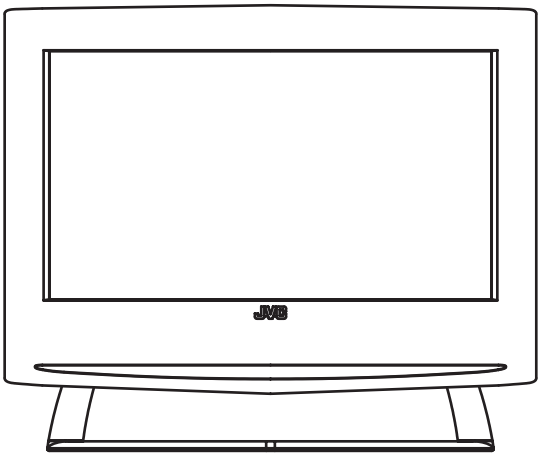
SCHEMATIC DIAGRAMS

WIDE LCD PANEL TELEVISION

LT-23B60SJ,
LT-23B60SU

CD-ROM No.SML200508

InteriArt



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No.YA305
2005/8

LT-23B60SJ, LT-23B60SU

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

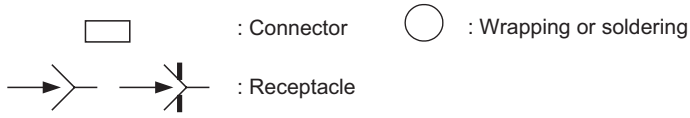
No unit	: [μH]
Others	: As specified

(4)Power Supply

∗ Respective voltage values are indicated

(5)Test point

(6)Connecting method



(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.

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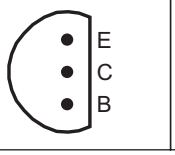
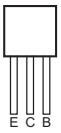
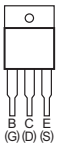
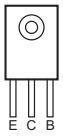
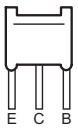
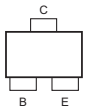
USING P.W. BOARD

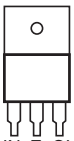
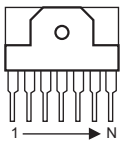
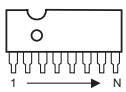
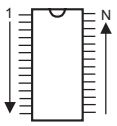
P.W.B ASS'Y name	LT-23B60SJ	LT-23B60SU
MAIN P.W. BOARD	VE-20202747	←
SIDE CONTROL P.W. BOARD	VE-20198956	←
AV JACK P.W. BOARD	VE-20214362	←
HEADPHONE JACK P.W. BOARD	VE-20177874	←
LED P.W. BOARD	VE-20198076	←

SEMICONDUCTOR SHAPES

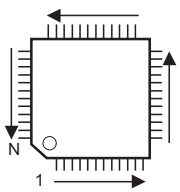
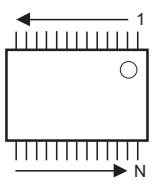
TRANSISTOR

BOTTOM VIEW	FRONT VIEW				TOP VIEW
					CHIP TR 

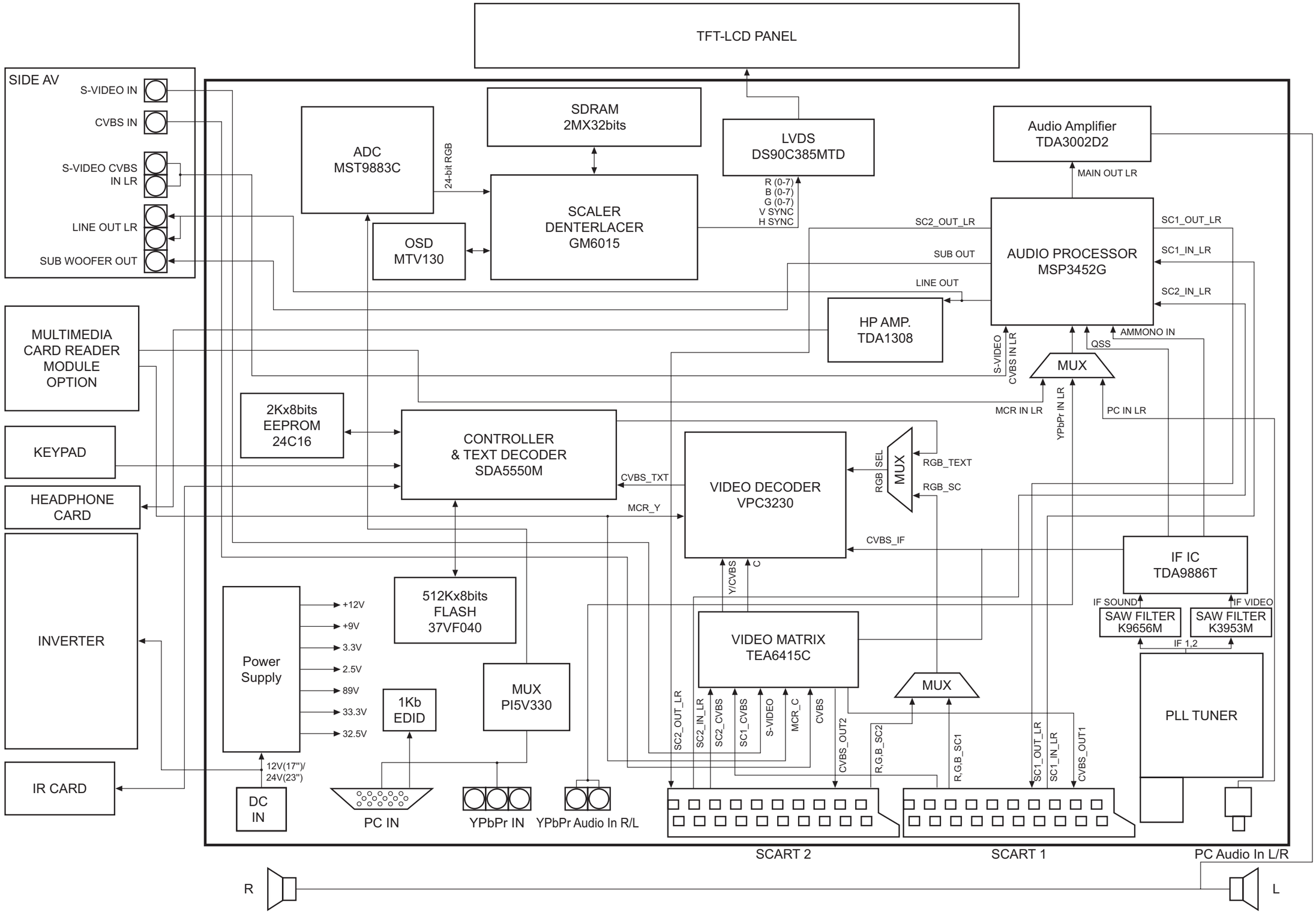
IC

BOTTOM VIEW	FRONT VIEW			TOP VIEW
				

CHIP IC

TOP VIEW		
		

BLOCK DIAGRAM

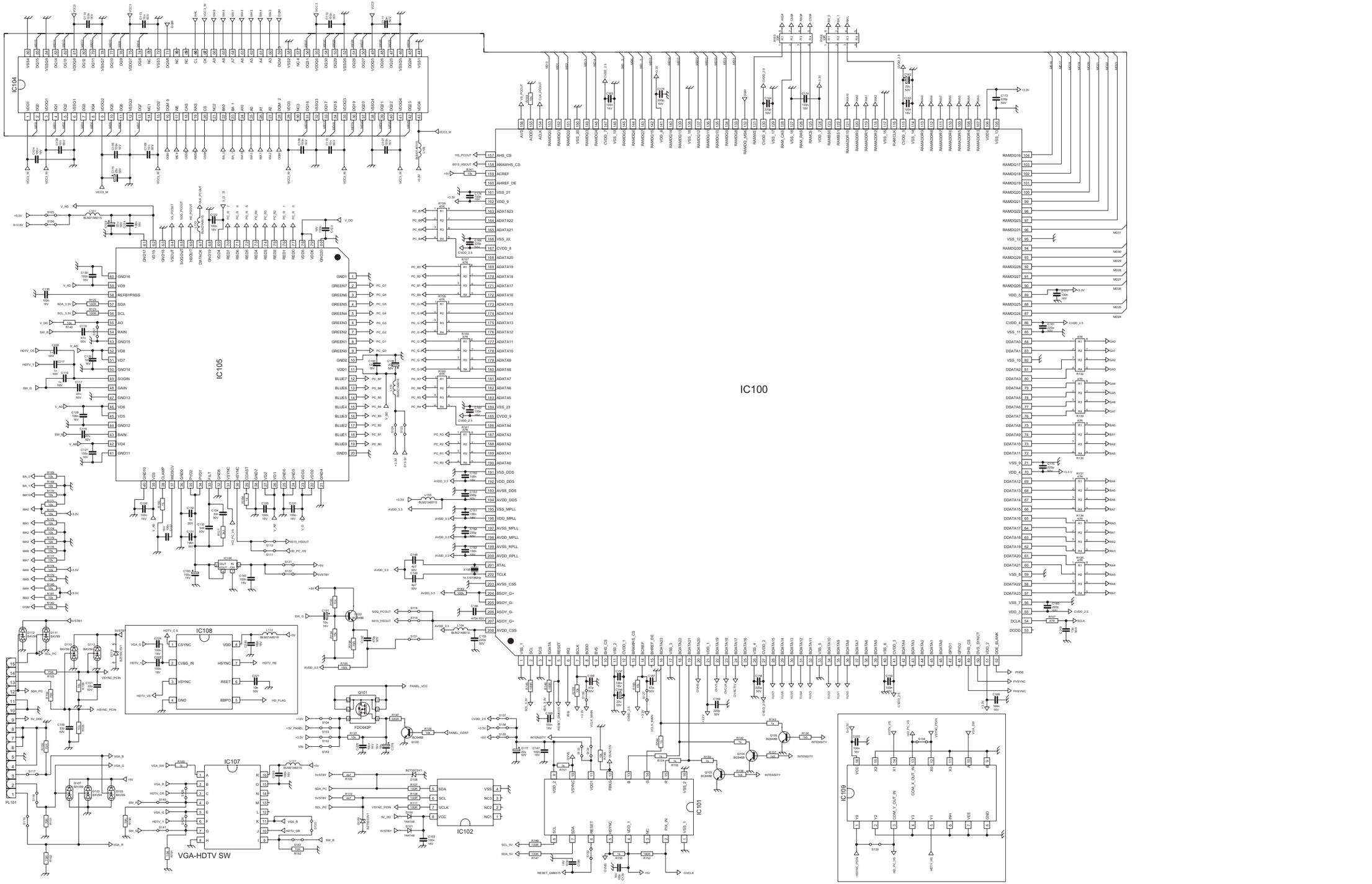


CIRCUIT DIAGRAMS

MAIN PWB CIRCUIT DIAGRAM (1/8)

MAIN PWB ASS'Y(1/8)

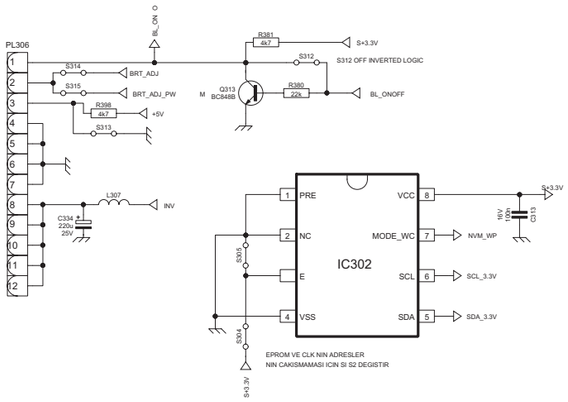
VE-20202747

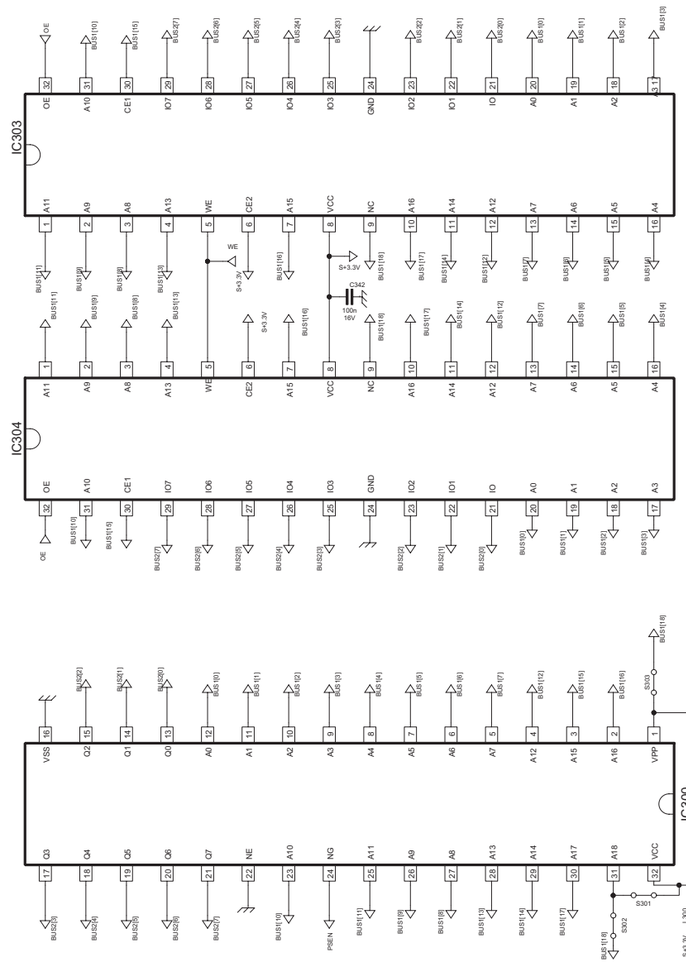


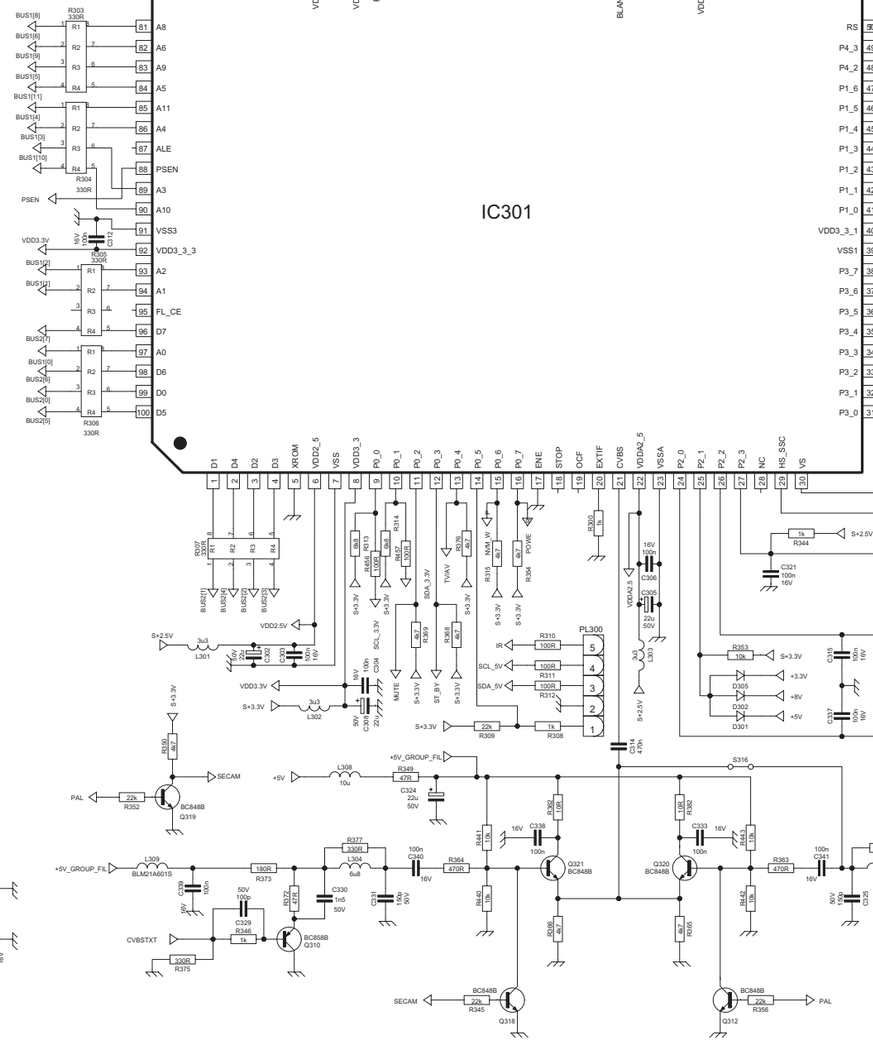
NOTE : Refer to the part list for the part number of IC301 and IC302.

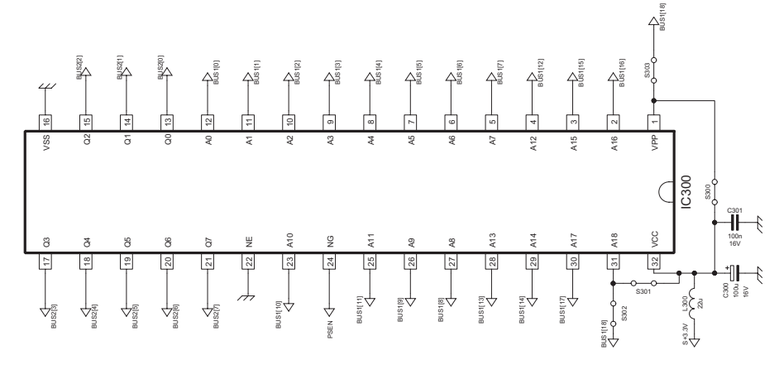
MAIN PWB ASS'Y(2/8)

VE-20202747



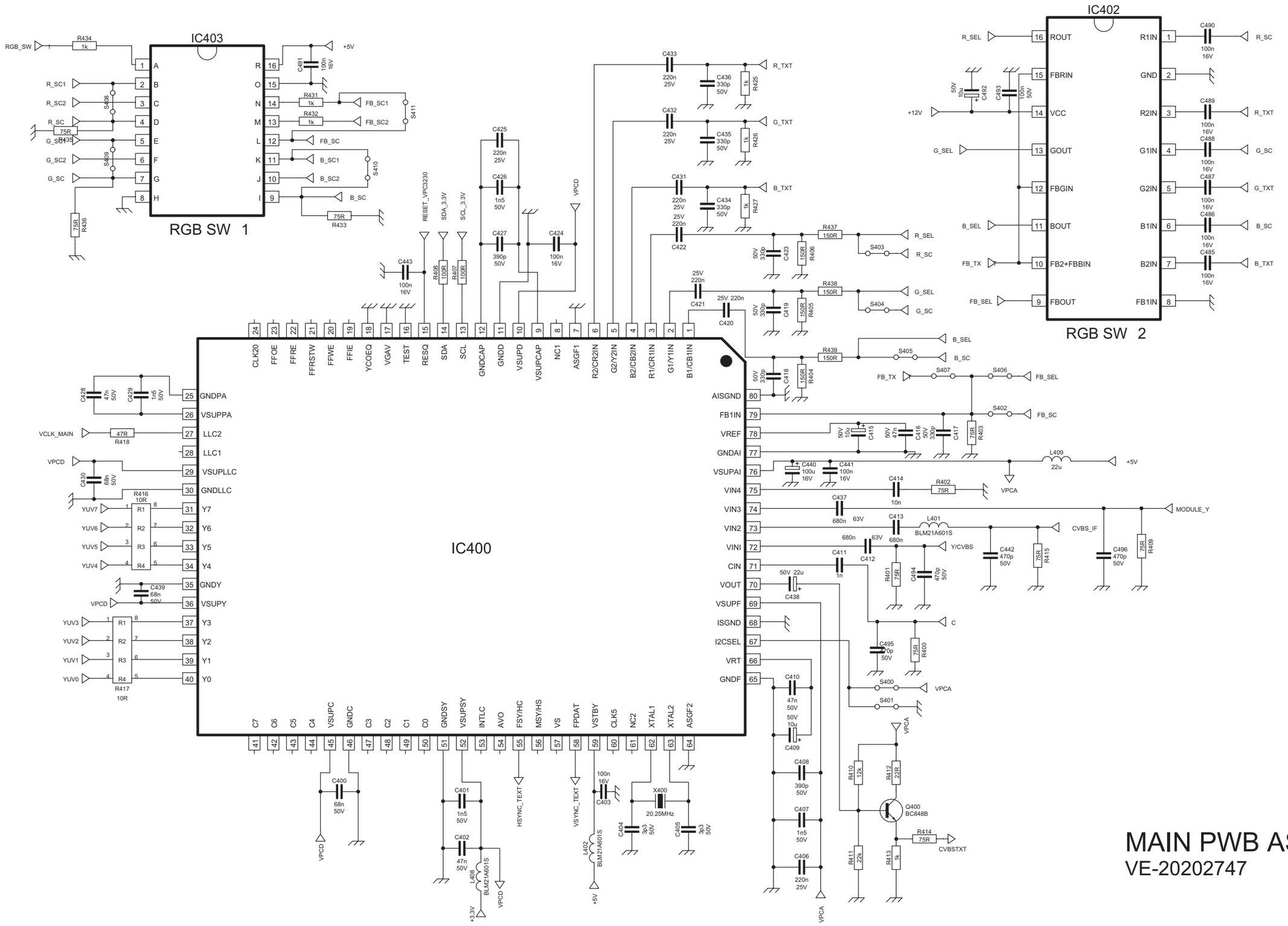






(No.YA305)2-7 2-8(No.YA305)

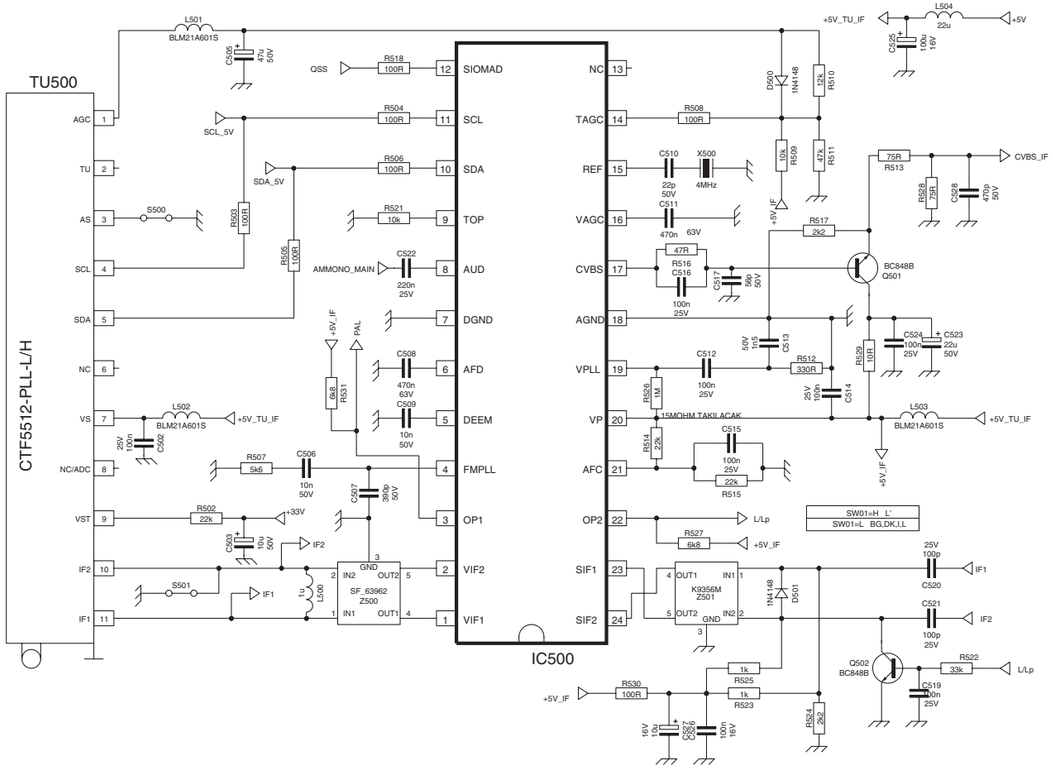
MAIN PWB CIRCUIT DIAGRAM (3/8)



MAIN PWB ASS'Y(3/8)

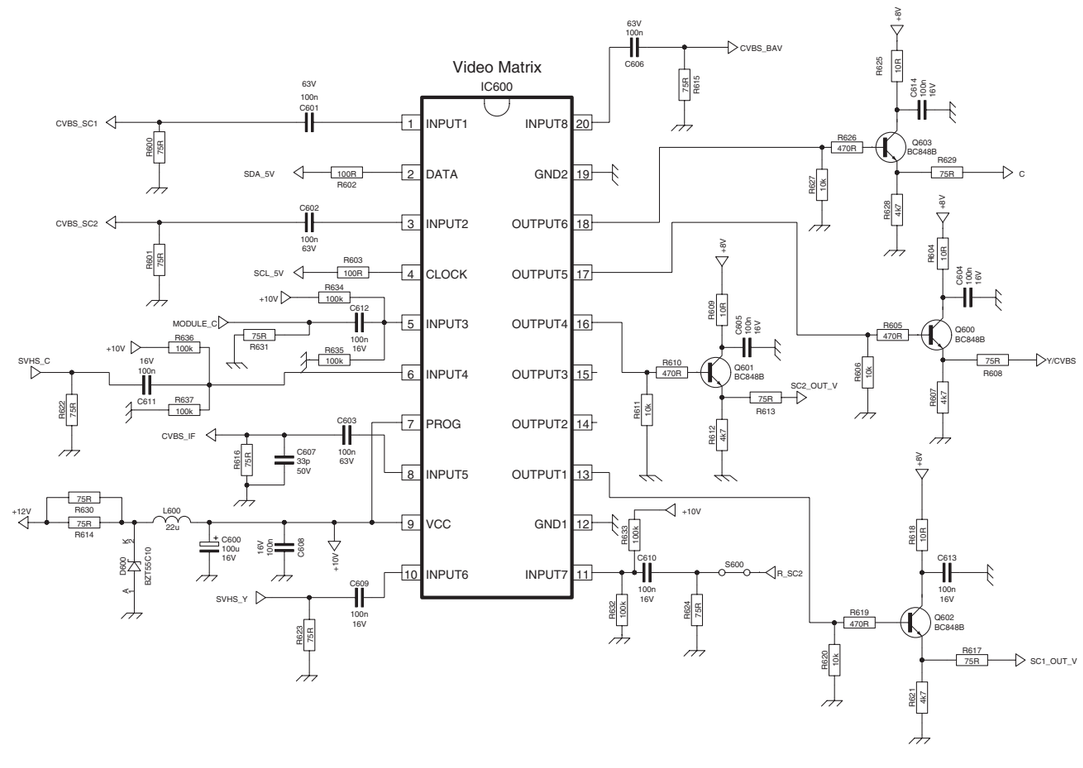
VE-20202747

MAIN PWB CIRCUIT DIAGRAM (4/8)



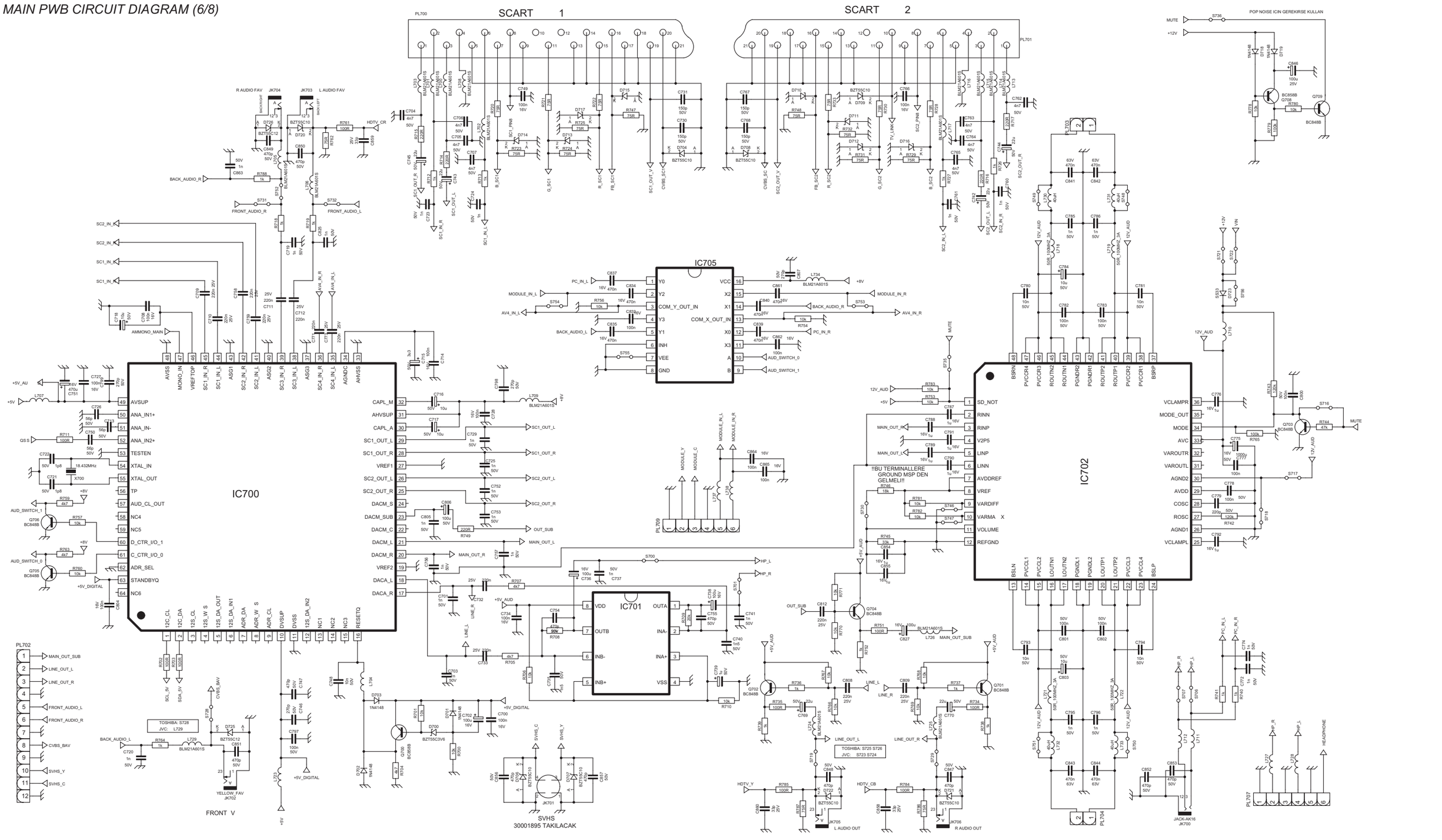
MAIN PWB ASS'Y(4/8)
VE-20202747

MAIN PWB CIRCUIT DIAGRAM (5/8)



MAIN PWB ASS'Y(5/8)
VE-20202747

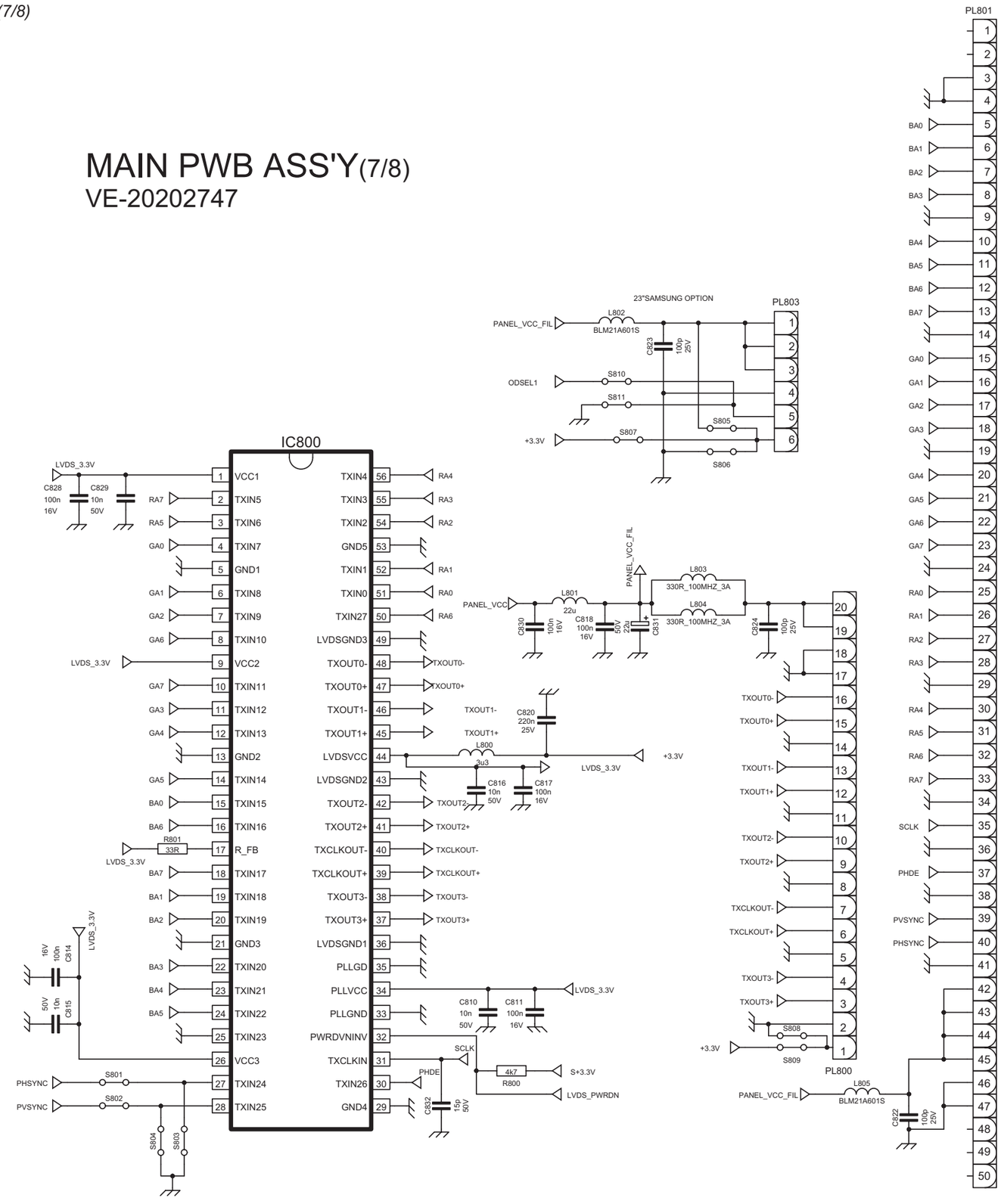
MAIN PWB CIRCUIT DIAGRAM (6/8)



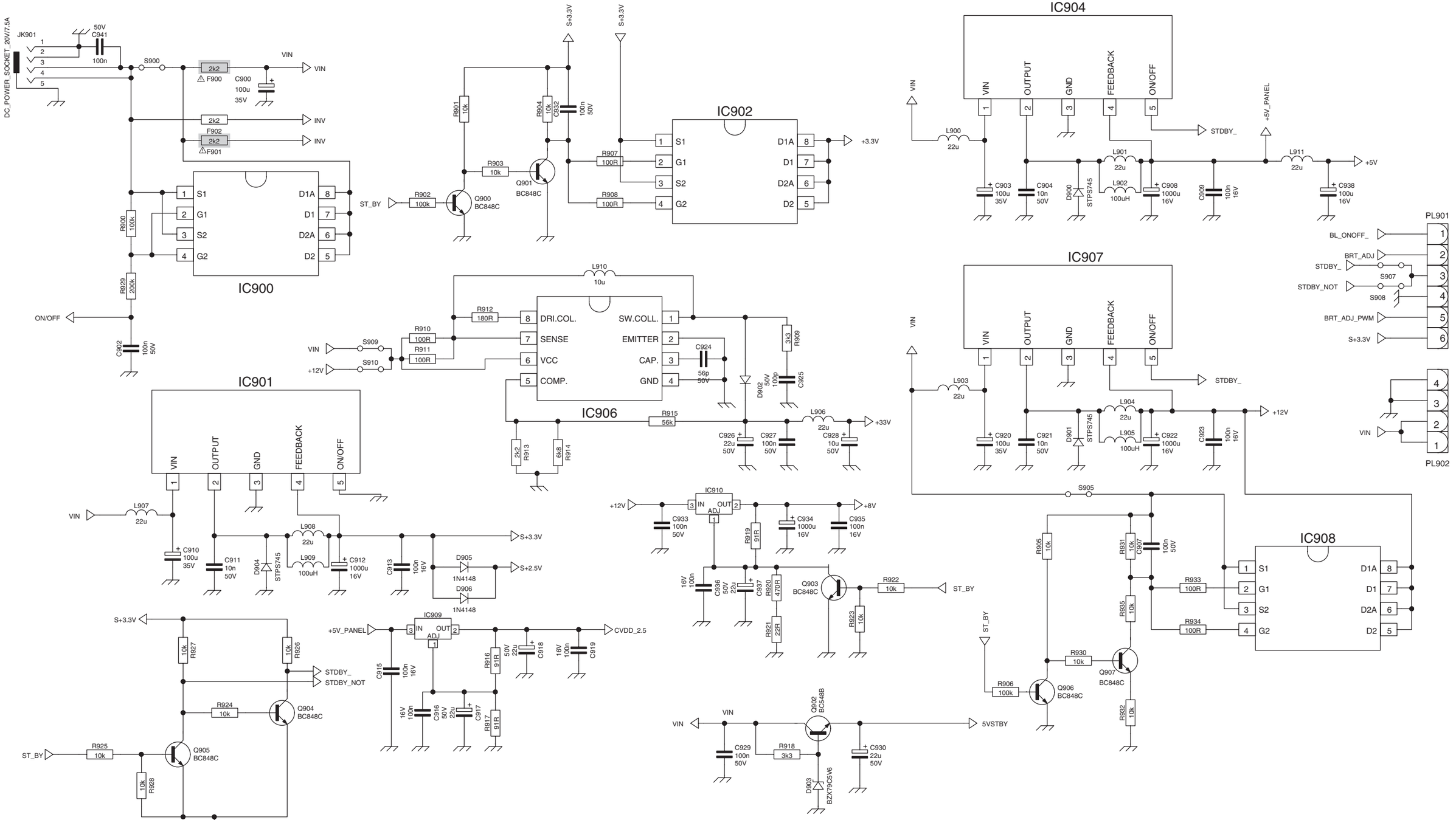
MAIN PWB ASS'Y(6/8)

VE-20202747

MAIN PWB ASS'Y(7/8)
VE-20202747



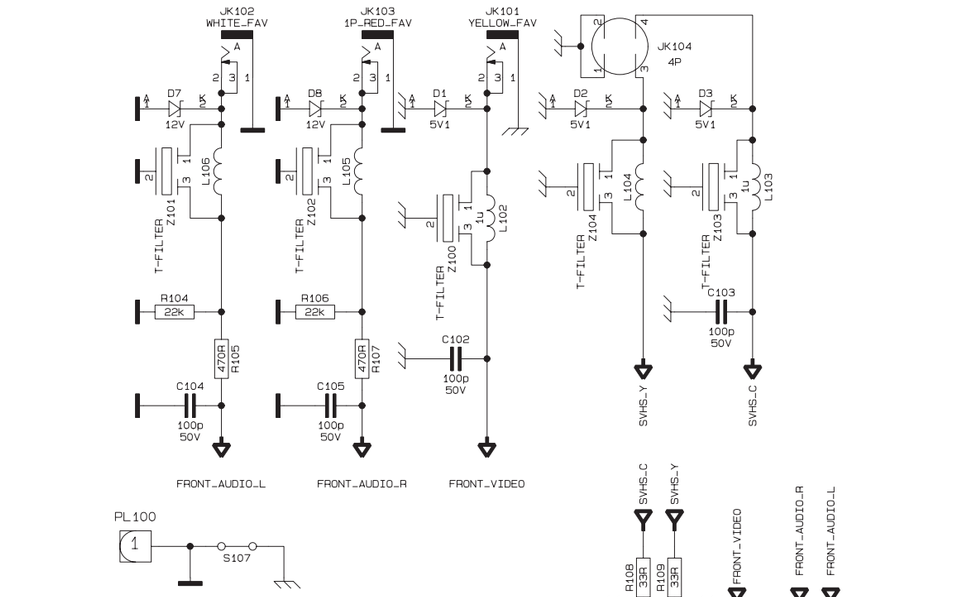
MAIN PWB CIRCUIT DIAGRAM (8/8)



MAIN PWB ASS'Y(8/8)

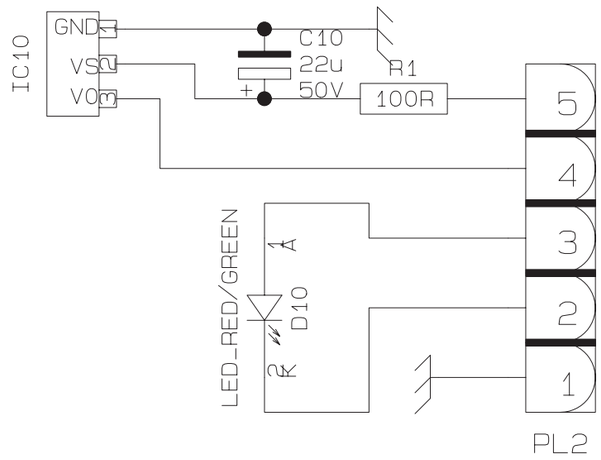
VE-20202747

AV JACK PWB CIRCUIT DIAGRAM



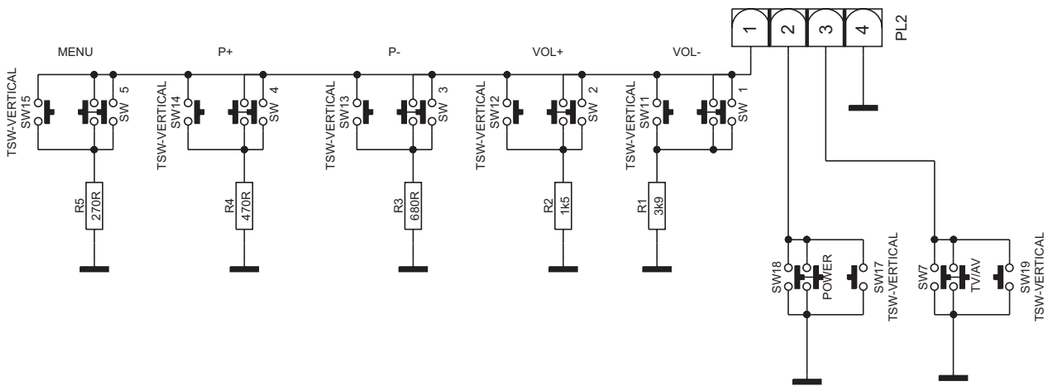
AV JACK PWB
VE-20214362

LED PWB CIRCUIT DIAGRAM



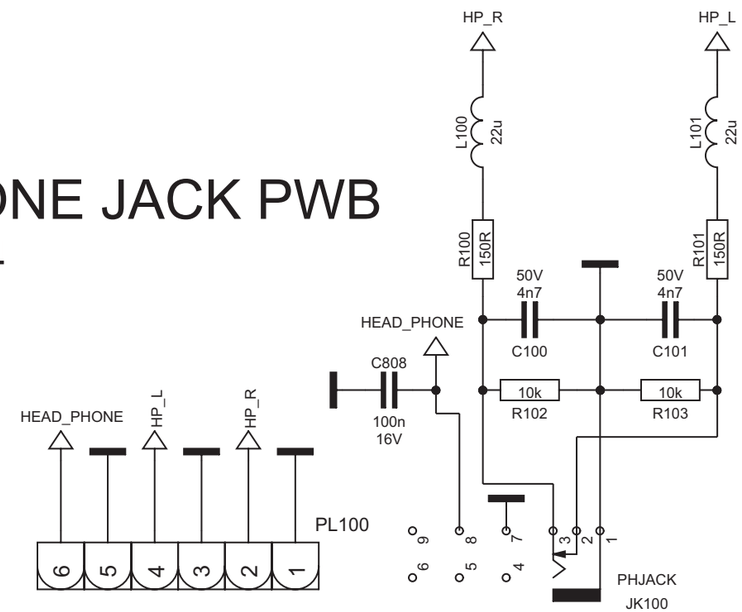
LED PWB
VE-20198076

SIDE CONTROL PWB CIRCUIT DIAGRAM



SIDE CONTROL PWB
VE-20198956

HEADPHONE JACK PWB CIRCUIT DIAGRAM

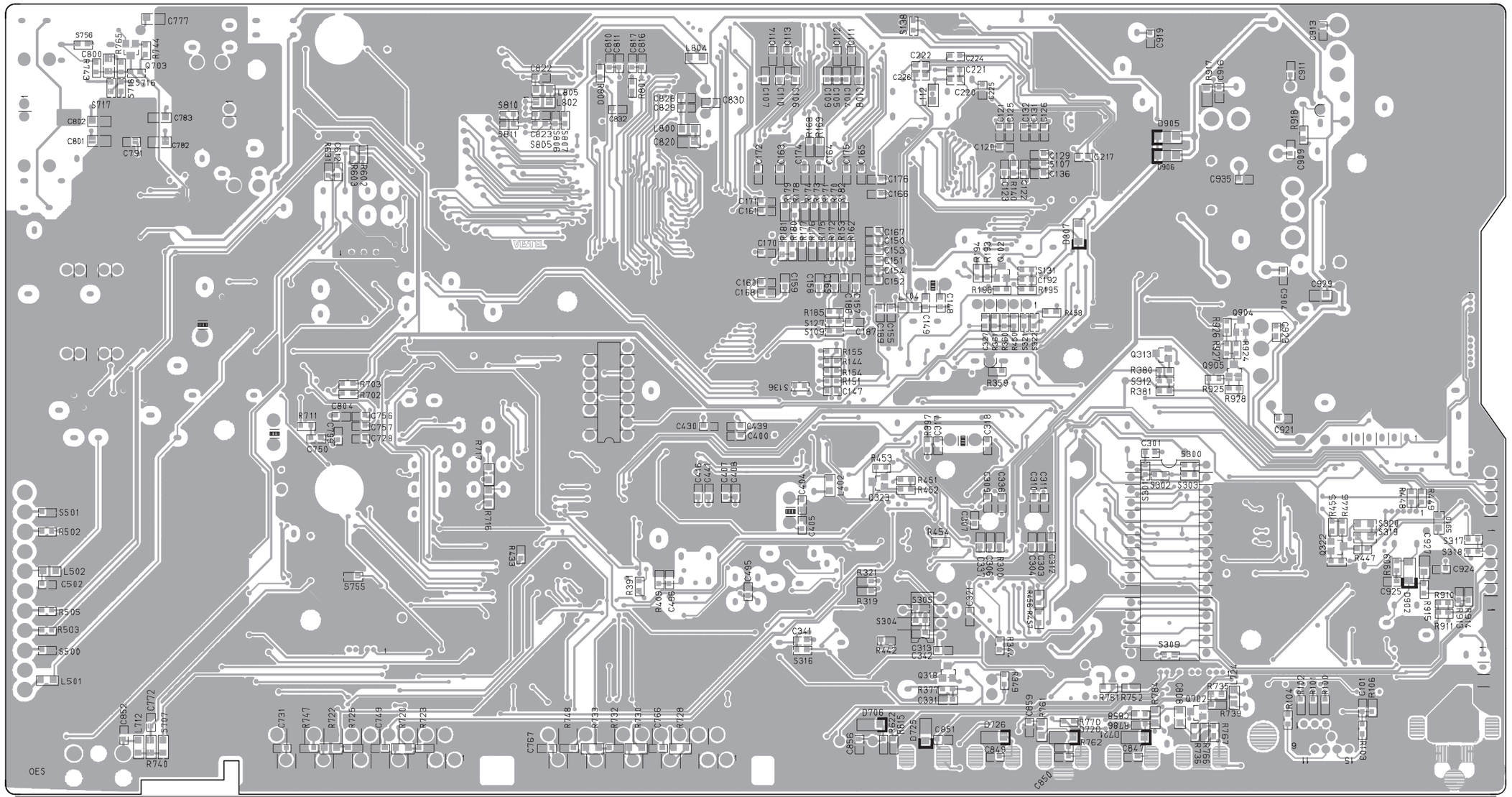


HEADPHONE JACK PWB
VE-20177874

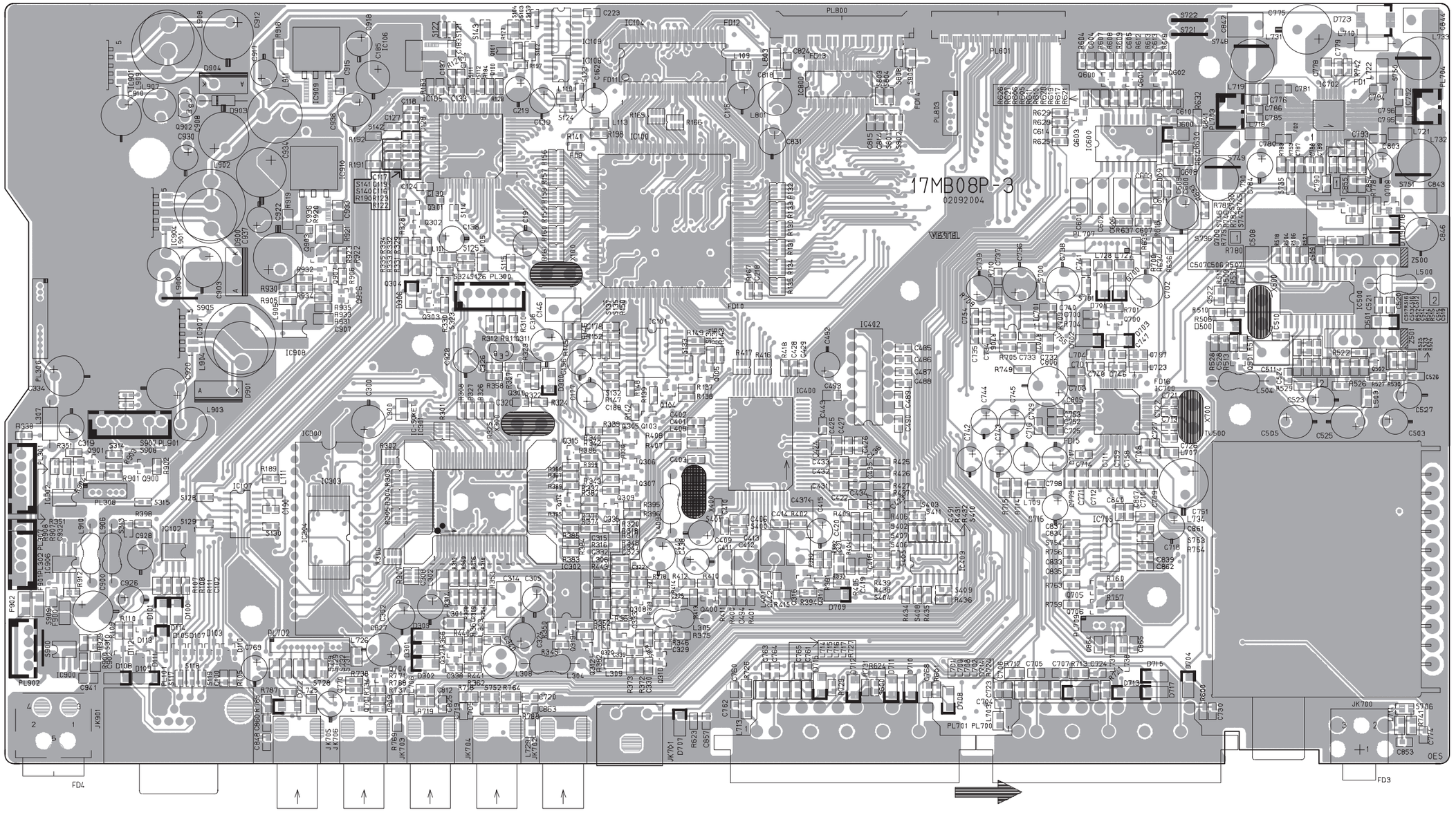
PATTERN DIAGRAMS

MAIN PWB PATTERN [SOLDER SIDE]

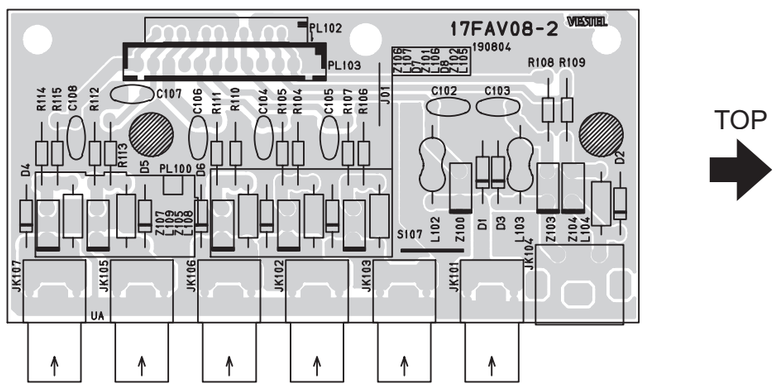
TOP



MAIN PWB PATTERN [PARTS SIDE]



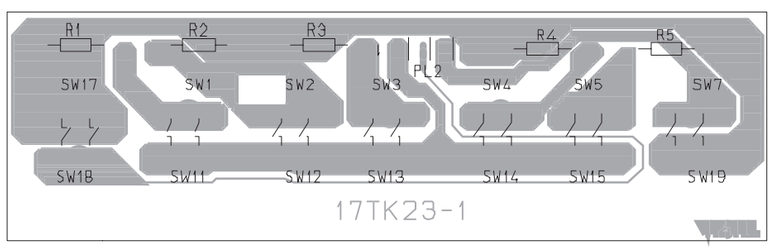
AV JACK PWB PATTERN [SOLDER SIDE]



TOP

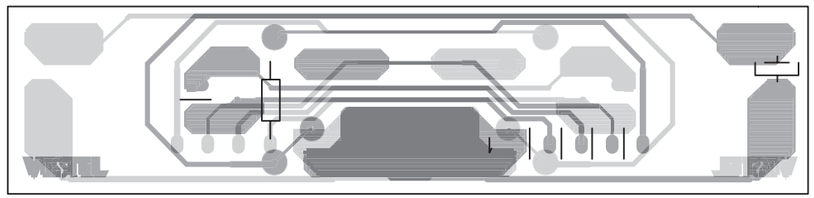
SIDE CONTEROL PWB PATTERN

FRONT

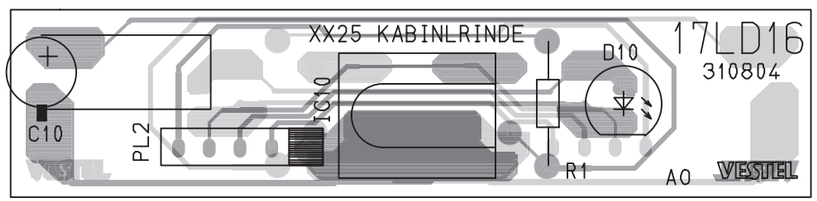


LED PWB PATTERN [SOLDER SIDE]

TOP

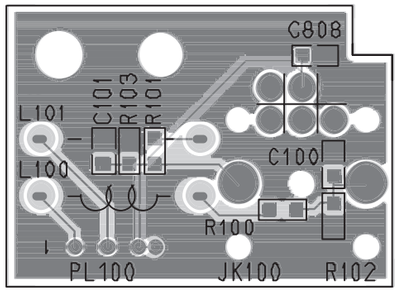


LED PWB PATTERN [PARTS SIDE]



TOP

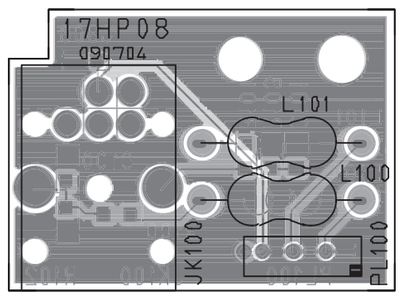
HEADPHONE JACK PWB PATTERN [SOLDER SIDE]



TOP

HEADPHONE JACK PWB PATTERN [PARTS SIDE]

TOP



JVC

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